



**Regulatory Reset for  
TARLAC ELECTRIC, INCORPORATED (TEI)**

**July 2010 to June 2014  
(Second Regulatory Period)**

**FINAL DETERMINATION**

**ERC Case No. 2009-042 RC**

**March 8, 2010**

**Republic of the Philippines  
Energy Regulatory Commission  
Pacific Center, San Miguel Ave., Pasig City**

**Regulatory Reset for Tarlac Electric, Inc. (TEI)**  
**July 2010 to June 2014**  
**(Second Regulatory Period)**

**FINAL DETERMINATION**

Pursuant to Section 43(f) of Republic Act No. 9136, otherwise known as the Electric Power Industry Reform Act of 2001 (EPIRA), and Rule 15, Section 5(a) of its Implementing Rules and Regulations (IRR), the Energy Regulatory Commission (ERC) promulgated the *Distribution Wheeling Rates Guidelines* on December 10, 2004. These were subsequently updated and re-issued on July 26, 2006 as the *Rules for Setting Distribution Wheeling Rates for Privately Owned Distribution Utilities entering Performance Based Regulation (Second Entry Point)*.

Under Section 7.1.2 of the DWRG and the subsequent RDWR, the ERC was required to publish a Regulatory Reset Issues Paper to provide its initial views on the issues to be discussed during the pending Regulatory Reset Process and to specify the information required to be delivered by each Regulated Entity for the purposes of the Regulatory Reset Process and the time by which such information should be delivered. The Regulatory Reset Issues Paper was published on September 5, 2008. Following public consultation on the Issues Paper, the ERC's final view on the Regulatory Reset Process was described in the Position Paper on the Regulatory Reset for the July 2010 to June 2014 Regulatory Period for the Third Entry Group of Privately Owned Distribution Utilities subject to Performance Based Regulation, published on December 8, 2008.

Annex B of ERC Resolution No. 12-02, Series of 2004 "Adopting a Methodology for Setting Distribution Wheeling Rates", dated December 10, 2004, defined five (5) entry points into PBR for privately owned Distribution Utilities. This was later amended to four (4) entry points by the ERC under Resolution 24, Series of 2007, dated October 24, 2007.

In accordance with the RDWR and the Position Paper, the six (6) Regulated Entities entering Performance Based Regulation (PBR) at the Third Entry Point, these being Cabanatuan Electric Corporation (CELCOR), Davao Light and Power Co., Inc. (DLPC), Ibaan Electric and Engineering Corporation (IEEC), La Union Electric Company (LUECO), Tarlac Electric Incorporated (TEI) and Visayan Electric Company (VECO), filed various information and data relating to the requirements for the Regulatory Reset Process on June 15, 2009.

Pursuant to Section 7.1.7 of the RDWR, after consideration of the information provided by the Regulated Entities and the reports prepared by its Regulatory Reset Experts, the ERC is required to publish a Draft Determination on the price control arrangements that will apply to the Regulated Entities for the Second Regulatory Period. This consultation document was published on November 25, 2009, seeking further submissions from interested parties. The closing date for submissions was on January 8, 2010. A public consultation to discuss the submissions on the Draft Determination was held in Tarlac City on January 26, 2010.

Following its consideration of the submission received, the discussions at the public consultation, and further evidence presented by TEI, the ERC has prepared its Final Determination of the price control arrangements that will apply to TEI for the Second Regulatory Period. These arrangements are discussed below.

## TABLE OF CONTENTS

<b>1. INTRODUCTION</b> .....	<b>4</b>
1.1 Legal Basis .....	4
1.2 Overview of the Reset Process .....	5
1.3 Purpose of the Final Determination .....	6
1.4 Rate Setting Process Going Forward .....	7
<b>2. FORECASTS OF ECONOMIC PARAMETERS</b> .....	<b>8</b>
2.1 Purpose of the Economic Forecasts .....	8
2.2 Consumer Price Index (Philippines): Utility Applications .....	8
2.3 Consumer Price Index – USA.....	11
2.4 Foreign Exchange Rate – Peso/US\$.....	13
2.5 ERC Final Decision – Forecast Economic Indices .....	14
<b>3. ENERGY FORECASTS</b> .....	<b>16</b>
3.1 General.....	16
3.2 Energy Consumption Forecast .....	16
3.3 ERC Final Decision on Consumption Forecast.....	19
3.4 Demand Forecasts.....	19
3.5 ERC Final Decision on Maximum Demand Forecasts .....	20
<b>4. CAPITAL EXPENDITURE FORECASTS</b> .....	<b>22</b>
4.1 Approach to capital expenditure forecasts.....	22
4.2 Purpose of the capital expenditure program .....	23
4.3 Capital expenditure program proposed by TEI .....	23
4.4 Analysis of TEI’s capital expenditure program – General .....	24
4.5 Analysis of TEI’s capital expenditure program – Significant projects .....	25
4.6 Analysis of TEI’s Residual Capital Expenditure Program.....	26
4.7 Review of material provided in TEI’s submission on the Draft Determination .....	27
4.8 Expenditure program proposed by GB Associates .....	27
4.9 ERC Final Determination on the Capital Expenditure Program.....	28
<b>5. OPERATING AND MAINTENANCE EXPENDITURE FORECASTS</b> .....	<b>30</b>
5.1 Approach to operating & maintenance expenditure forecasts.....	30
5.2 Purpose of the operating and maintenance expenditure program.....	31
5.3 Operating and maintenance expenditure proposed by TEI .....	31
5.4 Analysis of operating and maintenance expenditure - methodology .....	32
5.5 Analysis of the base operating and maintenance expenditure .....	33
5.6 Analysis of the OPEX Line items .....	33

5.7	Confirmation that the Base Year Cost Data is Efficient.....	35
5.8	Review of material provided in TEI’s submission on the Draft Determination .....	35
5.9	Expenditure program proposed by ERC .....	36
5.10	Inter Business Benchmarking.....	37
5.11	OPEX vs. Performance/Efficiency Benchmarking.....	38
5.12	ERC Final Determination on the Operating and Maintenance Expenditure.....	39
<b>6.</b>	<b>OTHER TAXES, LEVIES AND DUTIES .....</b>	<b>42</b>
6.1	Approach to other taxes, levies and duties expenditure forecasts .....	42
6.2	Purpose of the taxes, levies and duties expenditure.....	42
6.3	License fees, levies, duties and other taxes expenditure proposed by TEI.....	43
6.4	Analysis of license fees, levies, duties and other taxes expenditure.....	44
6.5	Final determination on license fees, levies, duties and other taxes.....	45
<b>7.</b>	<b>REGULATORY ASSET BASE .....</b>	<b>47</b>
7.1	Approach to the RAB.....	47
7.2	Opening valuation of the RAB .....	47
7.3	Final Determination on the opening value of the RAB .....	49
7.4	Regulatory depreciation .....	50
7.5	Final Determination – Rolled Forward asset base .....	50
7.6	Final Determination on Working Capital .....	51
<b>8.</b>	<b>WEIGHTED AVERAGE COST OF CAPITAL .....</b>	<b>53</b>
8.1	Purpose of the Regulatory WACC.....	53
8.2	Approach to the WACC .....	53
8.3	WACC Methodology.....	54
8.4	Final Determination – Regulatory WACC .....	55
<b>9.</b>	<b>ANALYSIS OF REVENUE REQUIREMENTS AND PRICE CAPS.....</b>	<b>57</b>
9.1	Approach to calculating the Maximum Average Price (MAP).....	57
9.2	Annual Revenue Requirement – TEI application .....	57
9.3	Annual Revenue Requirement – ERC Analysis .....	58
9.4	Final determination – Allowed revenue requirement.....	60
9.5	Final determination – Smoothed Maximum Average Price .....	61
9.6	Setting the P <sub>0</sub> -factor .....	66
9.7	Side constraints.....	67
9.8	Final Determination on the opening price and smoothing factor .....	67
<b>10.</b>	<b>PERFORMANCE INCENTIVE SCHEME .....</b>	<b>68</b>
10.1	Background to the Performance Incentive Scheme.....	68
10.2	Overview of the Price-linked Incentive Scheme.....	68

10.3	Overview of the Guaranteed Service Level Scheme.....	70
10.4	Information Disclosure Scheme.....	71
10.5	Price-linked Incentive Scheme proposed by TEI .....	71
10.6	Guaranteed Service Level Scheme proposed by TEI .....	73
10.7	Excluded Events .....	74
10.8	ERC’s Final Decision on the Price-linked Incentive Scheme .....	74
10.9	ERC Final Decision on the GSL Scheme .....	75
10.10	ERC Final Determination on Excluded Events .....	76
<b>APPENDIX A : APPROVED CAPITAL EXPENDITURE PROGRAM.....</b>		<b>78</b>
<b>APPENDIX B : APPROVED OPERATING &amp; MAINTENANCE EXPENDITURE.....</b>		<b>79</b>
<b>APPENDIX C : APPROVED LEVIES, DUTIES AND OTHER TAXES (OTHER THAN CORPORATE INCOME TAX) EXPENDITURE.....</b>		<b>80</b>

## 1. INTRODUCTION

### 1.1 Legal Basis

- 1.1.1 Section 43(f) of Republic Act No. 9136, otherwise known as the Electric Power Industry Reform Act of 2001 (EPIRA), and Rule 15, Section 5(a) of its Implementing Rules and Regulations (IRR), authorized the ERC to adopt alternative forms of internationally accepted rate-setting methodology. Pursuant to the aforementioned provisions of law, the ERC, after conducting public consultation, adopted on December 10, 2004 the *Distribution Wheeling Rates Guidelines* (DWRG). These were subsequently updated and after further public consultation re-issued on July 26, 2006 as the *Rules for Setting Distribution Wheeling Rates for Privately Owned Distribution Utilities entering Performance Based Regulation (First Entry Point)* (RDWR). The RDWR provides for a performance-based regulation (PBR) using a price cap to set the distribution wheeling rates to be charged by Distribution Utilities to its customers.
- 1.1.2 Annex B of ERC Resolution No. 12-02, Series of 2004 “Adopting a Methodology for Setting Distribution Wheeling Rates”, dated December 10, 2004, defined five (5) entry points into PBR. This was subsequently revised to four (4) entry points under ERC Resolution No. 24, Series of 2007, dated October 24, 2007. The ERC is currently publishing its Final Determinations for the Regulated Entities entering PBR at the Third Entry Point. This document relates specifically to the Final Determination for Tarlac Electric, Inc. (TEI). Similar documents are being published on the same date to describe the Final Determinations for the other Regulated Entities in the Third Entry Group, these being:
- a) Cabanatuan Electric Corporation (CELCOR);
  - b) Davao Light and Power Co., Inc. (DLPC)
  - c) Ibaan Electric and Engineering Corporation (IEEC);
  - d) La Union Electric Company (LUECO); and
  - e) Visayan Electric Company, Inc (VECO).

The Final Determination applies to the Second Regulatory Period for this entry group, which commences on July 1, 2010 and ends on June 30, 2014.<sup>1</sup>

- 1.1.3 Under Section 7.1.2 of the RDWR, the ERC is required to publish a Regulatory Reset Issues Paper to provide its initial views on the issues to be discussed during the pending Regulatory Reset Process and to specify the information required to be delivered by each Regulated Entity for the purposes of the Regulatory Reset Process and the time by which such information should be delivered. The Regulatory Reset Issues Paper (Issues Paper) was published on September 5, 2008. Following public consultation on the Issues Paper, the ERC’s final view on the Regulatory Reset Process was described in the Position Paper on the Regulatory Reset for the July 2010 to June 2014 Regulatory Period for the Third Entry Group of Privately Owned Distribution Utilities subject to Performance Based Regulation (Position Paper), published on December 8, 2008.
- 1.1.4 In the Position Paper, the process to be undertaken and the timetable for the regulatory reset for the Second Regulatory Period were set forth as follows:
- a) June 15, 2009 : Regulated Entities to file rate applications.
  - b) July to September 2009 : ERC to conduct expository and evidentiary hearings on the applications.

---

<sup>1</sup> Note that there was no First Regulatory Period for this entry group.

- c) November 20, 2009 : ERC to publish its Draft Determination on the applications and price settings, for consultation.
- d) January 8, 2010 : Submissions on draft determination close.
- e) January to February 2010 : ERC to conduct public consultation and evidentiary hearings.
- f) March 10, 2010 : ERC to issue the Final Determination on the Regulated Entities' applications and the price settings for the Second Regulatory Period.

## **1.2 Overview of the Reset Process**

- 1.2.1 The Reset Process for the Third Entry Group's Second Regulatory Period (January 1, 2009 until June 30, 2010) commenced with the ERC's issuance of the Issues Paper on September 5, 2008 and the subsequent publication of the Position Paper on December 8, 2008.
- 1.2.2 In compliance with the Position Paper, the Regulated Entities filed their applications for approval of the allowed revenue and performance incentive schemes (Revenue Applications) for the Second Regulatory Period on June 15, 2009. Following the receipt of these applications, the ERC conducted the following hearings and consultation processes:
  - a) June 22, 2009 : ERC issued Order setting the venue and date of initial hearing
  - b) June 29, 2009 : First publication of the applications by the Regulated Entities
  - c) July 6, 2009 : Second publication of the applications by the Regulated Entities
  - d) July 21, 2009 : DLPC and VECO jurisdictional hearings
  - e) July 23, 2009 : CELCOR and LUECO jurisdictional hearings
  - f) July 24, 2009 : TEI jurisdictional hearing
  - g) August 5, 2009 : DLPC clarificatory meeting
  - h) August 6, 2009 : DLPC evidentiary hearing
  - i) August 12, 2009 : VECO clarificatory meeting
  - j) August 13-14, 2009: VECO evidentiary hearing
  - k) August 17, 2009 : TEI clarificatory meeting
  - l) August 18, 2009 : TEI evidentiary hearing
  - m) August 19, 2009 : LUECO evidentiary hearing
  - n) August 20, 2009 : LUECO clarificatory meeting
  - o) August 25, 2009 : IEEC jurisdictional meeting
  - p) August 26, 2009 : CELCOR clarificatory meeting
  - q) August 27, 2009 : CELCOR evidentiary hearing
  - r) August 28, 2009 : IEEC clarificatory meeting
  - s) September 1, 2009 : Follow-up clarificatory meeting with DLPC
  - t) September 2, 2009 : Follow-up clarificatory meeting with VECO
  - u) September 8, 2009 : IEEC evidentiary hearing

Provision was also made for hearings during August and September where parties of record to the Revenue Application cases could present counter-evidence. However, no such evidence was filed and the hearings were therefore not required.

- 1.2.3 During these hearings, the ERC informed all interested parties of the procedures and timelines pertaining to the Regulatory Reset Process. The Regulated Entities had opportunity to present witnesses to support their revenue and performance incentive scheme applications and to answer questions in this regard from parties of record and the ERC.
- 1.2.4 As noted in Paragraph 1.2.2, additional provision was made for clarificatory meetings with each of the Regulated Entities. The purpose of these meetings was to allow the ERC's staff and Regulatory Reset Experts to present detailed questions and discuss details of their applications with technical and administrative staff of the Regulated Entities in a less formal environment (than evidentiary hearings). All parties of record were invited to observe these meetings. All information gathered during and subsequent to these meetings (as a result of requests for additional information made during the meetings) that were considered by the Reset Experts and the ERC in preparing this Final Determination were formally offered as supplementary evidences to the applications.
- 1.2.5 Following the hearings and analysis of the application and evidences presented by TEI and after considering the recommendations of the ERC's Regulatory Reset Experts, the ERC has concluded a final position on the price caps and price path that should apply to TEI for the Second Regulatory Period. This position is described in this Final Determination.
- 1.2.6 Submissions were invited from interested parties to comment on the TEI Draft Determination, with the closing date of submissions on January 8, 2010. At the closing date, submissions were received from TEI. A public consultation was held in Tarlac City on January 26, 2010 at which the parties of record were given opportunity to present and discuss their submissions on the Draft Determination. Other interested parties were also given opportunities to provide oral inputs at the public consultation.
- 1.2.7 Subsequent to the public consultation, several questions for further clarification were submitted to TEI on its submission (ERC Order dated January 20, 2010). TEI responded on February 5, 2010 to these questions.
- 1.2.8 The ERC evaluated all the submissions received that were relevant to the Draft Determination, as well as the additional information provided by TEI and is now issuing a Final Determination on the price-control arrangements for TEI for the Second Regulatory Period.

### **1.3 Purpose of the Final Determination**

- 1.3.1 The Final Determination embodies the ERC's final position on the price control arrangements that will apply to TEI for the Second Regulatory Period. It describes the ERC's final evaluation of TEI's revenue and performance incentive scheme application, as well as the evidence presented in support thereof during the clarificatory meetings and evidentiary hearings, the submissions received on the ERC's Draft Determination and subsequent further information provided.
- 1.3.2 The Final Determination is the final resolution of TEI's applications. It presents the ERC's final decision on the price control arrangements that will apply to TEI for the Second Regulatory Period and will form the basis on which TEI will prepare and submit its distribution rate applications for the Second Regulatory Period.

## **1.4 Rate Setting Process Going Forward**

- 1.4.1 Each Regulated Entity is required to convert the maximum average price (MAP) set in terms of the ERC's Final Determination into a distribution rate structure. This rate structure is to be filed with the ERC by April 12, 2010.
- 1.4.2 The ERC will invite public submissions on these rate filings and will conduct public hearings on May 13-21, 2010 at which the submissions will be addressed.
- 1.4.3 Public hearings will be held at the following places, on the respective dates:
- Cebu City : May 13-14, 2010
  - Cabanatuan City : May 13-14, 2010
  - Tarlac City : May 18-19, 2010
  - San Fernando City : May 20-21, 2010
  - Davao City : May 20-21, 2010
  - Ibaan, Batangas : May 18-19, 2010
- 1.4.4 At the hearings, further information may be requested by the ERC. After consideration of the rate filings, submissions received and any further information obtained, the ERC will publish the final approved rate structures on May 31, 2010. The Regulated Entities will communicate these structures to their customers for a four-week period prior to July 30, 2010.
- 1.4.5 The new rate structures will be implemented from July 1, 2010. This is the scheduled start of the Second Regulatory Period (July 1, 2010) and any resulting under-or over-recovery in revenue will be reflected in the correction factor at the next rate application, for implementation in July 2011.

(This space is left intentionally blank)

## **2. FORECASTS OF ECONOMIC PARAMETERS**

### **2.1 Purpose of the Economic Forecasts**

- 2.1.1 The economic forecasts are important inputs into the determination of the annual revenue requirement and the resulting maximum average price-caps (MAP) for TEI's Second Regulatory Period. In particular, this section describes the ERC's view on the expected consumer price index (CPI) in the Philippines and the United States of America over the Second Regulatory Period, as well as the forecast Philippine Peso (PhP) and US dollar (US\$) exchange rates.<sup>2</sup>
- 2.1.2 This chapter discusses the macroeconomic forecasts available for the Philippines from a number of independent sources. The information from these sources is compared with the economic forecasts submitted by TEI in its Revenue Application in order to assess whether these forecasts are reasonable to apply during the Second Regulatory Period, or whether they need to be adopted.
- 2.1.3 It should be noted that as stated in Section 3.1.4 of the Position Paper, the ERC has decided to adopt a single set of economic forecasts for all the Regulated Entities making up the Third Entry Group. The economic forecasts submitted by the other Regulated Entities in their Revenue Applications are therefore also referred to in this chapter.
- 2.1.4 No further submissions were received on alternative economic parameters to those suggested in the Draft Determination. Since the Regulated Entities were not asked to resubmit economic data and this Final Determination is published well after the Revenue Applications were lodged, the originally submitted economic indices, as well as the references used in the Draft Determination are now somewhat outdated. The ERC has therefore obtained updated economic data which is compared against that originally submitted and discussed in the Draft Determination.

### **2.2 Consumer Price Index (Philippines): Utility Applications**

- 2.2.1 The Philippines CPI forecast is important to the regulatory reset as this is a prime driver for most operating and maintenance expenditure forecasts over the Second Regulatory Period, as well as for a large part of the forecasts in capital expenditure.
- 2.2.2 These expenditure forecasts have been included in the Regulated Entities' revenue forecasts (discussed in Sections 4, 5 and 6), which are in turn considered in determining the smoothing factor (X-factor) for each Regulated Entity (see the analysis in Section 8.1). The latter calculations also take the forecast Philippines inflation directly into account. Once the X-factor is determined, the projected Smoothed Maximum Average Price caps (SMAPs) and the opening Maximum Average Price-cap (MAP) for the Second Regulatory Period can be established, based on the opening price and the forecast inflation rate, adapted with the X-factor.
- 2.2.3 During the course of the Second Regulatory Period, the X-factor will be used with the actual CPI outcomes experienced in the Philippines during each year to determine the actual price path (as opposed to the initial projection of the MAP at the reset).

---

<sup>2</sup> The RDWR makes provision for local and international expenditure, using the US\$ as the proxy amount for international expenditure. All expenditure in other denominations therefore has to be converted into US dollar amounts.

- 2.2.4 In its application, TEI proposed forecasts for the Philippines CPI that correspond to those published by the Economist Intelligence Unit (EIU) in April 2009<sup>3</sup>, converted to regulatory years. Since this data set only provides forecasts until 2013, it was assumed that the 2013 figures also apply in 2014.
- 2.2.5 This approach was also adopted by the other five (5) Regulated Entities in the Third Entry Group.
- 2.2.6 The forecasts used by the Third Entry Group as provided by the Regulated Entities in the Third Entry Group are presented in Table 2.1 and Figure 2.1 below. These are also compared with the inflation forecasts of the ERC in its final determination on the price-control arrangements for the First and Second Entry Groups and updated figures from EIU. Since the regulatory years run from July 1 to June 30, the annual CPI figures have been converted to these periods.<sup>4</sup>
- 2.2.7 For the Draft Determination, indices published in October 2009 by the EIU were used. These have now been updated with the latest available (February 2010) indices which are also included in the comparison. It will be noted that the latest local inflation forecasts are substantially higher than those published by the EIU in October 2009, or most of the other information sources available at the time of the Revenue Application.<sup>5</sup>
- 2.2.8 The EIU figures used in Table 2.1 are more recent than those obtained from other sources and therefore better takes into account the substantial recent increases experienced in the Philippines CPI.
- 2.2.9 Since the regulatory years run from July 1 to June 30, the annual CPI figures have been converted to these periods.<sup>6</sup> In addition, all inflation forecasts were restated from a common regulatory year basis.

---

<sup>3</sup> These indices were communicated to TEI by the ERC as part of pro forma documentation for filing the Revenue Application, but there was no obligation on any Regulated Entity to apply the figures.

<sup>4</sup> This was done by forecasting inflation on a quarterly basis, using two quarters from each calendar year making up a regulatory year. Quarterly forecasts were derived from the annual calendar year forecast.

<sup>5</sup> The 2008 figure remained unchanged in the new EIU forecast. This reflects the fact that Regulatory Year figures are reported here, for the period July 2010 to June 2011.

<sup>6</sup> This was simply done by calculating a weighted average of the calendar year figures, where the weighting is in accordance to the proportion of the regulatory year that overlaps with the calendar year.

**Table 2.1 : Various Philippines CPI Movement Forecasts**

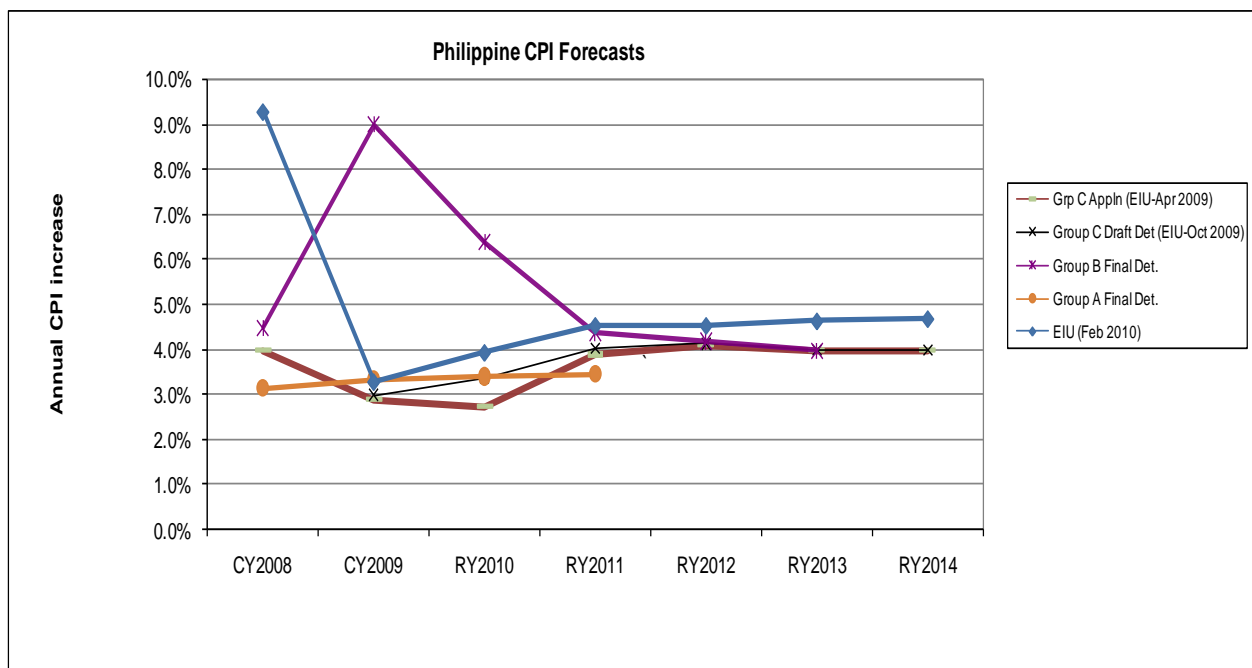
	CY2008	CY2009	RY2010	RY2011	RY2012	RY2013	RY2014
CELCOR	4.0%	2.9%	2.7%	3.9%	4.1%	4.0%	4.0%
DLPC	4.0%	2.9%	2.7%	3.9%	4.1%	4.0%	4.0%
IIEC	4.0%	2.9%	2.7%	3.9%	4.1%	4.0%	4.0%
LUECO	4.0%	2.9%	2.7%	3.9%	4.1%	4.0%	4.0%
TEI	4.0%	2.9%	2.7%	3.9%	4.1%	4.0%	4.0%
VECO	4.0%	2.9%	2.7%	3.9%	4.1%	4.0%	4.0%
EIU (Feb 2010)	9.3%	3.3%	4.0%	4.6%	4.6%	4.7%	4.7%
Draft Det (EIU- Oct 2009)	4.0%	3.5%	3.4%	4.0%	4.1%	4.0%	4.0%
Group A Final Det.	3.2%	3.4%	3.4%	3.5%	4.4%	4.4%	
Group B Final Det.	4.5%	9.0%	6.4%	4.4%	4.2%	4.0%	

Source : Economist Intelligence Unit (Feb 2010)  
ERC Draft Determination for Third Group Entrants (EIU-Oct 2009)  
ERC Final Determination for First Group Entrants  
ERC Final Determination for Second Group Entrants

Note : Data for 2008 calendar year based on actual indices

2.2.10 While the CPI forecasts range across a considerable band, reflecting the uncertainty that exists in forecasting such economic indices, this is not considered a material problem in terms of the impact on the price setting. The CPI forecast is taken into account in both sides of the equation for the calculation of the X-factor<sup>7</sup> – indirectly in the case of the annual revenue requirement. The revenue requirement is calculated in nominal terms, and takes into account the same inflation forecast for future expenditure. As long as the economic indicators are consistently applied, the impact of choosing a lower or higher CPI (within the indicated range) on the calculated X-factor is therefore low.

**Figure 2.1 : Comparison of Philippine CPI Forecasts (Regulatory Years)**



<sup>7</sup> Section 4.15.3 of the RDWR

2.2.11 In addition, the actual annual price caps will be based on the actual CPI for each regulatory year and discrepancies between the forecast and actual figures will therefore not impact on future price settings.

## 2.3 Consumer Price Index – USA

2.3.1 Capital investment in distribution networks generally involves substantial overseas purchases. The RDWR recognizes this and uses the United States dollar as proxy for all foreign purchases.<sup>8</sup> Movements in the US CPI therefore have a significant bearing on the forecast expenditure of Regulated Entities for the Second Regulatory Period.

2.3.2 To recognize the parity relationship between international rates of inflation, interest rates and exchange rates, it is important to adopt a consistent approach (with that used for the local CPI forecast) to selecting the US CPI forecasts. As with the local CPI forecasts, if this consistency is maintained, differences between forecasts for the US CPI, as long as these are within reasonable bounds, should not have a material impact on the calculation of the X-factor.

2.3.3 In addition, the calculation of the weighted index that is used to determine the annual MAP<sup>9</sup> also takes into account movements in the US CPI – if these exceeds a certain threshold limit.

2.3.4 In its application, TEI proposed forecasts for the USA CPI that corresponds to those published by the Economist Intelligence Unit (EIU) in April 2009<sup>10</sup>, converted to regulatory years. Since this data set only provides forecasts until 2013, it was assumed that the 2013 figures also apply in 2014.

