

**Energy Pricing
in the Philippines and its
Effect on Economic Growth**

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Abstract

This study explores why energy prices in the Philippines are high. A comparison of the components of energy cost among selected cities in Asia reveals that Manila has the third highest generation cost, highest grid cost and the third highest value added tax imposed on energy. An examination of a residential bill in Manila further reveals an energy cost component unique to the Philippines. At least 15 percent of a residential electric bill comprises of miscellaneous charges that represent subsidies for the elderly and marginalized end-consumers, rural electrification, subsidies to incentivize development of renewable energy and the cost of debt incurred by the government in the past. The history of the energy industry in the Philippines reveals that loose implementation policies especially at the local level, external economic factors such as currency depreciation and increase in interest rates and oil prices, ineffective demand projections and poor pipeline planning as well as political influences led to the massive debt incurred by the government. Due to the government's fiscal constraints, the industry was privatized. Pricing is regulated by the Energy Regulatory Commission but oligopolies and conflicts of interest in the industry, as well as the current pricing mechanisms suppress demand and impede the reduction of energy prices. Absence of public participation leaves the general public at a disadvantage because the burden of paying for miscellaneous energy costs falls on them.

I. Introduction

Energy prices in the Philippines remain one of the most expensive compared to its Asian neighbors. An overall comparison among selected cities in Asia shows that Manila has the second highest overall residential electricity tariff next to Tokyo.¹ If not for the 2011 Great East Japan Earthquake of magnitude 9.0 that led to the decommissioning of Fukushima power plants, Manila's energy prices might even be the highest in Asia.² Furthermore, Manila has the third highest generation cost and the highest grid cost in Asia based on residential electricity tariffs.³ These costs associated with producing energy combined with a 12% Value Added Tax make energy prices in the Philippines one of the most expensive in Southeast Asia.⁴

Several Asian cities, with the exception of Tokyo, Singapore, Hong Kong and Manila, embed subsidies in its electricity pricing which results in energy prices that are not reflective of its true cost. A Filipino economist I interviewed with expertise on the energy industry of the Philippines explains that Asian countries like Malaysia, Indonesia, Vietnam and China are able to subsidize electricity because they export natural resources like gas, coal, hydro and oil to other countries at real cost.⁵

¹ The Lantau Group. (2013). *Global Benchmark Study of Residential Electricity Tariffs*. Retrieved from https://www.ema.gov.sg/cmsmedia/Electricity/Consumers/Residential/Global_Benchmarking_Study_of_Residential_Electricity_Tariffs_%202013.pdf

² World Nuclear Association. (2016). *Fukushima Accident*. Retrieved from <http://www.world-nuclear.org/information-library/safety-and-security/safety-of-plants/fukushima-accident.aspx>.

³ The Lantau Group. (2013). *Global Benchmark Study of Residential Electricity Tariffs*. Retrieved from https://www.ema.gov.sg/cmsmedia/Electricity/Consumers/Residential/Global_Benchmarking_Study_of_Residential_Electricity_Tariffs_%202013.pdf

⁴ Ibid.

⁵ 20160108-CV

In the absence of energy subsidies, Manila's energy prices are significantly higher than its Asian neighbors. While Manila's high energy prices can be partially attributed to the absence of energy subsidies, providing subsidies will not be effective as this strategy has been found to exacerbate the fiscal burden of the government and does not address the long-term affordability of energy as proven in other Southeast Asian countries. To illustrate this, Taipei's Taipower incurred a loss of NT\$1.62bn (US \$55.8m) in 2012 and South Korea's KEPCO incurred a loss of KWR 2,473bn (US \$2.3bn) in 2011.⁶ Coxhead wrote in *Asia Pathways* that "energy subsidies are a hidden tax on economic development" and emphasized the high opportunity cost of public spending on energy subsidies.⁷

The Philippines has recognized the dangers of energy subsidies but reforms in the industry are necessary and urgent. Population growth in the Philippines is exponential yet as of 2013, 21 million Filipinos still do not have access to reliable energy services.⁸ Addressing the underserved demand will not only promote economic growth; reforms in the energy industry will positively impact health and education as well.⁹

⁶ The Lantau Group. (2013). *Global Benchmark Study of Residential Electricity Tariffs*. Retrieved from https://www.ema.gov.sg/cmsmedia/Electricity/Consumers/Residential/Global_Benchmarking_Study_of_Residential_Electricity_Tariffs_%202013.pdf

