WORKING CAPITAL

National Transmission Corporation

Rationale

- **Section 4.5.7 of the TWRG**

  The Building Block formula in calculating the ARR includes allowance for Working Capital

WORKING CAPITAL

Definition

Working Capital considers the timing difference between an expense being incurred and the revenue to recover that expense, being received.

Working Capital Requirements for OPEX

Average Revenue Lag (Days)	**48.0**
Average Operating and Maintenance Expense Lead (Days)	**20.3**
Net Lag (Days)	**27.7**
Average Working Capital Requirement (as a proportion of O&M) 27.7 / 365 days	**7.6%**

Working Capital for Income Tax Payment

Income Tax Payment Lags as a % of Annual Income Tax	
CY 2006	**44%**
CY 2007-2010	**81%/year**

METHOD OF WORKING CAPITAL CALCULATION

- Lead / Lag assessment

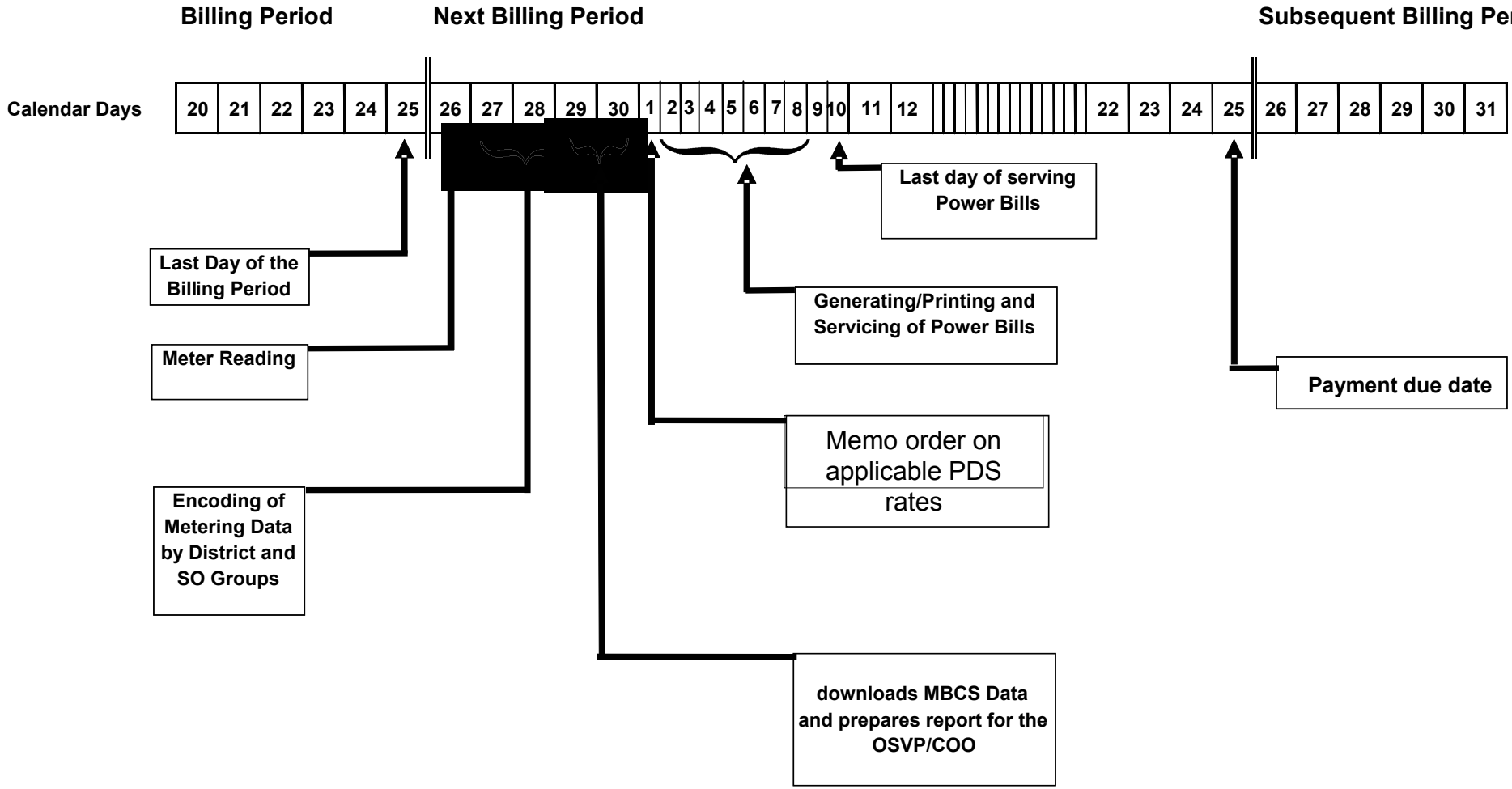
  - *Time from when electricity transmission service is provided to consumers, until it is paid for, and*

  - *Time from when operating and maintenance services (and materials) are provided to the network business, until they are paid for.*

- Net Lag refers to the difference between two periods in the recovery of operating and maintenance expenditures.

WORKING CAPITAL

Billing & Collection Cycle



WEIGHTED AVERAGE COST OF CAPITAL (WACC) (REASONABLE RETURN ON CAPITAL)

National Transmission Corporation

CONTENTS

- Introduction
- WACC recommended by Independent Expert
- Comparison with previous ERC WACC
- Benchmarking with other regulated entities
- Conclusions

INTRODUCTION

- **Importance of WACC**

1. **In regulatory setting**
   - **WACC is used by ERC as an important input for it to set a revenue cap for Transco**
2. - **If WACC is set at an unreasonably low level, it will disincentivise essential investment in the transmission network**

It is critical to the integrity of the Philippines transmission system and the success of the Transco privatisation that the WACC is not set at an unreasonably low level

INTRODUCTION

- **Importance of WACC**
  - **In privatisation of Transco**

1

    - **WACC is a key parameter and will impact**
      - **Investors' decisions on whether to bid for Transco or not**

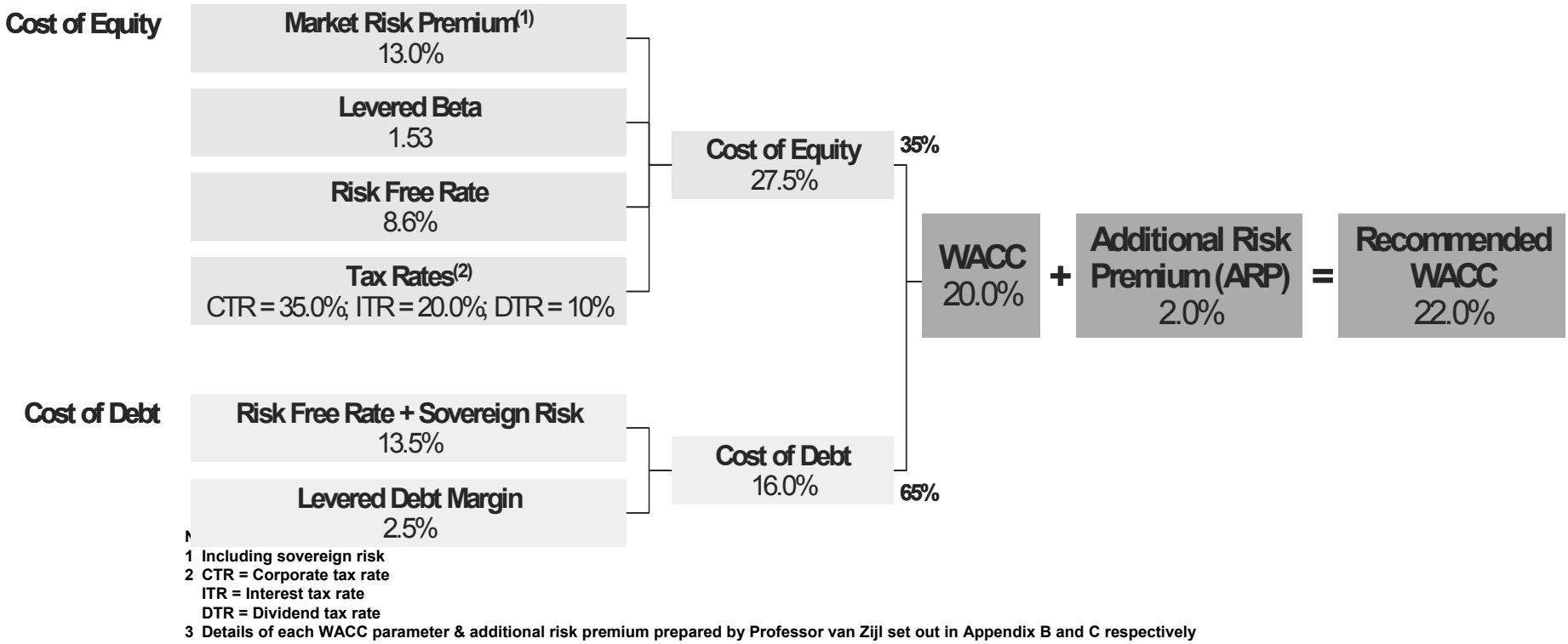
2

      - **Investors' valuation of Transco**
    - **If WACC is set at an unreasonably low level, it will increase the risk of receiving no bid or significantly discounted bids for Transco**

It is critical to the integrity of the Philippines transmission system and the success of the Transco privatisation that the WACC is not set at an unreasonably low level

WACC RECOMMENDED BY INDEPENDENT EXPERT

– Summary of recommended WACC by Professor van Zijl in his report dated 26 August 2005



1 Including sovereign risk
2 CTR = Corporate tax rate
ITR = Interest tax rate
DTR = Dividend tax rate
3 Details of each WACC parameter & additional risk premium prepared by Professor van Zijl set out in Appendix B and C respectively

Independent Expert appointed Tony van Zijl PhD,
Professor of Accounting and Finance at Victoria University, New Zealand

COMPARISON WITH PREVIOUS ERC WACC

- The last indication of ERC's views on WACC were provided in the "Regulatory Reset for the National Transmission Corporation (TRANSCo) for 2006 to 2010 – Issues Paper" (the "ERC Issues Paper") issued on 10 Sept 2004

- Issues paper indicated WACC of 13% - 14.6%, significantly below independent expert recommendation of 22%
- Following table compares key differences

COMPARISON WITH PREVIOUS ERC WACC

Parameters	ERC WAC	ERC WAC	Ind. Expert	Comments
Risk free rate	10.1%	10.6%	8.6%	• ERC's approach includes an estimate for sovereign risk. Sovereign risk should be included but not in the risk free rate • ERC's estimate based on 10 year US treasury bonds. Given the long life of Transco's assets, estimate should be based on 20 years
Leverage ratio	50%	50%	65%	• ERC estimate based on average or industry practice for financially viable companies. Conservative; optimal level of leverage should be inferred from practice • Comparable data suggests estimate of 60% gearing. Privatization plan of Transco allows for higher leverage (up to 75%), hence estimate of 65% adopted
Cost of debt	11.1%	12.1%	16.0%	• ERC assumes cost of debt at 1%-1.5% above risk free rate. Cost of debt to include risk free rate, sovereign risk and a margin for Transco specific credit risks. Debt margins of 2.5% recommended
Levered beta	0.80	1.08	1.53	• ERC's equation to beta is not appropriate for the Philippines tax structure • ERC estimates based on comparables and 50% leverage. Need to use broader sample for comparables; and use 65% as the leverage ratio

COMPARISON WITH PREVIOUS ERC WACC, cont.