2.3.5 This approach was also adopted by the other five (5) Regulated Entities in the Third Entry Group.

2.3.6 The forecasts proposed by the six (6) Regulated Entities in the Third Entry Group are presented in Table 2.2 and Figure 2.2 below. This is also compared with the inflation forecasts of the ERC in its final determination on the price-control arrangements for the First and Second Entry Groups as well as updated figures from the EIU. The ERC consulted the National Economic Development Authority (NEDA), but forecasts were not available from them. Since the regulatory years run from July 1 to June 30, the annual CPI figures have been converted to these periods.<sup>11</sup> In addition, all inflation forecasts were converted from a common regulatory year basis.

2.3.7 The EIU forecast of the US CPI has increased somewhat since the publication of the Draft Determination, as indicated in Figure 2.2.

---

<sup>8</sup> This does not imply that all foreign purchases will be made in the US, but that foreign purchases should be converted to US dollar terms for the purpose of assessing international CPI and exchange rate movements.

<sup>9</sup> Sections 4.2.1 and 3.3 of the RDWR

<sup>10</sup> Supra note 3

<sup>11</sup> This was done similarly to the conversion of the Philippines CPI forecasts. (See note 4).

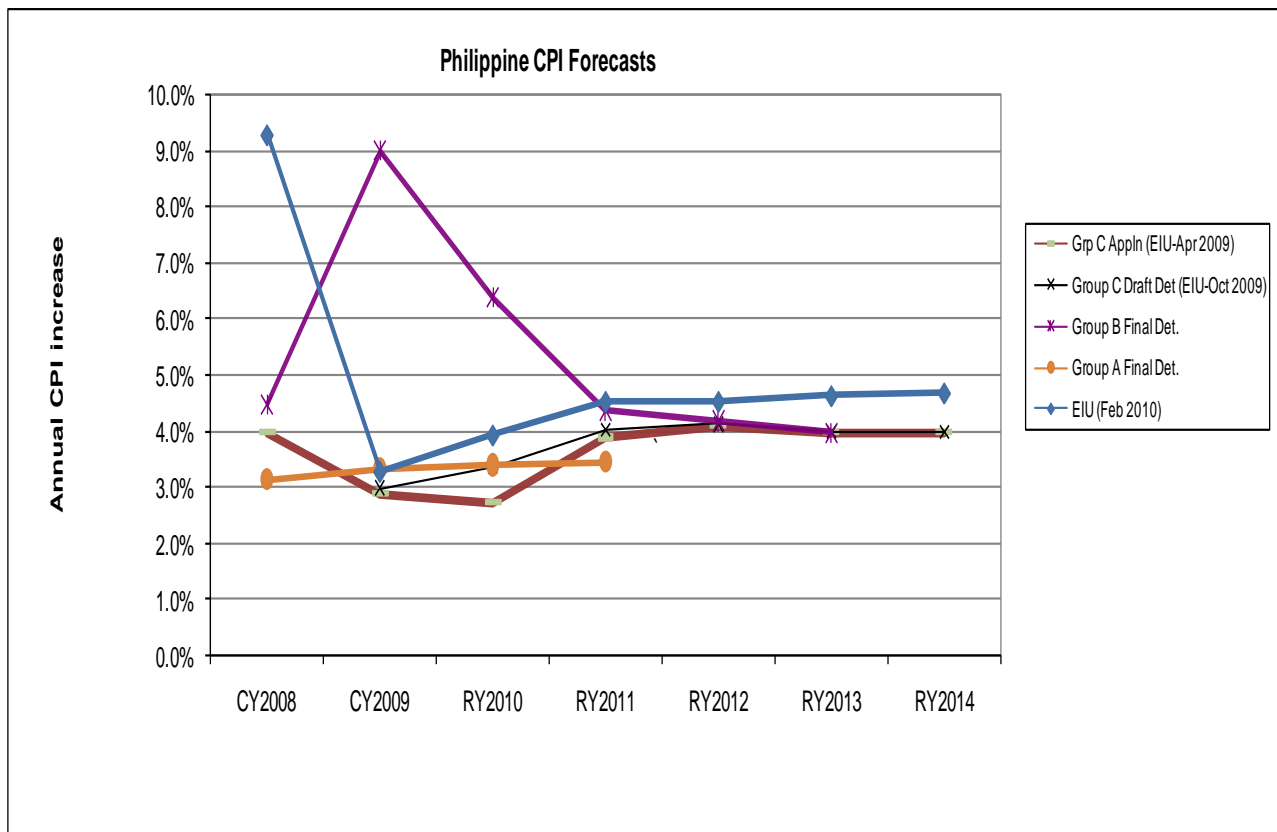
**Table 2.2: Various US CPI Movement Forecasts**

	CY2008	CY2009	RY2010	RY2011	RY2012	RY2013	RY2014
CELCOR	2.9%	0.8%	-0.3%	1.0%	1.4%	1.7%	1.9%
DLPC	2.9%	0.8%	-0.3%	1.0%	1.4%	1.7%	1.9%
IEEC	2.9%	0.8%	-0.3%	1.0%	1.4%	1.7%	1.9%
LUECO	2.9%	0.8%	-0.3%	1.0%	1.4%	1.7%	1.9%
TEI	2.9%	0.8%	-0.3%	1.0%	1.4%	1.7%	1.9%
VECO	2.9%	0.8%	-0.3%	1.0%	1.4%	1.7%	1.9%
EIU (Feb 2010)	3.8%	-0.3%	0.7%	1.5%	1.6%	2.2%	2.7%
Draft Det (EIU- Oct 2009)	2.1%	1.6%	0.1%	1.1%	1.4%	1.7%	1.9%
Group A Final Det.	2.4%	2.7%	2.6%	2.5%			
Group B Final Det.	3.3%	4.0%	2.4%	2.3%	2.5%	2.4%	

Source : Economist Intelligence Unit (Feb 2010)  
ERC Draft Determination for Third Group Entrants (EIU-Oct 2009)  
ERC Final Determination for First and Second Group Entrants

Note : Data for 2008 calendar year based on actual indices

**Figure 2.2 : Comparison of US CPI Forecasts (based on Table 2.2)**



## 2.4 Foreign Exchange Rate – Peso/US\$

- 2.4.1 The final economic index forecast required for the Second Regulatory Period is the rate of exchange of the Philippine Peso against the US dollar. As noted before, the US dollar is used as proxy for foreign expenditure by the Regulated Entities. Since the allowed revenue for each Regulated Entity will be set in Peso, it is necessary to convert foreign expenditure to Peso, and exchange rate movements therefore impact directly on the approved expenditure.
- 2.4.2 As noted above, given the parity relationship between exchange rates, interest rates and inflation rates, it is important to apply a consistent approach to these factors. This will ensure that forecasts that deviate somewhat from actual future rates will not have a material impact on the X-factor.
- 2.4.3 In its application, TEI used the Peso/US\$ rate published by the Economist Intelligence Unit (EIU) in April 2009<sup>12</sup>, converted to regulatory years. Since this data set only provides forecasts until 2013, it was assumed that the 2013 figures will also apply in 2014.
- 2.4.4 This approach was also adopted by the remaining five (5) Regulated Entities in the Third Entry Group.
- 2.4.5 The PhP/US\$ rate of exchange forecasts proposed by the six (6) Regulated Entities in the Third Entry Group are presented in Table 2.3 and Figure 2.3 below. This is also compared with the forecasts of the ERC in its final determination on the price-control arrangements for the First and Second Entry Groups and updated figures from the EIU. Since the regulatory years run from July 1 to June 30, the average annual rate of exchange figures have been converted to these periods, assuming straight-line movements throughout the year. In addition, all exchange rate forecasts were converted to a common regulatory year basis.

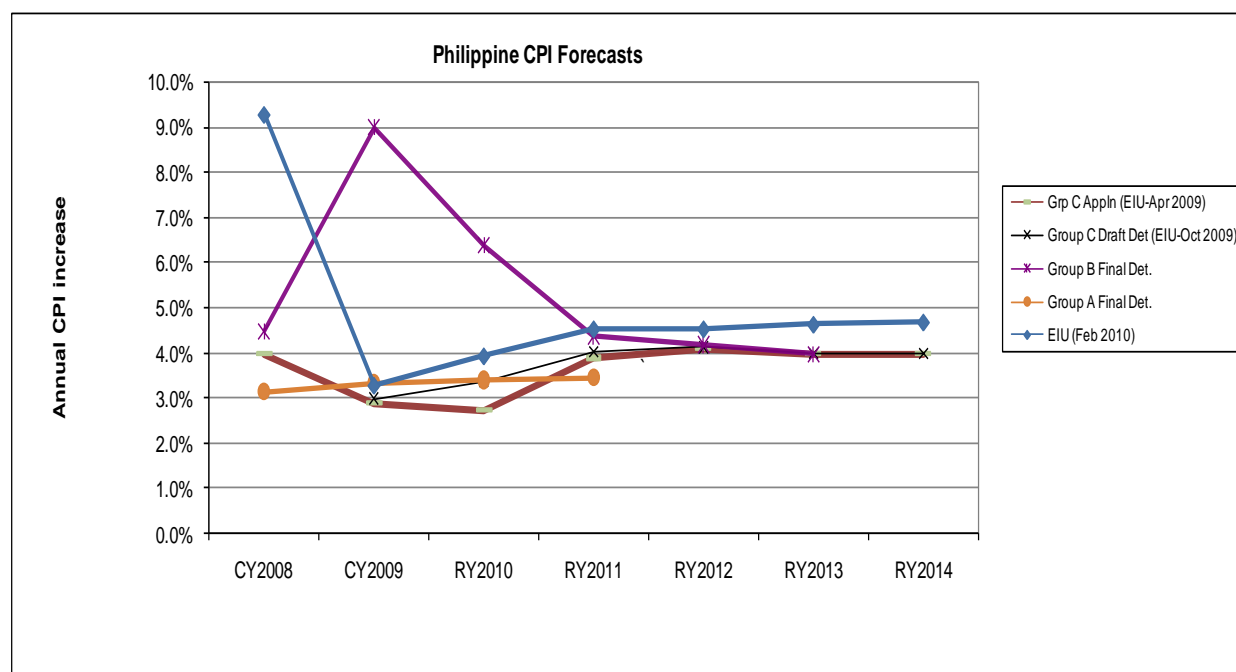
**Table 2.3 : Various PhP/US\$ Rate of Exchange Forecasts**

	CY2008	CY2009	RY2010	RY2011	RY2012	RY2013	RY2014
CELCOR	41.2	47.7	48.4	50.0	51.1	50.1	49.0
DLPC	41.2	47.7	48.4	50.0	51.1	50.1	49.0
IEEC	41.2	47.7	48.4	50.0	51.1	50.1	49.0
LUECO	41.2	47.7	48.4	50.0	51.1	50.1	49.0
TEI	41.2	47.7	48.4	50.0	51.1	50.1	49.0
VECO	41.2	47.7	48.4	50.0	51.1	50.1	49.0
EIU (Oct 09)		47.8	48.7	49.3	48.8	48.3	47.8
EIU (Feb 2010)	44.3	47.1	47.6	47.8	47.3	46.9	46.7
Group A Final Det.	47.2	47.4	47.3	47.0			
Group B Final Det.	45.6	45.3	49.0	46.9	44.5	42.9	

Source : Economist Intelligence Unit (Feb 2010)  
ERC Draft Determination for Third Group Entrants (EIU-Oct 2009)  
ERC Final Determination for First Group Entrants  
ERC Final Determination for Second Group Entrants

<sup>12</sup> Supra note 3

**Figure 2.3 : Comparison of PhP/US\$ Exchange Rate Forecasts (based on Table 2.3)**



## 2.5 ERC Final Decision – Forecast Economic Indices

2.5.1 As discussed above, it is important to apply a consistent approach to the forecasting of the economic indices. In addition, it is also important that forecasts are obtained from a reliable and independent macro-economic forecasting specialist. The ERC resolved to use the forecasts obtained from the Economist Intelligence Unit (EIU), based on February 2010 values.

2.5.2 The updated EIU figures correlate better with current economic data in the Philippines than those used for the Draft Determination. The ERC, however, notes that economic conditions are somewhat unstable and that the financial indices are still subject to high volatility. Nevertheless, the medium term projections are considered a reasonable estimate.

2.5.3 The ERC also notes that there are correction mechanisms built into the RDWR for material changes between the forecast and actual CPI or exchange rates which will largely offset the impact on consumers or Regulated Entities should the values of these indices in the future differ materially from the estimated values used in the draft and final determinations.

2.5.4 In Table 2.4, the forecasts adopted by the ERC for the Final Determination are indicated.

**Table 2.4 : Economic Indices Forecasts Accepted by the ERC (Regulatory Years)**

	2010	2011	2012	2013	2014
Philippine CPI (% increase per regulatory year)	4.0%	4.6%	4.6%	4.7%	4.7%
US CPI (% increase per regulatory year)	0.7%	1.5%	1.6%	2.2%	2.7%
PhP/US\$ exchange rate (average for regulatory year)	47.6	47.8	47.3	46.9	46.7

(Source: EIU, February 2010 – converted to regulatory years)

2.5.5 These figures differ from those used in the ERC's final determinations on the price-control arrangements for the First and Second Entry Group. This is a reflection of the updated forecast economic parameters, not of any change in approach by the ERC.

(This space is left intentionally blank)

### 3. ENERGY FORECASTS

#### 3.1 General

- 3.1.1 Energy consumption and maximum demand forecasts are key parameters for the price determination. Firstly, the forecast energy consumption levels are directly taken into account in calculating the X-factor and the smoothed price path at the start of the regulatory period.
- 3.1.2 In addition, operating and capital expenditure, especially the latter, are heavily influenced by network demand forecasts. Growth in demand therefore represents a primary justification for a Regulated Entity's capital expenditure plans. More indirectly, growth also drives operating and maintenance expenditure - larger networks, or networks utilized closer to maximum capacity to cater for additional demand, generally require more inputs from all levels of the organization, which over time leads to higher staffing requirements and higher expenditure on maintenance consumables.
- 3.1.3 A price-capped form of regulation is applied to the Distribution Wheeling Services. Since prices are pre-determined for the regulatory period, Regulated Entities' actual revenue will vary in proportion to energy sales (after accounting for changes in the CPI), with no opportunity to adjust prices to compensate for the fluctuations. The Regulated Entities will bear a so-called "volume risk". If actual sales are substantially less than forecast, this may mean that they would have to curtail expenditure. On the other hand, if actual consumption levels are higher than forecast, this should allow for additional expenditure to cater for the additional demand.<sup>13</sup>
- 3.1.4 It is therefore clearly in the Regulated Entities' best interest to ensure that the energy and demand forecasts are accurate. Under-estimating consumption or demand may lead to reductions in the approved expenditure programs, while over-estimating may give rise to a lower than sustainable price-cap.

#### 3.2 Energy Consumption Forecast

- 3.2.1 The TEI energy sales forecasts included in the Revenue Application are indicated in Table 3.1 below. A broken down value, including historical figures, is provided in Table 3.2. TEI's own consumption has been included in the figures.

**Table 3.1 : TEI MWh Energy Sales Figures (Forecast in the Revenue Application)**

	2010	2011	2012	2013	2014
Energy consumption (MWh)	215,935	220,849	227,345	233,810	241,631

<sup>13</sup> This is as opposed to a revenue-capped form of regulation, where prices are allowed to be adjusted (within reasonable limits) to ensure approved revenue levels are maintained. However, should consumption levels rise substantially above that forecast, this may lead to network over-utilization problems, since no additional revenue would become available to cater for additional consumption.

3.2.2 TEI bases its consumption forecasts by considering the historical growth in the number of customer and the historical consumption growth of said customers. The ERC’s expenditure review analysis<sup>14</sup> indicate that the energy forecasts over the Second Regulatory Period is directly related to the growth in customer numbers by an average of 2.95% over the same period.

**Table 3.2 : Broken down TEI MWh Energy Sales Figures**

Category	Calendar Years					Regulatory Years				
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Residential	74,754	73,996	77,219	78,686	80,630	85,401	85,401	87,963	90,602	93,320
Small Commercial	32,259	32,664	33,469	35,254	36,047	38,177	38,177	39,322	40,502	41,717
Commercial Industrial (Primary)	43,083	61,756	64,061	62,213	46,896	61,098	65,055	67,006	69,016	71,777
Commercial Industrial (Secondary)	32,535	15,462	15,604	15,723	16,130	16,690	18,303	18,880	19,476	20,107
Flat/Streetlights	2,659	2,732	2,731	2,759	2,793	2,828	2,864	2,903	2,942	2,983
69 KV	9,447	9,492	9,888	11,137	10,618	10,941	11,050	11,271	11,271	11,726
<b>TOTAL</b>	<b>194,737</b>	<b>196,102</b>	<b>202,971</b>	<b>205,771</b>	<b>193,114</b>	<b>215,935</b>	<b>220,849</b>	<b>227,345</b>	<b>233,810</b>	<b>241,631</b>
Annual Growth		0.70%	3.50%	1.38%	-6.15%	9.59%	4.35%	2.94%	2.94%	3.25%

3.2.3 The average annual compound growth in consumption between 2005 and 2009 was 0.21%, but this is heavily influenced by loss in sales for large customers in 2009. While the forecast average compound growth from 2010 to 2014 is 3.37% per year due to forecasted entry of large commercial customer (SM-Tarlac).

3.2.4 In order to better understand the consumption trends, the ERC also analyzed TEI’s consumer number figures, which is presented in Table 3.3. The forecast average growth rate is 3.04% from RY2010 to 2014, which indicates a consistent growth rate over the period.

3.2.5 After the submission of the Revenue Application, clarificatory meetings were held with TEI to clarify information submissions. From these meetings, TEI submitted an updated energy forecast for a scenario where some larger consumers will be excluded from the energy forecast. This later submission was not used in this Draft Determination due to the uncertainty around these larger customers and therefore the original Revenue Application energy forecast figures were used for this Final Determination.

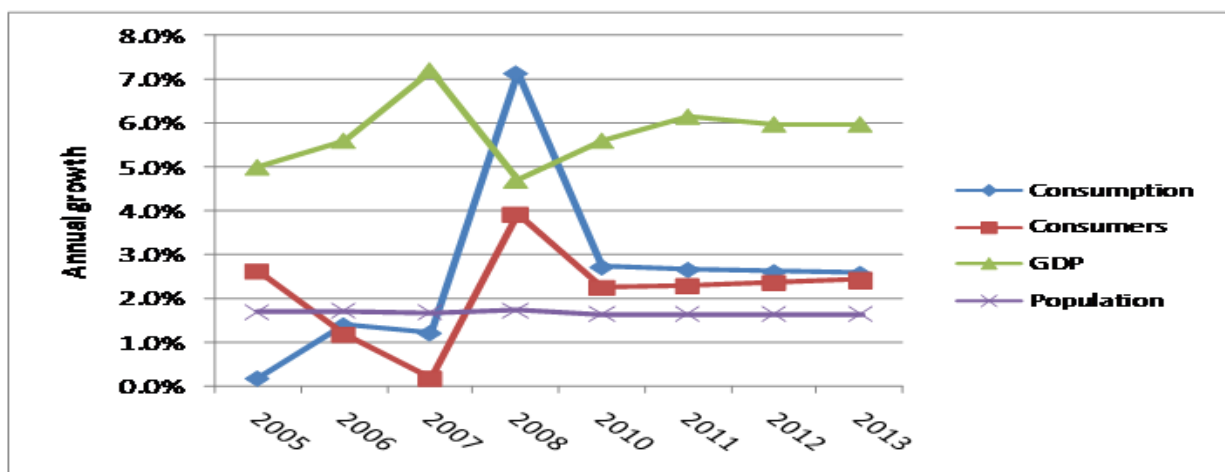
<sup>14</sup> ERC Operating and Maintenance Expenditure (OPEX) review report titled “REVIEW OF OPERATING AND MAINTENANCE EXPENDITURE FORECAST EXPENDITURE: SECOND REGULATORY PERIOD – Tarlac Electric, Incorporated.” dated November 9, 2009.

**Table 3.3 : TEI Consumer Numbers (Forecast and Historical)**

	HISTORICAL FIGURES (CALENDAR YEARS)				Forecast	FORECAST (REGULATORY YEARS)				
	2005	2006	2007	2008		2009	2010	2011	2012	2013
<b>Total</b>	<b>52,042</b>	<b>53,796</b>	<b>55,750</b>	<b>57,478</b>	<b>59,202</b>	<b>60,986</b>	<b>62,835</b>	<b>64,747</b>	<b>66,711</b>	<b>68,735</b>
Residential	48,941	50,773	52,621	54,330	55,960	57,639	59,368	61,149	62,983	64,873
Small Commercial	2,981	2,904	3,011	3,027	3,118	3,221	3,337	3,463	3,588	3,717
Commercial Industrial (Primary)	26	27	26	29	30	31	32	33	34	35
Commercial Industrial (Secondary)	66	64	64	64	66	68	71	74	77	82
Flat/Streetlights	27	27	27	27	27	27	27	27	27	27
69 KV	1	1	1	1	1	1	1	1	1	1
<b>Growth</b>		<b>3.37%</b>	<b>3.63%</b>	<b>3.10%</b>	<b>3.00%</b>	<b>3.01%</b>	<b>3.03%</b>	<b>3.04%</b>	<b>3.03%</b>	<b>3.03%</b>

3.2.6 In Figure 3.1 below, the forecast growth in TEI’s energy consumption is compared with its forecast consumer numbers, as well as the predicted population growth in the region and the predicted growth in the national gross domestic product. It is recognized that consumption forecasts for distribution utilities are generally not directly comparable with the above mentioned reference sources as there is no linear relationship between growth in population, maximum electricity demand, gross domestic product and energy consumption, and that comparisons of local figures with regional or national figures give rise to further inaccuracies. However, these factors are all drivers of energy consumption and are therefore useful indicators of the environment TEI is likely to face over the Second Regulatory Period.<sup>15</sup>

**Figure 3.1: Comparison of Energy Growth Estimates with Consumption Drivers**



Graph Label and Sources:

Population- Population growth for Tarlac as per National Statistics Office, January 2007

GDP growth (Philippines) for 2005 to 2008 – National Statistical Coordination Board (2005 and 2006)

GDP growth (Philippines) from 2009 to 2014 - EIU (Oct 2009)

Consumption – Forecast Energy Consumption for Tarlac

Consumers – Forecast Consumers for Tarlac

<sup>15</sup> In the absence of directly applicable local statistical indicators, these are the best indicators available.

### 3.3 ERC Final Decision on Consumption Forecast

3.3.1 The ERC is generally comfortable with TEI’s energy consumption forecasts for the Second Regulatory Period and notes that these figures are closely aligned with the ERC forecasts prepared for the Draft Determination. The TEI proposed figures are therefore accepted. The figures accepted for the Final Determination are indicated in Table 3.4.

**Table 3.4 : ERC Final Determination on Forecast Energy Sales (MWh)**

Category	Regulatory Years				
	2010	2011	2012	2013	2014
Residential	85,401	85,401	87,963	90,602	93,320
Small Commercial	38,177	38,177	39,322	40,502	41,717
Commercial Industrial (Primary)	61,098	65,055	67,006	69,016	71,777
Commercial Industrial (Secondary)	16,690	18,303	18,880	19,476	20,107
Flat/Streetlights	2,828	2,864	2,903	2,942	2,983
69 KV	10,941	11,050	11,271	11,271	11,726
<b>TOTAL</b>	<b>215,135</b>	<b>220,849</b>	<b>227,345</b>	<b>233,810</b>	<b>241,631</b>
<b>Growth</b>	11.40%	4.35%	2.94%	2.84%	3.25%

### 3.4 Demand Forecasts

3.4.1 The TEI maximum demand forecasts provided with the Revenue Application are indicated in Table 3.5 below, as well as historical demand figures from 2005. TEI determined its load forecast by aggregating the estimated demand of different customer classes.

**Table 3.5 : TEI Maximum Electricity Demand (kW) (Forecast and Historical)**

	Historical Figures (Calendar Years)				Forecast 2009	Forecast (Regulatory Years)				
	2005	2006	2007	2008		2010	2011	2012	2013	2014
Residential	14,971	14,317	14,941	15,487	15,869	16,332	16,809	17,463	17,832	18,210
Small Commercial	6,242	6,215	6,476	6,764	6,858	7,058	7,263	7,481	7,706	7,937
Commercial Industrial (Primary)	10,464	15,666	15,898	14,796	10,925	13,949	14,853	14,998	15,151	15,460
Commercial Industrial (Secondary)	5,895	2,802	2,827	2,849	2,923	3,024	3,316	3,421	3,529	3,643
Flat/Streetlights	607	624	623	630	638	646	654	663	672	681
69 KV	1,950	2,205	2,380	2,450	2,424	2,498	2,523	2,573	2,625	2,677
<b>TOTAL</b>	<b>40,129</b>	<b>41,828</b>	<b>43,145</b>	<b>42,975</b>	<b>39,638</b>	<b>43,507</b>	<b>45,418</b>	<b>46,600</b>	<b>47,515</b>	<b>48,609</b>
<b>Growth</b>		4.23%	3.15%	-0.39%	-7.77%	9.76%	4.39%	2.60%	1.96%	2.30%

3.4.2 The annual compound growth in demand from 2005 to 2009 was -0.31% this is heavily influenced by loss in sales for industrial customers in 2009. The anticipated growth over the regulatory period is 2.81% per year. As with consumption, TEI forecasts a substantial increase in demand for 2010 which is mainly due to large consumers being connected to the distribution network.

### 3.5 ERC Final Decision on Maximum Demand Forecasts

3.5.1 The demand figures are not directly taken into account in the price-control arrangements. However, demand is an important factor in considering especially, capital expenditure on distribution networks, as well as the degree of asset optimization. GB Associates recommended in their Capital Expenditure Review Report<sup>16</sup> that TEI's demand forecasts should be slightly amended to ensure a better match between the forecast energy and demand growth.

3.5.2 In the revised forecast figures given in Table 3.5, GB Associates recommendation in its Capital Review Report adjusted the historic values and assumed an average growth rate of 1.9%. The ERC therefore accepts the forecast demand figures as a reasonable basis for the Second Regulatory Period.

3.5.3 The ERC's final decision on the forecast maximum demand for TEI is illustrated in Table 3.6.

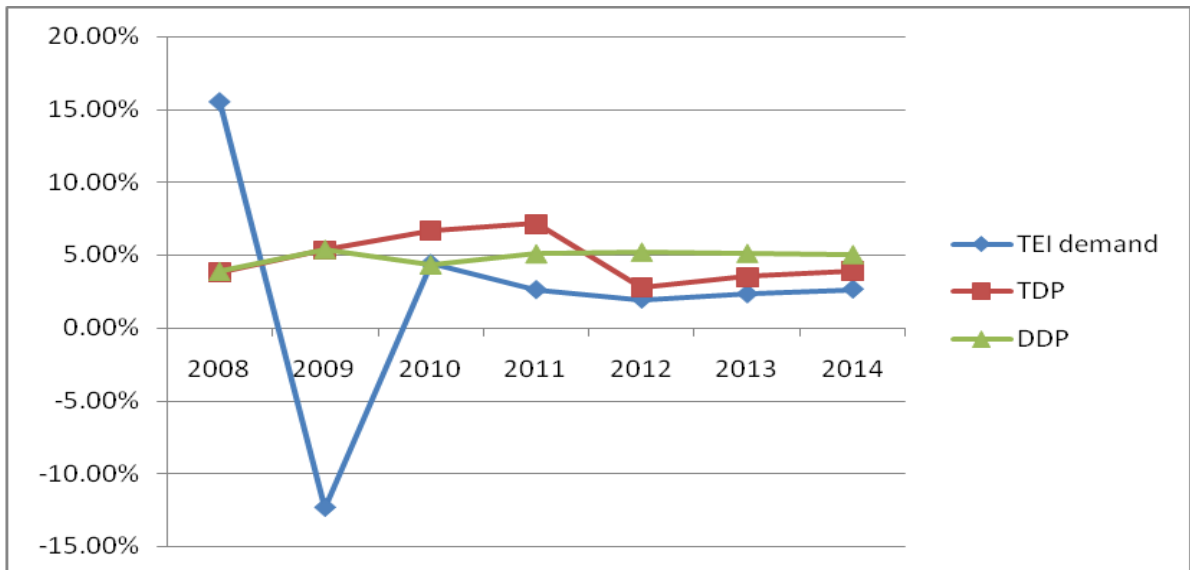
**Table 3.6: ERC Final Determination on Forecast Maximum Demand**

Forecast	Calendar Years		Regulatory Years				
	2008	2009	2010	2011	2012	2013	2014
<b>Maximum demand (MW)</b>	42.98	39.64	43.51	45.42	46.6	47.51	48.61
<b>Growth in demand (%)</b>		-7.77%	9.76%	4.39%	2.60%	1.96%	2.30%

3.5.4 In Figure 3.2, a comparison is provided between the demand growth forecasts adopted by the ERC, and the growth forecast by the DOE for Luzon and by NGCP for North Central. While it is accepted that the NGCP and DOE information is somewhat dated, it is clear that the TEI forecasts, as adapted by the ERC, is generally more conservative than NGCP and DOE published reports.

