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Taxes, Rates of Return, and Tariff Determinations:
Sectoral Disparities in the Philippine Power Industry

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TAXES, RATES OF RETURN, AND TARIFF DETERMINATION

Abstract

The regulatory determinations of power rates in the Philippines set income tax payments as non-recoverable expenditures. This pares down the profits in the distribution sector but preserves the bottom line in the transmission sector because of the difference in the income tax systems that govern them.

Distribution utilities sustain their financial viability through the windfall profits from the delay in the conduct of the regulatory rate reset: Regulatory rate of return remains higher than the opportunity cost of capital.

Taxes, Rates of Return, and Tariff Determination:
Sectoral Disparities in the Philippine Power Industry

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1. Introduction

The reforms in the Philippine electric power industry paved the way for a new regulatory environment. The Energy Regulatory Commission (ERC) was created and introduced the performance-based regulation (PBR) framework to govern the rate setting in the electricity transmission and distribution sectors.

The regulatory rates determinations for electricity transmission and distribution in the Philippines set income tax payments as non-recoverable expenditures. This pares down the profits in the distribution sector but preserves the bottom line in the transmission sector because of the difference in the income tax systems. Distribution utilities sustain their financial viability through the windfall profits from the delay in the conduct of the regulatory rate reset: Regulatory rate of return remains higher than the opportunity cost of capital.

For most part, the literature on the reform of the Philippine electric power industry is concentrated on the changes in the generation sector. The studies on the transmission and the distribution sectors are focused on the privatization of the National Transmission Corporation (Transco) and the introduction of the PBR.

Valderrama (2015, 2017) opened a new stream of research that evaluates the regulatory determinations of ERC. This paper extends this stream of research by evaluating the treatment of income taxes and required rate of return in the tariff determinations for electricity transmission and distribution. The paper argues for the need to augment the capacity of the ERC in rates determination.

Section 2 presents an overview of the electric power reform program in the Philippines. Section 3 presents the rates setting in the electric power transmission and distribution sectors. Section 4 evaluates the regulatory determinations of the ERC on the recovery of income taxes and on the rates of return. Section 5 concludes.

2. Reforms in the Philippine Power Industry

In the 80's, a global movement toward industry restructuring and regulatory reforms were triggered by technological innovations, changes in demand and supply conditions and interest groups (Joskow, 2005). In emerging economies, these reforms were supported by international financial organizations, e.g., the International Monetary Fund and the World Bank (Toba, 2007).

The wave of reforms was also seen in the Philippine electric power industry. A program for independent power producers (IPPs) was introduced in 1986 that allows private sector participation in electricity generation which was then a monopoly of the government-owned National Power Corporation (NPC). The enactment of the Electric Power Crisis Act (RA 7648) in 1993 allowed the NPC to enter into power purchase agreements with IPPs to curb the power supply crisis in the early 1990s in the midst of financial constraints of the government.

The chronology of the Philippine electric power industry is well documented. (Patalinghug, 2003; Sharma, et al., 2004; Cham, 2007; Roxas and Santiago, 2010). A highlight in the evolution of the industry is the Electric Power Reform Act of 2001 or the EPIRA. "Generally, EPIRA adopted the 'ideal' textbook architecture of the competitive energy markets found to be historically successful in Argentina, Canada, Brazil, and Australia, among others. Such adoption led to the creation of institutional arrangements and

restructuring intended to provide long-term benefits and ensure that prices reflect the efficient economic cost of supplying electricity and service quality attributes.” (Brucal and Ancheta, 2018, citing Jokowi, 2005).

The EPIRA introduced fundamental changes in the Philippine electric power industry which includes “(a) the separation of generation from transmission and distribution; (b) competing generating companies bidding into a power pool; (c) transmission and distribution companies providing access to all network users on non-discriminatory terms; (d) establishment of an independent regulatory body, and (e) all or part of the retail market open to competition.” (Mendoza, 2008)

Table 1. Features of the Reform Changes in the EPIRA

Features	Before EPIRA	With EPIRA
Sectors or Components	Two sectors: 1) a vertically integrated generation/transmission sub-sector consisting of a) the state-owned generation and transmission company (e.g., the NPC) and b) a number of independent private generation companies or independent power producers (IPPs); 2) a fragmented and inefficient distribution/supply sub-sector consisting of some 17 investor-owned utilities (IOUs), 119 rural electric cooperatives (RECs), and 10 municipal, city and provincial distribution systems	The Philippine electricity industry (PEI) is segregated or unbundled into four sectors: generation, transmission, distribution and supply/retail: 1) The <i>generation and supply/retail</i> which are businesses affected with public interest, shall be <i>competitive and open</i> to competition to both domestic and foreign companies; 2) The <i>transmission and distribution</i> , which are <i>natural monopolies and public utilities or common carrier business for public service</i> , shall remain monopolies and subject to the regulation of the ERC