Parameters	ERC WA	ERC WACC	Ind. Expert	Comments
Market risk premium	6.0%	6.0%	13.0%	• ERC estimate based on average or industry practice for financially viable companies. Understated; Need to add sovereign risk premium
Cost of equity	14.9 %	17.1%	27.5%	• ERC applies formula which is only applicable when taxes a uniform across personal, dividend and corporate incomes - not the case in Philippines
Additional risk premium	0%	0%	2%	• Competitive firms require a significant premium over their WACC when setting hurdle rates for investment
WACC	13.0 %	14.6%	22%	

BENCHMARKING WITH OTHER REGULATED ENTITIES

- Benchmarking approach
  - The Independent Expert has provided detailed theoretical and empirical support for his WACC recommendation (summarised in Appendix B and C)
  - In this section we seek instead to put the ERC & Independent Expert's results in the context of comparable returns as a way to benchmark reasonableness
  - Compare with required returns of comparable businesses including
    - Other regulated utilities in the Philippines e.g. Manila Water
    - Regional network businesses e.g. PGN (gas transmission and distribution in Indonesia)
    - Contracted Independent Power Producers (IPPs) in the region
      - similar risk / return profile as regulated utilities
      - on "no-names" basis due to confidentiality

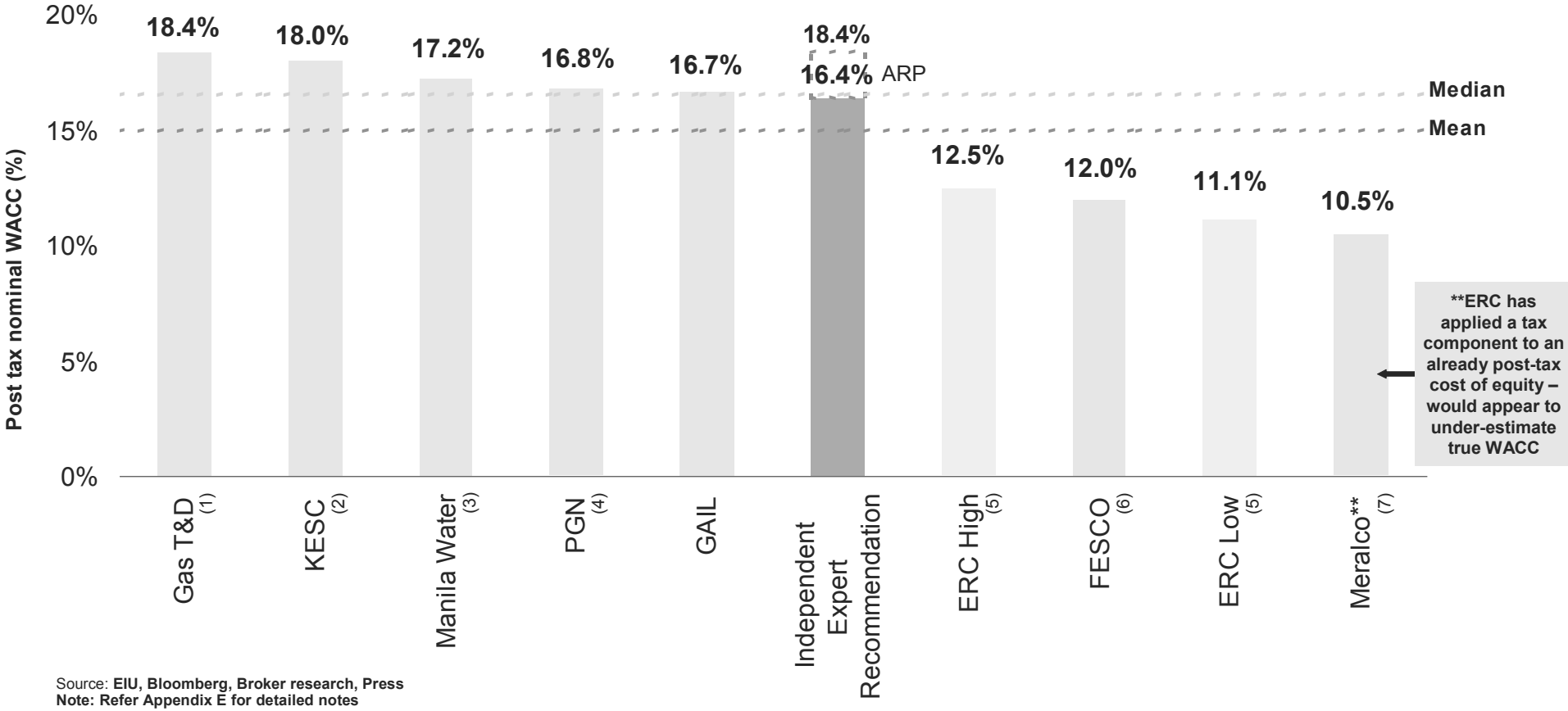
- Comparison of WACC

	Definition of WACC for Transco regulation		Standard definition for WACC (post tax nominal)
Independent Experts's Recommendation	22.0%	⇨	18.4%
ERC Issues Paper	13.0% - 14.6%	⇨	11.1% - 12.5%

Independent Expert's Recommendation equates to 18.4% on standard definition of WACC

BENCHMARKING WITH OTHER REGULATED ENTITIES

- WACC (post tax nominal)

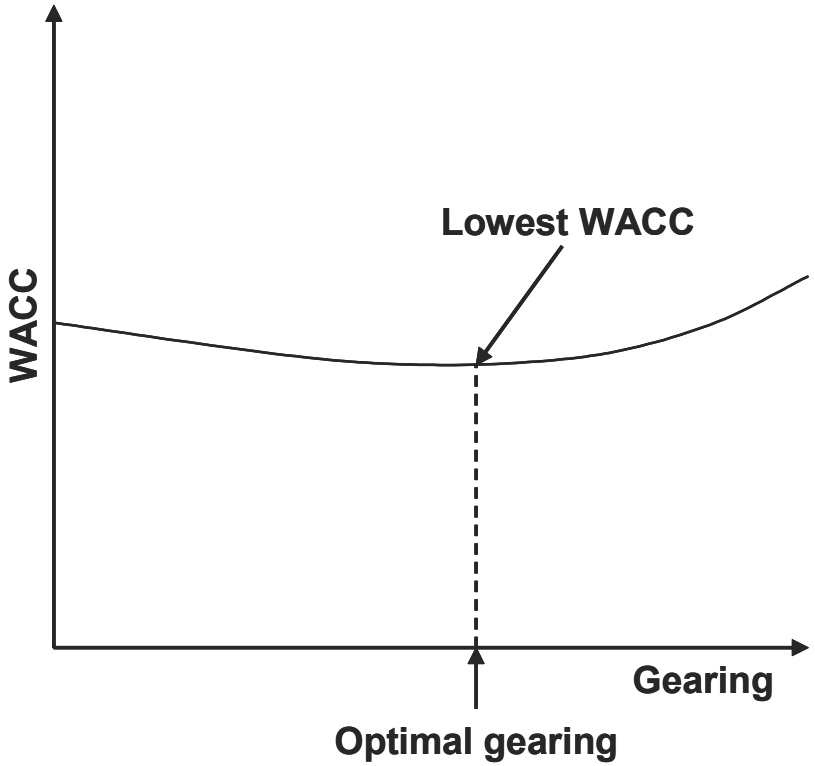


Source: **EIU, Bloomberg, Broker research, Press**
Note: Refer Appendix E for detailed notes

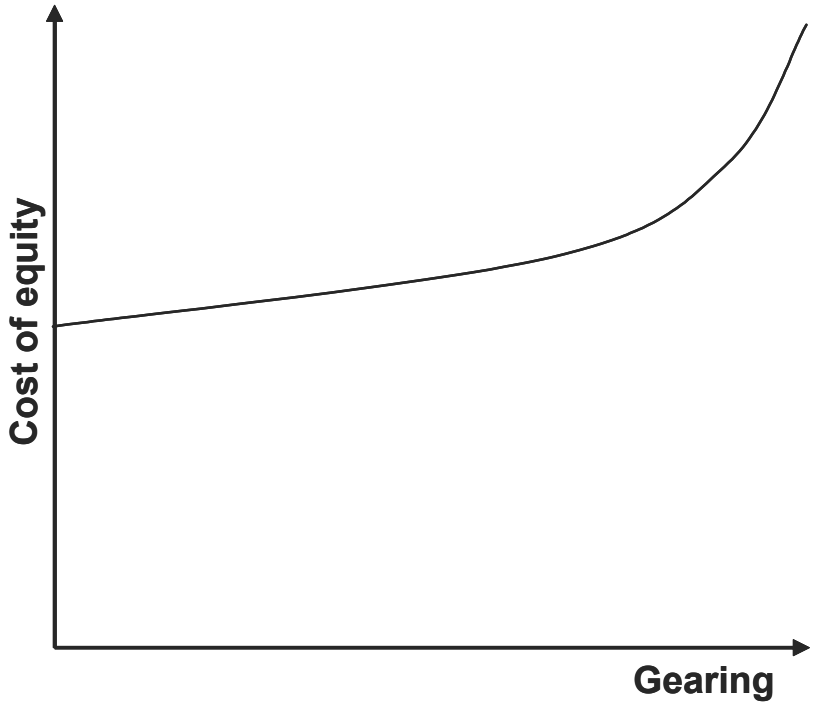
Independent Experts Recommendation (pre-ARP) is mid-range; ERC estimates are at the lower end