<sup>16</sup> GB Associates' Capital Expenditure (CAPEX) Review report titled "REVIEW OF CAPITAL EXPENDITURE FORECAST: SECOND REGULATORY PERIOD – Tarlac Electric, Incorporated (TEI), dated November 3, 2009

**Figure 3.2 Comparison of Demand Growth Figures**



Sources : NGCP demand forecast for Luzon North Central - Transmission Development Plan, 2008  
Department of Energy demand forecast for Luzon - Power Development Plan, 2006-2014

(This space is left intentionally blank)

## 4. CAPITAL EXPENDITURE FORECASTS

### 4.1 Approach to capital expenditure forecasts

- 4.1.1 Section 4.12 of the RDWR specifies the requirements for the capital expenditure forecasts required from Regulated Entities. These forecasts are to be based on the economically efficient capital expenditure requirements to meet the forecast demand over the Second Regulatory Period. The economic efficiency of the forecasts should be assessed in particular against the general principles declared in Section 4.6.1 of the RDWR, and the declaration of policy in Section 2 of the EPIRA.
- 4.1.2 TEI submitted its proposed capital expenditure program for the Second Regulatory Period as part of its Revenue Application.
- 4.1.3 Also included in the Revenue Application is the proposed capital expenditure for the 2010 Regulatory Year (July 1, 2009 to June 30, 2010). Under the current regulatory arrangements, there is no provision for the ERC to review any capital expenditure subsequent to the start of 2009<sup>17</sup>. Since TEI will be entering PBR at the start of the Second Regulatory Period six months into the 2010 calendar year, the expenditure over the period January 2009 to June 2010 had to be reviewed as part of the Revenue Application and the ERC has therefore decided to include TEI's capital expenditure program for the 2010 regulatory year as part of its review of the expenditure program for the Second Regulatory Period. The Regulated Entities were therefore required to submit details of this program as part of their Revenue Applications.
- 4.1.4 In terms of Section 4.12.4, the ERC must retain a Regulatory Reset Expert (or Experts) to review the capital expenditure forecast for a Regulated Distribution System, as well as the supporting information, in isolation or in cooperation with ERC staff, or the ERC may decide to conduct the review internally. The ERC appointed Geoff Brown and Associates (GB Associates) for this purpose.
- 4.1.5 The findings and recommendations of GB Associates with regard to the capital expenditure forecasts submitted by TEI are presented in an accompanying report (the Capital Expenditure Review Report).<sup>18</sup> These findings and recommendations were analyzed by the ERC and forms the basis of the capital expenditure program approved by the ERC, as described below. Since the Capital Expenditure Review Report is available for public review, only the main findings are replicated below.
- 4.1.6 GBA was also requested to consider the submissions made on the Draft Determination. Based on their further consideration, GBA suggests a number of revisions to their original recommendations, as described in the Expenditure Review Addendum<sup>19</sup>. With regard to capital expenditure they concluded that further changes are required to their original recommendations as described in the Expenditure Review Report.

---

<sup>17</sup> This is because no more rate cases will be filed for the Third Entry Group under the current return-on-rate-base form of regulation.

<sup>18</sup> Supra note 14

<sup>19</sup> GB Associates report to the ERC titled "*REVIEW OF FORECAST CAPITAL EXPENDITURE : TARLAC ELECTRIC INCORPORATED - ADDENDUM*", dated February 10, 2010.

## 4.2 Purpose of the capital expenditure program

4.2.1 Capital expenditure is critical to the reliable operation of a distribution network and to provide for growing electricity demand. If capital expenditure is at levels lower than that required to maintain acceptable network performance standards or to ensure sufficient capacity for growth, this could compromise the longer term sustainability of an effective distribution service and the ability to provide customers' needs. On the other hand, excessive network investments cause upward-price pressure which is not balanced by commensurate service improvements or value to consumers. It is the goal of the ERC to allow an efficient balance in capital expenditure – to ensure the long-term sustainability of distribution networks while keeping investment at the minimum levels required in achieving this goal.

4.2.2 From a regulatory perspective, the approved capital expenditure forecasts are included in the value of the rolled forward regulatory asset base, in nominal terms for every year of the Second Regulatory Period. Return on capital, one of the building blocks for determining the allowed revenue requirement for Regulated Entities, is in turn based on the value of the rolled forward asset base.<sup>20</sup> In addition, depreciation of newly acquired capital assets is also taken into account in the return of capital, or regulatory depreciation, building block. The approved capital expenditure program therefore has a direct influence on the allowed price-cap for distribution services.

## 4.3 Capital expenditure program proposed by TEI

4.3.1 TEI's historical capital expenditure and the forecast expenditure as submitted in its Revenue Application are shown in Table 4.1. The expenditure figures are in real values for the year indicated. It should be noted that the figures up to 2009 are for calendar years, while those from 2010 onwards are for regulatory years. There is therefore a 6-month overlap between the 2009 and 2010 figures.

**Table 4.1 - TEI Application for Capital Expenditure**

	Actual (PhP million, real 2009)				Budget	Forecast (PhP million, real 2009)				
	CY2005	CY2006	CY2007	CY2008	CY2009	RY2010	RY2011	RY2012	RY2013	RY2014
Distribution Plant	43.6	27.7	90.3	171.0	86.7	61.9	79.7	50.2	55.0	65.5
Non-network Plant	10.8	12.5	16.8	4.6	9.9	5.4	12.2	27.2	5.7	28.4
Connection plant	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Retail plant	11.7	6.6	9.9	24.6	9.2	0.0	10.5	10.2	10.6	12.7
Materials & supplies	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtransmission	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>TOTAL</b>	<b>66.2</b>	<b>46.8</b>	<b>117.1</b>	<b>200.1</b>	<b>105.8</b>	<b>67.3</b>	<b>102.4</b>	<b>87.5</b>	<b>71.2</b>	<b>106.5</b>

Note: Using the ERC revised Economic Indices

4.3.2 The breakdown in Table 4.1 is based on details that TEI provided as part of its revenue application

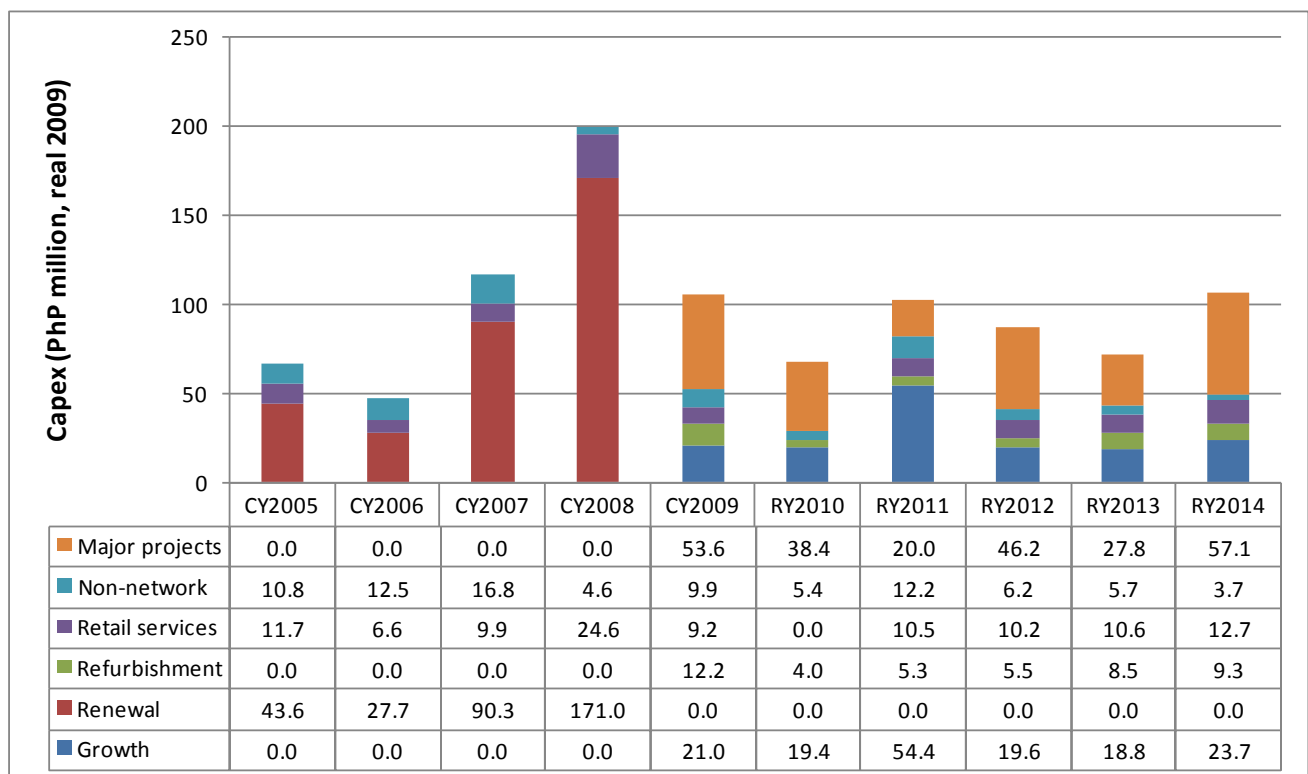
4.3.3 In Figure 4.1:

- (a) Growth projects are for capital projects required to accommodate increased electricity demand or new connections.

<sup>20</sup> Plus an allowance for working capital, as discussed in Section 7.6

- (b) Renewal projects are those to replace existing assets where it is no longer economically feasible to maintain the assets, or where technological obsolescence forces their replacement.
- (c) Refurbishment projects are to extend asset serviceability to beyond standard lives.
- (d) Non-network capital expenditure relates to expenditure on non-network assets.
- (e) Major projects are those for which expenditure will exceed the lesser of 20% of the total capital expenditure forecast for a Regulatory Year, or PhP30Million.

**Figure 4.1 - TEI CAPEX – Historical and Forecast**



4.3.4 It is clear in Figure 4.1 that some categories in the graph were assigned differently when comparing the forecast values with that of the historic values. This is mainly due to a lack of disaggregation of historic figures.

#### 4.4 Analysis of TEI’s capital expenditure program – General

4.4.1 GB Associates conducted a top-down analysis of TEI’s capital expenditure forecast, including an analysis of the expenditure trends and a review against growth-driven expenditure ratios. This is discussed in the Capital Expenditure Review Report.

4.4.2 The main findings were as follows:

- In the revised forecast, major projects form a much higher proportion of the total capex, but the residual growth expenditure is still very significant. For Jan-Jun 2009, the following major projects have been transferred from residual growth and renewal expenditure to the major projects category:

- San Rafael-Luisita CAT 69 kV line; and
- Proposed Santo Niño (TPC) substation transformer upgrade.
- As indicated in 4.3.3, after identification of some duplicate expenditures in the original expenditure submission from TEI, they submitted a revised Capex forecast in order to improve data quality.
- Budgeted and forecast capex, in real terms, is highest in CY 2007, CY 2008, RY 2011 and RY 2014 which GBA indicated is due to a number of projects either commissioned or being proposed for commissioning in these years. In RY 2011, TEI is proposing to complete a new warehouse and a number of network growth/refurbishment projects, which include expenditure towards implementation of a full SCADA system, service vehicle replacements, purchase of 69 kV disconnects for San Rafael substation and 13.8 kV lines for interconnecting 69 kV sub-transmission substations. In RY 2014 it is proposing to commission a 69 kV Balete substation and purchase of additional service vehicles.

#### **4.5 Analysis of TEI's capital expenditure program – Significant projects**

4.5.1 TEI submitted details of eight (8) significant projects in their Revenue Application. These projects are as follows:

- San Rafael- Luisita- CAT 69 kV;
- Santo Niño (TPC) Substation Transformer Upgrade;
- San Rafael Substation;
- Covered Warehouse, Open Stockyard, Motor Pooling And Parking;
- Main Office Building;
- Service Vehicle Replacement Program;
- San Isidro Substation; and
- Balete Substation.

4.5.2 Each of the major projects was separately reviewed by GB Associates to assess whether the project is required, efficient and whether the proposed project timing is appropriate. Its findings are provided in the Capital Expenditure Review Report, with additional details on individual projects where discrepancies or unusual factors were found.

4.5.3 GB Associates' recommendations with regard to the significant projects can be summarized as follows:

- TEI proposed to construct a major PhP26.50 million project for the new San Rafael-Luisita CAT 69 kV line which involves the construction of a new 5.8 km, 69 kV line using 795 MCM conductor which will provide 'n-1' security at the sub-transmission level. GB Associates is of the opinion that the conductor size of 336.4 MCM will be sufficient to carry the expected load at the end of the planning horizon even in a 'n-1' contingency scenario. GB Associates therefore recommended a reduction in proposed capex for this project.

- TEI proposed to replace the existing transformer at Santo Niño Substation (TPC) which has a (69/13.8 kV) delta-star connection with a new transformer of the same rating but with a star-star connection in the amount of PhP27.32 million. The main purpose of this proposed transformer replacement is the creation of an earth reference for the distribution network in specific contingency scenarios. GBA recognizes the need for an earth reference on the 69 kV side but believe that this does not require the transformer to be replaced as either the existing transformer could be modified or an earth reference could be obtained by installing a zigzag transformer on the high voltage side. GB Associates therefore recommend a reduction of PhP20.32 million to the proposed capex for this project.
- TEI proposed to construct new substation at San Rafael substation in RY2010 with a forecast installation cost of PhP38.73 million and 15/20 MVA transformer which will be relocated from the TPC substation as a part of its 69 kV sub-transmission restructuring activity. GB Associates' analysis indicates that the additional transformer capacity will not be required before the end of the second regulatory period, however GB Associates proposes that sufficient funds be left in the project for the construction of the switching station associated with the new 69 kV line.
- TEI proposed to acquire a new 5000 m<sup>2</sup> lot to relieve space restrictions at its existing head office and depot location. GB Associates indicated that this project will facilitate materials inventory management for TEI and recommends the approval of this capex. However, in the process of reviewing project expenditure forecasts for efficiency and reasonableness, GB Associates indicated that the proposed expenditure be reduced by PhP4 million.
- TEI proposed to construct main office building in RY 2012 which will house 100 staff members. The building will have a floor area of 1400 m<sup>2</sup> and will be a two-storey building. GB Associates recommend that the proposed new office complex not be constructed until after the end of the second regulatory period. However, it recommends that PhP3 million of the proposed capex for this project be approved for the refurbishment of the existing facilities once linemen and stores staff move to the new depot complex and in the process create more office space.
- TEI proposed to replace its service vehicles in RY 2012 and 2014. GB Associates recommend the approval of proposed capex in RY 2012 and also that the forecast expenditure in RY 2014 be deferred until the third regulatory period.
- TEI proposed to install the new San Isidro substation with a 10 MVA transformer to offload Panganiban substation in RY 2013. GB Associates recommends for non approval of the said projects as the capacities of the existing power transformer and distribution circuits are sufficient to meet the load requirements until the end of the regulatory period.
- TEI proposed to construct a new substation at Balete with a 5MVA 69/13.8 kV transformer. GB Associates considers TEI's network to have sufficient power transformer capacity to supply the forecast load in RY 2014 and recommends that Balete substation is not required before the end of the regulatory period.

#### **4.6 Analysis of TEI's Residual Capital Expenditure Program**

- 4.6.1 GB Associates reviewed the proposed residual network and general plant expenditure, including the minor projects listed by TEI. In general, GB Associates agree with TEI's proposal, but made the following comments:

- TEI forecasted PhP27.3 million on growth related residual capital expenditure for station equipment over the period RY2010 to RY2014 and PhP1.58 million towards refurbishment related expenditure over the same period. Further to exclusions for the capex for major projects in regards to the new San Rafael substation, GB Associates recommend that the residual expenditure shown for San Rafael substation not be allowed for the second regulatory period.
- TEI forecasted PhP28.5 million for growth related expenditure on overhead conductors and devices for the period RY2010 to RY2014 and was unable to provide breakdown for historical expenditure for overhead conductors and devices. Further to exclusions for the capex for major projects in regards to the new San Rafael substation, GB Associates recommend not to allow the growth related residual expenditure for San Rafael substation for the second regulatory period.

4.6.2 From the above, GB Associates recommends that the residual capital expenditure forecast by TEI for RY2010 be reduced by PhP4.65 Million and that the residual capital expenditure for RY2011 be reduced by PhP13.01 Million.

#### 4.7 Review of material provided in TEI’s submission on the Draft Determination

4.7.1 In its submission on the Draft Determination, TEI indicated that the PhP192.81 Million forecast capital expenditure that was not approved in the Draft Determination should be reinstated to increase its capacity to respond to events.

4.7.2 GBA notes in the Expenditure Review Addendum that TEI disputed its expenditure analysis and provided additional information to justify the need to reinstate recommended reductions in TEI’s proposed capital expenditure. Responding to extreme events would primarily involve operating and maintenance expenditure. The capital expenditure levels recommended in the Draft Determination are therefore revised to reflect further analysis on the additional information provided by TEI.

4.7.3 The recommended adjustments allow for the use of larger conductor on the San Rafael-Luisita 69 kV line, and the reinstatement of the TPC and San Rafael projects, with some minor adjustments to the projects’ scope and timing.

#### 4.8 Expenditure program proposed by GB Associates

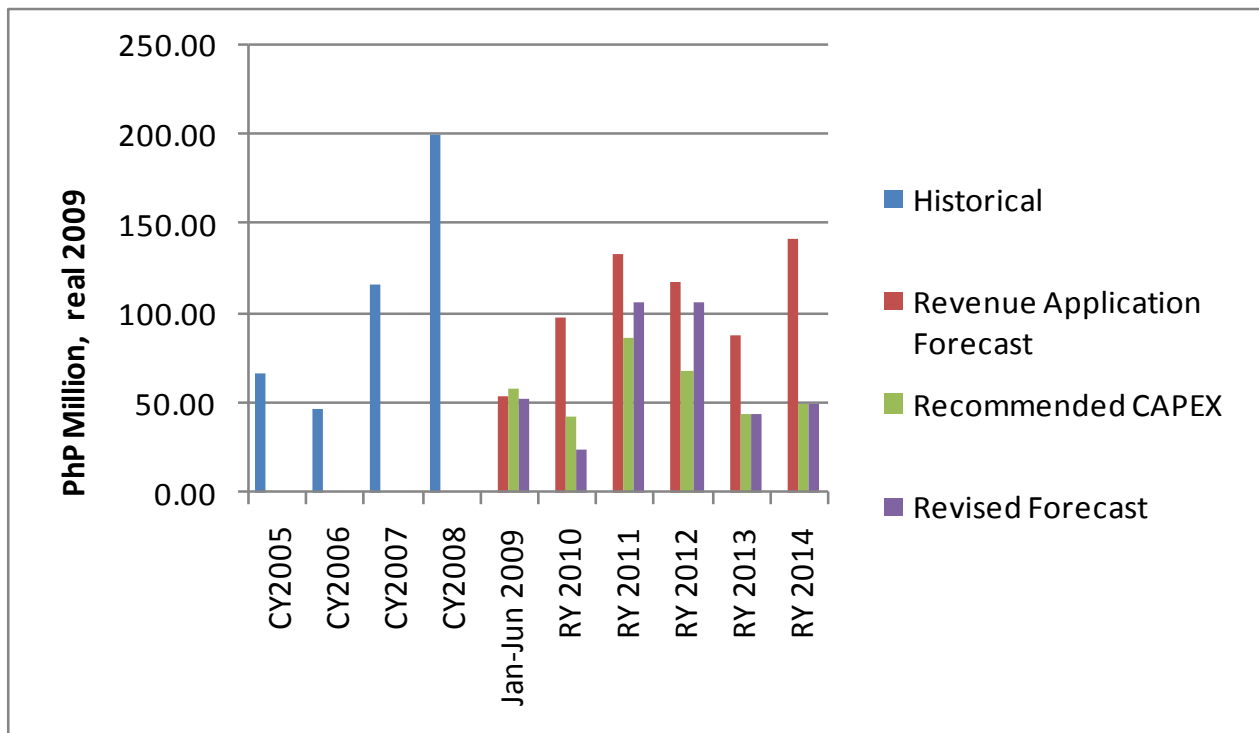
4.8.1 Based on their analysis, GB Associates recommends that TEI’s proposed capital expenditure program for the Second Regulatory Period should be amended as summarized in Table 4.2

**Table 4.2: TEI Forecast Capital Expenditure for the Second Regulatory Period – GB Associates Recommendation (PhP Million, real 2009)**

	Jan-Jun 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014	Total (RY 2011-14)
TEI Revenue Application	54.28	97.59	133.17	117.80	88.19	141.72	480.88
Draft Determination	57.60	43.02	86.69	67.50	44.01	49.87	248.07
<b>Adjustments – Major Projects</b>							
Adjustment for the use of larger conductor on San Rafael-Luisita 69 kV line	2.00						
Deferred reinstatement of TPC and San Rafael substation projects	(7.00)	(18.73)	20.00	38.73			
<b>Revised Recommendation</b>	<b>52.60</b>	<b>24.29</b>	<b>106.69</b>	<b>106.23</b>	<b>44.01</b>	<b>49.87</b>	<b>306.80</b>

4.8.2 Figure 4.2, shows a graphical comparison of the capital expenditure program proposed by TEI in their Revenue Application, which includes GB Associates’ recommended figures. A substantial reduction in the overall expenditure level originally submitted by TEI is recommended – mainly as a result of the later updated submission and some adjustments to its proposed major projects.

**Figure 4.2 : Comparison of Capital Expenditure Forecasts**



Source: GB Associates

#### 4.9 ERC Final Determination on the Capital Expenditure Program

4.9.1 The ERC accepts the recommendations made by GB Associates based on its review and analysis of TEI’s proposed capital expenditure program for the Second Regulatory Period and the 2010 regulatory year. The rationale provided for the expenditure allowance is sound, as are the reasons for the suggested reductions from the TEI proposal. The suggested expenditure program is considered efficient and would provide sustainable investment levels while avoiding unnecessary expenses or undue upward price pressure.

4.9.2 GBA’s recommendation following their review of TEI’s submissions on the Draft Determination is also accepted.

4.9.3 The ERC’s Final Determination on the capital expenditure program for the Second Regulatory Period and the 2010 regulatory year is provided in Table 4.3. A more detailed breakdown is provided in Appendix A.

4.9.4 It will be noted that the recommended figures vary somewhat from that proposed in the Draft Determination. This is as a result of changes in the economic indices, particularly the forecast Philippines CPI and in the recommended CWIP factor-which changes as a result of the changes in the recommended regulatory weighted average cost of capital (see Section 8 for the discussion).

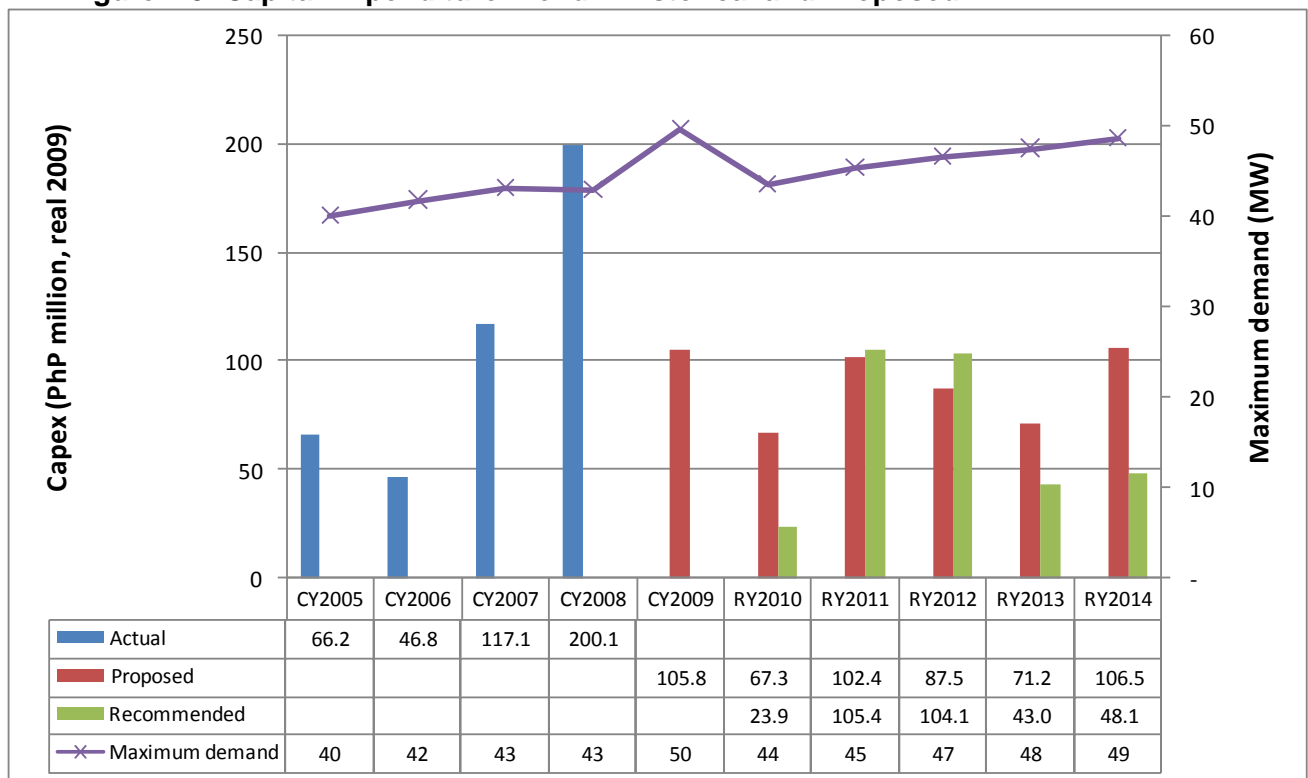
**Table 4.3 : ERC Final Determination on TEI’s Capital Expenditure Program (PhP thousand)**

	RY2010	RY2011	RY2012	RY2013	RY2014	TOTAL
Nominal values	24,273	112,052	115,611	49,915	58,493	336,072
Real values (2009)	23,883	105,400	104,065	42,954	48,076	300,494
Nominal values, including CWIP factor	24,947	114,810	118,366	50,835	59,721	343,731

Note: The total is excluding Regulatory Year 2010.

4.9.5 In Figure 4.3, the ERC’s allowed capital expenditure is compared with TEI’s Revenue Application. Being a key driver for expenditure, the historical and forecast maximum demand as accepted by the ERC<sup>21</sup> is also included, illustrating the need for increased capital expenditure as demand increases.

**Figure 4.3: Capital Expenditure Trend – Historical and Proposed**



Source: GB Associates, ERC analysis

<sup>21</sup> See discussion in Section 3.5

## 5. OPERATING AND MAINTENANCE EXPENDITURE FORECASTS

### 5.1 Approach to operating & maintenance expenditure forecasts

- 5.1.1 Section 4.13 of the RDWR specifies the requirements for the operating and maintenance expenditure forecasts required from Regulated Entities. These forecasts are to be justified in terms of why they are necessary and of reasonable magnitude.
- 5.1.2 TEI submitted its proposed operating and maintenance expenditure for the Second Regulatory Period as part of its Revenue Application.
- 5.1.3 Also included in the Revenue Application is the proposed operating and maintenance expenditure for the 2010 Regulatory Year (July 1, 2009 to June 30, 2010). Under the current regulatory arrangements, there is no provision for the ERC to review any operating and maintenance expenditure subsequent to the start of 2009<sup>22</sup>. Since TEI will be entering PBR at the start of the Second Regulatory Period six months into the 2010 calendar year, the expenditure over the period January 2009 to June 2010 had to be reviewed as part of the Revenue Application and the ERC has therefore decided to include TEI's capital and operating expenditure program for the 2010 regulatory year as part of its review of the expenditure program for the Second Regulatory Period. The Regulated Entities were therefore required to submit details of this program as part of their Revenue Applications.
- 5.1.4 In terms of Section 4.13.4, the ERC must retain a Regulatory Reset Expert (or Experts) to review the operating and maintenance expenditure forecasts for a Regulated Distribution System, as well as the supporting information, in isolation or in cooperation with ERC staff, or the ERC may decide to conduct the review internally. While the review of the operating and maintenance expenditure was carried out by the ERC (ROS) staff, Geoff Brown and Associates (GB Associates) provided some further guidance to the staff for the aforesaid OPEX review.
- 5.1.5 The findings and recommendations of ERC staff with regard to the operating and maintenance expenditure forecasts submitted by TEI are included in the Expenditure Review Report.<sup>23</sup> This report forms the basis of the operating and maintenance expenditure forecasts approved by the ERC, as described below. Since the Operating and Maintenance Expenditure Review Report is available for public review, only the main findings are replicated below.
- 5.1.6 TEI has no submissions on the OPEX forecasts allowed in the Draft Determination. However, OPEX forecasts have changed due to the impact of the CAPEX adjustments recommended by GBA as well as the changes in CPI. These are discussed in detail in the body of the OPEX Addendum<sup>24</sup>.

---

<sup>22</sup> This is because no more rate cases will be filed for the Third Entry Group under the current return-on-rate-base form of regulation.