Features	Before EPIRA	With EPIRA
Privatization of Generation and Transmission Assets	State-owned; nationalized; not privatized	<p>There shall be privatization of the debt-laden NPC's generation and transmission assets, i.e., sold to the private sector; about P200B (or approximately \$4-5B) of NPC debts will be assumed by the National Government.</p> <p>Some P18B debts of electric cooperatives will be assumed by the Power Sector Assets and Liabilities Management Corporation (PSALM), a new state corporation to be formed to privatize these assets as well as administer, conserve and manage the contracted energy output of the NPC's IPP contracts, including selling the energy output offering ancillary services. The Act also requires that the privatization of the IPP contracts be done by Independent Power Producer Administrators. These Administrators are the qualified independent entities appointed by PSALM</p>
Competition	Nil	<p>Competition in the generation and supply sub-sectors shall be introduced</p> <p>The <i>wholesale electricity spot market</i> (WESM) shall be created, where generation companies bid in an open market; Moreover, the existence of <i>aggregators</i> and <i>suppliers</i> shall be promoted</p>
Open Access	Non-existent	<i>Open access</i> in both transmission and distribution wires will also be introduced
Tariffs	Bundled, with cross subsidies allowed	Electricity tariffs shall be unbundled or segregated to reflect the respective costs in generating, transmitting, distributing and supply electricity; Cross subsidies shall be eliminated, except for lifeline rates
Regulator	Energy Regulatory Board (ERB) was in charge of policing the players in the energy sector- oil and gas, as well as electricity; There were a handful of supervisory agencies in the Executive branch (Office of the President, Department of Energy (DOE), National Electrification Administration (NEA) and Congress	<p>The regulator ERB shall become the ERC and shall be strengthened.</p> <p>The roles of DOE, NEA and other government agencies involved in the supervision and administration of the PEI shall be redefined.</p> <p>A Joint Congressional Power Commission (PowerCom) shall be created to oversee the implementation of the EPIRA.</p>
Performance Standards	Not strongly imposed (performance standards), resulting in high system losses, recovery of which is allowed to be passed on to consumers	Electricity providers shall be required to comply with technical and financial standards for providing quality service to consumers, implying reduced system losses passed on to consumers.

Source: Mendoza, 2008

The EPIRA has made notable progress in its implementation. In drawing policy implications on the reforms in the electric power sector, Brucal and Ancheta (2018) enumerated the achievements of the EPIRA: (a) improved reliability, quality and affordability of electric supply, (b) increased number of electrified households, (c) improved efficiency in the generation and transmission, and (d) improved fiscal condition.

Despite these achievements, electricity rates in the country remain high. This is partly attributed to the limited investments in power generation as the regulatory barriers remain a challenge to investors (Abrenica, 2014). There are also allegations of politicizing power rates as the incumbents in the industry protected their interests from new entrants (Roxas and Santiago, 2010). Together, these limit the competition in the generating sector that was envisioned to lower electricity rates.

The evaluation of the electricity rates in the country has generally focused on the cost of power generation. This is expected as power generation accounts for a substantial portion of the total cost of power. Beyond the generating costs, the two other major components of electricity costs are the transmission and distribution costs. Abrenica (2014) notes that the “retail electricity price for a 200-kWh consumption by residential customers is comprised of the following: generation cost 51.4%; transmission 10.2%; distribution 20.8%; taxes 9.2%; others (system loss, temporary adjustment, universal charges and subsidy) 8.3%.”

Meanwhile, there remains a dearth in the literature that evaluates the regulatory rates determinations that affect the cost of power transmission and distribution.

3. Rates Setting in the Electric Power Transmission and Distribution Sectors

Electricity rates setting in the Philippine traditionally employs the return-on-rate-base or RORB. The EPIRA provided a legal basis for the ERC to “adopt alternative forms of internationally-accepted rate setting methodology”. Section 43 (f) of the law states the function of the ERC in establishing and enforcing a methodology for setting transmission and distribution wheeling rates:

- (f) In the public interest, establish and enforce a methodology for setting transmission and distribution wheeling rates... taking into account all relevant considerations, including the efficiency or inefficiency of the regulated entities. The rates must be such as to allow the recovery of just and reasonable costs and a reasonable return on rate base (RORB) to enable the entity to operate viably. ***The ERC may adopt alternative forms of internationally accepted rate-setting methodology as it may deem appropriate.*** The rate-setting methodology so adopted and applied must ensure a reasonable price of electricity... The ERC shall determine such form or rate-setting methodology, which shall promote efficiency. (Emphasis provided.)