- Comparison of equity return

1. Gearing of companies differs depending on optimal mix of debt and equity



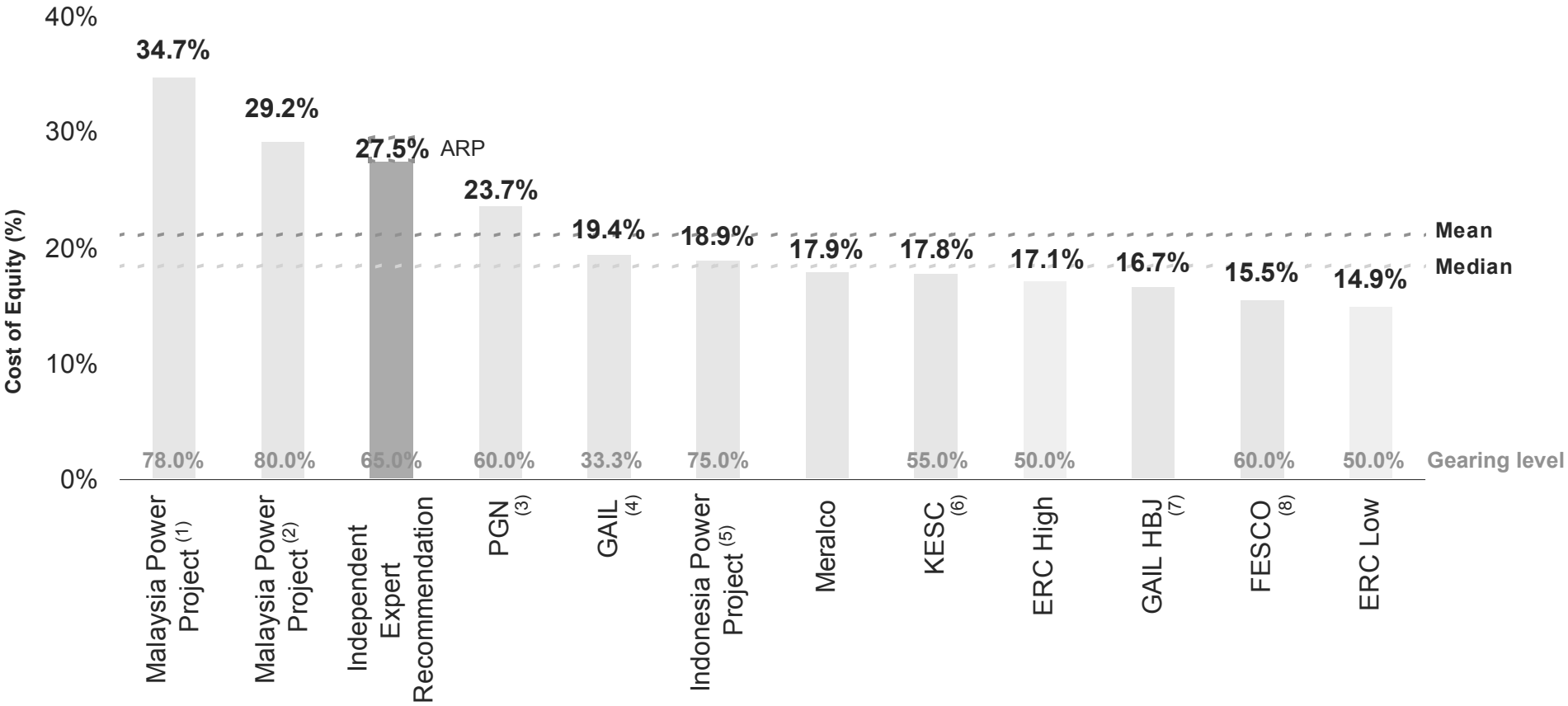
2. Higher geared companies require higher equity returns



Comparison of equity returns must take into account level of gearing

BENCHMARKING WITH OTHER REGULATED ENTITIES

- Cost of equity



Source: **EIU, Bloomberg, Broker research, Press**
Note: Refer Appendix E for detailed notes

Independent Experts Recommendation is higher end (but justified by higher end gearing); ERC estimates lower end

CONCLUSIONS

- Previous estimate of ERC WACC was significantly below recent Independent Expert's recommendation
- An unreasonably low WACC will adversely affect the prospects for crucial investment in the electricity transmission system and success of the Transco privatisation
- Comparable returns analysis suggest that previous estimate of ERC WACC is set at an unreasonably low level private sector investors in transmission network will expect a return much closer to Independent Expert's recommendation

TAXES
- CORPORATE INCOME TAX
- OTHER TAXES

National Transmission Corporation

Rationale

- **Section 4.12 of the TWRG**

The estimated corporate income tax payable by TransCo for the 2nd Regulatory Period must be calculated in accordance with the following formula:

$$Taxp,t = NTIncome_{t-1} \times Tc$$

where,

$NTIncome_{t-1}$ is the Net Taxable Income for the regulated entity for the previous regulatory year (t-1), and

T_c is the applicable corporate tax rate.

Taxes Payable

- **Corporate Income Tax**
  - Assumed regulated entity will pay corporate income tax
- **Value Added Tax**
  - Not considered in MAR computation; pass through

Taxes Payable

- **Other Taxes Payable**
  - Include Local Franchise Tax, Business Tax, Transfer Tax, Real Property Tax, Import Taxes and Duties, and Documentary Stamp Tax

Taxes Payable

2.) Local Franchise Tax	- 75% of 1% - Gross receipts of the preceding year.
3.) Real Property Tax	-Inputs from the Regional Finance Offices
4.) Taxes and Duties	-Inputs from the Regional Finance Offices

TAX ASSUMPTIONS

Taxes Payable

5.) Local Business Tax	- Transco, 75% of 1% of Gross receipts of the preceding year - Concessionaire, 75% of 1% of Gross receipts of the preceding year
6.) Other Taxes a) Local Transfer Tax	- 75% of 1% - Cost of New Projects
b) DST	- P15 for every P1,000 - Cost of New Projects completed and transferred to Transco

TAX ASSUMPTIONS

Taxes Payable

1.) Income Tax	2006 to 2008 - 35% 2009 to 2010 - 30% - Taxes are assumed paid in succeeding period (2006 paid in 2007, 2007 paid in 2008, etc.), as per TWRG requirement.

TAX CALCULATIONS

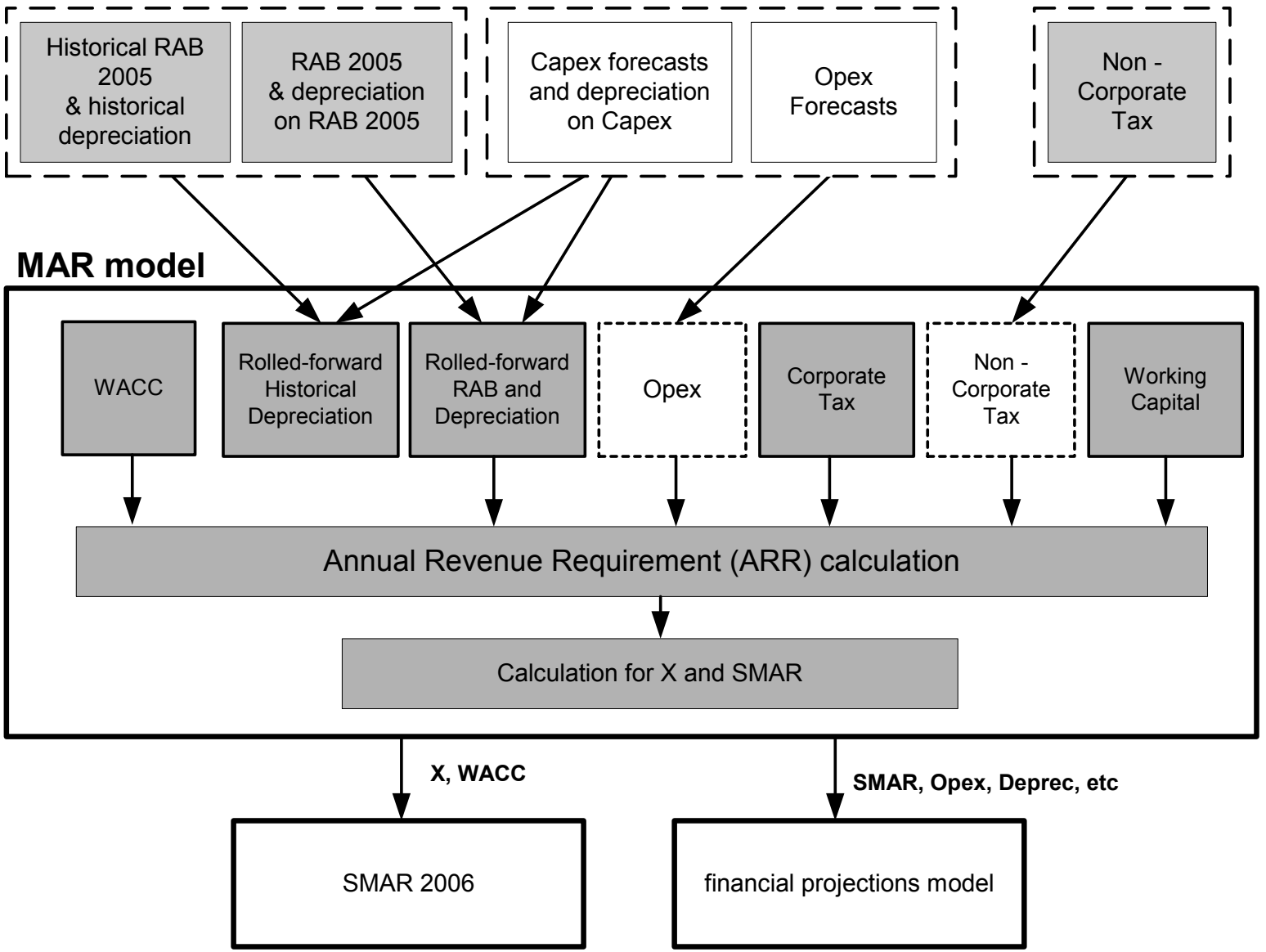
Taxes Payable

Particulars	2006	2007	2008	2009	2010
Income Tax		1,219	4,187	8,055	11,582
Franchise Tax (Local)	203	262	342	442	569
Business Tax (Local)					
Transco	203	262	342	442	569
Concessionaire	194	252	331	429	555
Real Property Tax	34	34	36	36	37
Taxes & Duties	44	47	48	49	50
Other Taxes					
Local Transfer Tax	-	28	34	30	8
DST	-	56	67	59	16
TOTAL	679	2,160	5,386	9,543	13,385