<sup>23</sup> ERC Operating and Maintenance Expenditure (OPEX) Review report titled “*REVIEW OF OPERATING AND MAINTENANCE EXPENDITURE FORECAST: SECOND REGULATORY PERIOD – Tarlac Electric Incorporated (TEI)*”, dated November 9, 2009

<sup>24</sup> ERC Operating and Maintenance Expenditure (OPEX) Review Report titled “*REVIEW OF OPERATING AND MAINTENANCE EXPENDITURE FORECAST: SECOND REGULATORY PERIOD – Tarlac Electric, Incorporated (TEI) – Addendum*”, dated February 26, 2010.

## 5.2 Purpose of the operating and maintenance expenditure program

- 5.2.1 Operating and maintenance expenditure is critical to the sustained reliable and safe operation of a distribution network. Insufficient operating and maintenance expenditure levels lead to deterioration of operating standards and of the condition of network assets – affecting the reliability of service to consumers. Under-expenditure also affects the ability of distribution utilities to plan in advance to cater for load growth or changing consumer requirements and will, in the long run, also increase the required capital expenditure on network assets, to replace assets that have not been well maintained.
- 5.2.2 On the other hand, excessive operating and maintenance expenditure cause upwards price-pressure which is not balanced by commensurate service improvements or value to consumers. It is the goal of the ERC to allow an efficient balance in operating and maintenance expenditure – to ensure that acceptable service standards are maintained, while keeping expenditure at the minimum levels required to achieve this goal.
- 5.2.3 From a regulatory perspective, the approved operating and maintenance expenditure forecast is one of the building blocks for determining the allowed revenue requirement for Regulated Entities. The approved operating and maintenance expenditure is therefore directly recovered from customers as part of their distribution wheeling rates.

## 5.3 Operating and maintenance expenditure proposed by TEI

- 5.3.1 TEI's historical operating and maintenance expenditure and the forecast expenditure as submitted in its Revenue Application are shown in Table 5.1. It should be noted that the figures up to 2009 are for calendar years, while those from 2010 and beyond are for regulatory years.

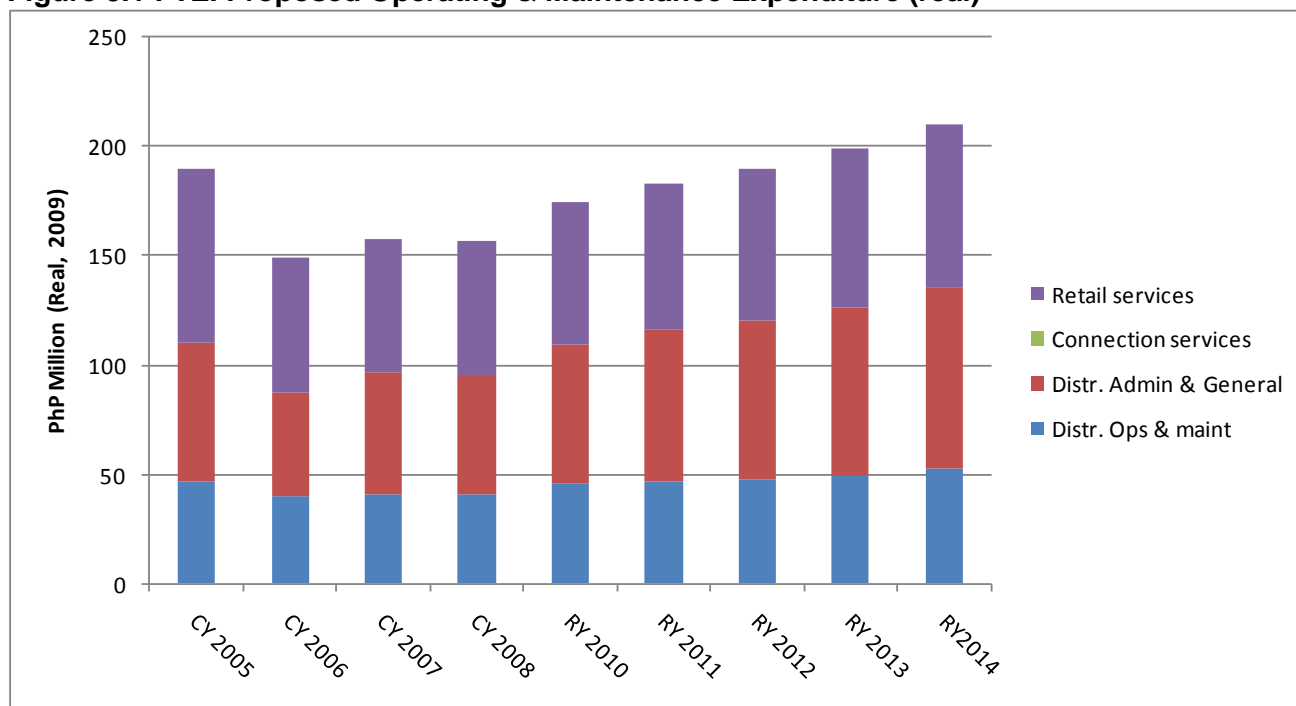
**Table 5.1 : TEI Application for Operating and Maintenance Expenditure**

OPEX Category	Actual (PhP million, real 2009)				Forecast (PhP million, real 2009)				
	CY 2005	CY 2006	CY 2007	CY 2008	RY 2010	RY 2011	RY 2012	RY 2013	RY2014
Distr. Ops & maint	46.9	39.7	41.0	40.3	45.4	46.4	47.8	49.4	52.9
Distr. Admin & General	63.5	47.9	55.9	54.9	64.1	69.8	72.4	77.1	82.4
Connection services	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Retail services	79.1	61.7	60.3	61.4	65.0	67.2	69.8	72.5	74.8
<b>Total Opex</b>	<b>189.5</b>	<b>149.3</b>	<b>157.2</b>	<b>156.7</b>	<b>174.5</b>	<b>183.4</b>	<b>190.0</b>	<b>199.0</b>	<b>210.1</b>

Note: Using the ERC revised Economic Indices

- 5.3.2 In Figure 5.1, the updated TEI Operational Expenditure forecast is graphically represented, in real (2009) values. It is noted that there is a 6-month overlap between calendar year 2009 and regulatory year 2010.

**Figure 5.1 : TEI Proposed Operating & Maintenance Expenditure (real)**



5.3.3 TEI is forecasting considerable increases in its operating and maintenance expenditure over the Second Regulatory Period, resulting from increased administrative and general as well as distribution operation and maintenance expenses.

## 5.4 Analysis of operating and maintenance expenditure - methodology

5.4.1 ERC's review of TEI's operating and maintenance expenditure forecasts is discussed in detail in the Expenditure Review Report. The ERC assessed TEI's proposals for prudence and cost efficiency using the following approach:

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

## 5.5 Analysis of the base operating and maintenance expenditure

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

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

5.5.2 This approach results in establishing the relative cost efficiency of the adjusted base year expenditure which is then used in the OPEX modeling to forecast future OPEX expenditure.

## 5.6 Analysis of the OPEX Line items

5.6.1 TEI advised that it used the 2008 calendar year as its base year for determining forecast OPEX and it is also clear from the application that TEI used the 2008 figures as the basis for the 2009 budget. For the analysis done by ERC, the ERC also used the 2008 figures as the base year since this is the latest actual full-year expenditure data available.

### ***Administrative & General Expenditures– Representation expenses***

TEI indicated in its submissions that it included representation expenses as part of its 2008 base year costs. Representation costs are part of management prerogatives, thus should not be included in the revenue requirement. However, this does not preclude TEI from spending representation costs provided that these costs are not passed on to its customers. The impact of this adjustment is a decrease of PhP2.04 million.

### ***Fringe Benefits***

ERC disallowed provision for fringe benefits paid by TEI to its employees given insufficient information to identify reasonableness of such costs. The impact of this adjustment is a decrease of PhP0.11 million.

### ***Miscellaneous Expenses***

TEI included some miscellaneous expenses incurred which will not redound to the benefit of the consumer thus, should not be recovered in the rates. Among those miscellaneous expenses are donations and contributions, recreation expenses and violation of contract expenses. The impact of this adjustment on the base year OPEX is a decrease of PhP 0.45 million.

**Outside Services**

TEI included outsourced services in the amount of PhP3.4 million which pertains to Consultancy/Professional Fees of non-recurring services like draft and compensation review, actuarial services, review and revision of various contracts, etc. Said expenses have been consistently disallowed for rate making purposes.

**Regulated Retail – Bad Debts Expense**

TEI included the amount of PhP2.98 million pertaining to uncollectible accounts. The policy of the Commission for reasonable uncollectible accounts is to adopt the lowest of the actual accounts written-off for the test year; or the last 5 years’ average of accounts written-off; or 1% of outstanding trade accounts receivable for the test year.

TEI’s 2008 Audited Financial Statement stated that the accounts written-off amounted to PhP2.98 million and Accounts Receivable-Trade (AR) amounted to PhP146.43 million. 1% of outstanding trade accounts receivable is PhP1.46 million and hence this is the amount that ERC has allowed for bad debt expenses in the base year. Consistent with the Commission’s Decision under ERC Case No. 2009-022RC, ERC reduced the proposed amount of bad debts by PhP1.51 million.

The resulting 2008 base year operating expenditures, after the ERC recommended adjustments amounting to PhP7.5 million are as shown in Table 3.7. This has been used in the OPEX model to forecast future expenditures.

**Table 5.2: Adjusted Base Year 2008 Operating and Maintenance Expenditure (PhP million, real 2009)**

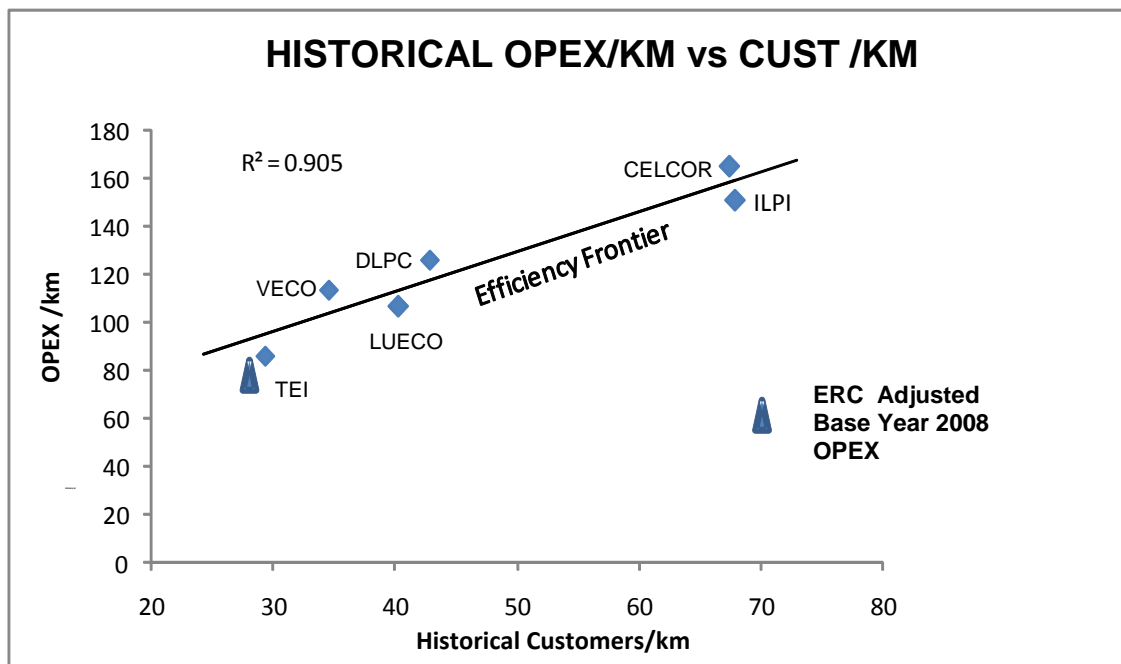
<b>Operating and Maintenance Expenditure Category</b>	<b>2008</b>
Operation	18.95
Maintenance	21.36
Administration and General	48.93
Regulated Retail Services	59.84
<b>Total Operating &amp; Maintenance Expenditure</b>	<b>149.07</b>

(This space is left intentionally blank)

## 5.7 Confirmation that the Base Year Cost Data is Efficient

5.7.1 Figure 5.2 below shows a linear regression analysis showing the efficiency frontier using the average historical OPEX of the 6 DUs (TEI, VECO, TEI, CELCOR, LUECO and ILPI<sup>25</sup>).

**Figure 5.2: Average Historical OPEX Per Line Length vs Customer Per Line Length**



5.7.2 Figure 5.2 illustrates TEI's average historical OPEX which is below the efficiency frontier. The ERC' adjusted base year OPEX, which has also been plotted on the graph, also positions below the efficiency frontier.

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

## 5.8 Review of material provided in TEI's submission on the Draft Determination

5.8.1 In relation to the recommended changes to the capital expenditure forecast, ERC determines the need for a slight increase from the OPEX forecasts allowed in the draft determination due to the increase in capital expenditures related to major projects which requires additional OPEX to maintain these assets. Further, the CPI used in the ERC OPEX model is also updated to reflect the February 2010 data as published by the EIU.

<sup>25</sup> ILPI, an entrant DU at the second entry point, is included in the analysis given sufficient information while MECO and CLPC were not included because of insufficient information to be able to plot in this particular graph.

## 5.9 Expenditure program proposed by ERC

5.9.1 The ERC used the OPEX model to forecast future base operating expenditures with both the real labor and real material inflators set at 0%. With these inputs, the model produced the forecast base operating expenditures shown in Table 5.3 below:

**Table 5.3: ERC's Base OPEX Forecasts**

<b>Operating and Maintenance Expenditure Category</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
Distribution and Connection Services Operating and Maintenance	41.86	42.24	43.31	43.84
Regulated Retail Services	49.14	49.33	49.45	49.51
Administrative and General	62.46	63.91	65.39	66.87
<b>Total Operating &amp; Maintenance Expenditure</b>	<b>153.45</b>	<b>155.48</b>	<b>158.15</b>	<b>160.22</b>

5.9.2 Table 5.4 also compares, for each major operating and maintenance expenditure category, the ERC' recommended annual forecast operating and maintenance expenditure with the forecast operating and maintenance expenditure that TEI included in its revenue application.

**Table 5.4: Comparison of TEI and ERC Forecast Operating and Maintenance Expenditure (PhP million, real 2009)**

<b>Operating and Maintenance Expenditure Category</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>Total<sup>1</sup></b>
<b>Distribution and Connection Services Operating and Maintenance</b>						
TEI Forecast	45.43	46.39	47.81	49.40	52.89	241.93
ERC Revised Forecast	43.34	41.86	42.24	43.31	43.84	214.58
Difference	-2.09	-4.54	-5.57	-6.09	-9.06	-27.34
<b>Administrative and General</b>						
TEI Forecast	64.08	69.85	72.40	77.11	82.44	365.88
ERC Revised Forecast	49.02	49.14	49.33	49.45	49.51	246.45
Difference	-15.06	-20.71	-23.07	-27.66	-32.93	-119.43
<b>Regulated Retail Services</b>						
TEI Forecast	64.98	67.20	69.82	72.49	74.78	349.27
ERC Revised Forecast	61.38	62.46	63.91	65.39	66.87	320.00
Difference	-3.60	-4.74	-5.91	-7.10	-7.91	-29.27
<b>Total Operating and Maintenance Expenditure</b>						
TEI Forecast	174.49	183.44	190.03	199.00	210.12	957.07
ERC Revised Forecast	153.73	153.45	155.48	158.15	160.22	781.03
Difference	-20.75	-29.99	-34.55	-40.85	-49.90	-176.04
<b>Recommended Adjustment</b>	<b>-20.75</b>	<b>-29.99</b>	<b>-34.55</b>	<b>-40.85</b>	<b>-49.90</b>	<b>-176.04</b>

<sup>1</sup> This total includes RY2010 plus the Second Regulatory Period

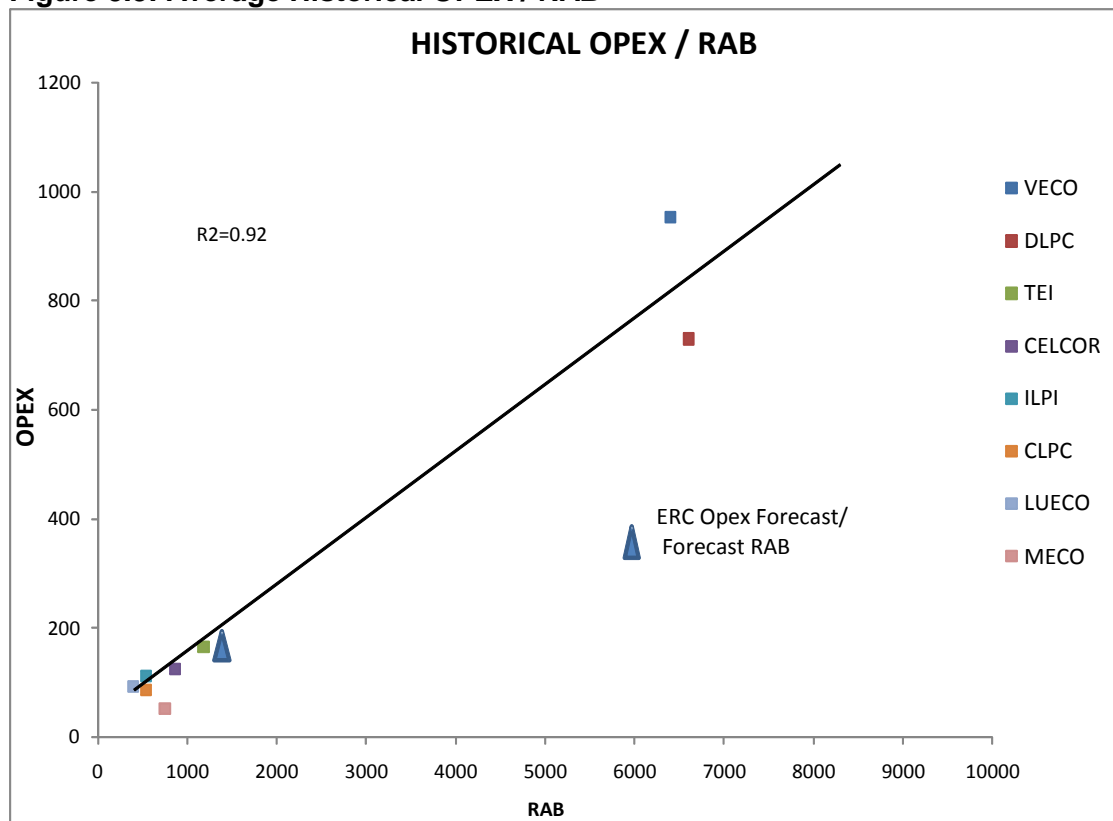
## 5.10 Inter Business Benchmarking

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

5.10.2 Figure 5.3 shows the study of OPEX vs. RAB with the average ERC adjusted forecasts plotted on the graph. This study includes three (3) DUs in the second entry point (MECO, CLPC and ILPI) given available data used in the analysis. The average ERC OPEX forecasts are marginally better than the efficiency frontier indicating relative efficiency. It should be noted that the coefficient of determination (R squared) for this study is 0.95 indicating a strong correlation between the dependent and independent variables.

5.10.3 Additionally, Figure 5.3 also shows the relative size of VECO and TEI with the size of TEI, CELCOR, ILPI, CLPC, LUECO and MECO. The utilities in the latter group are all grouped in the lower left side of the graph indicating low magnitudes of their asset base.

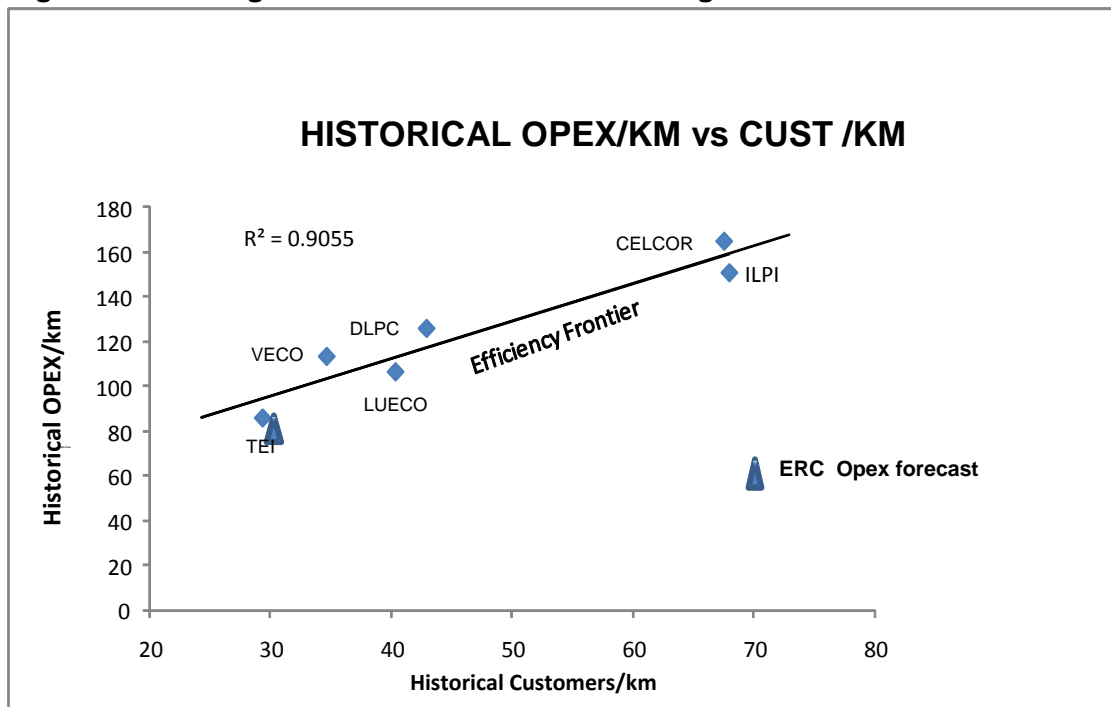
**Figure 5.3: Average Historical OPEX / RAB**



5.10.4 Figure 5.4 shows the normalized benchmarking study of OPEX/km vs. customers/km with the average ERC adjusted OPEX forecasts plotted on the graph. In this study, ERC included Iligan Light and Power, Inc. (ILPI), an entrant DU in the second entry point, given sufficient information to include it in this analysis. MECO and CLPC were not included given insufficient information for them to be included for this analysis. The ERC adjusted TEI OPEX forecast lies below the efficiency frontier hence ERC considers these forecasting to be relatively efficient.

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

**Figure 5.4: Average Historical OPEX Per Line Length and Customer Per Line Length**

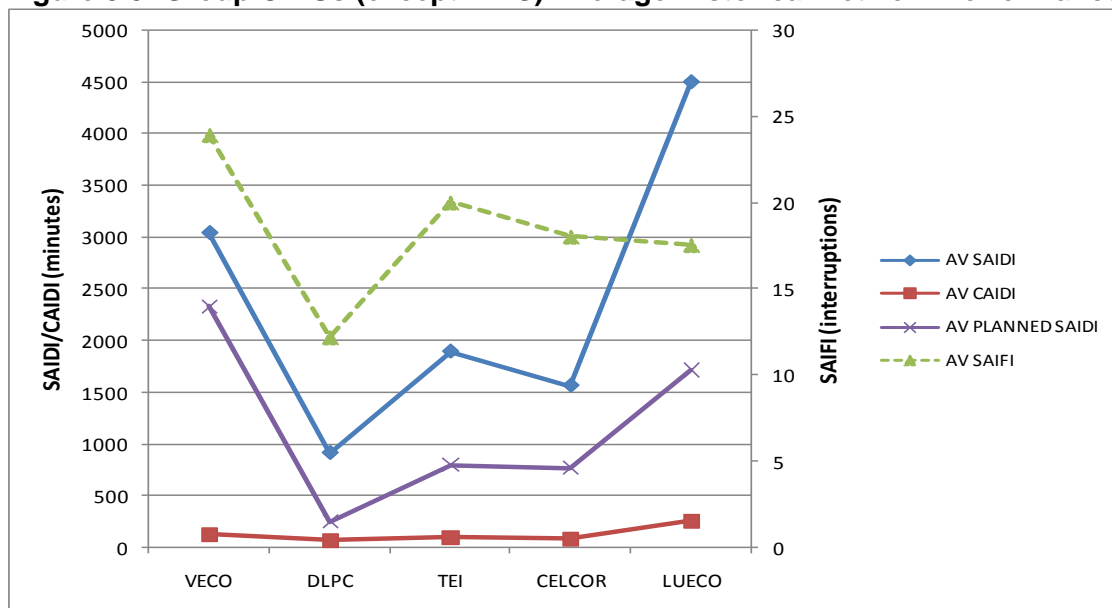


5.10.6 Based on these two benchmarking studies, ERC believes that its adjusted OPEX forecasts are relatively efficient.

## 5.11 OPEX vs. Performance/Efficiency Benchmarking

5.11.1 The ERC has benchmarked the historical network performance of five (5) of the six (6) DUs entering PBR at the third entry point, IEEC was excluded due to limited data available. The results of this analysis are shown graphically in Figure 5.5.

**Figure 5.5: Group C DUs (except IEEC) Average Historical Network Performance**



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

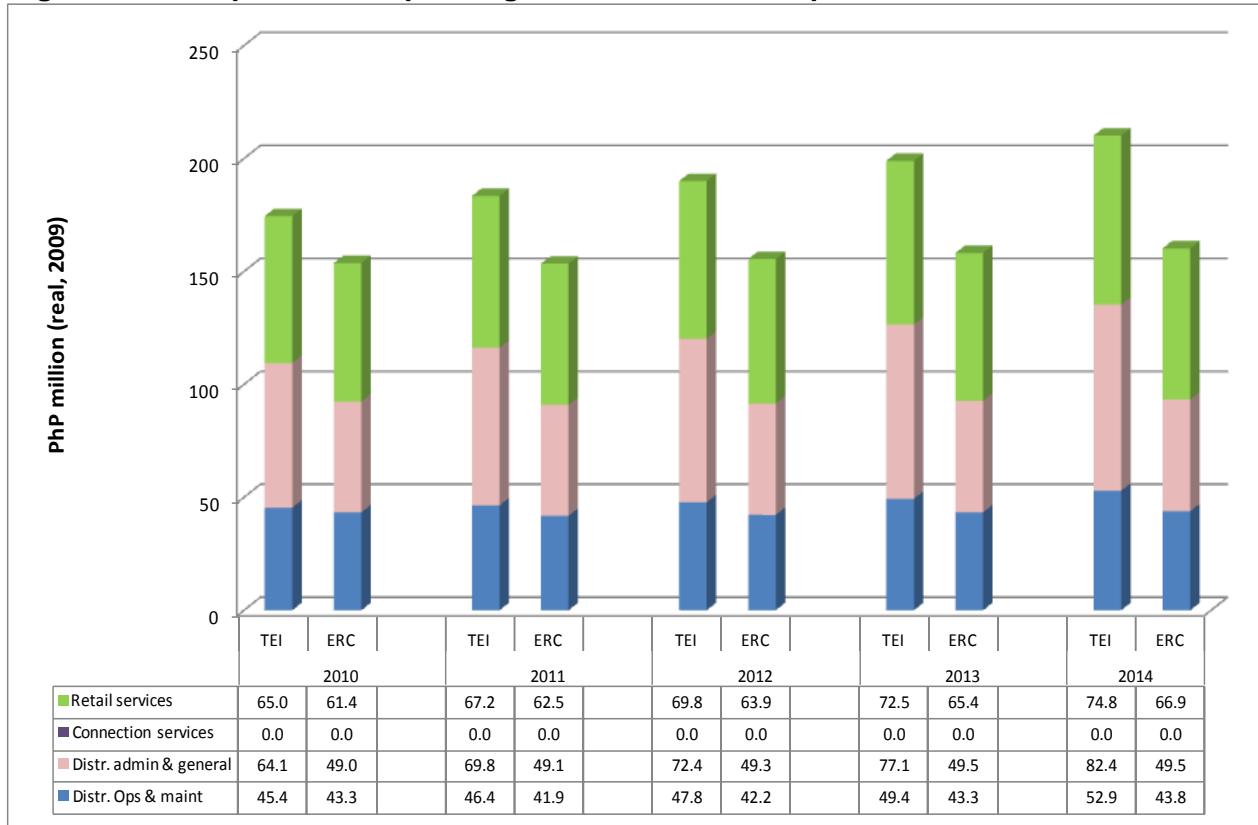
5.11.2 The above graph uses CY2006 to CY2008 data submitted by the utilities. The results are indicative only, since a formal benchmarking study using sufficient data-points, as would be required to draw accurate conclusions, could not be conducted.