In 2003, the ERC developed the Transmission Wheeling Rates Guidelines (TWRG) for the determination of a revenue cap for the power transmission sector, i.e., the maximum allowed revenue (MAR). In 2009, these guidelines were amended as the Rules for Setting Transmission Wheeling Rates (RTWR).

In 2004, the ERC developed the Distribution Wheeling Rates Guidelines for the determination of a price cap for the power distribution companies, i.e., the maximum average price (MAP). In 2016, these guidelines were renamed as the Rules for Setting Distribution Wheeling Rates (RDWR).

The RTWR and the RDWR provide regulatory methodologies and reset process that follow the incentive-based PBR framework. (Refer to Table 2 for a comparison between the RORB and the PBR.) In this model, a competitive outcome is expected from a natural

monopoly. The Performance Incentive Scheme of the PBR is seen to raise service standards while the building blocks in the determination of the MAR and the MAP set the economic rent to zero and force the regulated entities to attain production efficiency.

Table 2. RORB vs PBR

Points of distinction	RORB	PBR
1. Corporate Income Tax	Not allowed as an operating expense	Incorporated in the revenue building blocks Allowed as a reasonable cost (not a straight pass-through)
2. Cost Base	Horizontal cost base (reference year)	Forward forecast of costs (regulatory period)
3. Rate Base	Present market or replacement value of the properties devoted to service less depreciation plus operating capital equivalent to two (2) months operating income.	Uses a re-appraised asset base but which is optimized to appraise at the lower of replacement cost or modern equivalent asset (MEA) value of assts which are not utilized in provision of public service or are installed at a capacity which is in excess of the required by consumers over a reasonable planning horizon.
4. Level of Return	12% per annum as a benchmark of reasonable return but other values have been approved in the past	WACC derived from market data
5. Method of Regulating Public Utility Prices	Rate-of-return regulation	Price-cap regulation or revenue cap regulation

Source: Valderrama (2015)

The PBR has five building blocks in calculating the MAR in the transmission sector or the annual revenue requirements (ARR) in the distribution sector, namely, (a) operating and maintenance expenditure; (b) taxes other than corporate income tax; (c) regulatory depreciation; (d) return on capital and (e) corporate income tax.

The building blocks in the PBR are applied in a parallel manner for both the transmission and distribution sectors. Accordingly, the regulated revenue, RR, in the regulated transmission and distribution sectors may be defined as:

$$\text{Equation 1. } RR_t = Opex_t + Tax_{m,t} + RegDepn_t + \{(RAB_t + WC_t) \times WACC\} + Tax_{p,t} + ITA_t$$

where:

RR_t	Required Revenue, i.e., Maximum Annual Revenue for the regulated transmission services and Annual Required Revenue for the regulated distribution services as determined by the ERC;
$Opex_t$	The nominal operating and maintenance expenditure for regulatory year y which is forecast for that regulatory year and approved by the ERC;
$Tax_{m,t}$	The payment of taxes, other than corporate income tax, for regulatory year t in nominal terms which are forecast for that regulatory year and approved by the ERC;
$RegDepn_t$	The regulatory depreciation for regulatory year t in real terms as determined by the ERC on the basis of the methodology for its determination;
RAB_t	The regulatory asset base for regulatory year t in real terms as determined by the ERC on the basis of the methodology for its determination;
WC_t	The working capital allowance for regulatory year t which is set at a proportion of the difference between: <ul style="list-style-type: none"> (a) the nominal operating and maintenance expenditure which is forecast for that regulatory year and approved by the ERC (b) the amount of the bad debts which are forecast for the regulatory year and approved by the ERC
$WACC$	The weighted average cost of capital calculated using a “classical” formula and as determined by the ERC.
ITA_t	The income tax adjustment amount for regulatory year t as determined by the ERC.

The reset process for the transmission sector follows a five-year regulatory period. In 2006, the second regulatory reset was concluded for the Transco for the regulatory period 2006-2010 (Energy Regulatory Commission, 2006). In 2010, the regulatory reset was completed for the National Grid Corporation of the Philippines (NGCP) for the regulatory period 2011-2015. Unfortunately, the ERC was not able to complete the rate reset for the regulatory period 2016-2020. Another regulatory reset is supposed to have been completed for the fifth regulatory period 2021-2025.

In the absence of any approved performance incentive scheme for the fourth regulatory period, rules have to be established on how the ERC will have to reckon with the performance of the NGCP in the fourth regulatory period. Similar rules will have to be established for the distribution sector as the fourth regulatory reset was not undertaken. (Refer to Table 3.) The determinations may have to be consolidated with the fifth regulatory period.