⁷ Coxhead, I. (2014, August 27). Southeast Asia's energy subsidies are a tax on development. Retrieved from <http://www.asiapathways-adbi.org/2014/08/southeast-asias-energy-subsidies-are-a-tax-on-devedevelopment/>

⁸ International Energy Agency. (2015). *Southeast Asia Energy Outlook 2015*. Retrieved from https://www.iea.org/publications/freepublications/publication/WEO2015_SouthEastAsia.pdf

⁹ International Energy Agency. (2015). *Southeast Asia Energy Outlook 2015*. Retrieved from https://www.iea.org/publications/freepublications/publication/WEO2015_SouthEastAsia.pdf

The Philippines is abundant in natural resources and has a diverse mix of energy sources. Some of Luzon's resources include a 1,200MW natural-gas fired Ilijan power plant, a 1,000MW Sual coal-fired power plant, a 345MW San Roque hydropower plant, a 603MW hydroelectric power plant in Ambuklao and a 52.5MW Bacon-Manito geothermal power plant.¹⁰ Visayas and Mindanao are largely powered by geothermal and hydroelectric power plants and have huge untapped potential for renewable energy.¹¹ Despite the country's abundance in natural resources, energy consumption well exceeds energy production by 20 Mtoe (Million Tonnes of Oil Equivalent).¹² However, in terms of electricity production and consumption, the inverse is true. In 2013, the Philippines produced 75 terrawatt-hours of electricity and consumed only 62 terrawatt-hours.¹³

Emerging economies like China and India have experienced growth in energy consumption in correlation with its economic growth. However, the same cannot be said of the Philippines. As an emerging economy, the instability of energy supply and prices has profound effects on the economic growth of the country. High energy prices are reflected in the costs of doing business in the Philippines which make it difficult to attract new investments in the country. In the 2nd European Union - Philippines Meeting on Energy, a Philippine Chamber

¹⁰ KPMG Global Energy Institute. (2014). *Growth and Opportunities in the Philippine Electric Power Sector* (2013-2014 Edition). Retrieved from <https://www.kpmg.com/Global/en/IssuesAndInsights/ArticlesPublications/Documents/energy-report-philippines.pdf>

¹¹ Ibid.

¹² Enerdata. (2014). *South-East Asia Energy Data 2014*. Retrieved from <https://yearbook.enerdata.asia/#asean-energy-primary-production-data.html>

¹³ Ibid.

of Commerce survey was presented showing significant revenue loss per hour of power shortage in the agriculture, industry and service sectors of Mindanao.¹⁴ Furthermore, Foreign Direct Investments in the Philippines remain at \$1.5bn per year at the same level it was 25 years ago whereas Thailand, Indonesia and Malaysia experience a growth between \$7bn to \$18bn per year in Foreign Direct Investments.¹⁵ According to Enerdata, “The high cost and sketchy reliability of electricity supplies in the Philippines are now the main deterrents to investing in the country, according to foreign business leaders who see the problem as a persuasive reason to invest elsewhere.”¹⁶

Given the apparent need to address long-term affordability of energy in the Philippines as well as accessibility to reliable energy sources across the country, it is worthwhile to explore why energy prices in the Philippines are egregiously high. I intend to uncover the underlying reasons behind high energy prices in the Philippines by investigating energy cost components and how energy pricing is determined. To understand energy pricing in the Philippines, I will also trace the history of the energy industry in the Philippines which is fundamental in understanding the components of the energy bill and its pricing mechanisms. Existing studies have concluded that Philippine economy is energy dependent and that existing energy policies may adversely impact or impede

¹⁴ Philippe Reveilhac. (2013, May). *Electricity and the cost of doing business in the Philippines*. Presented at the 2nd European Union - Philippines Meeting on Energy. Retrieved from http://eeas.europa.eu/delegations/philippines/documents/page_content/electricityanddoingbusiness.pdf

¹⁵ Enerdata. (2014). *Philippines high electricity price is keeping foreign investors away* (Executive Brief). Retrieved from http://www.enerdata.net/enerdatauk/press-and-publication/energy-news-001/philippines-high-electricity-price-keeping-foreign-investors-away_26287.html

¹⁶ Ibid.

economic growth. Despite its abundance in natural resources, the problem of high electricity rates in the country remains unsolved.