PRICE CONTROL – ESTIMATED MAXIMUM ALLOWABLE REVENUE (MAR)

National Transmission Corporation

ROAD MAP TO ARR and SMAR

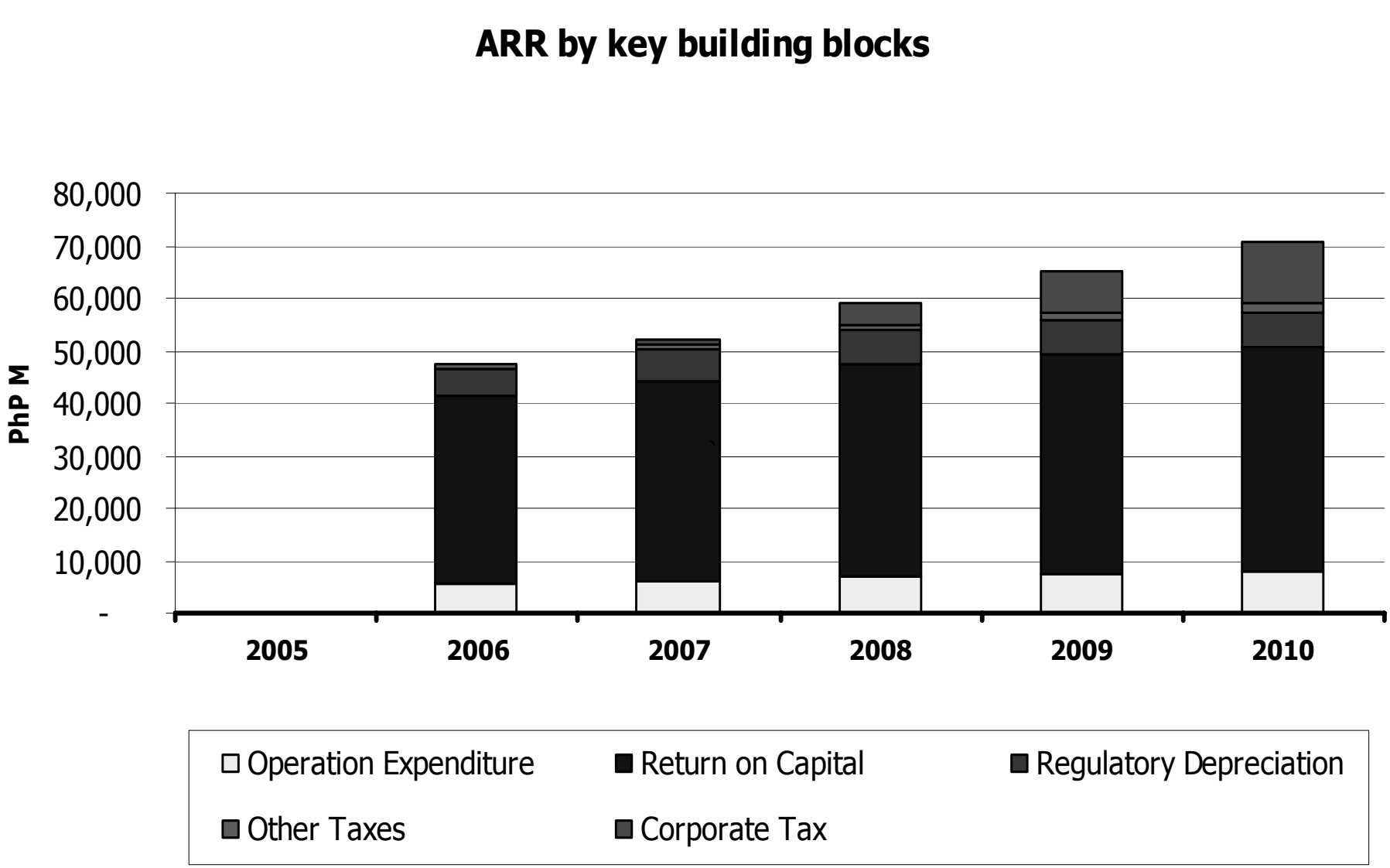


SMAR 2006 - 2010

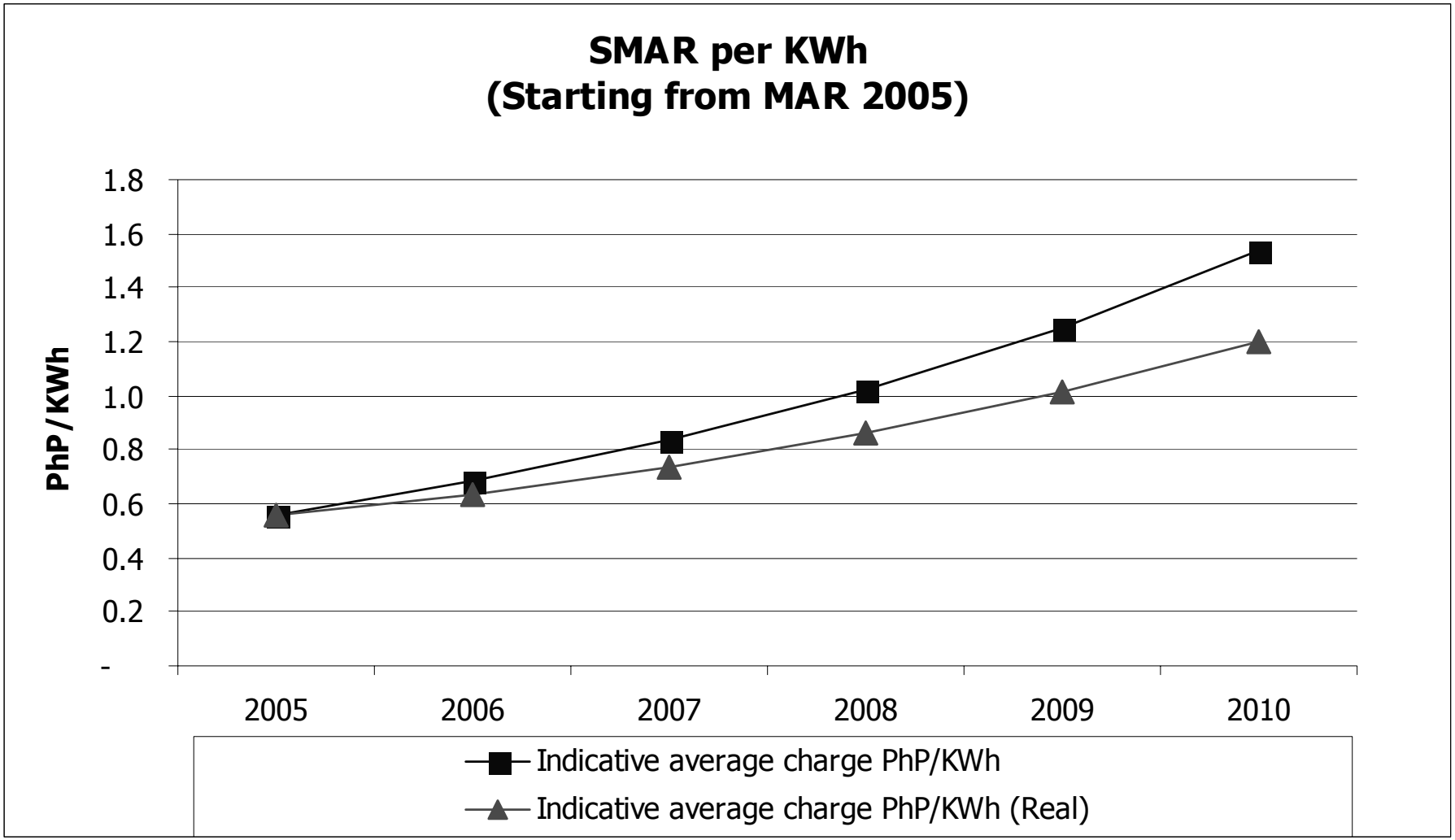
Building Block	2006	2007	2008	2009	2010
RAB	162,151	170,498	178,498	180,815	180,203
Opex	5,401	5,932	6,774	7,285	7,854
Corp. Tax	0	1,219	4,187	8,055	11,582
Other Taxes	679	941	1,199	1,488	1,803
Return on Capital	35,835	38,314	40,785	41,920	42,897
Regulatory Depn	5,444	5,895	6,202	6,409	6,622
ARR	47,359	52,301	59,147	65,158	70,759
SMAR	34,969	45,627	58,984	75,839	97,511

MAR 2005 PhP 27,086 Mn

SUMMARY BUILDING BLOCKS FOR ARR



RELATIONSHIP BETWEEN SMAR AND ARR



INDICATIVE AVERAGE RATES: PHILIPPINES

Regulatory Year	PhP/kWh	PhP/kWh, Increase	%Increase
2005	.5573		
2006	.6812	.1239	22%
2007	.8375	.1563	23%
2008	1.0254	.1879	22%
2009	1.2544	.2290	22%
2010	1.5357	.2813	22%

INDICATIVE AVERAGE RATES: LUZON-VISAYAS

Regulatory Year	PhP/kWh	PhP/kWh, Increase	%Increase
2005	.5616		
2006	.6889	.1273	22%
2007	.8467	.1578	23%
2008	1.0389	.1922	23%
2009	1.2720	.2331	22%
2010	1.5586	.2866	22%