Table 3. Schedule of Regulatory Reset for the Distribution Sector

	First Entry Group	Second Entry Group	Third Entry Group	Fourth Entry Group
Companies	<ol style="list-style-type: none"> 1. Cagayan Electric Light & Power Company 2. Dagupan Electric Corporation 3. Manila Electric Company 	<ol style="list-style-type: none"> 1. Cotabato Light & Power Company, Inc. 2. Iligan Light & Power Company 3. Mactan Electric Company 4. Olongapo Electricity Distribution Company 	<ol style="list-style-type: none"> 1. Cabanatuan Electric Corporation 2. Davao Light & Power Company, Inc 3. Ibaan Electric and Engineering Corp. 4. La Union electric Company, Inc. 5. Tarlac Electric, Inc. 6. Visayan Electric Company 	<ol style="list-style-type: none"> 1. Angeles Electric Corporation 2. Bohol Light company, Inc. 3. Clark Electric Distribution Company 4. Panay Electric Company 5. Subic Enerzone Corporation 6. San Fernando Electric Light & Power Company
Second Regulatory Period	1 Jul 2007-30 Jun 2011	1 Apr 2009-31 Mar 2013	1 Jul 2010-30 Jun 2014	1 Oct 2011-30 Sep 2015
Third Regulatory Period	1 Jul 2011-30 Jun 2015	1 Apr 2013-31 Mar 2017	1 Jul 2014-30 Jun 2018	1 Oct 2015-30 Sep 2019
Fourth Regulatory Period	1 Jul 2015-30 Jun 2019	1 Apr 2017-31 Mar 2021	1 Jul 2018-30 Jun 2022	1 Oct 2019-30 Sep 2023

Source: ERC

4. Regulatory Determinations on Income Taxes and Rates of Return

The building blocks of the PBR achieve a competitive outcome by eliminating economic rents. In equating the required revenue to all efficiently incurred costs (operating and maintenance expenses, regulatory depreciation, business and income taxes) plus a return on capital, the economic value added (EVA[®]) for both the transmission and distribution sectors will be reduced to zero. (Refer to Table 4.)

Table 4. PBR and EVA[®]

Performance-based Regulation, PBR		Economic Value Added, EVA [®]	
Required Revenue		Revenue	
Less:		Less:	
Operating and maintenance expenses		Operating and maintenance expenses	
Regulatory depreciation		Regulatory depreciation	
Taxes (other than corporate income tax)		Taxes (other than corporate income tax)	
Operating Profit		Operating Profit Before Tax	
Less: Corporate Income Tax		Less: Corporate Income Tax	
Return on Capital = (WACC × RAB)	=	Net Operating Profit After Tax (NOPAT)	
		Less: Capital Charge = (WACC * Capital)	
		EVA [®]	

Note: If the return on capital is equal to NOPAT, the regulated entity will have a zero EVA[®], i.e., there is no economic rent.

The final determination of the ERC on the MAR for the regulated electric transmission services of the NGCP is summarized in Table 5. The ARR for the regulated electric distribution is presented in Table 6. The determinations on the building blocks may overestimate or underestimate the “true” required revenue of regulated entities. For instance, Valderrama (2015) demonstrated that the return on capital may unduly increase required revenue when regulatory asset base is inappropriately inflated by the valuation method. On the other hand, the regulated entity may not have sufficient revenues if any of the building blocks is underestimated.

In this section, the regulatory determinations of the ERC on income tax and WACC are examined.

Table 5. Revenue Requirement: Meralco (Distribution)

	2012	2013	2014	2015	
I. Level, in Php Million					
Operating Expense	13,942.50	14,831.60	15,746.30	16,694.50	
Return of Capital (depreciation)	5,214.60	5,752.90	6,063.50	6,317.70	
Other taxes	241.80	182.20	308.10	249.00	
Corporate income tax	-	-	-	-	
Return on capital	19,137.00	19,770.10	20,261.30	20,684.90	
Total	38,535.90	40,536.80	42,379.20	43,946.10	
II. Percent Share					
					Average
Operating Expense	36.18	36.59	37.16	37.99	36.98
Return of Capital (depreciation)	13.53	14.19	14.31	14.38	14.10
Other taxes	0.63	0.45	0.73	0.57	0.59
Corporate income tax	-	-	-	-	-
Return on capital	49.66	48.77	47.81	47.07	48.33
Total	100.00	100.00	100.00	100.00	100.00