## 5.12 ERC Final Determination on the Operating and Maintenance Expenditure

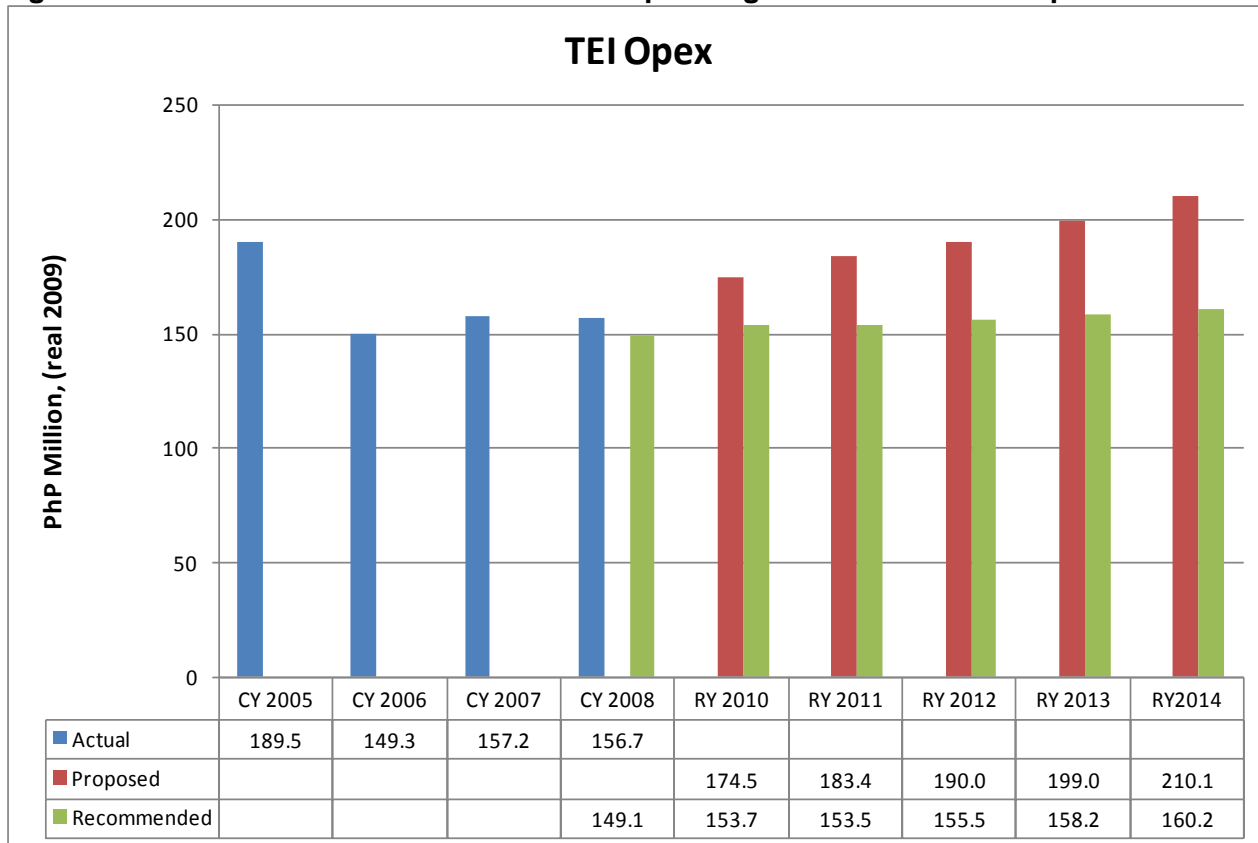
5.12.1 The recommended adjustments to distribution operating and maintenance and administrative and general after the Draft Determination are due to CAPEX adjustments. Increases in major projects, correspondingly increase the OPEX. Changes in the CAPEX timings also correspondingly change the timing of the OPEX.

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

**Figure 5.6: Comparison of Operating and Maintenance Expenditure Forecast**



**Figure 5.7: Historical and Forecast Trends – Operating and Maintenance Expenditure**



5.12.3 The ERC’s final determination for the allowed operating and maintenance expenditure forecasts for the Second Regulatory Period and for the 2010 regulatory year is indicated in Table 5.5. A more detailed breakdown of the approved operating and maintenance expenditure is provided in Appendix B.

**Table 5.5 : Final Determination on Operating and Maintenance Expenditure**

<b>PhP (Thousand)</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>TOTAL</b>
Nominal values	156,249	163,139	172,731	183,783	194,932	714,585
Real values (2009)	153,733	153,453	155,479	158,152	160,216	627,301

Note: The total excludes Regulatory Year 2010

(This space is left intentionally blank)

## **6. OTHER TAXES, LEVIES AND DUTIES**

### **6.1 Approach to other taxes, levies and duties expenditure forecasts**

- 6.1.1 Section 4.13.2 of the RDWR specifies the requirements for the forecasts required from Regulated Entities with respect to taxes, levies and duties (other than corporate income tax). TEI submitted its estimates for the taxes, levies and duties (other than corporate income tax) expenditure for the Second Regulatory Period as part of its Revenue Application.
- 6.1.2 Also included in the Revenue Application is the proposed expenditure on taxes, levies and duties (other than corporate income tax) for the 2010 Regulatory Year (July 1, 2009 to June 30, 2010). Under the current regulatory arrangements, there is no provision for the ERC to review any expenditure subsequent to the start of 2009<sup>26</sup>. Since TEI will be entering PBR at the start of the Second Regulatory Period six months into the 2010 calendar year, the expenditure over the period January 2009 to June 2010 had to be reviewed as part of the Revenue Application and the ERC has therefore decided to include TEI's expenditure program for the 2010 regulatory year as part of its review of the expenditure program for the Second Regulatory Period. The Regulated Entities were therefore required to submit details of this program as part of their Revenue Applications.
- 6.1.3 In terms of Section 4.13.4 of the RDWR, the ERC must retain a Regulatory Reset Expert (or Experts) to review the operating and maintenance expenditure forecasts for a Regulated Distribution System, as well as the supporting information, in isolation or in cooperation with ERC staff, or the ERC may decide to conduct the review internally. The ERC has decided to conduct the review internally.
- 6.1.4 The findings and recommendations of ERC with regard to the forecast expenditure on taxes, levies and duties (other than corporate income tax) as submitted by TEI are included in the OPEX Review Report.<sup>27</sup> This forms the basis of the taxes, levies and duties (other than corporate income tax) expenditure forecasts analyzed and approved by the ERC, as described below. Since the OPEX Review Report is available for public review, only the main findings are replicated below.
- 6.1.5 Considering the submissions on the Draft Determination, ERC deems that no adjustment to the originally recommended expenditure on other taxes, levies and duties is necessary.

### **6.2 Purpose of the taxes, levies and duties expenditure**

- 6.2.1 As part of its normal operations, a distribution utility has certain obligations to pay various license fees, levies, duties and other taxes (excluding corporate income tax) to various authorities and/or industry bodies. Failure to incur these expenses would lead to severe penalties and possible suspension of operations.
- 6.2.2 Expenditure on taxes, levies and duties (other than corporate income tax) constitutes one of the building blocks on which the calculation of the annual revenue requirement for Regulated Entities is based and therefore has a direct impact on the price cap determined under PBR. The approved license fees, levies, duties and other taxes (excluding corporate

---

<sup>26</sup> This is because no more rate cases will be filed for the Third Entry Group under the current return-on-rate-base form of regulation.

<sup>27</sup> ERC Operating and Maintenance Expenditure (OPEX) Review report titled “*REVIEW OF OPERATING AND MAINTENANCE EXPENDITURE FORECAST: SECOND REGULATORY PERIOD – Tarlac Electric, Inc(TEI)*”, dated October 19, 2009

income tax) expenditure is therefore directly recovered from customers as part of their distribution tariffs.

### 6.3 License fees, levies, duties and other taxes expenditure proposed by TEI

6.3.1 TEI's historical expenditure on license fees, levies, duties and other taxes (excluding corporate income tax) and the forecast expenditure as submitted in its Revenue Application are shown in Table 6.1.

**Table 6.1: TEI Application for License Fees, Levies, Duties and Other Taxes Expenditure (Figures as in the original Revenue Application)**

Year	CY 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014
<b>Taxes (in Millions PhP, real 2009)</b>						
Business Operation Permit	-	-	-	-	-	-
Community Tax	0.01	0.01	0.01	0.01	0.01	0.01
Real Property Tax	0.27	0.28	0.67	0.28	0.28	0.67
Admin/Regulatory Fee	-	-	-	-	-	-
Registration Fees	0.35	0.35	0.36	0.37	0.37	0.39
Other Documentary Stamp Tax	0.28	0.58	0.60	0.99	1.40	1.43
<b>Sub-Total Taxes</b>	<b>0.91</b>	<b>1.22</b>	<b>1.65</b>	<b>1.65</b>	<b>2.06</b>	<b>2.50</b>
<b>Levies</b>						
Regulatory Reset Expert Fees	0.90	0.90	2.11	0.26	0.26	0.25
<b>Taxes, Levies and Duties</b>	<b>1.81</b>	<b>2.12</b>	<b>3.76</b>	<b>1.92</b>	<b>2.32</b>	<b>2.75</b>

6.3.2 The TEI application, in real figures, is indicated in Table 6.2, together with historical expenditure on license fees, levies, duties and other taxes.

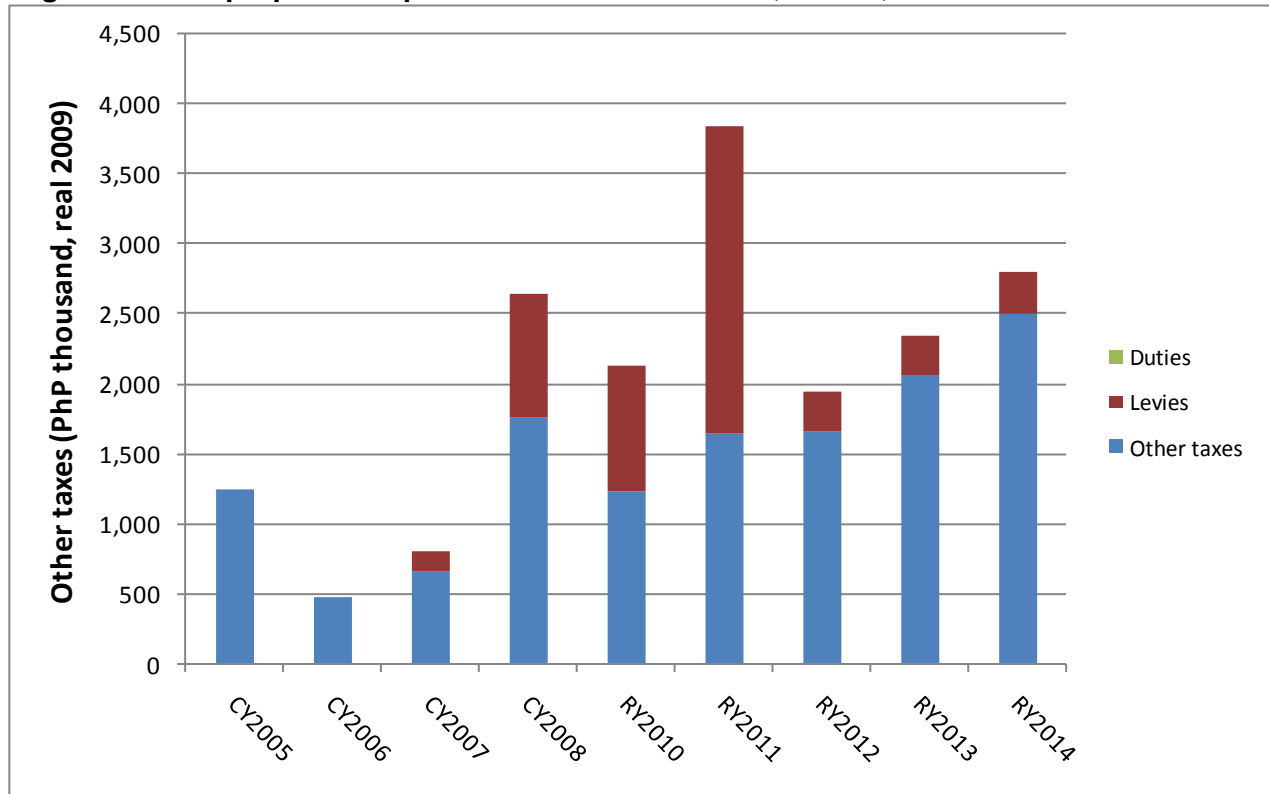
**Table 6.2: TEI's Application for License Fees, Levies, Duties and Other Taxes Expenditure (Figures revised by using the ERC financial indices forecasts)**

	Actual (PhP thousand (real, 2009))				Forecast (PhP thousand (real, 2009))				
	CY2005	CY2006	CY2007	CY2008	RY2010	RY2011	RY2012	RY2013	RY2014
Other taxes	1,250	478	657	1,764	1,222	1,646	1,652	2,058	2,498
Levies	0	0	142	882	909	2,203	285	291	296
Duties	0	0	0	0	0	0	0	0	0
	1,250	478	799	2,646	2,130	3,849	1,937	2,349	2,794

Note: Given the 6-month overlap between the 2009 calendar year and the 2010 regulatory year to avoid distorting the trend, there was no 2009 figure included in the table.

6.3.3 In Figure 6.1, the TEI forecast expenditure (as revised by using the ERC financial indices forecast) on license fees, levies, duties and other taxes is graphically represented, in real (2009) values. From Figure 6.1, TEI is clearly anticipating very substantial increases in license fees, levies, duties and other taxes expenses during the Second Regulatory Period. The high increase in Taxes for 2011 is attributable to the forecast payment of the regulatory reset expert fees, as provided in the RDWR.

**Figure 6.1: TEI proposed Expenditure on License Fees, Levies, Duties and Other Taxes**



#### 6.4 Analysis of license fees, levies, duties and other taxes expenditure

6.4.1 ERC's review of TEI's forecasts for license fees, levies, duties and other taxes during the Second Regulatory Period is discussed in detail in the OPEX Review Report. The ERC suggests the following disallowances in TEI's application:

- The annual provision for real property tax has been adjusted down to the values of CY 2008 due to the fact that TEI provided insufficient justification for the proposed forecast increases.
- The component of vehicle registration fees remains constant in real terms. In the event of changes in the imposition of such taxes, RDWR allows relevant tax change events to be recovered.

6.4.2 The summary of the adjustments and the provision for taxes, levies and duties after adjustments are shown in Table 6.3.

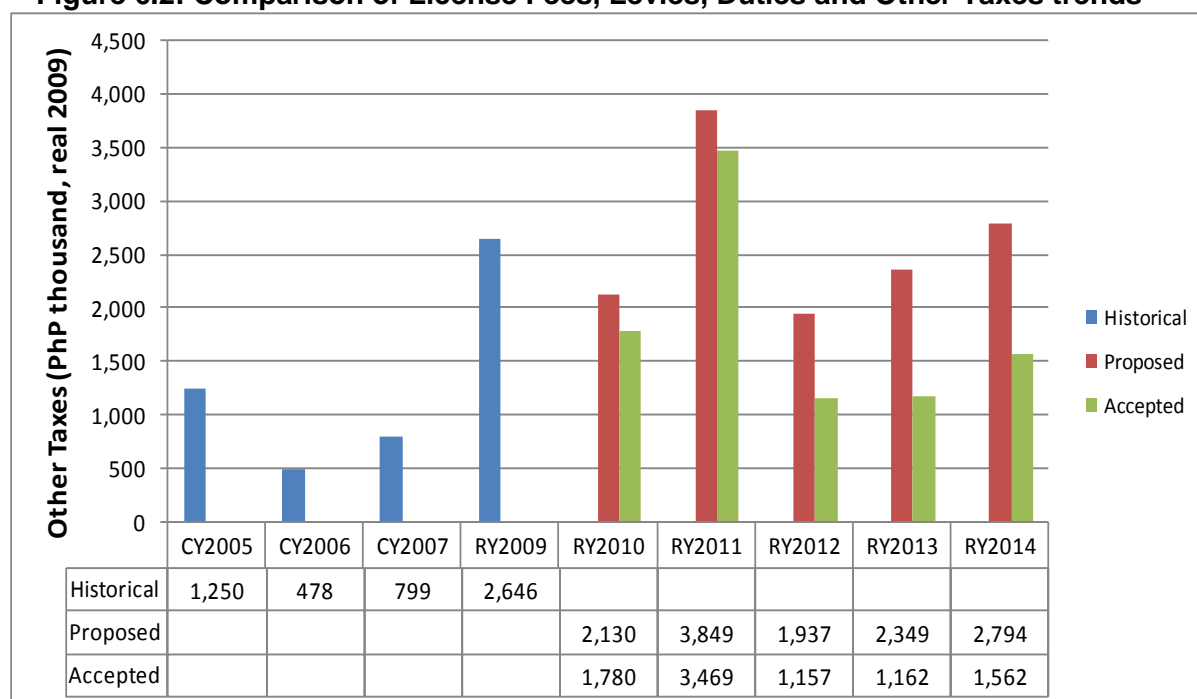
**Table 6.3: ERC Provision for Taxes, Levies and Duties (PhP million, real 2009)**

Year	CY 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014
<b>Proposed in TEI's Revenue Application</b>						
Taxes, Levies and Duties	1.81	2.12	3.76	1.92	2.32	2.75
<b>Adjustments</b>						
Real Property Tax	-	-0.35	-0.37	-0.76	-1.17	-1.19
Registration of Service Vehicles	-	-	-0.01	-0.02	-0.02	-0.04
<b>Total Adjustments</b>	-	<b>-0.35</b>	<b>-0.38</b>	<b>-0.78</b>	<b>-1.19</b>	<b>-1.23</b>
<b>Recommended Provision for Taxes, Levies and Duties</b>	<b>1.81</b>	<b>1.77</b>	<b>3.38</b>	<b>1.14</b>	<b>1.13</b>	<b>1.52</b>

## 6.5 Final determination on license fees, levies, duties and other taxes

- 6.5.1 The ERC accepts the original and updated (no change) recommendations with regards to TEI's forecast for license fees, levies, duties and other taxes.
- 6.5.2 In Figure 6.2 below, the historical and forecast trend is illustrated, based on the ERC's allowance for license fees, levies, duties and other taxes expenditure during 2008 and the Second Regulatory Period.

**Figure 6.2: Comparison of License Fees, Levies, Duties and Other Taxes trends**



6.5.3 In Table 6.4, the ERC’s Final Determination for the forecast license fees, levies, duties and other taxes (other than corporate income tax) for the Second Regulatory Period and the 2010 Regulatory Year is presented. A more detailed breakdown of the allowed expenditure is provided in Appendix C.

**Table 6.4 : Final Determination on License Fees, Levies, Duties and Other Taxes Expenditure**

PhP (Thousand)	<b>RY2010</b>	<b>RY2011</b>	<b>RY2012</b>	<b>RY2013</b>	<b>RY2014</b>	<b>TOTAL</b>
Nominal values	1,809	3,688	1,285	1,350	1,901	8,225
Real values (2009)	1,780	3,469	1,157	1,162	1,562	7,350

Note: The total is excluding Regulatory Year 2010

(This space is left intentionally blank)

## **7. REGULATORY ASSET BASE**

### **7.1 Approach to the RAB**

- 7.1.1 The regulatory asset base (RAB) represents the assets used by a Regulated Entity to provide Regulated Distribution Services and covers the Regulated Distribution System assets as well as the Non-system Assets.
- 7.1.2 While it is the intent to separate Distribution Connection Assets from the RAB in the future once Distribution Connection Services are applied in a competitive environment, these assets are presently still included in the RAB.
- 7.1.3 Under PBR, Regulated Entities are entitled to earn a return on the value of their rolled-forward RAB, as part of the annual allowed revenue requirement. The value of the RAB therefore has a direct bearing on the price consumers pay for electricity distribution.

### **7.2 Opening valuation of the RAB**

- 7.2.1 Section 4.8 of the RDWR describes the approach to the opening valuation of the RAB. An optimized depreciated replacement cost (ODRC) valuation methodology is adopted. This method is used to ensure that only those assets that are required to provide efficient distribution services and allows efficient planning and investment in distribution assets are included in the RAB. Assets not meeting these criteria are optimized out.<sup>28</sup>
- 7.2.2 The ERC opted to appoint a regulatory reset expert to assist it to establish the initial revaluation of the Regulated Entities' RAB, rather than to require them to conduct their own valuation and present this to the ERC. This was in accordance with Clause 4.8.2(b) of the RDWR.
- 7.2.3 Sinclair Knight Merz (SKM) and Cuervo Appraisers, Inc. (CAI) (hereafter jointly referred to as SKM) were appointed as the regulatory reset experts to conduct the initial revaluation for TEI. The results of their valuation are described in the Initial Revaluation Report<sup>29</sup> and were accepted by the ERC. These reports were also presented to TEI, who likewise indicated their acceptance of SKM's recommended valuation of the RAB at the Initial Revaluation Date. Since the Initial Revaluation Report has been separately published and is publicly available, only the key points from this report, as it pertains to the Draft Determination, will be repeated here.
- 7.2.4 The value of the RAB at the Initial Revaluation Date (December 31, 2008) is presented in Table 7.1. There were some asset optimizations performed for TEI.
- 7.2.5 For this asset valuation project process the standard asset lives used in the previous two entry groups were assessed by SKM and adopted as per a report done by PB Associates. These asset lives were used as basis for the depreciation of the assets in the RAB, using a straight-line depreciation method

---

<sup>28</sup> The optimization approach is described in Clause 4.8.6 and Appendix D of the RDWR

<sup>29</sup> SKM report titled "*Tarlac Electric, Incorporated Regulatory Asset: Valuation Date: 31 December, 2009*", dated April 24, 2009

**Table 7.1 : Value of RAB at Initial Revaluation Date (December 31, 2008)**

Asset Category	Replacement Cost (PhP)	Optimized Replacement Cost (PhP)	Optimized Depreciated Replacement Cost (PhP)
Distribution assets	911,664,944	902,035,535	673,161,341
Non-system assets	316,823,180	235,818,569	199,418,247
Connection assets	46,163,944	45,456,404	33,014,585
Retail services assets	121,392,051	121,392,051	78,366,794
<b>TOTAL</b>	<b>1,396,044,119</b>	<b>1,304,702,559</b>	<b>983,960,967</b>

Source : SKM and Cuervo Appraisers, Inc.

7.2.6 The calculation of the opening value of the RAB for the Second Regulatory Period (July 1, 2010) is derived as follows:

$$\begin{aligned}
 \text{Opening value of the RAB} &= \text{Value of the RAB at the Initial Revaluation Date} \\
 &\quad \text{minus} \\
 &\quad \text{Depreciation of the initial RAB to June 30, 2010} \\
 &\quad \text{plus} \\
 &\quad \text{Inflation of the initial value to a June 2010 basis} \\
 &\quad \text{plus} \\
 &\quad \text{Approved CAPEX for the 2010 regulatory year (RY)} \\
 &\quad \text{minus} \\
 &\quad \text{Depreciation of assets acquired during 2010 (RY)} \\
 &\quad \text{minus} \\
 &\quad \text{Disposal of assets during 2010 (RY)} \\
 &\quad \text{plus} \\
 &\quad \text{CWIP allowance}
 \end{aligned}$$

7.2.7 The depreciation of the initial asset base as well as the assets acquired during 2010 is discussed in Section 7.4. The approved capital expenditure program for 2010 is discussed in Section 4.9. Disposal of assets is as reported by TEI in the Revenue Application.

7.2.8 The construction work in progress factor (CWIP factor) is described in Section 4.8.9 of the RDWR. This is to compensate Regulated Entities for the investment cost of capital tied up during construction of major projects. During the reset period for the First Entry Group, the ERC conducted a study on the appropriate CWIP factor for typical distribution projects, based on information provided by and consulted with Regulated Entities. Based on this study, a CWIP factor was determined by the ERC and was communicated to the First Entry Regulated Entities prior to the filing of their Revenue Applications.<sup>30</sup> This was further updated for the Final Determination for the Second Entry Group and the Regulated Entities

<sup>30</sup> The findings are described in the ERC report titled “Performance Based Regulation of Privately Owned Electricity Distribution Utilities (First Entry Point) : Preliminary Calculation of the Construction Work in Progress Factor that will apply during the Second Regulatory Period”, dated August 28, 2006

in the Third Entry Group were advised to use the same CWIP figures for their Revenue Applications.

Updated information had subsequently been received from the Third Entry Group, and was analyzed. Overall, the project construction periods did not vary significantly from that submitted by the First Entry Group. The ERC has therefore decided to adopt the resulting CWIP factor computed using the new WACC used for the Final Determination. This is indicated in Table 7.2. The CWIP factor only applies to Regulated Distribution Assets and Distribution Connection Assets, and to Non-network structures and improvements.

**Table 7.2 : CWIP Factors Adopted for the Final Determination**

Project category	CWIP factor
Substations	4.20%
All other capital projects	2.98%

Source: ERC analysis

7.2.9 Inflation of the initial asset value (Dec. 31, 2008) to the opening value (July 1, 2010) is done using the Philippines inflation rate forecast for the calendar year 2009 and regulatory year 2010 adopted by the ERC.

### 7.3 Final Determination on the opening value of the RAB

7.3.1 The ERC's Final Determination of the TEI RAB opening value is indicated in Table 7.3.

**Table 7.3 : Opening Value of the TEI RAB at June 30, 2010 (PhP Million)**

Asset Category	Initial value	Depreciation original base up to June 2010	Inflation of asset base to June 2010	Approved Jan 2008 to Jun 2010 capex	Depreciation of additions	Disposals	CWIP allowance	Opening RAB for 2nd Regulatory Period
<b>Distribution Assets</b>								
Land and structures	114.5	0.3	6.4	0.0	0.0	0.0	0.2	120.7
Substation Equipment	159.3	11.1	8.3	-39.4	-0.7	0.0	4.9	122.7
Distribution Lines - network	260.9	16.7	13.7	50.4	1.9	5.2	9.2	310.4
Underground distribution network	1.2	0.1	0.1	0.0	0.0	0.0	0.0	1.2
Line Transformers - Distribution	137.2	8.7	7.2	0.0	0.0	0.0	4.0	139.8
Other	0.0	0.0	0.0	49.7	0.9	0.0	2.0	50.9
<b>Non-network assets</b>								0.0
Land and structures	93.7	0.8	5.2	0.0	0.0	0.0	0.4	98.5
Furniture, transportation, tools	18.2	4.7	0.8	2.6	0.2	0.0		16.7
Materials, supplies and spares	61.7	0.0	3.5	0.0	0.0	0.0		65.2
Other	25.8	9.3	0.9	9.0	1.4	0.0		24.9
<b>Connection assets</b>								0.0
Overhead connections	23.6	1.6	1.2	0.0	0.0	0.0	0.7	23.9
Underground connections	9.4	0.6	0.5	0.0	0.0	0.0	0.3	9.6
Non-network assets	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Retail service assets</b>								0.0
Metering	78.4	6.6	4.0	4.6	0.2	0.0	0.0	80.1
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Transferred subtrans. assets</b>								0.0
Other	0.0	0.0	0.0	0.0	0.0	0.0		0.0
<b>TOTAL</b>	<b>984.0</b>	<b>60.4</b>	<b>51.7</b>	<b>76.9</b>	<b>3.9</b>	<b>5.2</b>	<b>21.8</b>	<b>1,064.8</b>

Source : TEI application, SKM Valuation, ERC analysis

## 7.4 Regulatory depreciation

- 7.4.1 The ERC reviewed TEI's calculations of regulatory depreciation (Schedules A6, E1 and E2 of the Revenue Application) and made some adjustments to consider standard asset lives.
- 7.4.2 For the calculation of the historical cost depreciation of the original asset base at the Initial Re-valuation Date, TEI's submitted figures were accepted. The purpose of including the historic cost depreciation is to align the depreciation amount used in calculating the corporate income tax building block with the actual depreciation figure used in TEI's financial statements. It is therefore important to maintain this consistency.
- 7.4.3 The historical cost depreciation of assets acquired during the 2010 regulatory year and the Second Regulatory Period, is assumed to be identical to the regulatory depreciation. This requires TEI to modify the standard lives used in its financial statements for new assets (acquired after December 2008) to ensure consistency with the regulatory asset lives. Failing this, a divergence between the historical cost depreciation used to calculate the corporate income building block and TEI's asset depreciation used to determine its actual corporate income tax payments is likely to occur.
- 7.4.4 In Table 7.4, a summary is provided of the regulatory depreciation (ODRC basis) of the TEI asset base, as calculated by the ERC. The historical cost depreciation is presented in Table 7.5. In terms of the RDWR (Clause 4.10), disposals are included in the depreciation amounts. The forecasts provided by TEI in their Revenue Application are included below. Forecast income from disposals was reduced from the value of the disposed assets.

**Table 7.4 : Summary of ODRC Depreciation of the TEI RAB (calculated by the ERC)  
(PhP Millions)**

<b>ODRC depreciation</b>	<b>RY2010</b>	<b>RY2011</b>	<b>RY2012</b>	<b>RY2013</b>	<b>RY2014</b>
Depreciation of the opening asset base	40.3	43.5	43.4	40.3	34.1
Depreciation of assets acquired Jan '09-June '10	3.3	4.4	4.4	4.4	4.4
Depreciation of assets acquired during the 2nd regulatory period	0.0	3.0	9.6	14.3	16.8
<b>Subtotal</b>	<b>43.6</b>	<b>50.9</b>	<b>57.4</b>	<b>59.0</b>	<b>55.4</b>
plus Disposals	3.1	1.0	0.8	9.7	6.8
minus Income from disposals	0.0	0.0	0.0	-0.2	0.0
<b>TOTAL</b>	<b>46.7</b>	<b>52.0</b>	<b>58.2</b>	<b>68.5</b>	<b>62.2</b>

Source : ERC analysis

## 7.5 Final Determination – Rolled Forward asset base

- 7.5.1 The ERC's Final Determination on the value of the rolled-forward asset base for the Second Regulatory Period, as determined through the ERC modeling, is presented in Table 7.5.