Note: Luzon and Visayas: treated as one grid

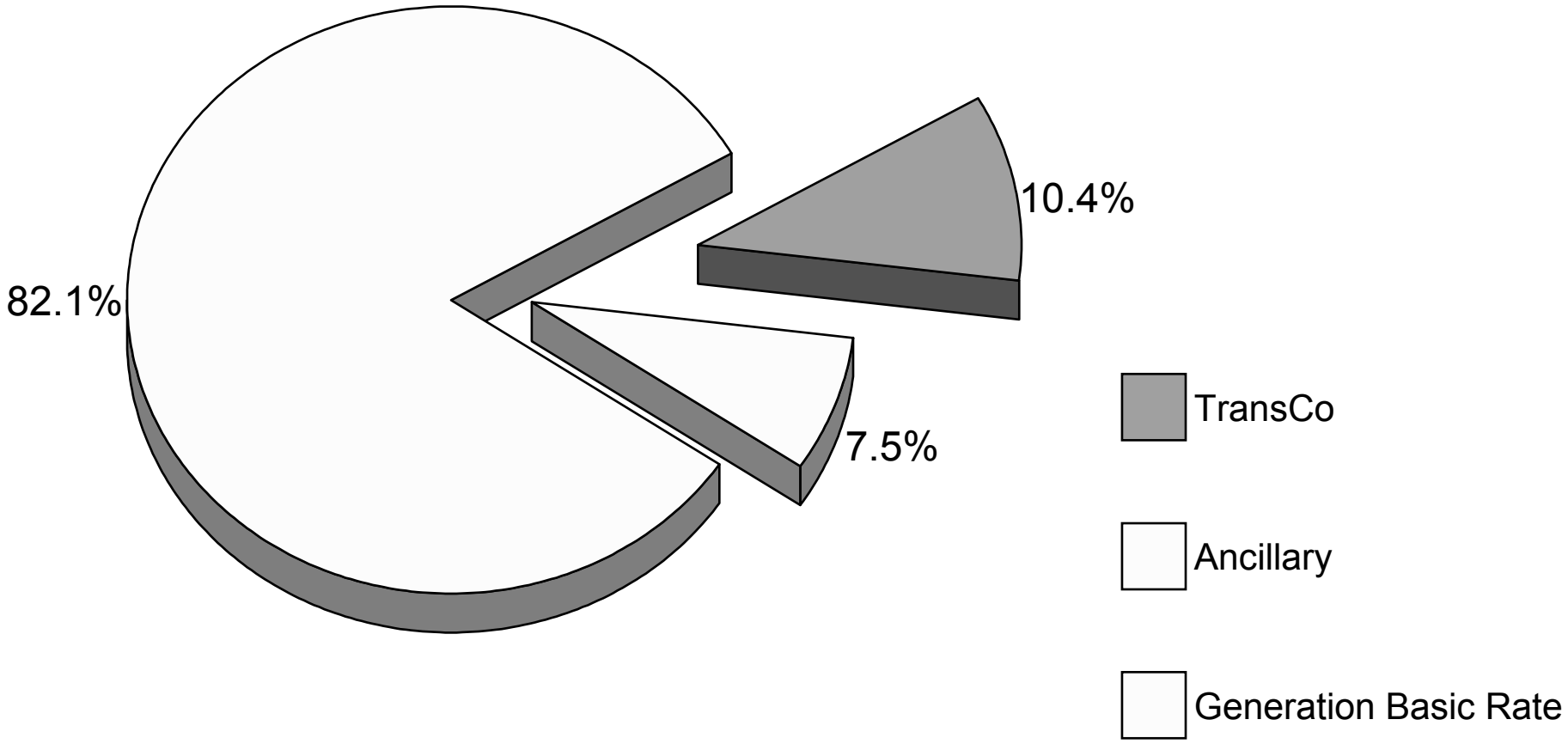
Revenue allocation is based on 2004 actual reported revenue

INDICATIVE AVERAGE RATES: MINDANAO

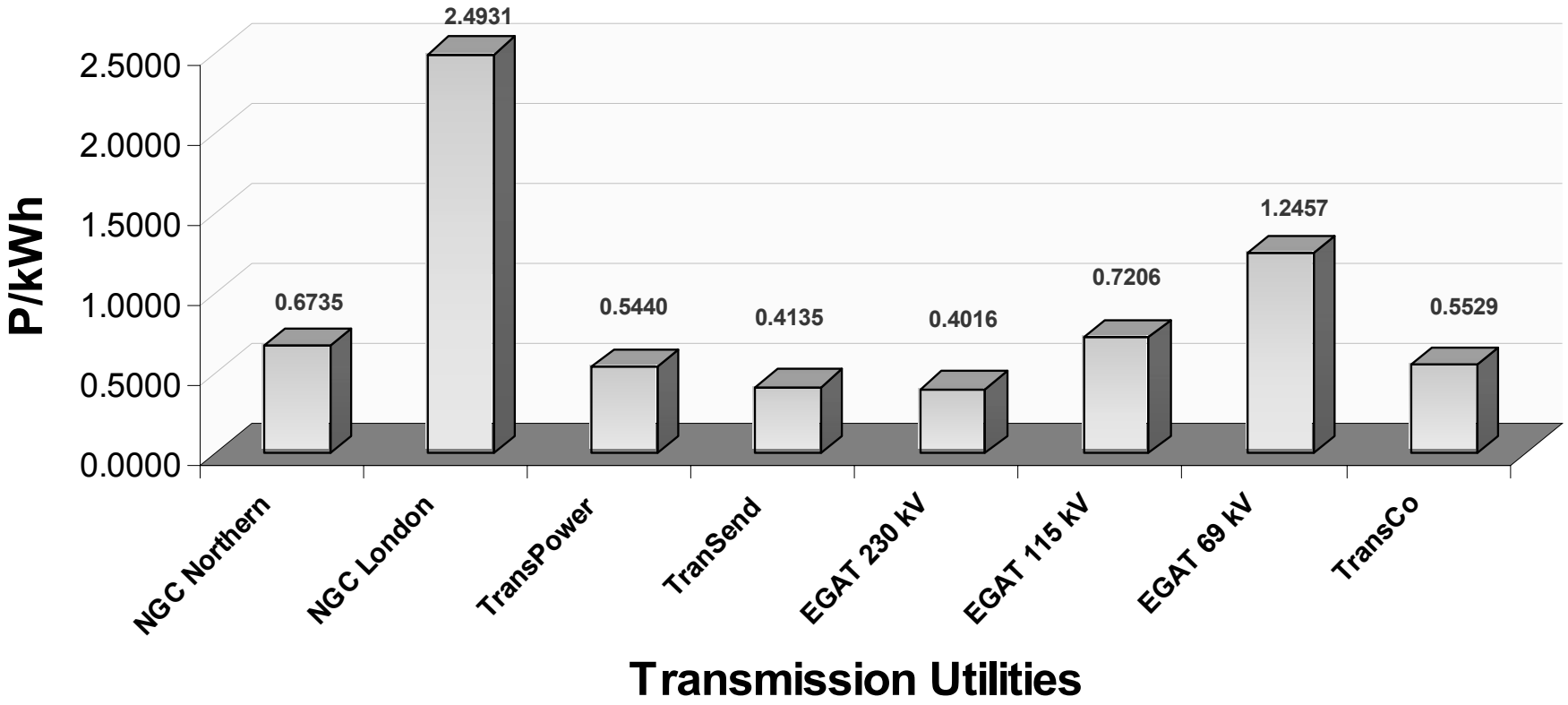
Regulatory Year	PhP/kWh	PhP/kWh, Increase	%Increase
2005	.5313		
2006	.6359	.1046	20%
2007	.7834	.1475	23%
2008	.9476	.1642	21%
2009	1.1532	.2058	22%
2010	1.4050	.2518	21%

Note: Revenue allocation is based on 2004 actual reported revenue

EFFECTIVE SELLING RATE (NPC & TRANSCO)



COMPARATIVE TRANSMISSION CHARGES



PROPOSED PERFORMANCE INCENTIVE SCHEME

National Transmission Corporation

PERFORMANCE INCENTIVE: PRESENTATION OUTLINE

- Brief Background
- Performance Incentive (TWRG)
- Proposed Performance Incentive
  - Definition of Terms
  - Weighted Percentage
  - Justification
- Design of PI Reward / Penalty
  - Deadbands, Caps & Collars Values
  - 2000-04 Historical Data
  - Reward/Penalty Bandwidth
  - Graphs of PI Reward / Penalty

PERFORMANCE INCENTIVE: BRIEF BACKGROUND

- TWRG – Performance Based
- Selection of Performance Indicators
- Review of Performance Measures of Other Transmission Companies
- Design of Performance Incentive Scheme

PERFORMANCE INCENTIVE (TWRG)

1. Number of Interruption Events
2. Average System Interruption Frequency Index (ASIFI)
3. Momentary Average Interruption Frequency Index (MAIFI)
4. Average System Interruption Duration Index (ASIDI)
5. System Interruption Severity Index (SISI)
6. Number of Frequency Limit Compliance
7. Number of Voltage Limit Compliance
8. System Losses

PROPOSED PERFORMANCE INDICES

1. System Interruption Severity Index (SISI)
2. Frequency of Tripping per 100 ckt-km (FOT/100ckt-km)
3. System Availability (SA)
4. Frequency Limit Compliance (FLC)
5. Voltage Limit Compliance (VLC)

DEFINITION OF TERMS

System Interruption Severity Index (SISI)

- This indicator measures the ratio of the unserved energy to the system peak load. Mathematically, it is expressed as:

$$SISI = \frac{\text{Total Delivery Point Unserved Energy}}{\text{System Peak Load (MW)}}$$

DEFINITION OF TERMS

Frequency of Tripping per 100 ckt-km (FOT/100ckt-km)

- Measures the number of forced line outages (transient and permanent or sustain) initiated by automatic tripping of relay.

$$\text{FOT} = \frac{\text{Total Number of Trippings}}{\text{Circuit Length per } 100\text{ckt} - \text{km}}$$

For voltage level 69kV and above

DEFINITION OF TERMS

System Availability (SA)

- is defined by the following formula:

$$SA = \frac{\text{The sum for all circuit of hours available}}{\text{(Number of circuits) x (Number of hours in Period)}}$$

Mathematically,

$$SA = \frac{N \bullet P - \sum_{i=1}^{n}\left[\left(ODC_1 - OEC_1\right) + \left(ODC_2 - OEC_2\right) + \left(ODC_3 - OEC_3\right) + \ldots + \left(ODC_n - OEC_n\right)\right]}{N \bullet P} \text{ x } 100\%$$

where:

SA	=	System Availability, in %
N	=	Total number of components
P	=	Period covered, in minutes
n	=	Total number of components on outage
i	=	Component on outage
ODC	=	Outage Duration of Component, in minutes
OEC	=	Outage Exemption of Component

DEFINITION OF TERMS

Frequency Limit Compliance (FLC)

- refers to the percentage of time during the rating period that the system frequency is within the allowable range of 60 ± 0.3 Hz. It is expressed, as follows:

$$FLC = \left[1 - \frac{(n_1 * r)}{(d * 24 * 60 * 60)}\right] x\ 100$$

Where: n_1 = total number of frequency limit violations
r = scanning rate of the SCADA/EMS, in seconds
(2 secs. in Luzon starting 2002 and 4 secs. before 2002)
d = number of days in rating period

Voltage Limit Compliance (VLC)

- refers to the percentage of the number of voltage measurements during the rating period that the voltage variance did not exceed ± 5% of the nominal voltage of all busses (Luzon – 230 kV & 500 kV, Visayas – 230 kV/138 kV, Mindanao – 138 kV) monitored at the high side of the substation. Monitoring time at peak load hours of 11 am, 2 pm and 7 pm and off-peak hour at 2 am. These hours represent the times when the bus voltages are expected to be not in their normal levels.

$$VLC = \left[1 - \frac{n_v}{(d * 4 * n_s)}\right] x\ 100$$

Where: n_v = total number of frequency limit violations
n_s = number of substations
d = number of days in rating period

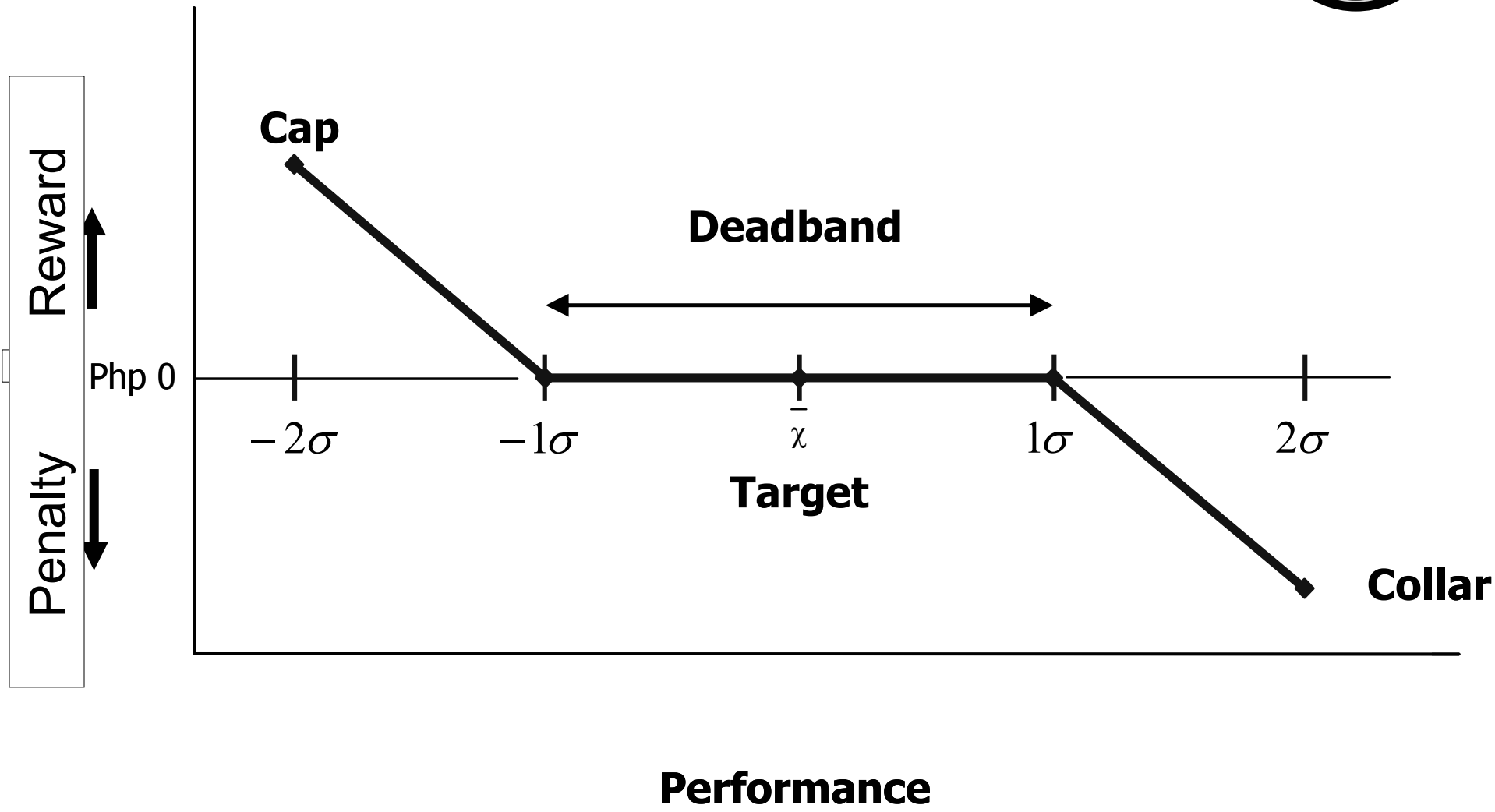
WEIGHTED % OF PROPOSED PI

Performance Indices	%
1. System Interruption Severity Index (SISI)	30
2. Frequency of Tripping per 100 ckt-km (FOT/100ckt-km)	25
3. System Availability (SA)	25
4. Frequency Limit Compliance (FLC)	10
5. Voltage Limit Compliance (VLC)	10

JUSTIFICATION OF PI RELATIVE WEIGHTS

- ASIFI, MAIFI, and ASIDI are applicable to DUs only as per SKM.
- More weight for SISI because of high impact to consumers.
- FOT and SA were given same weight on both indices but have less impact to consumers than SISI.
- VLC and FLC given least weight; TransCo has no full control and affect few sensitive customers.

DESIGN OF PERFORMANCE INCENTIVE SCHEME



DEADBAND, CAPS & COLLAR VALUES

- DEADBAND = ±1 Standard Deviation
  - No Reward/Penalty
- CAP Values
  - Maximum Reward
- COLLAR Values
  - Maximum Penalty

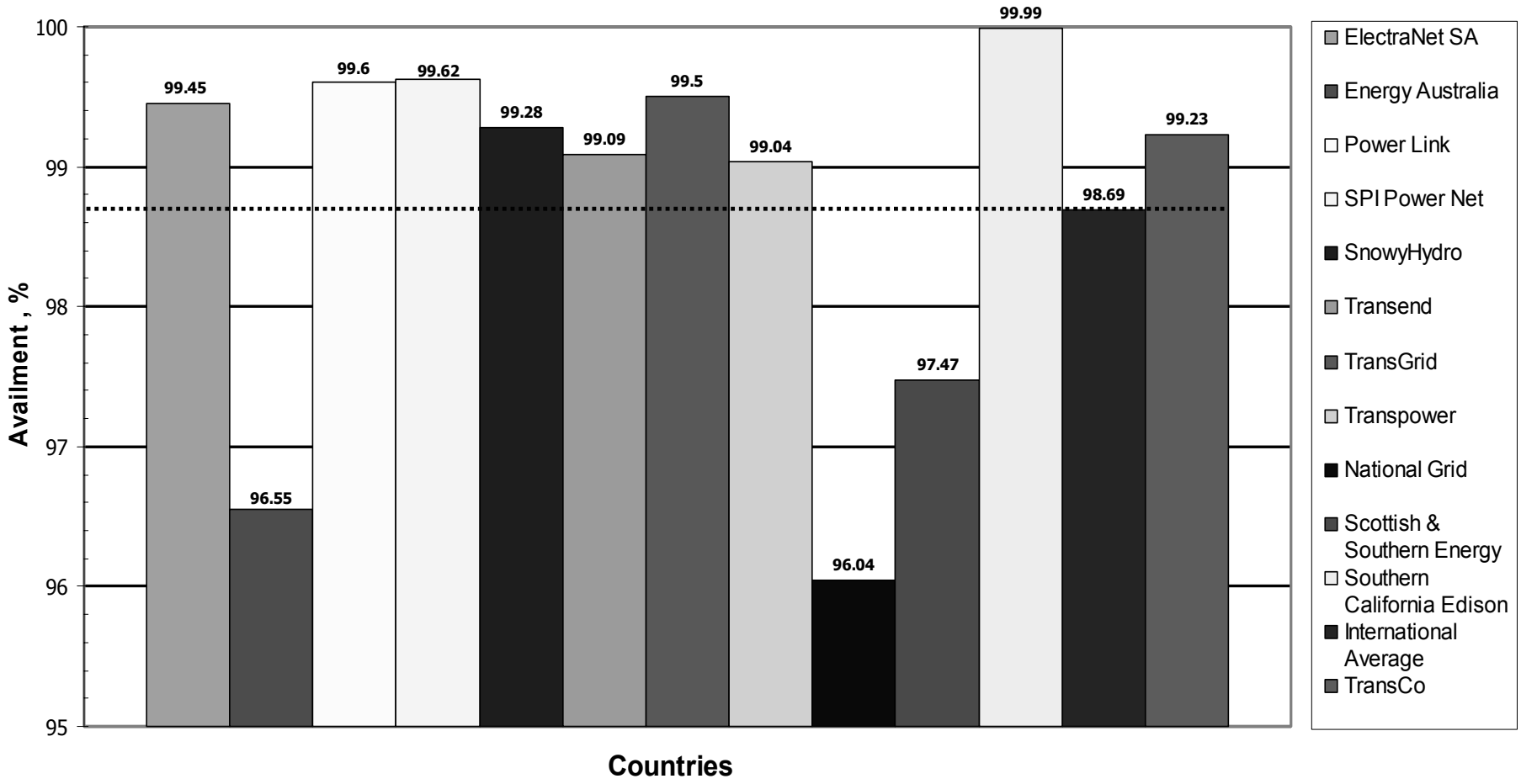
2000-04 HISTORICAL DATA OF PROPOSED PI

Year	System Interruption Severity Index (SISI), in minutes	Frequency Limit Compliance (FLC), in percent (%)	Voltage Limit Compliance (VLC), in percent (%)	System Availability (SA), in percent (%)	Frequency of Tripping Events Per 100 CKm (FOT/100CKm)
2000	56.64	99.91	77.12	99.13	10.75
2001	38.19	99.92	79.19	99.41	9.20
2002	38.24	99.85	89.54	99.27	8.05
2003	48.71	99.51	93.20	99.19	6.99
2004	82.11	99.55	93.14	99.16	5.77
MEAN	52.78	99.75	86.44	99.23	8.15
STDEV	18.14	0.20	7.74	0.11	1.93