Source of basic data: ERC

Table 6. Revenue Requirement: National Grid Corporation of the Philippines

	2011	2012	2013	2014	2015	
I. Level, in Php Million						
Operating Expense	5,602.70	6,335.82	6,676.20	7,752.64	7,575.36	
Return of Capital (depreciation)	6,572.12	7,033.17	7,420.69	7,125.06	7,089.94	
Real property taxes and VAT	1,095.29	973.31	0.32	828.10	675.42	
Corporate Income Tax	-	-	-	-	-	
Return on Capital	27,427.77	28,637.70	29,560.78	29,996.71	29,932.33	
Total	40,697.88	42,980.00	43,657.99	45,702.51	45,273.05	
II. Percent Share						
						Average
Operating Expense	13.77	14.74	15.29	16.96	16.73	15.50
Return of Capital (depreciation)	16.15	16.36	17.00	15.59	15.66	16.15
Real property taxes and VAT	2.69	2.26	0.00	1.81	1.49	1.65
Corporate income tax	-	-	-	-	-	-
Return on capital	67.39	66.63	67.71	65.63	66.12	66.70
Total	100.00	100.00	100.00	100.00	100.00	100.00

Source of basic data: ERC

4.1 Regulatory Determination on Income Tax

There is a difference in the income tax regimes that govern the transmission and distribution sectors. In the transmission sector, the NGCP, by virtue of its franchise, pays a fixed franchise tax of three percent of its gross receipts in lieu of any taxes including income tax. Republic Act 9511 which grants the franchise to NGCP states:

Section 9. Tax Provisions. - In consideration of the franchise and rights hereby granted, ***the Grantee, its successors or assigns, shall pay a franchise tax equivalent to three percent (3%) of all gross receipts derived by the Grantee from its operation under this franchise. Said tax shall in lieu of income tax and any and all taxes, duties, fees and charges of any kind, nature or description levied, established or collected by any authority whatsoever, local or national, on its franchise, rights, privileges, receipts, revenues and profits, and on properties used in connection with its franchise, from which taxes, duties and charges, the Grantee is hereby expressly exempted:*** Provided, that the Grantee, its successors or assigns, shall be liable to pay the same taxes on their real estate, buildings and personal property, exclusive of this franchise, as other corporations are now or hereby may be required by law to pay: Provided, further, That payment by Grantee of the concession fees due to PSALM under the concession agreement shall not be subject to income tax and value-added tax (VAT). (Emphasis provided.)

In the regulatory reset for 2011 to 2015, the ERC took note of the change in the tax liability of the NGCP. In its final determination, the ERC did not include the three percent franchise tax in the MAR. The franchise tax levied on the gross receipts of the NGCP was decided to be recovered through a surcharge on customer invoices. (ERC, 2010)

In contrast, the final determination of the ERC (2016) for the electricity distribution sector sets the income tax to zero on the following basis:

The RDWR allows for the recovery of the anticipated annual corporate income tax payable by Regulated Entities as one of the building blocks on which the annual revenue requirement forecast will be based. ***However, a unanimous request was received from all Regulated Entities following consultation in 2008 on the changes to the RDWR, which the corporate income tax building block should be set to zero for the Second Regulatory Period. This was based on recognition by the Regulated entities that a more***

gradual introduction of the fully-fledged PBR regime may be appropriate, and also to minimize the possible price shocks against which the ERC would intervene in any case. The ERC has decided to accept this request.

The ERC intends to continue with this approach for the Fourth Regulatory Period. The ERC remains of the view that recovery of corporate income tax is based on sound economic principles and will therefore retain the building block, even if the value is set at zero for the Fourth Regulatory Period. At this stage it is intended to re-introduce this building block at actual value for the Fifth Regulatory Period, unless compelling reasons to the contrary are presented. (Emphasis provided.)

The difference in the determination of the ERC creates a disparity on the RR of the transmission and distribution sectors. The former receives the corresponding revenue requirement for all the building blocks while the latter is pared down by an amount equal to its corporate income tax.

It is worth noting that the determination of the ERC was based on a “unanimous request from the regulated entities.” It is not plausible that the regulated entities will allow their firm value to be diminished through such request. It is likely that the determination on the other components of the ARR are overestimated by a magnitude that will allow them to forego the recovery of corporate income tax.

4.2 Regulatory Determination on Rates of Return

Return on capital is the largest component of the required revenues in the regulated electricity transmission and distribution services in the Philippines. In the transmission sector, return on capital accounts for about two-thirds of the MAR; In the distribution sector, it accounts for almost half of the ARR. This underscores the importance of WACC determinations of the ERC. (Refer to Table 7.)