This study seeks to uncover: Why are energy prices in the Philippines high? To shed light to this, the following questions need to be investigated: How is the energy supply chain structured? What pricing scheme is applied at each stage of the supply chain? How do energy policies affect energy pricing? Has the privatization of the industry addressed shortage of supply and affordability of electricity?

II. Literature Review

Energy is a widely discussed topic not only in the US but also among emerging economies. However, most of the discussions on energy revolve around energy consumption and its relationship with economic growth. Killian highlights methodological developments on the topic up until 2008. Killian posited that energy price fluctuations have largely impacted the U.S. economy since the 1970s.¹⁷ At the time, oil price increase was the culprit for drivers of energy prices. He explored the origins of energy price shocks and its effect on the U.S. economy and came to conclude that crude oil prices in the U.S. was not a significant contributing factor to the rise in energy prices. Killian explains that “in 1990, crude oil prices rose by 83 percent, whereas intermediate energy prices only rose by 12 percent.”¹⁸ Killian further suggests that the importance of

¹⁷ Killian, L. (2008). The Economic Effects of Energy Price Shocks. *Journal of Economic Literature*, 46(4), 871-909. Retrieved from <http://dx.doi.org.ezproxy.cul.columbia.edu/10.1257/jel.46.4.871>

¹⁸ Killian, L. (2008). The Economic Effects of Energy Price Shocks. *Journal of Economic Literature*, 46(4), 871-909. Retrieved from <http://dx.doi.org.ezproxy.cul.columbia.edu/10.1257/jel.46.4.871>

energy supply channel and its transmission remains open for a debate.¹⁹ Killian also confirms that high energy prices causes a reduction in aggregate demand for energy.²⁰ Since then, studies surrounding energy and economic growth have focused on energy consumption.

Five years after Killian's study, oil price change has become the focus of discussion in Asia, particularly Malaysia. Mohamed and Abdul investigated the effects of world oil price change on economic growth and energy demand in the context of Malaysia. Findings suggest that energy demand and GDP had a bidirectional causality relationship which means that growth in one variable leads to growth in the other and vice versa.²¹

In recent years, the nexus between energy consumption and economic growth, particularly in Southeast Asian countries have become a topic of interest. Magazzino theorizes that the relationship of the variables fall into one of the following causal relationships: neutrality hypothesis, conservation hypothesis, growth hypothesis and feedback hypothesis.²² Magazzino finds that in summary, the growth hypothesis holds true for ASEAN countries which means that

¹⁹ Ibid.

²⁰ Ibid.

²¹ Mohamed, N. Y. B., & Abdul, N. W. B. (2013). Measuring the effects of world oil price change on economic growth and energy demand in malaysia: An ARDL bound testing approach. *International Journal of Trade, Economics and Finance*, 4(1), 29. Retrieved from <http://dx.doi.org.ezproxy.cul.columbia.edu/10.7763/IJTEF.2013.V4.256>

²² Magazzino, C. (2014). A Panel VAR Approach of the Relationship Among Economic Growth, CO2 Emissions, and Energy Use in the ASEAN-6 Countries. *International Journal of Energy Economics and Policy*, 4(4), 546-553. Retrieved from <http://ezproxy.cul.columbia.edu/login?url=http://search.proquest.com.ezproxy.cul.columbia.edu/docview/1619896939?accountid=10226>

limitations on energy consumption restricts economic growth.²³ This suggests that energy consumption is a bottleneck in the region's development process. Rezitis and Ahammad also investigated the relationship between energy consumption and economic growth in Southeast Asian countries with more in-depth findings in the context of each member country. Findings show that the Philippines, in particular, support the feedback hypothesis, which means that not only does limitation on energy consumption restrict economic growth, but a slowdown in economic growth also restricts energy consumption.²⁴ This suggests that both variables are interdependent of each other.

As of 2015, no other study discusses the relationship between energy prices and economic growth even in the Philippine context. Existing literature has established that limitations on energy consumption restrict economic growth and in the Philippine context, understanding energy pricing is crucial to addressing the cap on energy consumption.