Reward/Penalty SISI	Reward/Penalty FLC	Reward/Penalty VLC	Reward/Penalty SA	Reward/Penalty FOT/100ckt-km

PERFORMANCE FIGURES

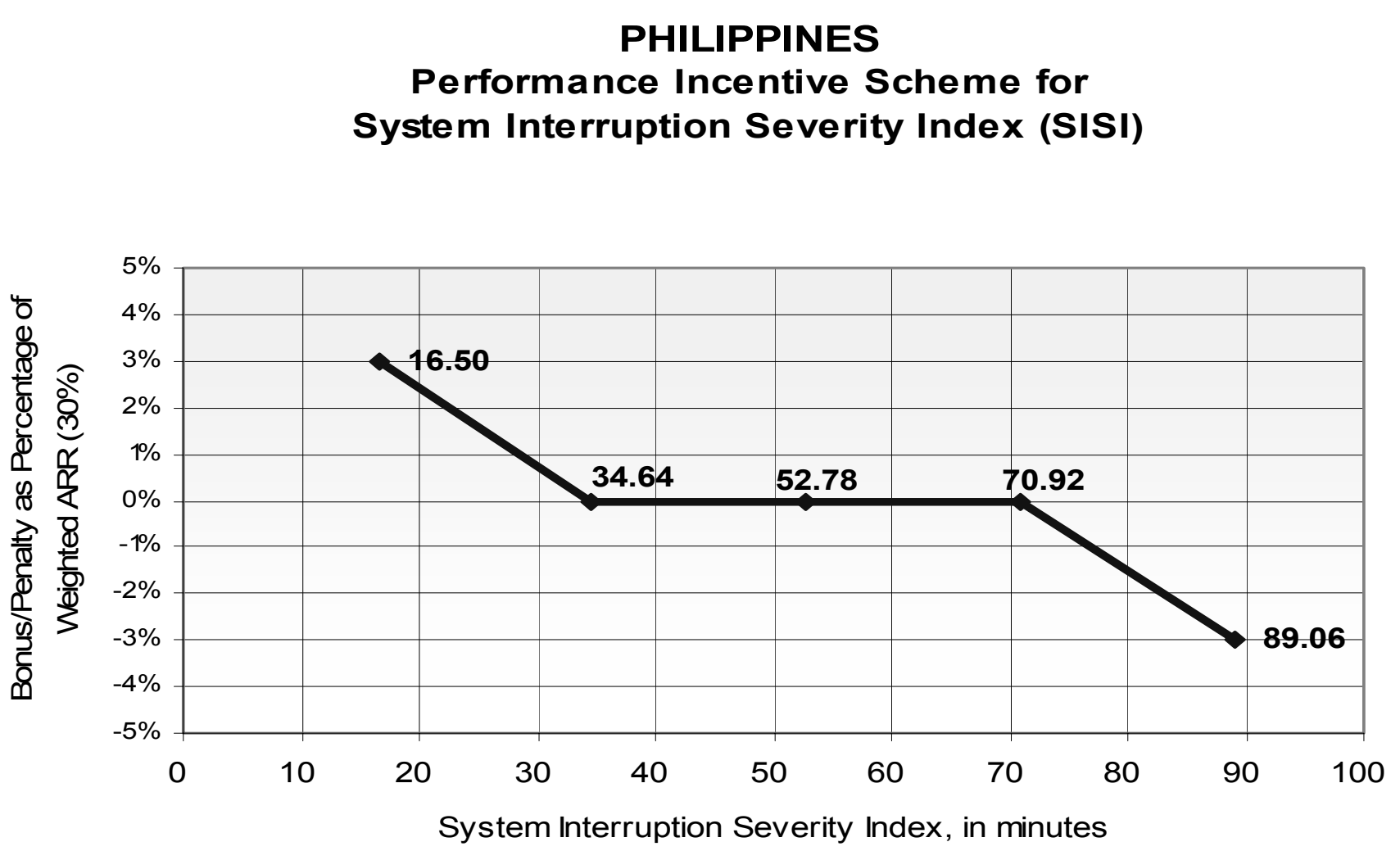
System / Circuit Performance Figures



REWARD / PENALTY BANDWIDTH

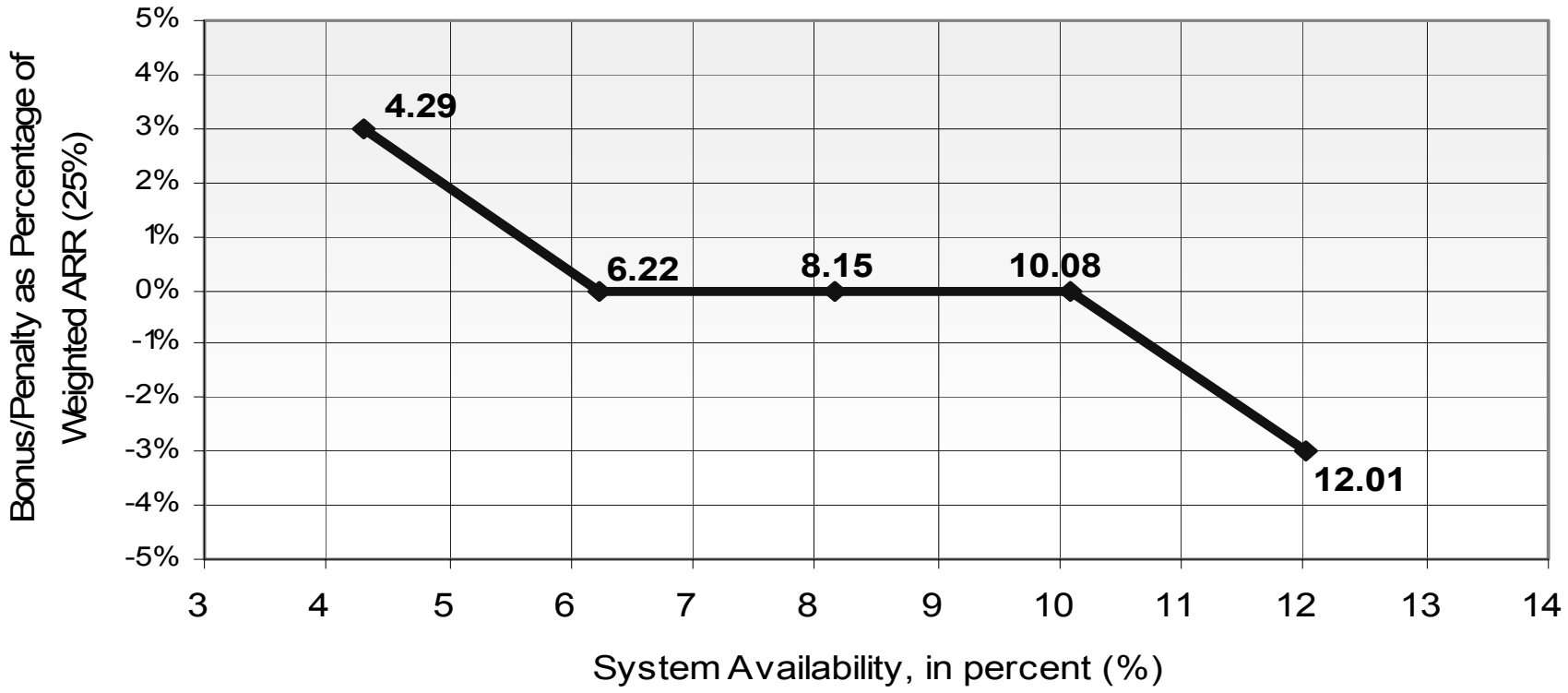
Performance Incentive Schemes	Collar (Penalty)	Deadband			Cap (Reward)
		Low	Mean	High	
	-3%	0%	0%	0%	3%
System Interruption Severity Index (SISI)	89.06	70.92	52.78	34.64	16.50
Frequency of Tripping Events Per 100 CKm (FOT/100CKm)	12.01	10.08	8.15	6.22	4.29
System Availability (SA)	99.01	99.12	99.23	99.34	99.45
Frequency Limit Compliance (FLC)	99.35	99.55	99.75	99.84	99.93
Voltage Limit Compliance (VLC)	70.96	78.70	86.44	89.90	93.36