Table 7. Weighted Average Cost of Capital: Electricity Distribution vs Transmission

	Distribution Sector (May 2011)			Transmission Sector (Nov 2010)
	Low	Mid	High	
Gearing				
Debt gearing, $g = D/V$	0.45	0.40	0.35	0.67
Equity gearing, $(1-g)$	0.55	0.60	0.65	0.33
Cost of Equity, in %				
Risk-free rate, r_f	8.80	9.80	10.79	9.77
Beta				
Asset Beta		0.499		0.553
Equity Beta	0.50	0.83	1.11	1.82
Market Risk Premium, MRP	6.00	6.00	6.00	6.00
Cost of Equity	11.81	14.78	17.45	20.67
Cost of Debt, in %				
Risk-free Rate, r_f	8.80	9.80	10.79	9.77
Add: Debt Margin, DM^c	2.00	2.50	3.00	2.50
Cost of Debt, pre-tax, r_d	10.80	12.30	13.79	12.27
Corporate Income Tax Rate ^d , T_c	0.00%	0.00%	0.00%	0.00%
Cost of Debt, post-tax, $(1-T_c) \times r_d$	10.80	12.30	13.79	12.27
WACC, in %				
Vanilla $[E/V \times r_e] + [D/V \times r_d]$	11.36	13.79	16.17	15.04
Post-Tax $[E/V \times r_e] + [D/V \times (1-T_c)r_d]$	11.36	13.79	16.17	15.04
75th percentile of the range		14.79		

Source of basic data: ERC

There are three points worth noting in the WACC determinations of the ERC: (a) the upward bias in the risk-free rate, (b) the disparity in the market risk measured by the equity beta; and (3) the need to re-assess the debt premium.

The risk-free rate used in the determination of the WACC for the regulated electricity transmission and distribution has an upward bias as these were determined a few years after the global financial crisis in 2008-2009. The ERC opted to migrate to a longer tenor sovereign debt instrument in estimating the risk-free rate. In the distribution sector, the 75th percentile of the high and low estimates of the risk-free rate was employed by the ERC. Since the third rate reset, the yields of government debt instruments have dramatically gone down. There is a need for the 9.8 percent estimate has to be pared down to reflect the lower opportunity cost of funds.

Figure 1. Risk-free Rate: Yield of 10-year PH Bonds



Source of basic data: Bloomberg

A disparity exists in the estimation of the market risk for the transmission and distribution sectors. In the final determination of ERC for the transmission sector, the ERC adopted the following in estimating the equity beta:

- (1) Hamada formula was used in re-levering the asset beta, i.e.,

$$\beta_E = \beta_A * \left(1 + (1 - T_C) \frac{D}{E} \right)$$

where:

β_E : Equity beta
 β_A : Asset beta
 T_C : corporate income tax
 D/E : debt-to-equity ratio

- (2) a tax-factor adjustment, T_{factor} , was introduced to allegedly account for the difference in tax rates on interest income and dividend income.

$$T_{factor} = \frac{1 - t_i}{1 - t_E} = \frac{1 - 0.20}{1 - 0.10} = 0.889$$

where:

t_i : tax on interest income
 t_E : tax on dividend income

Together, these alter the formula in deriving the equity beta to

$$\beta_E = \beta_A * \left(1 + \frac{1}{T_{factor}} (1 - T) \frac{D}{E} \right).$$

Considering that NGCP has zero corporate income tax rate, T, the formula simplifies to

$$\beta_E = \beta_A * \left(1 + \frac{1}{T_{factor}} \frac{D}{E} \right).$$

In contrast, the asset beta estimate for the distribution sector is assumed to be lower and no adjustment was used in estimating the equity beta. Thus, the equity beta in the distribution sector is 0.83 while the equity beta in the transmission sector is 1.82. Both are applied on a market risk premium of 6.00 percent.

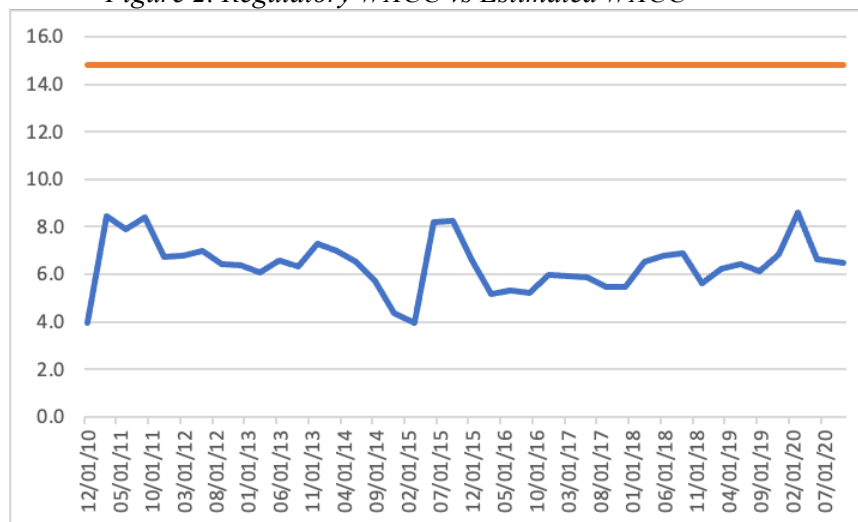
Finally, there is a need to re-assess the cost of debt. For both the transmission and the distribution sectors, a 2.5% debt margin was adopted by the ERC in its final determination for the third regulatory reset. Similar to the risk-free rate, the determination on the debt margin was done after the global financial crisis. This may no longer be relevant as the yields in commercial bonds have decreased since then.