**Table 7.5: Value of the Rolled Forward Regulatory Asset Base (PhP Thousand)**

	<b>RY2010</b>	<b>RY2011</b>	<b>RY2012</b>	<b>RY2013</b>	<b>RY2014</b>
Opening Value of RAB		1,064,787	1,128,117	1,188,265	1,201,373
Depreciation on RAB		51,968	58,217	68,528	62,168
Capital Expenditure		114,810	118,366	50,835	59,721
Change in Assets used over Regulatory lives		488	0	30,800	0
Closing Value of RAB	1,064,787	1,128,117	1,188,265	1,201,373	1,198,926
<b>Average RAB for the Year</b>	<b>1,064,787</b>	<b>1,096,452</b>	<b>1,158,191</b>	<b>1,194,819</b>	<b>1,200,149</b>

Source : ERC analysis and financial model

## **7.6 Final Determination on Working Capital**

- 7.6.1 The RDWR allows Regulated Entities to recover a return on the working capital tied up in the operation of their Regulated Distribution Systems. The ERC conducted a lead/lag study to ascertain the allowance that should be made for such working capital and determined that this is relatively minor.
- 7.6.2 During consultation by the ERC prior to the filing of the Revenue Applications on the appropriate working capital allowance, the Regulated Entities indicated that they have a greater concern about the significant amounts of working capital tied up in their energy purchases, for which they have no recourse to recover. The ERC pointed out that energy purchases is not a Regulated Distribution Service and as such should not be included in the maximum average price-cap for such services. Likewise, working capital on energy purchases should not be recovered in the allowed annual revenue requirement. However, since the ERC recognizes that the current unbundled rate structure does not allow for the recovery of working capital on energy purchases and for the Second Regulatory Period, has therefore approved to include an allowance for capital tied up in energy purchases as part of the working capital for Regulated Distribution Services.
- 7.6.3 In the Final Determination for the Second Entry Group, a lead-lag information was provided by the Second Entry Group Regulated Entities. Based on an analysis of this information, it occur that the average lag time until payment of electricity accounts is 40 days – well in excess of the standard payment terms, which varies between 10 and 20 days. For the First Entry Group the ERC assumed an efficient payment period of 15 days. In considering this additional information, it appears that this period may be too low and it has now been set at 25 days, which is similar to that used for the Second Entry Group. Since the ERC wishes to ensure that a strong incentive remains on Regulated Entities to pursue electricity account payments, this period is still substantially less than the actual average payment period experienced by the Regulated Entities. As a result, the working capital factor is set at 4.9% of the operating and maintenance expenditure allowed (compared with the 3% allowed for the First Entry Group).
- 7.6.4 In the previous determinations, the ERC therefore concluded that it is not appropriate to allow any working capital for energy purchases. It accepts that the Regulated Entities do have a longer debtor settlement period than that contracted and that they therefore would have working capital tied up in energy purchases. However, the ERC believes that late payments should be made subject to penalties to recover this lost working capital, rather than recover this from the distribution (or energy) rates, which would penalize those customers who are paying their accounts within the prescribed time.

7.6.5 Further lead/lag information was provided by the Third Entry Group Regulated Entities. Based on the analysis of this information, it appeared that the average lag time until payment of electricity accounts is 45 days – well in excess of the standard payment terms, which varies between 10 and 25 days. For the Second Entry Group the ERC assumed an efficient payment period of 20 days. Considering this additional information, it appears that this period may be too low and it has now been set at 25 days. Since the ERC wishes to ensure that a strong incentive remains on Regulated Entities to pursue electricity account payments, this period is still substantially less than the actual average payment period experienced by the Regulated Entities. As a result, the working capital factor is increased to 6.85% of the operating and maintenance expenditure allowed (from the 4.9% allowed for the Second Entry Group).

(This space is left intentionally blank)

## 8. WEIGHTED AVERAGE COST OF CAPITAL

### 8.1 Purpose of the Regulatory WACC

8.1.1 The Regulatory Weighted Average Cost of Capital (WACC) is the rate at which the return on capital (the RAB and working capital) is calculated for inclusion in the allowed revenue requirement. In addition, it is also used in the calculation of the CWIP factor (see Paragraph 7.2.8). It is therefore one of the key parameters to be determined for the Second Regulatory Period.

### 8.2 Approach to the WACC

8.2.1 During the regulatory reset period for the First Entry Group, the ERC prepared a report<sup>31</sup> (the WACC Report) and conducted public consultation on the manner in which the Regulatory WACC for the Second Regulatory Period should be determined. After the consultation, the recommended methodology described in the WACC Report was accepted.

8.2.2 The preliminary WACC figures used in the WACC report was updated by the ERC for the Final Determination of the First Entry Group, based on the economic indices and other parameters at the time of the decision. This resulted in a “vanilla” WACC figure of 12.80%.

8.2.3 For the Second Entry Group, the ERC decided to use the same approach in determining the WACC that it had applied for the Final Determination of the First Entry Group. It however adopted some modifications to reduce the impact of volatility in some of the base parameters used, to avoid undue volatility in the WACC itself. In particular, given the major variability in the local consumer price index and hence the inflation differential with the US CPI, a parameter that is used to determine the risk-free rate, the ERC adopted a 12-month average CPI figure to determine the inflation differential, rather than the spot-rates applied for previous decisions. The ERC also used the Philippines average country risk premium of the last two years rather than the longer term average applied before.

8.2.4 In addition, following industry consultation on the RDWR on December 8, 2008, further changes in the manner of calculating the regulatory WACC were introduced, which were accepted for the Final Determination of the Second Entry Group. In particular, the changes reflecting the higher risks faced by investors in Philippines electricity distribution infrastructure compared with investors in developed overseas markets were addressed:

- Due to the developing nature of the local economy and the utility infrastructure business, the systemic risk faced by investors in Philippines utilities are higher than that faced by investors in comparable utilities in developed countries. It is therefore not appropriate to directly compare the observed asset beta of international utilities with the local environment, and these observed values will therefore be adapted (increased) by a factor of a quarter (25%).
- The point value at which the WACC will be set from the range of likely values determined by the ERC<sup>32</sup>, will now be at the 75<sup>th</sup> percentile of the range, as opposed to the 50<sup>th</sup> percentile (mean) used in the past. This is to reflect the developing nature of PBR in the Philippines and the regular challenges and delays associated with the process, which add considerably to the regulatory risk faced by Regulated Entities.

<sup>31</sup> ERC report titled “PRELIMINARY CALCULATION OF THE REGULATORY WEIGHTED AVERAGE COST OF CAPITAL THAT WOULD APPLY DURING THE SECOND REGULATORY PERIOD” dated July 26, 2006.

<sup>32</sup> A range of values is determined to reflect the uncertainty in the value of many of the parameters used to determine the WACC.

8.2.5 The ERC proposes to use the same methodology to determine the WACC for the Third Entry Group to that applied for the Final Determination of the Second Entry Group. The underlying parameters were updated to reflect October 2009 values. The main discussion points relating to the calculation of the regulatory WACC are provided below.

### 8.3 WACC Methodology

8.3.1 The WACC formula adopted by the ERC, as described in Section 4.11 of the RDWR, is for the so-called “Vanilla WACC”:

$$\text{WACC} = [r_e \times E / V] + [r_d \times D / V]$$

Where:

$r_e$  = the cost of equity;

with  $r_e = r_f + \beta_e \times \text{MRP}$

where  $r_f$  = the risk-free rate;

$\beta_e$  = the equity Beta; and

MRP = market risk premium, set at 6% for the Second Regulatory Period

$r_d$  = the cost of debt;

with  $r_d = r_f + \text{DM}$

where  $r_f$  = the risk-free rate; and

DM = the debt margin in the Philippines

E = the amount of equity funding assumed for regulatory purposes in the capital structure of the Regulated Entity, being 60% of V for the Second Regulatory Period;

D = the amount of debt funding assumed for regulatory purposes in the capital structure of the Regulated Entity, being 40% of V for the Second Regulatory Period; and

V = E + D.

8.3.2 The calculation of the WACC is straightforward, but considerable uncertainty surrounds the determination of the underlying parameters. Setting these parameters, which are subject to various manners of interpretation, is often contentious. While the approach to the WACC adopted by the ERC has been largely unchallenged for the regulatory reset for the distribution utilities, it was thoroughly tested and challenged during the regulatory reset for TransCo before being finalized. The adopted methodology is therefore considered sound and robust.

8.3.3 The risk-free rate was estimated using two approaches – a direct measure using the yields on long dated Philippines Treasury bonds (in Peso); and an indirect measure using yields on long dated USA Treasury bonds (US\$), adjusted for the inflation differential between the Philippines and the USA, and the Philippines country risk. Since the indirect method appears more robust given the very low trading volumes in long dated Philippine bonds, the ERC used this and determined a value of between 8.40% to 10.35% for the risk-free rate.

- 8.3.4 In the absence of sufficient local evidence on the appropriate equity Beta ( $\beta_e$ ) for electricity distribution businesses, this figure is derived from international observations<sup>33</sup>. Since these observations generally reflect the financing structure of the observed companies, it is necessary to de-lever the observed  $\beta_e$  figures and re-lever these using the gearing ratio adopted by the ERC (60:40 debt equity ratio). The ERC sourced data from Bloomberg on various overseas electricity companies, resulting in a  $\beta_e$  estimate of 1.15. This was compared against research data published by Prof. Anwath Damodaran of the Stern University<sup>34</sup> which resulted in the same value (1.15). Finally, international regulatory decisions of recent years were considered, resulting in an indicative  $\beta_e$  range of 1.06 to 1.25. However, the ERC concluded that the regulatory decisions were made in more developed, stable environments where the risk faced by Regulated Entities would be less than in the Philippines, under a new and developing regulatory regime. In conclusion, the ERC therefore accepted a  $\beta_e$  figure of 1.15.
- 8.3.5 Based on its investigation of the debt margin, the ERC concluded that a figure of 2.5% is appropriate. This is somewhat higher than its similar decision for TransCo (2.3%), but reflects the smaller size and somewhat higher risk proposition of distribution companies.
- 8.3.6 Taking into account the values above, the calculation of the indicative range for the regulatory WACC for the third entry group of Philippine electricity distribution utilities for the Second Regulatory Period is indicated in Table 8.1.
- 8.3.7 The ERC notes that this calculated range is substantially lower than that indicated in its WACC calculation for the Second Entry Group – this is a reflection of the impact of the changes in the economic situation in the Philippines over the last 12 months, and the recent changes made to the RDWR to provide a fair return on investment.

## 8.4 Final Determination – Regulatory WACC

- 8.4.1 The ERC's Final Determination on the Regulatory WACC that will apply for the Third Entry Group's Second Regulatory Period is to accept a figure at the 75<sup>th</sup> percentile of the indicated WACC range as calculated in Table 8.1. This is a "vanilla" WACC and is set at 15.01% (p.a.).

(This space is left intentionally blank)

---

<sup>33</sup> It is noted that Meralco is the only electricity distribution company traded in the Philippine stock exchange. However, given its energy trading and supply activities, it has the characteristics of a vertically integrated company rather than a stand-alone distribution business. Its risk profile is therefore not considered an appropriate benchmark for setting the  $\beta_e$  for local electricity distribution companies.

<sup>34</sup> <http://pages.stern.nyu.edu/~adamodar/>

**Table 8.1 : Calculation of the Regulatory WACC – Third Entry Group**

		<i>Mid Range Regulatory WACC Estimate by ERC</i>		
<b>Parameters</b>		<b>Low</b>	<b>Mid</b>	<b>High</b>
Gearing (Debt) ratio	$D/(D+E)$	45%	40%	35%
Equity ratio	$E/(D+E)$	55%	60%	65%
Debt to Equity	$D/E$	0.82	0.67	0.54
Asset beta (degeared empirical beta)	$\beta_a$	0.688	0.688	0.688
Debt beta	$\beta_d$	0.080	0.180	0.280
Risk free rate (nominal - US\$ 10 Year Bond Yields in USA)		3.62%	3.71%	3.79%
Country Risk Margin (excluding FX Risk)	CRP	1.56%	1.94%	2.32%
Risk free rate used in WACC	$R_f$	8.40%	9.38%	10.35%
Debt Margin	DM	2.00%	2.50%	3.00%
<b>Cost of debt (pre-tax nominal peso terms)</b>	<b><math>K_d</math></b>	<b>10.40%</b>	<b>11.88%</b>	<b>13.35%</b>
Market Risk Premium (Developed Country)	$R_m - R_f$	6.00%	6.00%	6.00%
Corporate tax rate	$t_c$	30.0%	30.0%	30.0%
Inflation rate (Philippines)	$i$	1.93%	3.12%	4.30%
Inflation Rate (USA)		(1.05%)	(0.34%)	0.37%
<b>Calculated Equity (Regeared) Betas</b>		<b>Low</b>	<b>Mid</b>	<b>High</b>
Equity Beta (1) Simple No Tax Adjustment - RDWR	1	1.25	1.15	1.06
Equity Beta (2) Simple Tax Adjustment	2	1.08	1.01	0.95
<b>Other Parameters</b>				
Equity beta (geared beta)	$\beta_e$	1.25	1.15	1.06
<b>Cost of Equity (post-tax nominal)</b>	<b><math>K_e</math></b>	<b>15.91%</b>	<b>16.26%</b>	<b>16.70%</b>
<b>WACC Matrix - Commercial Practice &amp; RTWR</b>				
<b>Post-tax nominal</b>		<b>12.03%</b>	<b>13.08%</b>	<b>14.13%</b>
Post-tax real		9.91%	9.66%	9.42%
Pre-tax nominal		17.18%	18.69%	20.18%
<b>Pre-tax real</b>		<b>14.96%</b>	<b>15.10%</b>	<b>15.22%</b>
<b>Vanilla WACC (nominal)</b>		<b>13.43%</b>	<b>14.51%</b>	<b>15.53%</b>
WACC set at 75th Percentile of the suggested range			<b>15.01%</b>	

## 9. ANALYSIS OF REVENUE REQUIREMENTS AND PRICE CAPS

### 9.1 Approach to calculating the Maximum Average Price (MAP)

9.1.1 The ERC has adopted the approach outlined in Article IV of the RDWR for the calculation of the Smoothed Maximum Average Price (SMAP) for TEI. The steps in this calculation are as follows.

- (a) Decision on the energy forecasts and the allowed capital, operating & maintenance and levies, duties and other taxes expenditure for the Second Regulatory Period (see Sections 3, 4, 5 and 6);
- (b) Identification of the rolled-forward asset base (see Section 7.5);
- (c) Calculating the annual allowed revenue requirement, using the building blocks; and
- (d) Setting of the  $P_0$ -factor and calculation of the X-factor as per Section 4.15.

9.1.2 A regulatory financial model has been developed for the ERC and Regulated Entities to assist with the analysis and calculation of the X-factor and the SMAP. This model relies on forecast expenditure data, economic indices and consumption figures, as well as the opening value of the RAB.

9.1.3 The results presented below have been calculated by applying this regulatory financial model. The model was also applied by TEI for its Revenue Application.

### 9.2 Annual Revenue Requirement – TEI application

9.2.1 The annual revenue requirement proposed by TEI in their Revenue Application is indicated in Table 9.1. This was based on the following key assumptions:

- a) The capital expenditure proposed in TEI's Revenue Application.
- b) The operating and maintenance expenditure proposed in TEI's Revenue Application.
- c) The levies, duties and other taxes proposed in TEI's Revenue Application.
- d) The energy consumption forecasts included in TEI's Revenue Application.
- e) The financial indices proposed in TEI's Revenue Application.
- f) TEI's calculation of the value of the opening RAB.
- g) The depreciation calculations proposed in TEI's Revenue Application.
- h) A Regulatory WACC of 16.27%.
- i) A working-capital allowance of 4.9% of OPEX.
- j) A corporate income tax rate set to zero for the Second Regulatory Period.

**Table 9.1 : TEI Application - Allowed Revenue Requirement (PhP Million, nominal)**

Building block	2011	2012	2013	2014
Return on capital	201.5	214.9	227.1	241.6
Opex	206.1	234.5	265.2	301.7
Regulatory depreciation	48.9	57.9	73.3	68.6
Corporate income tax	0.0	0.0	0.0	0.0
Other taxes	3.9	2.1	2.6	3.2
<b>TOTAL</b>	<b>460.4</b>	<b>509.3</b>	<b>568.1</b>	<b>615.1</b>

Source : TEI Revenue Application

### 9.3 Annual Revenue Requirement – ERC Analysis

9.3.1 The ERC modeled the annual revenue requirement for TEI based on its energy forecasts described in Section 3.3, expenditure allowances discussed in Sections 4.9, 5.9 and 6.5, the opening value of the RAB discussed in Section 7.5.

9.3.2 The calculation of the return on capital building block is indicated in Table 9.2.

**Table 9.2: Calculation of the Return on Capital (PhP Thousand, nominal)**

	2011	2012	2013	2014
Average RAB for the Year (see Table 7.6)	<b>1,098,670</b>	<b>1,164,845</b>	<b>1,205,910</b>	<b>1,215,676</b>
OPEX approved (see Table 5.5)	163,139	172,731	183,783	194,932
Working capital allowed (6.85% of OPEX)	11,175	11,832	12,589	13,353
Subtotal - capital invested	1,109,845	1,176,678	1,218,499	1,229,029
<b>RETURN ON CAPITAL</b>	<b>166,588</b>	<b>176,619</b>	<b>182,897</b>	<b>184,477</b>
Regulatory WACC (see Section 8)	15.01%			
Working capital factor (see Section 6.5)	6.85%			

Source: ERC Analysis

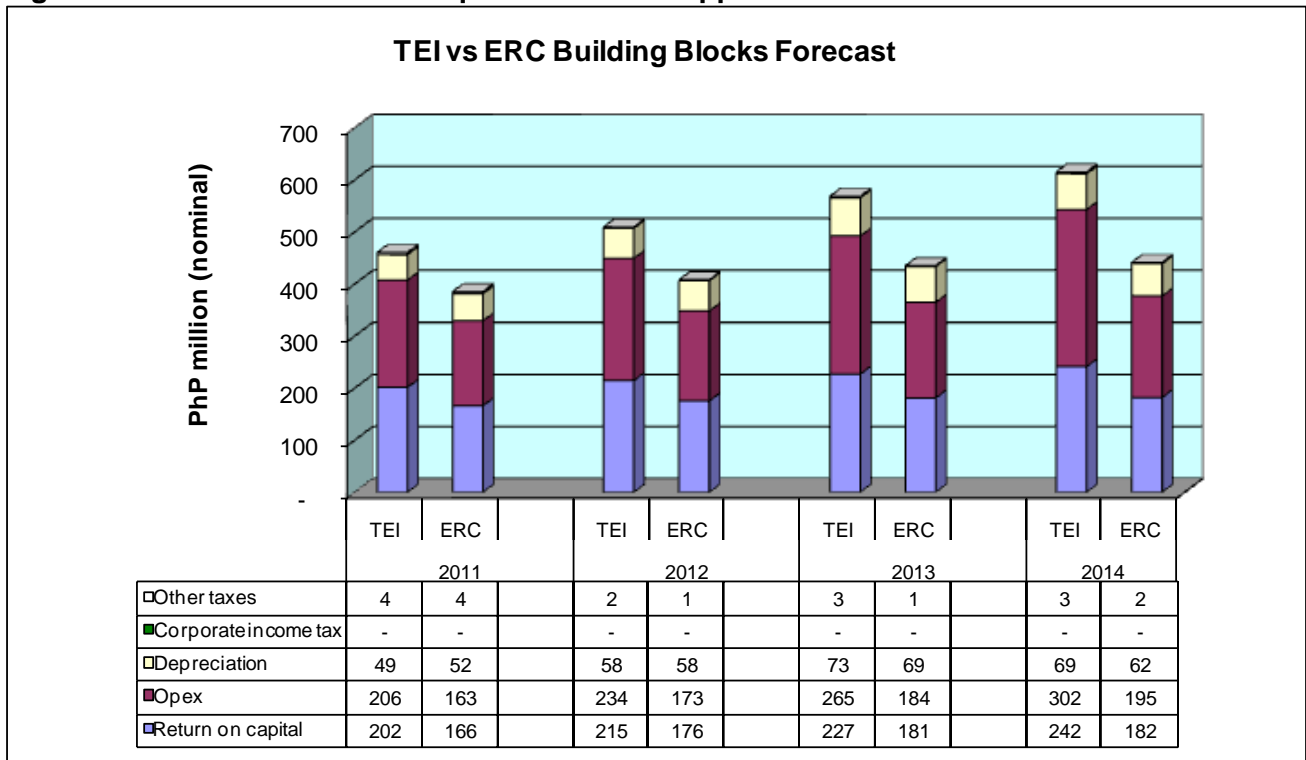
9.3.3 Based on its modeling, the ERC's determination of TEI's annual revenue requirement for the Second Regulatory Period is indicated in Table 9.3. This is also graphically represented in Figure 9.1.

**Table 9.3 : ERC Calculation – TEI Revenue Requirement (PhP Million, nominal 2009)**

Building block	2011	2012	2013	2014
Return on capital (see Table 9.2)	166.3	175.6	181.2	182.1
Opex (see Table 5.5)	163.1	172.7	183.8	194.9
Regulatory depreciation (see Table 7.3)	52.0	58.2	68.5	62.2
Corporate income tax (set to zero)	0.0	0.0	0.0	0.0
Other taxes (see Table 6.3)	3.7	1.3	1.4	1.9
<b>TOTAL</b>	<b>385.1</b>	<b>407.9</b>	<b>434.9</b>	<b>441.1</b>

Note: These figures do not include the required GSL provision

**Figure 9.1: Allowed Revenue Requirement – TEI Application vs. ERC Determination**



9.3.4 The ERC has calculated the annual revenue requirement adjusted to 2009 real values as shown in Table 9.4 below

**Table 9.4 : ERC Calculation – TEI Revenue Requirement (PhP Million, real 2009)**

Building block	2011	2012	2013	2014
Return on capital (see Table 9.2)	153.0	154.6	152.4	146.3
Opex (see Table 5.5)	150.1	152.0	154.6	156.6
Regulatory depreciation (see Table 7.3)	47.8	51.2	57.6	49.9
Corporate income tax (set to zero)	0.0	0.0	0.0	0.0
Other taxes (see Table 6.3)	3.4	1.1	1.1	1.5
<b>TOTAL</b>	<b>354.3</b>	<b>358.9</b>	<b>365.7</b>	<b>354.3</b>

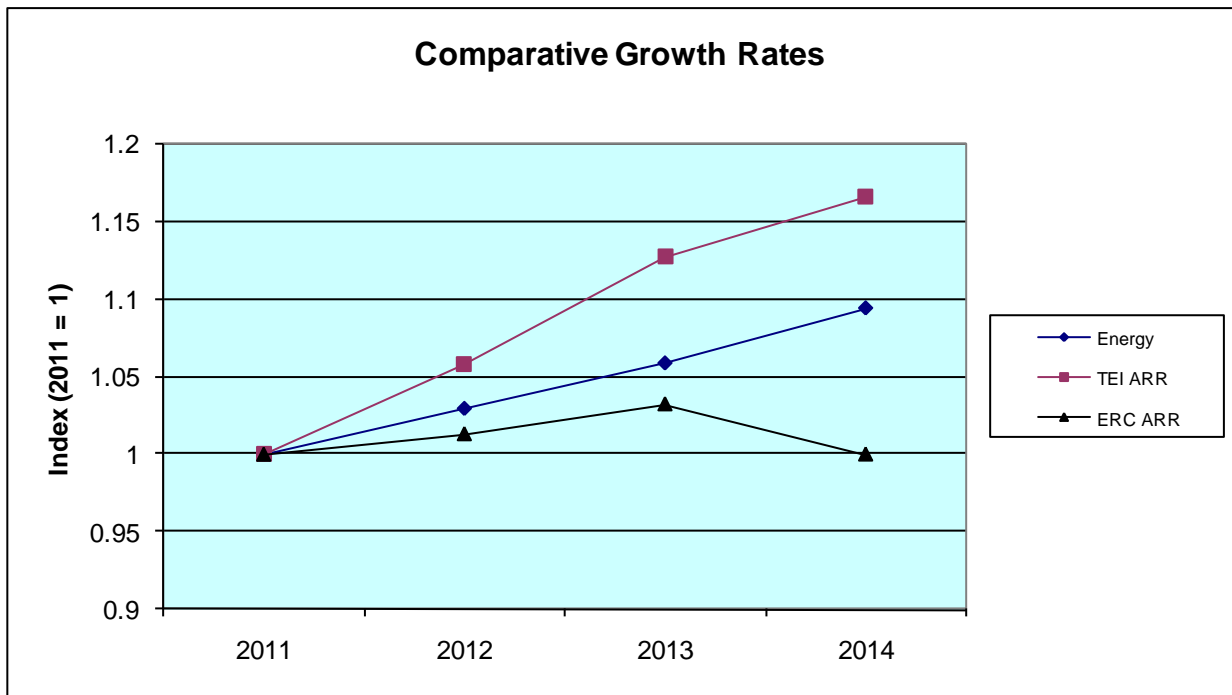
Note: These figures do not include the required GSL provision

9.3.5 In Figure 9.2, the ERC’s approved annual revenue requirement is compared with that of TEI and the forecast energy consumption on the TEI network, on a normalized basis (using the 2009 values as basis and working with the real values for expenditure).

From this, it is clear that the TEI application for its revenue requirement over the Second Regulatory Period is somewhat aligned with the anticipated energy consumption growth, but that it does not seem to foresee better efficiencies during the Second Regulatory Period.

The ERC’s allowed revenue requirement for TEI, which does not grow at the rate of expected consumption, does foresee operating efficiency gains as well as increase asset utilization.

**Figure 9.2: Comparison of Growth Rates – Revenue Requirements (real) and Energy Consumption**



Source: ERC analysis

#### 9.4 Final determination – Allowed revenue requirement

9.4.1 For the Guaranteed Service Level (GSL) component of the performance incentive scheme approved for the Second Regulatory Period, an additional allowance of 0.5% of the annual revenue requirement should be made (see discussion in Section 10.3). This is to ensure the revenue-neutrality of the Regulated Entities in applying this scheme.

9.4.2 Allowing for this addition, the ERC’s Final Determination with regard to TEI’s allowed annual revenue requirement for the Second Regulatory Period is indicated in Table 9.4.

**Table 9.4 : Final Determination - TEI Annual Revenue Requirement (PhP, nominal)**

	2011	2012	2013	2014
ARR without GSL allowance	385,050,066	407,853,503	434,892,950	441,147,692
GSL allowance	1,925,250	2,039,268	2,174,465	2,205,738
<b>TOTAL ARR</b>	<b>386,975,316</b>	<b>409,892,771</b>	<b>437,067,414</b>	<b>443,353,430</b>

## 9.5 Final determination – Smoothed Maximum Average Price

9.5.1 The MAP for Regulated Distribution Services in 2010, as indicated by TEI in submission as directed in the Order dated January 20, 2010 based on its January 2009 to December 2009 energy consumption, is calculated in Table 9.5. In terms of the RDWR (Clause 4.5). this value is used as the basis from which the X-factor is determined.

**Table 9.5 : Average Price during 2010**

TEI revenue from Regulated Distribution Services from January 2009 to December 2009 <sup>35</sup> (PhP)	<b>218,034,387</b>
Energy sales for Jan 2009 to Dec 2009 (kWh)	204,984,192
Average price (PhP/kWh)	1.0637

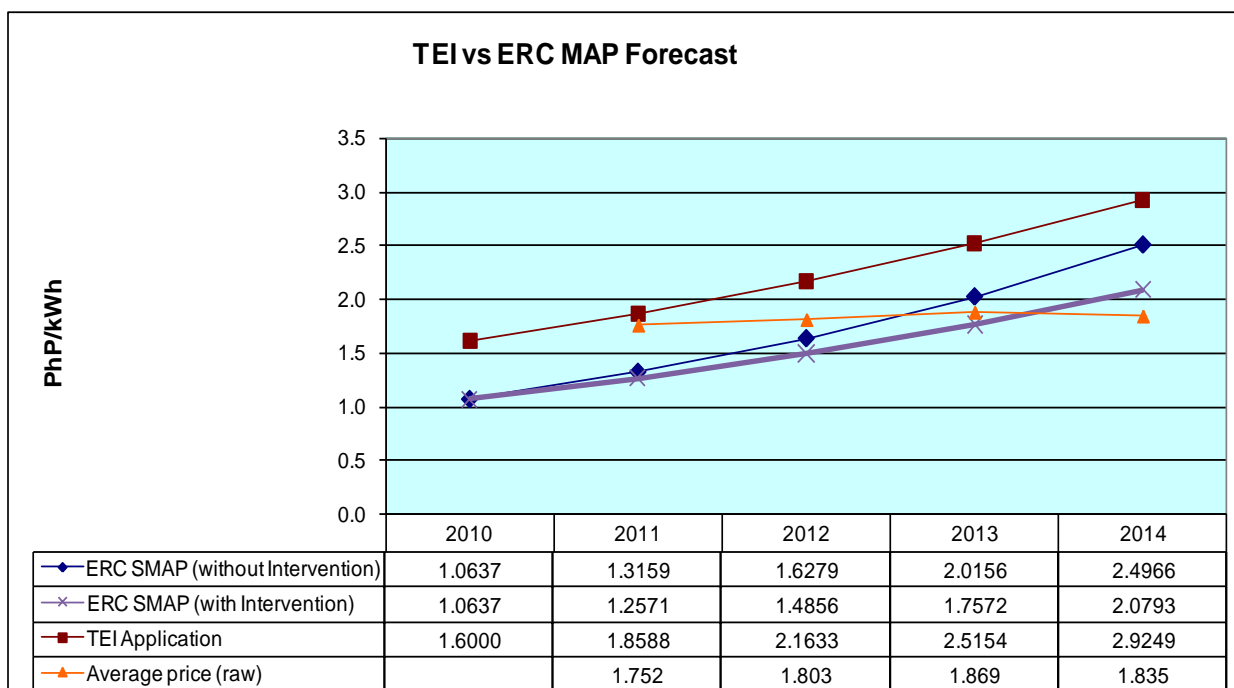
9.5.2 Based on this 2011 average price and the allowed annual revenue requirement described above, the ERC calculates the X-factor and the opening MAP for TEI for the Second Regulatory Period as follows (with a P<sub>0</sub>-factor of zero) :

X-factor : -19.16%  
MAP<sub>2011</sub> : PhP1.3159 (PhP/kWh)

Based on these values, the anticipated average annual price increases during the Second Regulatory Period will be at the rate of inflation plus 19.16%. Taking the ERC forecasts for the Philippine inflation rate into account, it results in the anticipated smoothed price path indicated in Figure 9.3.