PERFORMANCE INCENTIVE SCHEMES



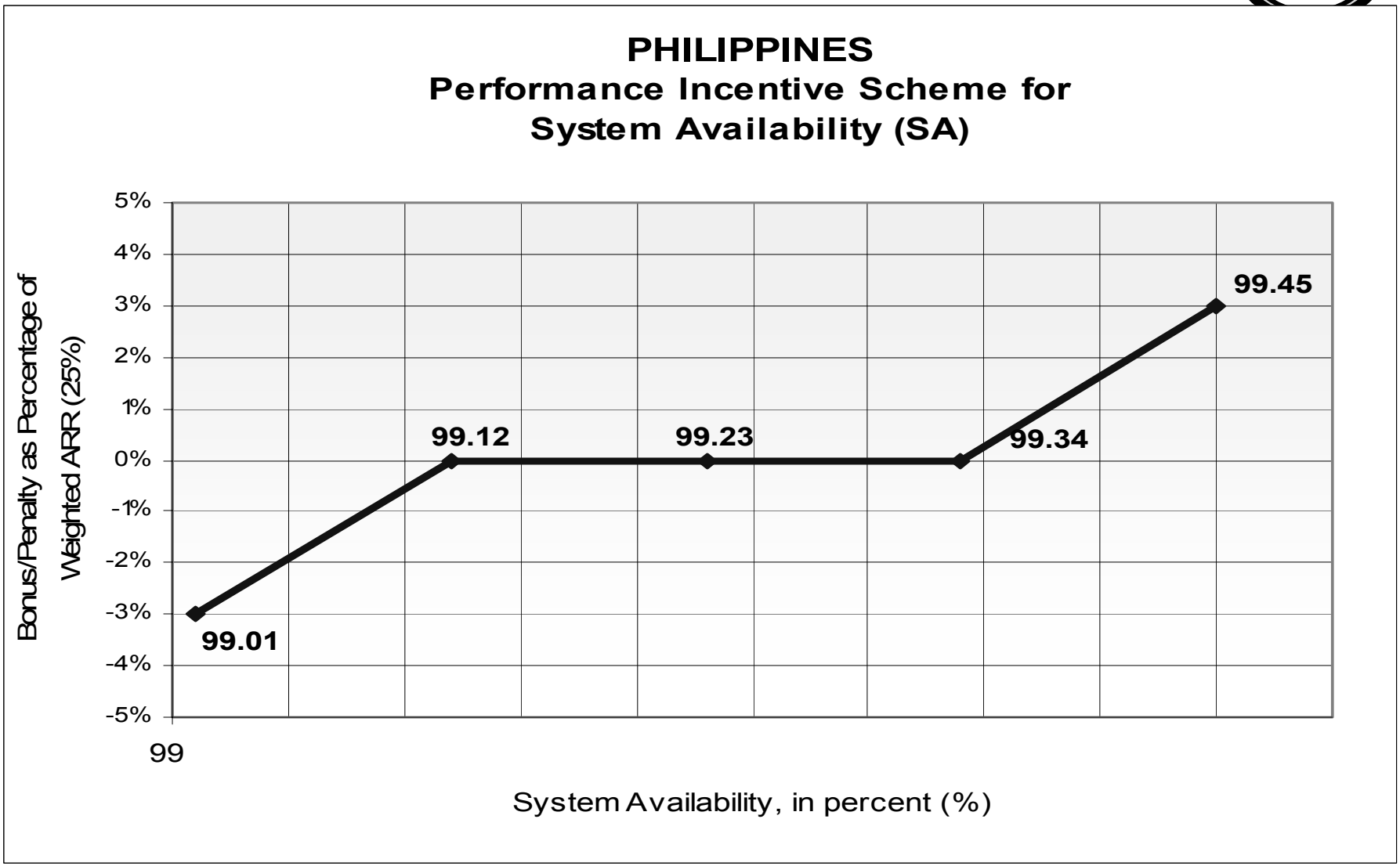
Historical Data

PERFORMANCE INCENTIVE SCHEMES



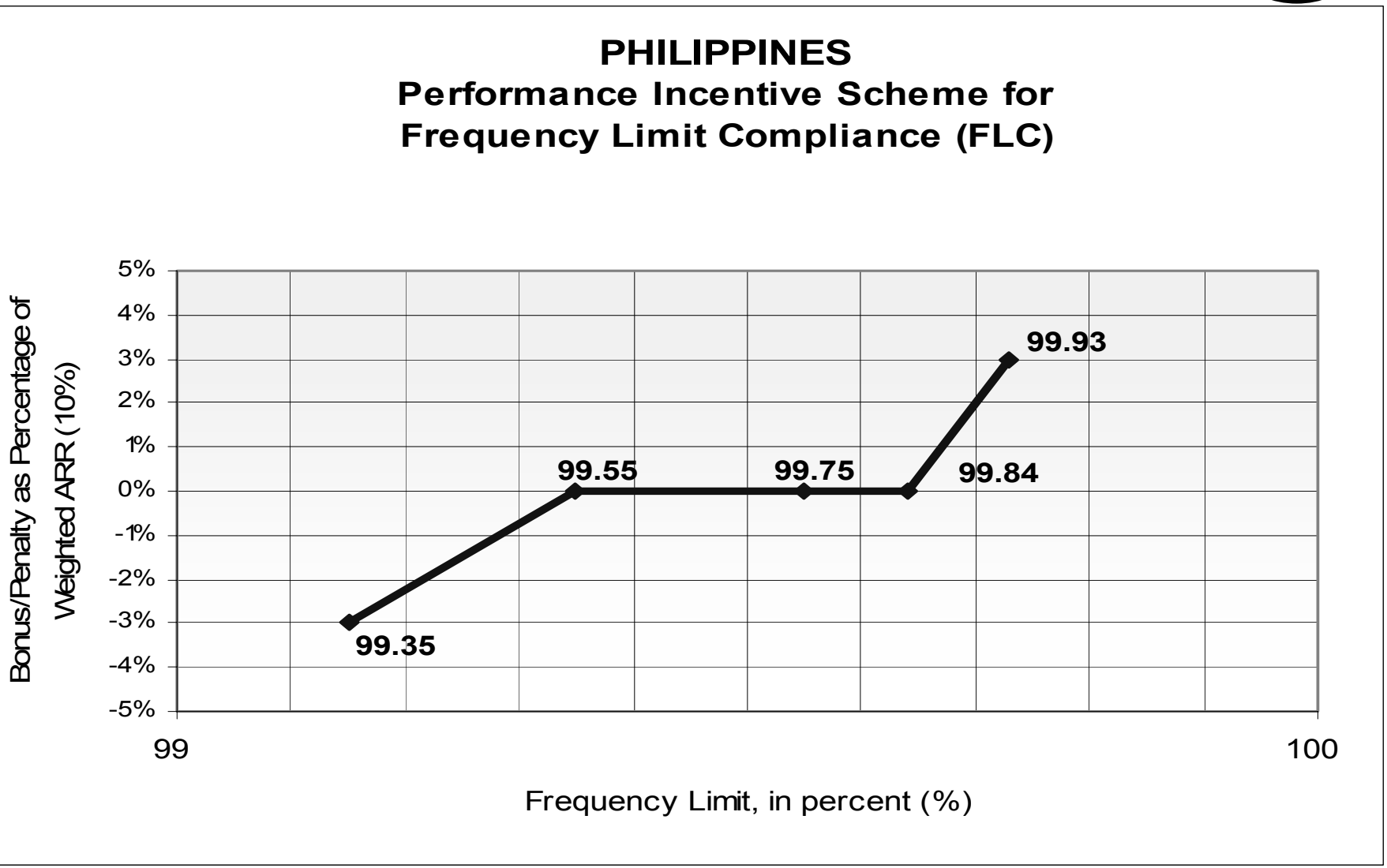
Historical Data

PERFORMANCE INCENTIVE SCHEMES



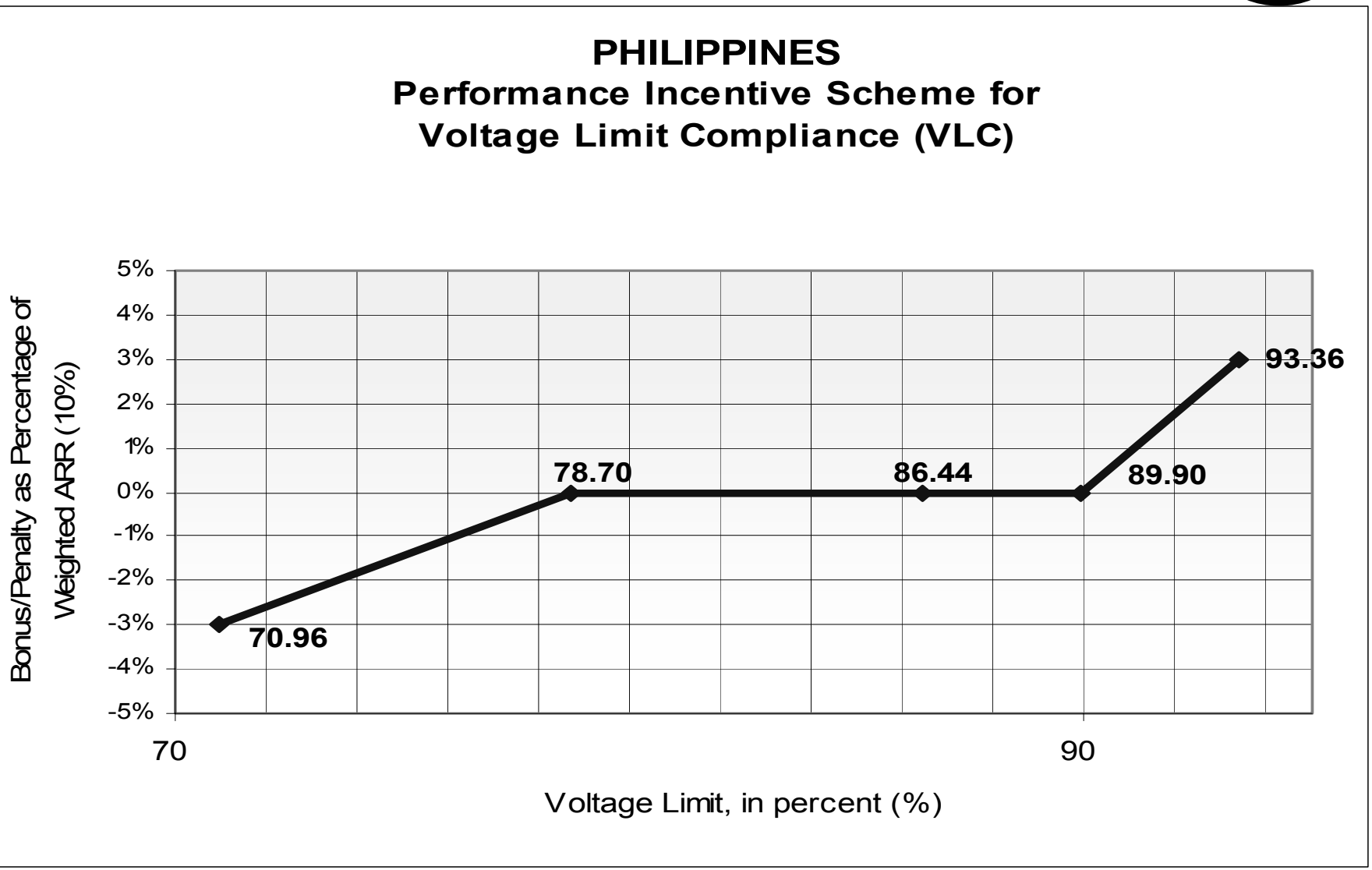
Historical Data

PERFORMANCE INCENTIVE SCHEMES



Historical Data

PERFORMANCE INCENTIVE SCHEMES



Historical Data

END OF PRESENTATION