Inasmuch as the NGCP has yet to comply with its franchise obligation to be publicly listed, there is no market data to benchmark the regulatory rate of return with market estimates. In contrast, Meralco is a publicly listed company; it can serve as a representative company in the electric distribution sector.

Compared to the WACC determination of the ERC, estimates of the cost of capital of the Meralco are consistently lower since the third regulatory reset. (Refer to Figure 2.) This suggests that the distribution sector sustain its financial viability through the windfall profits

from the delay in the conduct of the regulatory rate reset: Regulatory rate of return remains higher than the opportunity cost of capital.

Figure 2. Regulatory WACC vs Estimated WACC



Sources of basic data: ERC and Bloomberg

4.3 Financial Performance of NGCP and Meralco

A healthy financial performance is imperative to ensure a sustainable provision of regulated service in the electric power transmission and distribution sectors. However, when the profitability of regulated firms is “too” high, it may suggest that revenue cap or price cap is too high and raise power rates.

An examination of the financial ratios of the NGCP and Meralco (as a representative firm in the electricity distribution sector) shows a good profitability record over the period 2010-2017. (Refer to Table 8.) It is worth noting that the NGCP enjoyed a higher return on equity (ROE). Using the Du Pont analysis, the higher ROE of the NGCP is attributed to its net profit margin which is somehow pared down by its return on assets.

Table 8. Du Pont Analysis: NGCP vs MERALCO, 2010-2017

	Financial Ratio	Formula	NGC P	MERALC O
I.	Return on Equity	Net Income / Equity	36.1%	23.0%
(A)	Net Profit Margin	Net Income / Revenue	47.0%	6.3%
(B)	Asset Turnover	Revenue / Assets	0.22	1.09
(C)	Equity Multiplier	Assets / Equity	3.47	3.44
II.	Return on Equity	Net Income / Equity	36.1%	23.0%
(A)	Return on Assets	Net Income / Assets	10.5%	6.7%
(B)	Equity Multiplier	Assets / Equity	3.47	3.44

Source of basic data: Annex

At least two qualifications are in order in comparing the profitability of NGCP and Meralco:

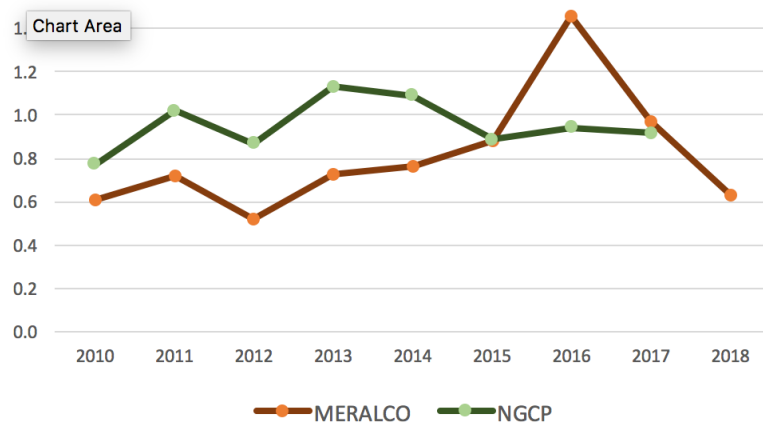
- One, when comparing companies within the same industry, net profit margin can measure operating efficiency. It indicates the magnitude of net profit that a company can generate from its revenues. Operating efficiency limits costs in generating a unit of output and, ultimately, yields higher net margin.
- Two, in comparing the NGCP and Meralco, it should be underscored that the two companies are not in the same industry. While they are classified as part of the electric utility sector, there are differences in the operations of a company engaged in power transmission and a company engaged in power distribution. The difference in the nature of these subsectors determines their respective net profit margin.

Nonetheless, it remains that the rate of return determined by the ERC is a key determinant of the power rates charged by these companies. In turn, the power rates partly determine the net profit margin.