Figure 9.3 also indicates the TEI proposed price path as well as the raw (non-smoothed) price based on the ERC's calculated annual revenue requirement .

**Figure 9.3: Comparison of Anticipated Price Paths**

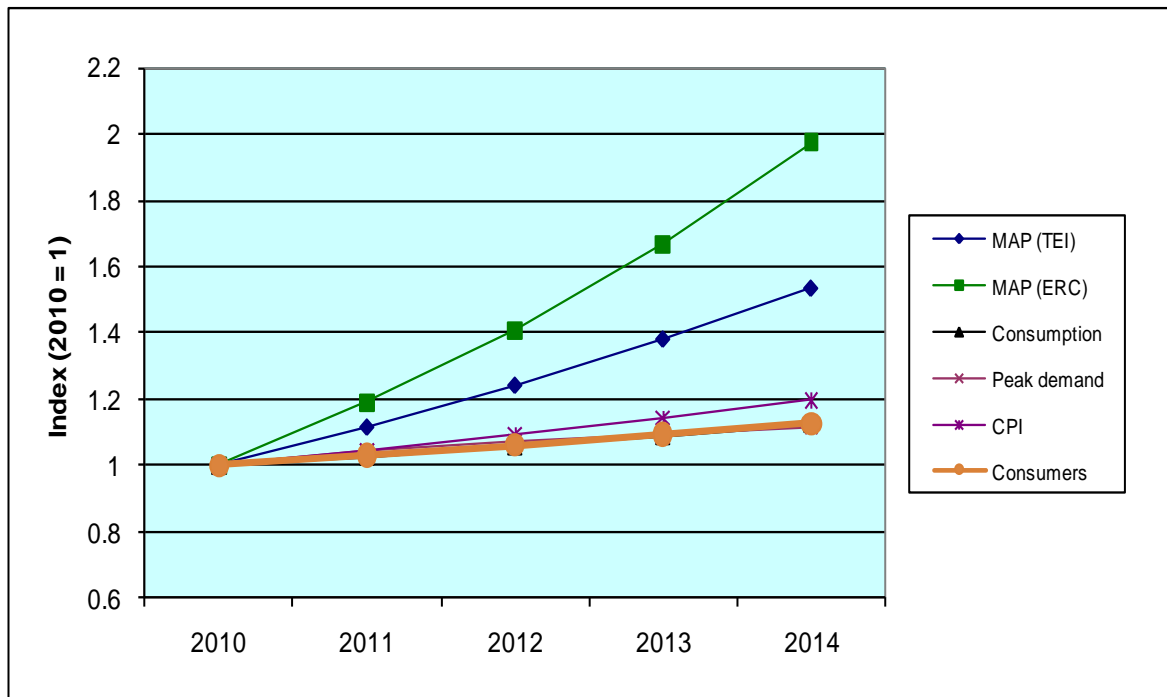


Source: ERC analysis

<sup>35</sup> This revenue is calculated after deducting 50% of related business revenue (RBR) earned from the distribution network.

9.5.3 In Figure 9.4, a further analysis of the smoothed price path is presented. By normalizing values to a common 2010 basis, it is possible to compare the relative movement of the smoothed MAP with the movements in the CPI, energy consumption and the system peak demand.

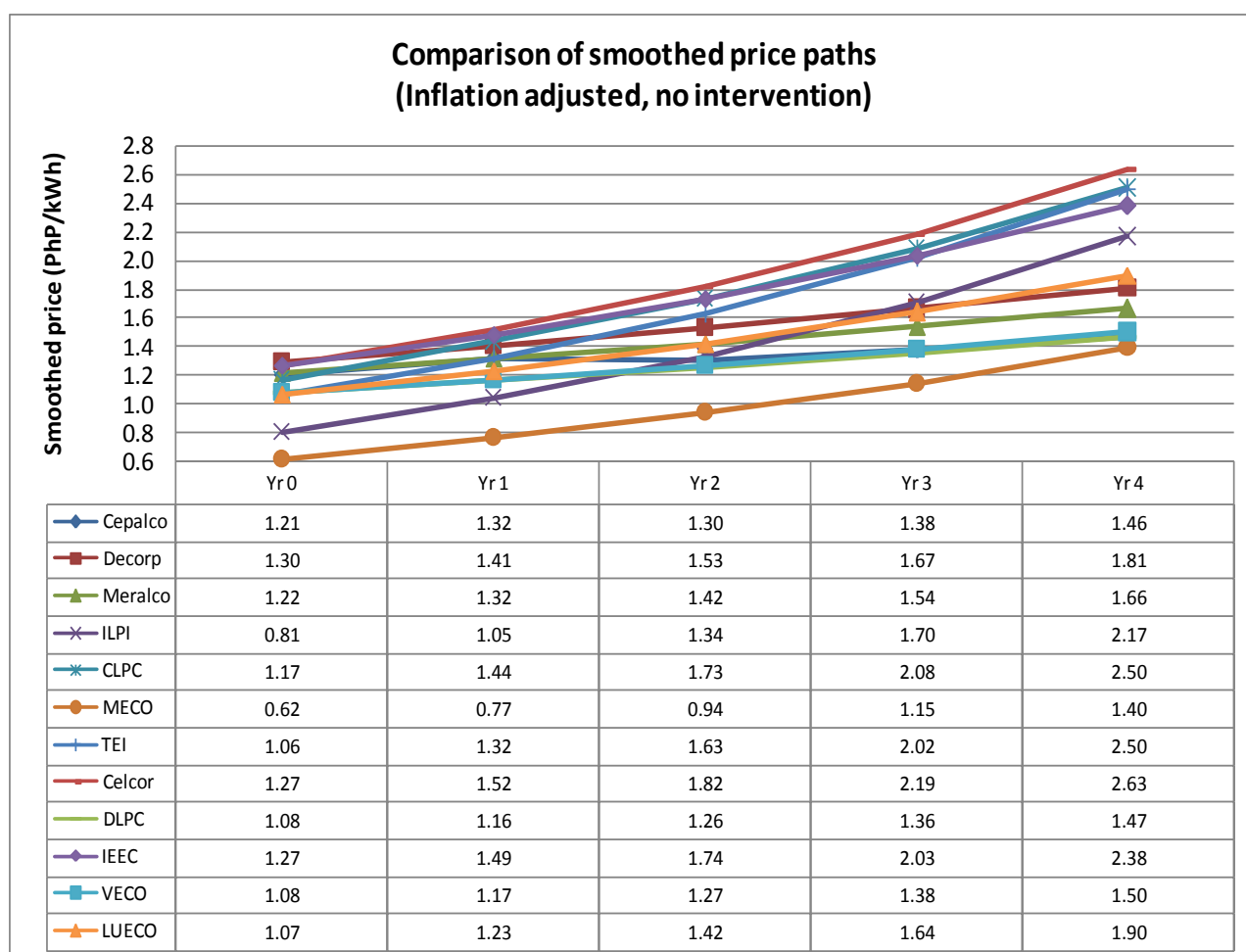
**Figure 9.4: Comparison of the Smoothed MAP to Other Indices**



Source: ERC analysis

9.5.4 It will be noted that the TEI price path growth is substantially higher than the other indicated indices. This is of some concern to the ERC, since the price increases for distribution services would therefore clearly outstrip the factors that would normally be considered to underlie it. Furthermore, a comparison of the indicated TEI price path for the Second Regulatory Period with that of the first and second entry groups and the others in the third entry group, indicates that the TEI distribution rates would increase at a very high rate and at the end of the Second Regulatory Period would be among the highest of the PBR entrants. This is indicated in Figure 9.5.

**Figure 9.5 : Comparison of the Smoothed Price Paths of Distribution Utilities**



Source: ERC analysis

9.5.5 The ERC is concerned about the substantial rises in the cost of electricity distribution as indicated in the above figures, if TEI is allowed the revenue requirement as calculated in Section 9.4. It accepts that in terms of the RDWR, this outcome is reasonable and would provide TEI with a reasonable return on their efficient expenditure. The ERC also accepts that the indicated increases are partly due to catching up with deferred past expenditure. However, it does not believe that the indicated price increase for the 2010 regulatory year, or the indicated increases for the rest of the 2<sup>nd</sup> Regulatory Period, are reasonable or realistically sustainable by the majority of TEI's customers.

9.5.6 In the best interest of the TEI consumers and to avoid a huge price-shock, the ERC has therefore decided to intervene in the rate-setting process. It proposes to introduce a reduction on the revenue allowance for TEI during the Second Regulatory Period. In the latest revision of the RDWR, prepared for the First Entry Group for the Third Regulatory period, it is indicated that this regulatory intervention will be recoverable during the Third Regulatory Period, at which time TEI will be allowed to earn the full annual revenue requirement as calculated in terms of the RDWR methodology at that time.

- 9.5.7 The proposed intervention will reduce the effective return on the RAB that TEI can earn during the Second Regulatory Period. The recommended expenditure levels however do not need to be reduced. The intervention will therefore not inhibit TEI’s ability to invest in or to effectively maintain and operate its electricity distribution network.
- 9.5.8 The ERC will not prescribe in which of the building blocks the proposed reduction would have to be achieved and will leave the value of these building blocks as indicated in Table 9.3 unchanged. This implies that TEI will be entitled to reduce any (or all) of these as it best fits with its operations.
- 9.5.9 In addition, any efficiency adjustments<sup>36</sup> achieved by TEI to be carried over to the Third Regulatory Period, will be measured against the building block values as calculated without the regulatory intervention.
- 9.5.10 The annual revenue requirement approved by the ERC for the final determination is presented in Table 9.6. The extent of the ERC’s intervention to reduce the amount indicated through the calculations above is also demonstrated in this table.
- 9.5.11 The reduction in the allowed annual revenue and the resulting lower Smoothed Maximum Annual Price (SMAP) caps will result in lower corporate taxes payable on units sold. The corporate income tax building block therefore also has to be adjusted, as indicated in Table 9.6. This implies that the actual reduction in the ARR is expected to be somewhat larger than the regulatory intervention on its own. However, the net impact of the reduction in the corporate tax building block will be largely neutral to TEI.<sup>37</sup>

**Table 9.6 : Final Determination - TEI Annual Revenue Requirement (PhP, nominal)**

	2011	2012	2013	2014
ARR as calculated	385,050,066	407,853,503	434,892,950	441,147,692
GSL allowance	1,925,250	2,039,268	2,174,465	2,205,738
Resulting ARR before Intervention	<b>386,975,316</b>	<b>409,892,771</b>	<b>437,067,414</b>	<b>443,353,430</b>
Regulatory Intervention	40,000,000	45,000,000	50,000,000	55,000,000
<b>Resulting ARR after Intervention</b>	<b>346,975,316</b>	<b>364,892,771</b>	<b>387,067,414</b>	<b>388,353,430</b>

- 9.5.12 For the Guaranteed Service Level (GSL) component of the Performance Incentive Scheme (PIS) approved for the Second Regulatory Period, an additional allowance of 0.5% of the annual revenue requirement should be made (see discussion in Section 10.3). This is to ensure the revenue-neutrality of the Regulated Entities in applying this scheme. The impact of this addition is also indicated in Table 9.6. This calculation is based on the ARR without the regulatory intervention.
- 9.5.13 The result of this intervention is to increase the X-factor to -13.67% and a reduction of the smoothed price-path as demonstrated below in Figure 9.6.

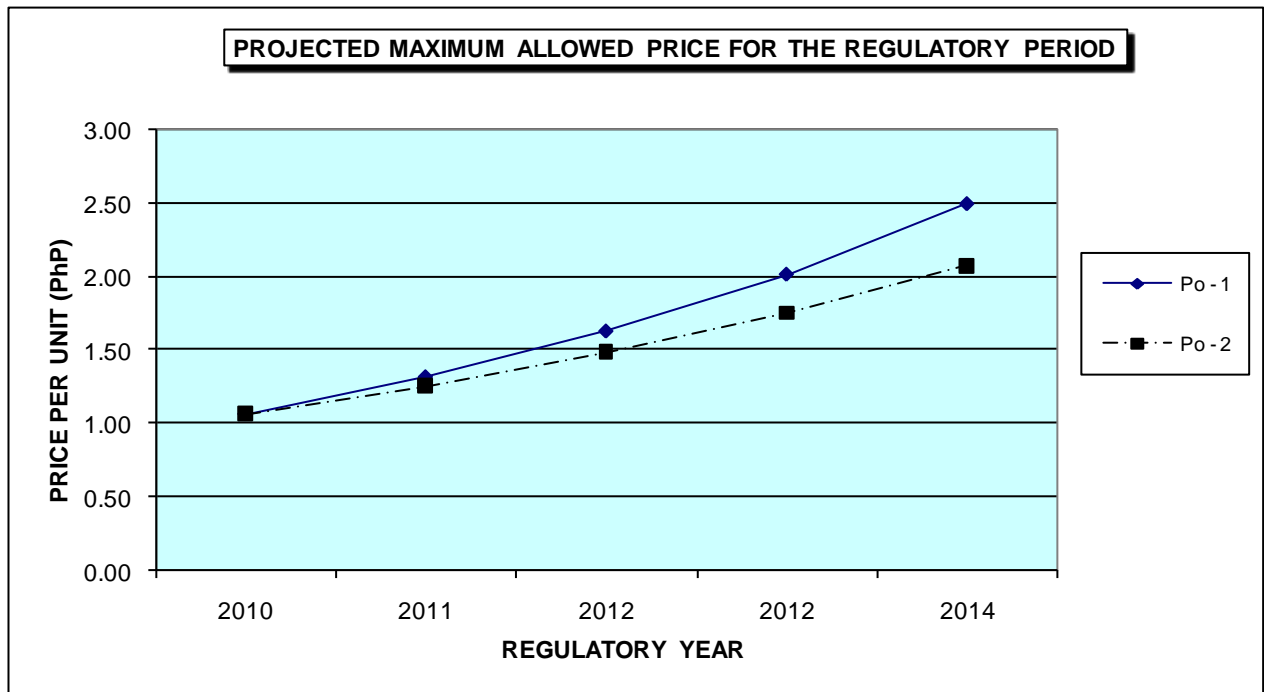
**Table 9.7: Comparison of X-factor and opening MAP (with intervention)**

	TEI’s Application	Final Determination
X-factor	-12.28%	-13.63%
Opening MAP	PhP1.600/kWh	PhP1.2571/kWh

<sup>36</sup> As described in Article IX of the RDWR.

<sup>37</sup> The reduced ARR is offset against lower corporate taxes. There may be a minor difference arising due to timing differences as to when the tax is actually paid and when it is recovered from consumers.

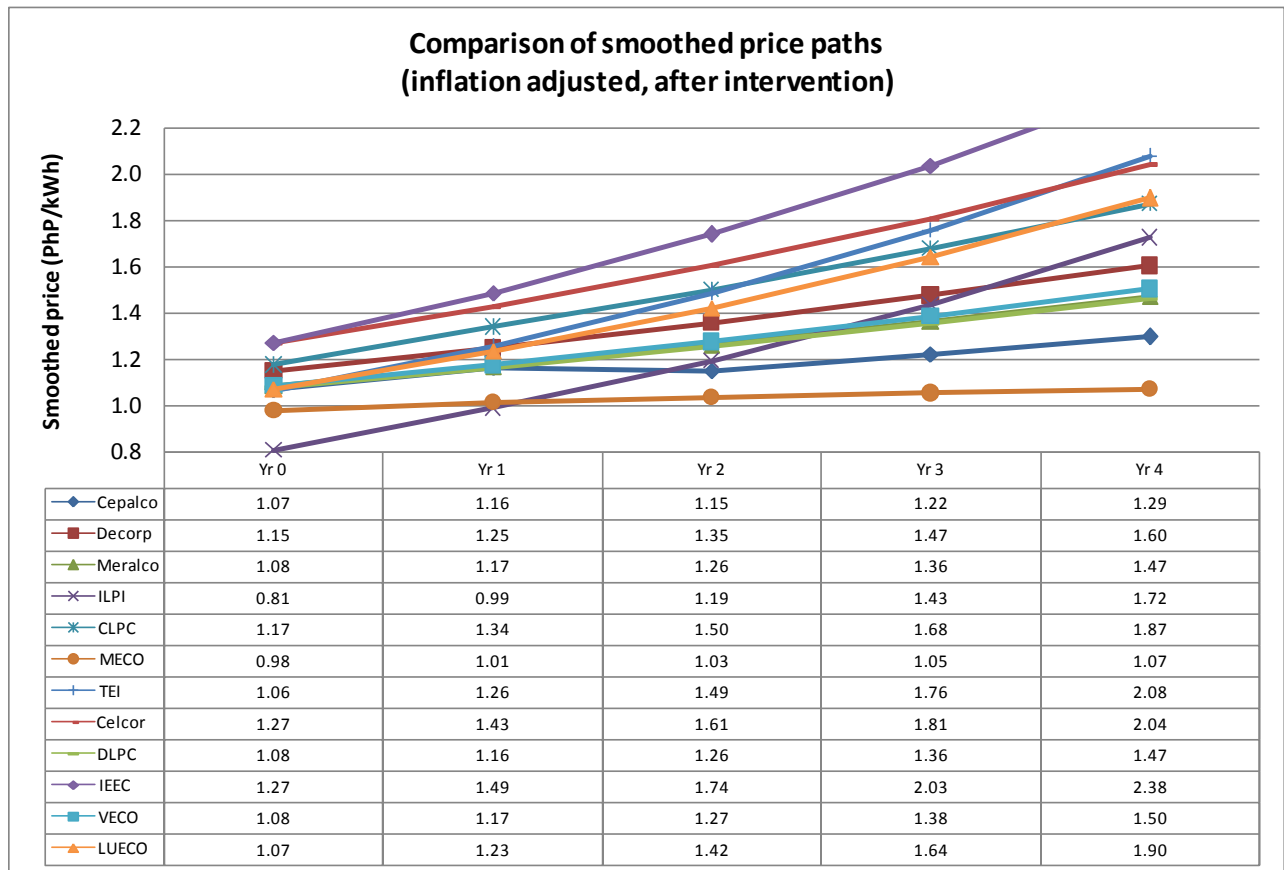
Figure 9.6 : Impact after the Regulatory Intervention



P<sub>0</sub> - 1 : TEI Submission Price Path  
P<sub>0</sub> - 2 : Draft Determination Price Path

- 9.5.14 The recommended price path even after the intervention still indicates substantial increases in the distribution rates over the Second Regulatory Period. However, it is not recommended that this intervention be increased, since that could compromise the efficient operations of TEI.
- 9.5.15 The same price-path comparison with other Regulated Entities as that indicated in figure 9.7, is provided after incorporating the proposed regulatory intervention for TEI (and for CELCOR, CLPC and ILPI). This indicates a more reasonable cluster of distribution prices across all the utilities so far entering PBR.

**Figure 9.7: Comparison of smoothed price paths (after the regulatory intervention) to other PBR entrants**



9.5.16 TEI is still at the high end of the price spectrum, but this is not unexpected, given that it is a smaller utility and do not enjoy the scale benefits of the larger companies. As a general trend when assuming roughly similar performance levels, given the lack of economy of scale benefits electricity distribution prices at smaller utilities will be higher than at larger utilities.

## 9.6 Setting the $P_0$ -factor

9.6.1 In terms of Clause 4.15.3 of the RDWR, the ERC can set the  $P_0$ -factor to reduce price shocks during the transition to the Second Regulatory Period. The impact of the  $P_0$ -factor is to shift the opening MAP during the Second Regulatory Period up or down, depending on its setting, and to create an opposite movement in the annual price increments during the Second Regulatory Period. Overall, the impact of the  $P_0$ -factor is revenue neutral to the Regulated Entities.

9.6.2 The ERC is reluctant to further increase the initial incremental price rise indicated by the current revenue allowance, even if subsequent increases will be reduced. It has therefore decided to set the  $P_0$ -factor at zero.

## 9.7 Side constraints

- 9.7.1 In terms of Clause 6.4 of the RDWR, side constraints can be set by the ERC, having regards to the plight of end-consumers. In the Position Paper (Clause 10.3), the ERC indicated that these constraints will not be set at less than 2%. The side constraints inhibit the maximum average price rise for a particular customer segment (or segments).
- 9.7.2 Following the publication of this Final Determination, TEI will be applying for a formal distribution rate structure that will convert the MAP into tariffs for various customer categories. To avoid normal annual shifts in the revenue collected per customer group from breaching the side constraint<sup>38</sup> and also to allow some movement in the manner in which costs are allocated to customer groups, to reduce existing cross-subsidies and to implement a tariff structure that provides a fairer reflection of the cost to provide distribution services, it will be necessary to allow a side-constraint that is higher than the X-factor determined for the Second Regulatory Period.
- 9.7.3 In light of the ERC's decision on the X-factor that would apply to TEI's price setting for the Second Regulatory Period, the side constraint for the Second Regulatory Period will be set at 16.63% over the CPI. This allows for a 3% additional relative movement in the tariff per customer category over the expected mean.
- 9.7.4 In terms of the recent changes to the RDWR<sup>39</sup>, the ERC is entitled to relax the side constraint during a distribution rate setting. This is to avoid a situation where earlier under-recovery and subsequent correction cannot be adequately implemented, due to the side constraint.

## 9.8 Final Determination on the opening price and smoothing factor

- 9.8.1 The ERC's Draft Determination on the opening MAP and the smoothing factor (X-factor) that will apply to TEI at the start of the Second Regulatory Period, is as follows:

X-factor	:	-13.63%
MAP <sub>2011</sub>	:	PhP1.2571 (PhP/kWh)

<sup>38</sup> Changes in annual consumption of various customer groupings demonstrate some degree of randomness and will under normal circumstances be expected to exceed the forecast for at least 50% of the time (or fall below the forecast for at least 50% of the time). A side constraint that does not provide for some uncertainty around the anticipated consumption and associated revenue levels, will therefore be breached for an estimated 50% of the time.

<sup>39</sup> Resolution No. 20, Series of 2008 on "Modifying the Rules for Setting the Distribution Wheeling Rates for Privately Owned Distribution Utilities Under Performance Based Regulation."

## 10. PERFORMANCE INCENTIVE SCHEME

### 10.1 Background to the Performance Incentive Scheme

10.1.1 The Performance Incentive Scheme (PIS) is one of the key features of Performance Based Regulation. The service delivery performance of the Regulated Entities will be monitored and, depending on performance against pre-set benchmarks, the Regulated Entity will be rewarded or penalized. The penalty or reward is capped at a maximum of 3% of the annual revenue requirement for each Regulated Entity.

10.1.2 As part of the preparation of the Issues Paper, the ERC developed PIS to meet the requirements of the RDWR (Clause 8.2). The PIS consists of three parts:

- a) Price-linked Incentive scheme;
- b) Guaranteed Service Level scheme; and
- c) Information disclosure.

10.1.3 However, during consultation on the Issues Paper, it became apparent to the ERC that the Regulated Entities did not have a sufficiently developed measurement capacity or historical data records to fully implement the PIS as envisaged by the ERC. For the Second Regulatory Period, each Regulated Entity was therefore given the opportunity to design a PIS based on its own ability and available performance records. This PIS was submitted for the ERC's consideration as part of the Revenue Application.<sup>40</sup>

10.1.4 The ERC published a framework for the PIS that would apply from the Third Regulatory Period onwards to guide the Regulated Entities in the preparation of their PIS for the Second Regulatory Period.<sup>41</sup> In this framework, the performance indices that will apply from the Third Regulatory Period are described. In addition, the mechanisms for calculating the performance incentives or penalties are discussed, as well as events of which the impact can be excluded from the yearly performance statistics.

10.1.5 The ERC's Final Determination on the PIS that will apply to TEI during the Second Regulatory Period is discussed below.

### 10.2 Overview of the Price-linked Incentive Scheme

10.2.1 The price-linked component of the PIS allows for the introduction of a performance incentive factor, or S-factor, in the annual calculation of the price-caps, as follows (Clause 4.2.1 of the RDWR):

$$MAP_t = [MAP_{t-1} \times \{1 + CWI_t - X\}] + S_t - K_t + ITA_t$$

The S-factor can be zero, positive or negative, depending on whether actual performance against the (weighted) majority of the performance indices measured has exceeded the predetermined performance targets, or has fallen below these.

<sup>40</sup> It is the intent that Regulated Entities will develop their performance measurement capacity and build up performance statistics during the Second Regulatory Period, so that the full version of the ERC's intended PIS can be implemented from the Third Regulatory Period onwards.

<sup>41</sup> ERC report titled "Framework for the Performance Incentive Scheme to apply from the Third Regulatory Period", dated March 1, 2006.

10.2.2 The maximum value of the price-linked incentive is capped at 2.5% of the annual revenue requirement (ARR) for each Regulated Entity.

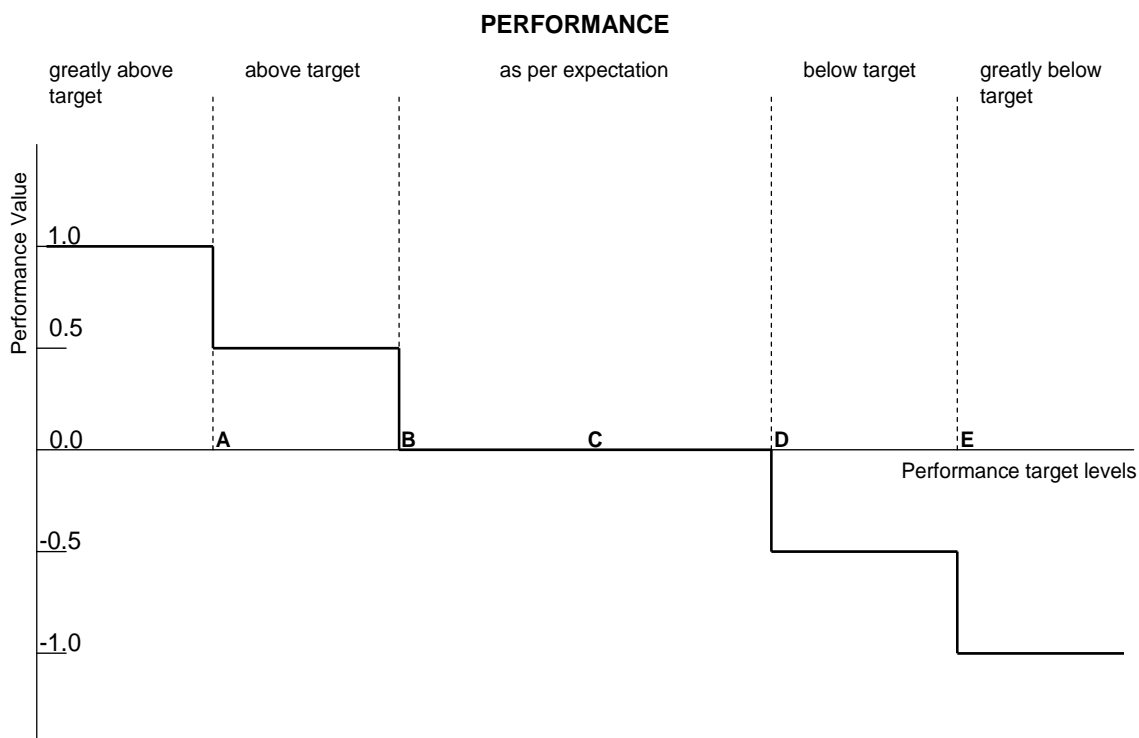
10.2.3 Performance will be assessed against a number of targets and, depending on the actual result, each index will be awarded a performance value, as described in Table 10.1 and illustrated in Figure 10.1 below.