The profitability of the NGCP and Meralco generated a steady flow of dividends for its stockholders at a high payout ratio. Over the nine-year period from 2010 to 2018, the dividends distributed by the NGCP sum to Php180 Billion, translating to an average annual dividend of Php20.0 Billion and average payout ratio of 0.94. In contrast, Meralco distributed

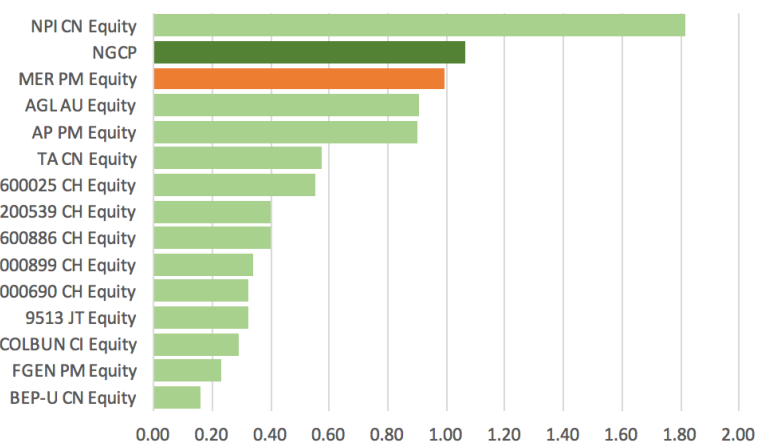
a total of Php130.8 Billion over the same period. The average annual dividend of the company is Php14.5 Billion and the average payout ratio is 0.81. (Refer to Figure 3.) These payout ratios compare quite well with similar companies in emerging Asian economies. (Refer to Figure 4.)

Figure 3. Dividend Payout Ratio: NGCP vs MERALCO, 2010-2018



Source of basic information: Financial Statements

Figure 4. Average Dividend Payout Ratio, 2013-2018:



Sources of basic data:
 NGCP Financial Statements
 MERALCO Financial Statement
 Bloomberg

5. Summary and Concluding Remarks

This paper evaluates the treatment of income taxes and required rate of return in the tariff determinations for the electricity transmission and distribution sectors in the Philippines. The performance-based regulation that govern these sectors are meant to achieve a competitive outcome.

The income tax determinations in the electricity transmission and distribution sectors create a disparity in favor of the transmission sector. The same can be said in the determination of the rate of the return: the determination for the regulated transmission services of the NGCP enjoyed an alleged need for adjustment for the tax differential between dividend income and interest income. This is somehow neutralized by the decision of the ERC to adopt the 75th percentile in the range of the WACC parameter.

Meanwhile, the delay in the regulatory reset resulted in a windfall profit for the regulated electricity transmission and distribution services. The regulated entities in these sectors continue to enjoy the rates of return determined by the ERC which are no longer reflective of the opportunity cost of capital.

The failure of the ERC to perform a timely conduct of the rate resets suggests a need to augment the capacity of the ERC in rates determination. The ERC should be accorded greater support to expand its technical staff to undertake the regular rate determinations across different sectors of the Philippine electricity industry.

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Annex: Du Pont Analysis: NGCP vs Meralco

		2010	2011	2012	2013	2014	2015	2016	2017	2018	Average 2010-18
I. NGCP											
Return on Equity	Net Income / Equity	32.6%	36.5%	33.8%	37.3%	39.9%	39.0%	36.3%	34.0%	32.9%	35.8%
Net Profit Margin	Net Income / Revenue	44.3%	47.4%	46.6%	47.7%	48.8%	49.2%	46.9%	45.4%	46.2%	46.9%
Asset Turnover	Revenue / Assets	0.23	0.24	0.23	0.23	0.23	0.22	0.21	0.19	0.17	0.22
Return on Assets	Net Income / Assets	10.2%	11.3%	10.7%	11.1%	11.2%	10.8%	9.7%	8.7%	8.0%	10.2%
Equity Multiplier	Assets / Equity	3.19	3.23	3.16	3.34	3.57	3.61	3.76	3.92	4.13	3.55
II. MERALCO											
Return on Equity	Net Income / Equity	16.01%	20.04%	25.33%	22.93%	22.81%	23.73%	25.74%	27.54%	27.87%	23.6%
Net Profit Margin	Net Income / Revenue	4.20%	5.34%	6.01%	5.78%	6.81%	7.43%	7.52%	7.25%	7.59%	6.4%
Asset Turnover	Revenue / Assets	1.35	1.22	1.31	1.13	0.99	0.92	0.87	0.93	0.91	1.07
Return on Assets	Net Income / Assets	5.7%	6.5%	7.9%	6.5%	6.7%	6.8%	6.5%	6.8%	6.9%	6.7%
Equity Multiplier	Assets / Equity	2.83	3.07	3.21	3.50	3.39	3.49	3.94	4.08	4.06	3.51