**Table 10.1 : Determining Performance Values**

Description	Performance level	Performance value
Target greatly exceeded	$\leq A$	1.0
Target exceeded	$\leq B$ , but $> A$	0.5
Performance as per expectation	$> B$ but $< D$	0
Target not achieved	$\geq D$ but $< E$	-0.5
Performance greatly below target	$\geq E$	-1.0

Note : Symbols A to E refer to figure 9.1 below

**Figure 10.1 : Depiction of the Price-Linked Incentive Scheme**



10.2.4 The target levels for each performance index (depicted as A to E in Figure 10.1) vary for each index and are determined by each Regulated Entity for their particular PIS. These targets are based on historical performance for each index, with point C typically representing the average performance over recent years<sup>42</sup>. This implies that for the Second Regulatory Period, the Regulated Entities have an incentive to maintain service levels at, or improve from current performance levels. The ERC may in future regulatory periods introduce targets that require performance at higher than current levels to, over time, encourage higher service delivery standards to consumers. For the Second Regulatory Period, it was however decided that since a) regulatory performance management is new to the Regulated Entities; b) there are recognized imperfections in the existing performance management and measurement capability of Regulated Entities; and c) that there is as yet insufficient historical performance data to allow accurate targets to be set, it would be unreasonable to introduce such stretch targets at present.

10.2.5 The S-factor is the sum of the weighted performance values for each of the indices included in the price-linked incentive scheme, where the actual indices and the weightings allocated are as per the design of each Regulated Entity's PIS and the final value is converted to a value per kWh.

$$S = \frac{\sum(\text{Performance value per index}) \times (\text{Weighting per index})}{\text{Total energy distributed}} \times 0.025(\text{ARR})$$

10.2.6 The S-factor for each regulatory year will be calculated during the annual rate reset before the start of the regulatory year. It is based on the service performance during the previous calendar year and the forecast energy that will be distributed through the Regulated Distribution System for the regulatory year. No S-factor will apply during the first regulatory year of the Second Regulatory Period.

### 10.3 Overview of the Guaranteed Service Level Scheme

10.3.1 In terms of the Guaranteed Service Levels (GSL) scheme, Regulated Entities will compensate a consumer directly if certain service delivery performance standards are not met. The measures for which such compensation will become payable and the thresholds to be breached before it is paid, are based on the design of the PIS for each Regulated Entity.

10.3.2 There will be an allocation of 0.5% of the annual revenue requirement to the GSL scheme. To ensure revenue-neutrality to Regulated Entities, this amount will be added to the allowed annual revenue from the start of the Second Regulatory Period. Regulated Entities have the option of using this additional allocation to pay out penalty amounts, or to effect network and service improvements to avoid penalty pay-outs.

10.3.3 In terms of the RDWR (Clause 8.2.3), the total value of the PIS cannot exceed 3% of the annual revenue requirement. Since 2.5% is allocated to the price-linked incentive scheme, this implies that the maximum penalties a Regulated Entity would face under the GSL scheme is 1% of its annual revenue requirement, this being the sum of the 0.5% residual balance for the total PIS and the 0.5% additional allowance described above. The ERC recognizes that setting this cap could lead to potential problems, as it will only be apparent at the end of each regulatory year exactly how much has been paid out in terms of the GSL scheme, which could therefore theoretically exceed the cap.<sup>43</sup> However, it is the ERC's

<sup>42</sup> The actual details are as per the design of the PIS by each Regulated Entity.

<sup>43</sup> To ensure that the scheme is equitable to all customers, Regulated Entities will not be allowed to discontinue payments to affected customers if the cap is reached.

view that if the situation arises where total pay-outs under the GSL scheme reaches this 1% level, it would be indicative of very serious performance issues<sup>44</sup>, which would by itself warrant further investigation and possible intervention by the ERC.

## 10.4 Information Disclosure Scheme

10.4.1 The third component of the PIS is the measurement and disclosure of further performance data. Regulated Entities will be required to measure the performance of each Regulated Distribution System, or to develop their capability during the Second Regulatory Period to measure performance against the following indices:

Network performance indices:

- a) Momentary Average Interruption Frequency Index (MAIFI);
- b) Frequency of tripping events per 100 circuit-km;

Service performance indices:

- c) Average time to respond to queries and complaints;
- d) Average time to reconnect a service after payment of all dues.

The information has to be collected and supplied to the ERC on a monthly basis (as soon as the measurement capability has been established).

10.4.2 The ERC will publish the information disclosure data for all Regulated Entities on an annual basis.

10.4.3 Since the format of the information disclosure scheme has been set by the ERC, the Regulated Entities were not required to address this in their Revenue Applications.

## 10.5 Price-linked Incentive Scheme proposed by TEI

10.5.1 TEI's proposed price-linked performance scheme for the Second Regulatory Period largely conforms to the PIS framework designed by the ERC for the Third Regulatory Period with the exception of call center performance, which is not included.<sup>45</sup> The method by which the S-factor was calculated and the actual performance factors determined are as per the ERC framework, as well as the definition of the indices.

10.5.2 In Table 10.2 below, the price-linked performance scheme proposed by TEI as part of its Revenue Application is indicated. This identifies the performance indices proposed, the weighting to be allocated to each index and the proposed performance target levels.

---

<sup>44</sup> Or a very poorly designed GSL scheme.

<sup>45</sup> TEI does not at this stage operate a call center.

**Table 10.2 : Price-linked Incentive Scheme Submitted by TEI**

<i>Performance index</i>	<b>Units</b>	<b>Weight</b>	<b>Reward</b>		<b>Target</b>	<b>Penalty</b>	
			<b>Level A</b>	<b>Level B</b>	<b>Level C</b>	<b>Level D</b>	<b>Level E</b>
<i>System average interruption frequency index (SAIFI)</i>	Number	0.20	2.47	11.26	20.04	28.83	37.61
<i>Customer average interruption duration index (CAIDI)</i>	Minutes	0.20	8.33	55.01	101.69	148.37	195.05
<i>Planned system average interruption duration index (SAIDI)</i>	Minutes	0.15	-	279.74	1,098.09	1,916.45	2,734.80
<i>Probability of voltage levels falling within prescribed limits</i>	%	0.10	6%	5%	4%	3%	2%
<i>System losses</i>	%	0.05	7%	8.5%	9.5%		
<i>Average time to process applications for Regulated Distribution Services</i>	Days	0.15	10.00	7.00	6.00	3.00	2.00
<i>Average time to connect premises to the Regulated Distribution System</i>	Days	0.15	25.00	20.00	15.00	10.00	5.00
<i>Average time to answer calls at call centre</i>	Seconds	0	0	0	0	0	0

10.5.3 It is the ERC's understanding that TEI's capability to measure power outages and hence calculate the SAIFI, CAIDI and SAIDI indices is limited to outages on the major medium voltage feeders (one or more phases) and distribution transformers. This capability will be further developed during the Second Regulatory Period, to allow the impact of outages to be measured more accurately, a more localized basis.

10.5.4 Based on TEI's calculations, the average historical system performance against the proposed network performance indices is presented in Table 10.3.

**Table 10.3 : Historical Network Performance**

<b>Year</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>Average</b>	<b>Std Dev</b>
SAIFI			12.76	17.57	29.80	20.04	8.78
CAIDI			89.02	153.39	62.65	101.69	46.68
Planned SAIDI			425.47	2,009.20	859.61	1,098.09	818.36
Voltage Regulation			0.23%	0.64%	4.74%	1.87%	2.49%
System Loss	10.25	9.87	9.66	9.69	7.92	9.48	1.01

10.5.5 With regard to the probability of voltage levels violating the limits prescribed in the Philippines Distribution Code, TEI proposes a target of 4% for the average value (point C in Figure 10.1, based on measurements taken at various points on the distribution network. No further information was provided on how the threshold points for the performance bands were determined.

10.5.6 The targets for the average time to process applications for regulatory services, or to connect premises, are based on historical average times recorded by TEI to perform these services.

## 10.6 Guaranteed Service Level Scheme proposed by TEI

10.6.1 TEI’s proposed GSL scheme for the Second Regulatory Period largely conforms to the PIS framework designed by the ERC for the Third Regulatory Period. This includes the method used to determine the applicable penalty levels, as well as the approach to events which should be excluded when determining the service performance. In Table 10.4 below, the proposed GSL scheme is summarized.

**Table 10.4 : GSL Scheme Proposed by TEI in the Revenue Application**

<b>Performance Measure</b>	<b>Units</b>	<b>Threshold</b>	<b>Penalty Level (PhP)</b>
GSL1 Customer experiencing a total duration of sustained service interruptions in a Regulatory Year that exceeds the threshold	hrs	67.04	34.70
GSL2 Customer experiencing a number of sustained service interruptions in a Regulatory Year that exceeds the threshold	times	33.00	34.70
GSL3 Restoration of supply to a customer after a fault on the secondary distribution network taking longer than the threshold time	hrs	12	34.70
GSL4 Customer connection not provided on the day agreed with the customer	days		
GSL4a. Normal application		2	34.70
GSL4b. Normal application with sec. line extension		15	34.70
GSL4c. Application with primary line		35	34.70

10.6.2 TEI noted that the proposed threshold values for the GSL1 and GSL2 components are based on historical figures from 2002 up to 2008.

10.6.3 The threshold values for the GSL3 components are based on historical figures from 2004 up to 2008.

10.6.4 TEI interprets the GSL4 component as the length of time that a customer has to wait for a connection to be made after the service contract has been signed and the service fees paid. TEI submitted tabulated historical values from 2004 to 2008 to support how the threshold was determined.

10.6.5 The calculation of the penalty levels are based on the estimated value of the scheme<sup>46</sup>, the number of customers likely to be affected if the proposed threshold values are adopted and a weighting allocated by TEI to ensure consistent penalty amounts.

## 10.7 Excluded Events

10.7.1 TEI did not propose any excluded events that may have impact on their annual performance statistics nevertheless, ERC suggests that TEI should consider this option.

## 10.8 ERC's Final Decision on the Price-linked Incentive Scheme

10.8.1 For the Final Determination, the ERC accepts the performance indices proposed by TEI for the price-linked incentive scheme, the proposed weightings for each index and the manner in which performance against these indices are converted to the S-factor.

10.8.2 TEI's proposal for the calculation of the performance bands by adopting multiples of the standard deviation of each index, is accepted. The ERC is concerned that the available sample size of annual performance figures is too small for accurate statistical manipulation, but recognizes that using any other method to set the bands would be arbitrary and not provide any additional accuracy. It is also satisfied that if these bands had been applied to the historical performance figures, it would have provided acceptable outcomes.<sup>47</sup>

10.8.3 In respect of the voltage regulation index, the ERC recognizes that insufficient historical data exists to determine an accurate, reasonable target. In the absence of sufficient data, the ERC accepts the targets proposed by TEI.

10.8.4 The ERC notes that TEI's proposed targets for the system losses index is based on the actual historic average figures. This was the original intention for this index in the incentive scheme. However, following recent focus on system losses and to avoid possible wrong perceptions, the ERC believes that it would be more appropriate to set the minimum value over which performance bonuses will be paid at the system loss cap. This would provide a further incentive for Regulated Entities to reduce losses to this value. For Regulated Entities with historical losses below the system loss cap, the target (average) value for losses will still be based at the historical level. In accordance with the ERC policy set out in the Position Paper, index should not have a penalty component.

10.8.5 The ERC's Final Determination on the price-linked incentive scheme is presented in Table 10.5.

---

<sup>46</sup> 0.5% of the annual revenue requirement for each year, as discussed in Paragraph 10.3.2.

<sup>47</sup> Based on its calculation, the great majority of the historical performance values from 2000 to 2007 for the proposed indices involved would have resulted in neutral outcomes, i.e. no penalty or bonus. In no instance would performance have been assessed to greatly exceed expectations.

**Table 10.5 : ERC Final Determination on the Price-Linked Incentive Scheme for TEI**

<i>Performance index</i>	<b>Units</b>	<b>Weight</b>	<b>Reward</b>		<b>Target</b>	<b>Penalty</b>	
			<b>Level A</b>	<b>Level B</b>	<b>Level C</b>	<b>Level D</b>	<b>Level E</b>
<i>System average interruption frequency index (SAIFI)</i>	Number	0.20	2.47	11.26	20.04	28.83	37.61
<i>Customer average interruption duration index (CAIDI)</i>	Minutes	0.20	8.33	55.01	101.69	148.37	195.05
<i>Planned system average interruption duration index (SAIDI)</i>	Minutes	0.15	-	279.74	1,098.09	1,916.45	2,734.80
<i>Probability of voltage levels falling within prescribed limits</i>	%	0.10	6%	5%	4%	3%	2%
<i>System losses</i>	%	0.05	7%	8.5%	9.5%		
<i>Average time to process applications for Regulated Distribution Services</i>	Days	0.15	10.00	7.00	6.00	3.00	2.00
<i>Average time to connect premises to the Regulated Distribution System</i>	Days	0.15	25.00	20.00	15.00	10.00	5.00
<i>Average time to answer calls at call centre</i>	Seconds	0	0	0	0	0	0

## 10.9 ERC Final Decision on the GSL Scheme

10.9.1 The ERC accepts the broad GSL categories proposed by TEI. The penalty levels are considered.

10.9.2 The ERC will accept the targets and penalty levels proposed by TEI for the Draft Determination but requests TEI to review these calculations prior to its submission on the determination and confirm that they are indeed correct.

10.9.3 During the evidentiary hearing, TEI was directed to submit additional simulations on the GSL scheme to reflect an increase in different levels of the GSL payments up to PHP100. TEI complied with the Commission's directive. In its compliance, TEI calculated its GSL payment level based on its proposed ARR. In this regard, ERC adjusted the GSL allowance as calculated using the recommended ARR of the Draft Determination.

10.9.4 The final penalty levels for the GSL scheme has been adjusted in accordance with the allowance made by the ERC (as per Table 9.4). The average GSL allowance over the regulatory period was used as basis. In Table 10.6 the ERC's Draft Determination on the GSL scheme for TEI is described.

**Table 10.6 : ERC Final Determination on the GSL Scheme for TEI**


<b>Performance Measure</b>	<b>Units</b>	<b>Threshold</b>	<b>Penalty Level (PhP)</b>
GSL1 Customer experiencing a total duration of sustained service interruptions in a Regulatory Year that exceeds the threshold	hrs	67.04	81.14
GSL2 Customer experiencing a number of sustained service interruptions in a Regulatory Year that exceeds the threshold	times	32.00	81.14
GSL3 Restoration of supply to a customer after a fault on the secondary distribution network taking longer than the threshold time	hrs	Above 12	
GSL4 Customer connection not provided on the day agreed with the customer	days		
GSL4a. Normal application		2	81.14
GSL4b. Normal application with sec. line extension		15	81.14
GSL4c. Application with primary line		35	81.14

(This space is left intentionally blank)

## 10.10 ERC Final Determination on Excluded Events

10.10.1 As discussed in Section 10.7, ERC recommends that TEI should propose certain events that would have impact on their annual performance statistics. This approach allows for any type of external event to be excluded, if such an event is rare and the impact of such an event is so severe that it overwhelms the capacity of Regulated Entities to respond effectively.

Pasig City, March 8, 2010.

  
**ZENAIDA G. CRUZ-DUCUT**  
Chairperson *of ERC*

  
**ALEJANDRO Z. BARIN**  
Commissioner

  
**RAUF A. TAN**  
Commissioner

  
**MARIA TERESA A.R. CASTAÑEDA**  
Commissioner

  
**JOSE C. REYES**  
Commissioner

**APPENDIX A : APPROVED CAPITAL EXPENDITURE PROGRAM**

Category	Budget (Jan 09 to Jun 09)	Forecast, nominal (regulatory year)	Forecast (peso, nominal) (Regulatory Year)			
	2010	2010	2011	2012	2013	2014
<b>Regulated Distribution Services Assets</b>						
<b>Network</b>						
Land and Land Rights (Distribution Purposes)	0	0	0	0	0	0
Structures and Improvements	0	0	25,089,606	27,996,174	0	0
Station Equipment	0	48,701,721	15,092,833	1,627,278	-578,127	3,510,366
Power transformers	0	-39,363,858	21,262,378	43,027,452	0	0
Switchgear	0	0	0	0	0	0
Protective equipment	0	0	0	0	0	0
Metering & control equipment	0	0	0	0	0	0
Communications equipment	0	0	0	0	0	0
Other station equipment	0	0	0	0	0	0
Poles, Towers and Fixtures - Distribution	10,180,000	5,986,396	8,322,095	16,353,320	20,824,641	24,735,112
Overhead Conductors and Devices - Distribution	31,810,000	2,444,360	4,932,074	3,974,735	5,748,844	5,358,869
Underground Cables and Devices - Distribution	0	0	0	0	0	0
Underground Conduits - Distribution	0	0	0	0	0	0
Line Transformers - Distribution	0	0	6,142,435	4,724,354	3,924,056	4,943,251
Power Conditioning Equipment	0	0	0	0	0	0
Meters, Instruments and Metering Transformers - Distribution	0	0	0	0	0	0
Information Systems Equipment (distribution)	0	0	10,214,712	0	0	0
Regulated Entity Property on Consumer's Premises	0	0	0	0	0	0
Street Lights and Signal Systems	0	1,016,366	1,063,119	1,110,959	1,162,063	1,216,680
Submarine Cables	0	0	0	0	0	0
<b>Non-network</b>						
Land and Land Rights (non-network)	0	0	0	0	0	0
Structures and Improvements (non-network)	0	0	-4,252,476	-24,663,296	0	0
Office Furniture and Equipment	0	101,637	106,312	5,054,865	116,206	121,668
Transportation Equipment	0	0	8,217,909	23,324,034	0	-1,299,293
Stores Equipment	0	0	0	0	0	0
Tools, Shop and Garage Equipment	0	0	0	0	2,561,536	0
Laboratory Equipment	0	0	0	0	0	0
Information Systems Equipment (non-network)	3,580,000	5,386,740	4,695,530	1,787,533	3,892,912	4,436,017
Power-operated Equipment	0	0	0	0	0	0
Communication Plant and Equipment	0	0	0	0	0	0
Miscellaneous Equipment	2,450,000	0	0	0	0	0
<b>Materials</b>						
Materials and supplies (including spares)	0	0	0	0	0	0
<b>Subtrans</b>						
Transferred subtransmission assets	0	0	0	0	0	0
<b>Sub-total Regulated Distribution Services</b>	<b>48,020,000</b>	<b>24,273,363</b>	<b>100,886,530</b>	<b>104,317,409</b>	<b>37,652,132</b>	<b>43,022,670</b>
<b>Distribution Connection Services Assets</b>						
<b>Network</b>						
Poles, Towers and Fixtures (Customer)	0	0	0	0	0	0
Overhead Conductors and Devices (Customer)	0	0	0	0	0	0
Underground Conductors and Devices (Customer)	0	0	0	0	0	0
Line Transformers (Customer)	0	0	0	0	0	0
Information Systems Equipment (Connection)	0	0	0	0	0	0
<b>Non-network</b>						
Land and Land Rights (non-network)	0	0	0	0	0	0
Structures and Improvements (non-network)	0	0	0	0	0	0
Office Furniture and Equipment	0	0	0	0	0	0
Transportation Equipment	0	0	0	0	0	0
Stores Equipment	0	0	0	0	0	0
Tools, Shop and Garage Equipment	0	0	0	0	0	0
Laboratory Equipment	0	0	0	0	0	0
Information Systems Equipment (non-network)	0	0	0	0	0	0
Power-operated Equipment	0	0	0	0	0	0
Communication Plant and Equipment	0	0	0	0	0	0
Miscellaneous Equipment	0	0	0	0	0	0
<b>Materials</b>						
Materials and supplies (including spares)	0	0	0	0	0	0
<b>Sub-total Distribution Connection Assets</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Regulated Retail Services Assets</b>						
Meters, Instruments & Metering Transformers (Consumer Consumption Metering)	4,590,000	0	11,165,938	11,294,012	12,263,255	15,470,091
Land and land rights	0	0	0	0	0	0
Structures and improvements	0	0	0	0	0	0
Office Furniture and Equipment	0	0	0	0	0	0
Transportation Equipment	0	0	0	0	0	0
Stores Equipment	0	0	0	0	0	0
Tools, Shop and Garage Equipment	0	0	0	0	0	0
Laboratory Equipment	0	0	0	0	0	0
Information Systems Equipment	0	0	0	0	0	0
Communication Plant and Equipment	0	0	0	0	0	0
Miscellaneous Equipment	0	0	0	0	0	0
<b>Sub-total Regulated Retail Services Assets</b>	<b>4,590,000</b>	<b>0</b>	<b>11,165,938</b>	<b>11,294,012</b>	<b>12,263,255</b>	<b>15,470,091</b>
<b>TOTAL CAPEX</b>	<b>52,610,000</b>	<b>24,273,363</b>	<b>112,052,468</b>	<b>115,611,421</b>	<b>49,915,387</b>	<b>58,492,761</b>

Note that in some cases negative amounts are indicated. This is as a result of allocation of proposed reductions, where it was not clear to exactly which line items these should have been made. The allocation per line is indicative only and Regulated Entities are not required to adhere strictly to these. Control and verification will occur based on total expenditure.

**APPENDIX B : APPROVED OPERATING & MAINTENANCE EXPENDITURE**

Opex Category and Sub-category		Forecast, nominal (regulatory year)	Forecast (peso, nominal) (Regulatory Year)			
		2010	2011	2012	2013	2014
<b>Distribution</b>						
Operation	Operation supervision & engineering	3,211,820	3,437,296	3,724,799	3,986,189	4,216,329
	Load dispatching	671,989	719,164	779,316	834,005	882,156
	Substations	6,244,054	4,045,788	3,086,747	3,419,794	3,713,345
	Overhead conductors & devices	9,158,724	9,801,684	10,621,519	11,366,891	12,023,153
	Underground cables & devices	0	0	0	0	0
	Streetlighting and signal systems	0	0	0	0	0
	Metering (distribution network)	0	0	0	0	0
	Rents	2,433,081	2,603,888	2,821,684	3,019,697	3,194,038
	Information technology (distribution network)	0	0	0	0	0
	Miscellaneous	0	0	0	0	0
Maintenance	Maintenance supervision & engineering	1,502,859	1,608,362	1,742,889	1,865,198	1,972,884
	Substations	5,040,322	5,394,162	5,845,342	6,255,543	6,616,703
	Overhead lines	14,463,463	15,478,827	16,773,510	17,950,601	18,986,971
	Underground cables & devices	0	0	0	0	0
	Streetlighting and signal systems	0	0	0	0	0
	Line transformers	0	0	0	0	0
	Information technology (distribution network)	0	0	0	0	0
	Metering (distribution network)	0	0	0	0	0
	Miscellaneous	1,318,536	1,411,099	1,529,127	1,636,434	1,730,913
Admin & Gen	Admin & general salaries	4,013,620	4,208,207	4,414,595	4,629,205	4,852,261
	Office supplies & expenses	2,479,685	2,599,905	2,727,415	2,860,005	2,997,813
	Information technology (admin & general)	908,706	952,761	999,489	1,048,078	1,098,579
	Outside services employed	7,466,501	7,828,489	8,212,432	8,611,669	9,026,618
	Property insurance	1,530,203	1,604,389	1,683,076	1,764,896	1,849,937
	Injuries & damages	0	0	0	0	0
	Employee pension & benefits	9,665,414	10,134,009	10,631,025	11,147,839	11,684,991
	Rents	1,685,200	1,766,901	1,853,558	1,943,666	2,037,320
	Maintenance of office & general plant	2,358,219	2,472,549	2,593,814	2,719,909	2,850,966
	Officers allowance & benefits	7,160,437	7,507,586	7,875,791	8,258,663	8,656,602
	Travel	5,362,948	5,622,953	5,898,727	6,185,486	6,483,530
	Training	1,085,791	1,138,432	1,194,266	1,252,323	1,312,666
	Regulatory liaison & compliance	592,799	621,539	652,022	683,720	716,664
	Water and Electricity	0	0	0	0	0
	Other	5,515,264	5,782,653	6,066,260	6,361,163	6,667,672
WESM	Registration fees	0	0	0	0	0
	Metering fees	0	0	0	0	0
	Billing & settlement fees	0	0	0	0	0
	Administration fees	0	0	0	0	0
	Costs for the PEM board, committees & working groups	0	0	0	0	0
	Market management software & upgrades	0	0	0	0	0
	Provision of security	0	0	0	0	0
	Other	0	0	0	0	0
<b>Sub-total Regulated Distribution Services</b>		<b>93,869,634</b>	<b>96,740,644</b>	<b>101,727,404</b>	<b>107,800,975</b>	<b>113,572,112</b>
<b>Distribution Connection Services</b>						
Operation	Operation supervision & engineering	0	0	0	0	0
	Load dispatching	0	0	0	0	0
	Overhead connections & devices	0	0	0	0	0
	Underground cables & devices	0	0	0	0	0
	Consumer installations	0	0	0	0	0
	Distribution transformers	0	0	0	0	0
	Information technology (connection assets)	0	0	0	0	0
	Miscellaneous	0	0	0	0	0
Maintenance	Maintenance supervision & engineering	0	0	0	0	0
	Load dispatching	0	0	0	0	0
	Overhead connections & devices	0	0	0	0	0
	Underground cables & devices	0	0	0	0	0
	Consumer installations	0	0	0	0	0
	Distribution transformers	0	0	0	0	0
	Information technology (connection assets)	0	0	0	0	0
	Miscellaneous	0	0	0	0	0
Admin & Gen	Admin & general salaries	0	0	0	0	0
	Office supplies & expenses	0	0	0	0	0
	Information technology (admin & general)	0	0	0	0	0
	Outside services employed	0	0	0	0	0
	Property insurance	0	0	0	0	0
	Injuries & damages	0	0	0	0	0
	Employee pension & benefits	0	0	0	0	0
	Rents	0	0	0	0	0
	Maintenance of office & general plant	0	0	0	0	0
	Officers allowance & benefits	0	0	0	0	0
	Travel	0	0	0	0	0
	Training	0	0	0	0	0
	Water and Electricity	0	0	0	0	0
	Miscellaneous	0	0	0	0	0
<b>Sub-total Distribution Connection Services</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Regulated Retail Services</b>						
	Administration & management	14,324,018	15,246,888	16,304,300	17,447,448	18,682,433
	Consumer meter installations (planning, supply, install, maintain)	10,554,345	11,234,341	12,013,473	12,855,777	13,765,749
	Meter reading expenses	9,267,001	9,864,057	10,548,156	11,287,721	12,086,701
	Information technology (consumer related)	2,769,641	2,948,084	3,152,541	3,373,576	3,612,369
	Consumer records, billing and collection	21,124,224	22,485,218	24,044,628	25,730,475	27,551,759
	Bad debts	1,551,031	1,650,961	1,765,460	1,889,242	2,022,968
	Informational and instructional advertising	303,089	322,616	344,990	369,179	395,310
	Energy trading expenses	0	0	0	0	0
	Water and Electricity	0	0	0	0	0
	Miscellaneous consumer services expenses	2,486,300	2,646,487	2,830,028	3,028,451	3,242,814
<b>Sub-total Regulated Retail Services</b>		<b>62,379,648</b>	<b>66,398,651</b>	<b>71,003,577</b>	<b>75,981,869</b>	<b>81,360,104</b>
<b>Total Operating &amp; Maintenance Expenditure</b>		<b>156,249,282</b>	<b>163,139,295</b>	<b>172,730,981</b>	<b>183,782,844</b>	<b>194,932,216</b>

Note that in some cases negative amounts are indicated. This is as a result of allocation of proposed reductions, where it was not clear to exactly which line items these should have been made. The allocation per line is indicative only and Regulated Entities are not required to adhere strictly to these. Control and verification will occur based on total expenditure.

**APPENDIX C : APPROVED LEVIES, DUTIES AND OTHER TAXES (OTHER THAN CORPORATE INCOME TAX) EXPENDITURE**

Opex Category and Sub-category	Forecast, nominal (regulatory year)	Forecast (peso, nominal) (Regulatory Year)			
	2010	2011	2012	2013	2014
<b>Levies</b>					
Regulatory reset expert fees	923,379	2,341,739	316,926	338,018	359,980
Others (specify)	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
<b>Sub-total Levies</b>	<b>923,379</b>	<b>2,341,739</b>	<b>316,926</b>	<b>338,018</b>	<b>359,980</b>
<b>Duties</b>					
Others (specify)	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
<b>Sub-total Duties</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Other taxes</b>					
Business operation permits	0	0	0	0	0
Community tax	10,672	11,163	11,665	12,202	12,775
Real property tax	237,284	248,200	259,368	271,299	284,051
	0	0	0	0	0
	0	0	0	0	0
Admin/regulatory Fee(CityHall)	3,049	3,189	3,333	3,486	3,650
Registration Fees	354,310	370,609	387,286	405,101	424,141
Others (specify)	280,216	713,364	306,296	320,386	816,406
<b>Sub-total Other Taxes</b>	<b>885,532</b>	<b>1,346,524</b>	<b>967,948</b>	<b>1,012,474</b>	<b>1,541,022</b>
<b>Total Other Taxes, Levies &amp; Duties</b>	<b>1,808,911</b>	<b>3,688,264</b>	<b>1,284,874</b>	<b>1,350,491</b>	<b>1,901,003</b>