III. Research Question and Design

Philippine economy is largely dependent on energy. While an understanding the relationship of energy consumption and economic growth is crucial, it is only a starting point to uncover the underlying reasons why energy

²³ Magazzino, C. (2014). A Panel VAR Approach of the Relationship Among Economic Growth, CO2 Emissions, and Energy Use in the ASEAN-6 Countries. *International Journal of Energy Economics and Policy*, 4(4), 546-553. Retrieved from <http://ezproxy.cul.columbia.edu/login?url=http://search.proquest.com.ezproxy.cul.columbia.edu/docview/1619896939?accountid=10226>

²⁴ Rezitis, A. N., & Ahammad, S. M. (2015). The relationship between energy consumption and economic growth in south and southeast asian countries: A panel VAR approach and causality analysis. *International Journal of Energy Economics and Policy*, 5(3) <http://ezproxy.cul.columbia.edu/login?url=http://search.proquest.com.ezproxy.cul.columbia.edu/docview/1701253270?accountid=10226>

prices in the Philippines remain high. Energy consumption is capped by energy prices and unlocking economic potential in the country requires addressing the problem of expensive energy prices. This study provides frameworks and identifies key events in the industry's history that explain egregious electricity rates in the Philippines. Without identifying the reasons why energy prices are high and tracing the history that led to this phenomenon, there is no way of assessing whether policies surrounding energy regulations are effective in reducing energy prices. Economic growth in the country has been consistently strong; addressing problems in the energy industry now will improve momentum in economic growth and will unlock possibilities for long-term development in the country.

While there is a shortage of total energy production in the Philippines, there is no indication that energy prices are affected by a disequilibrium in electricity demand and supply because there is no shortage in electricity production as suggested by Enerdata's energy statistics.²⁵ The demand for electricity, especially since it is at a level below the supply of electricity, does not affect energy pricing. However, it is possible that energy prices constrain the demand for electricity thereby giving a false sense of adequacy in the supply of electricity. Oplas identifies high electricity prices and low power generation as

²⁵ Enerdata. (2014). *South-East Asia Energy Data 2014*. Retrieved from <https://yearbook.enerdata.asia/#asean-energy-primary-production-data.html>

constraints for electricity consumption, which is crucial in an emerging economy.²⁶

Energy supply in the Philippines was originally served both by public and private entities. However in 1972, the industry underwent reforms and the industry was nationalized giving the National Power Corporation, a public entity, monopoly on the energy industry. The National Power Corporation eventually became insolvent and the industry transformed from being served by public entities to a complete privatization of the industry. This study explored the effects of the industry's reforms on energy prices.

With the unique and complex pricing structure of energy in the Philippines, policies and guidelines regulating the pricing scheme of energy supply may shed light on why energy prices in the Philippines are high. This study also explored whether policies adopted include embedded costs and are designed to protect the interests of certain stakeholders.

The lack of interconnectivity between energy supply terminals due to archipelagic geography certainly resonate with the proposals made to address lack of access to reliable energy services in different regions in the Philippines. However, since this research is focused on the pricing scheme of energy supply, the above can be explored for further studies.

Existing studies show that Manila has one of the most expensive energy prices in Asia on an aggregate level. To supplement available data on Manila's energy prices, this study uncovered the components of an electricity bill from a

²⁶ Bienvenido S. Oplas, Jr. (2015, August 13). The Philippine electricity market: Monopoly and competition. *BusinessWorld*. Retrieved from <http://www.bworldonline.com/weekender/content.php?id=113411>

Meralco electric bill. While the sample electric bill is not representative of Manila's energy consumption and cost distribution, it provides the energy cost components of an electric bill in the Philippines as of November 2015. The bill is then categorized into four components, namely, production costs, transmission costs, taxes and other charges. Singapore is used as a benchmark because it is similar in terms of geographic area and like Manila, its energy prices are reflective of true costs because it does not provide energy subsidies. Singapore was used a benchmark because its energy prices are lower than Manila's and it revealed discrepancies between energy cost components and identified what components of Manila's energy cost can be reduced.

Existing literature on the subject matter employed purely quantitative methods to analyze data. While quantitative analysis establishes correlations between variables, it only establishes the relationship of energy prices and economic growth. Since the nature of this research is to uncover underlying reasons why energy prices are high in the Philippines, employing quantitative analysis alone will prove insufficient. For a substantive and in-depth research, interviews with key stakeholders were conducted and policies were reviewed. This research employed the use of qualitative data to augment existing quantitative analysis.

Representatives from both the public and the private sector were selected to be interviewed. Organizations that were involved in the energy supply chain and consequently energy pricing was identified. Initially, this comprised of the Energy Regulatory Commission, generation companies,

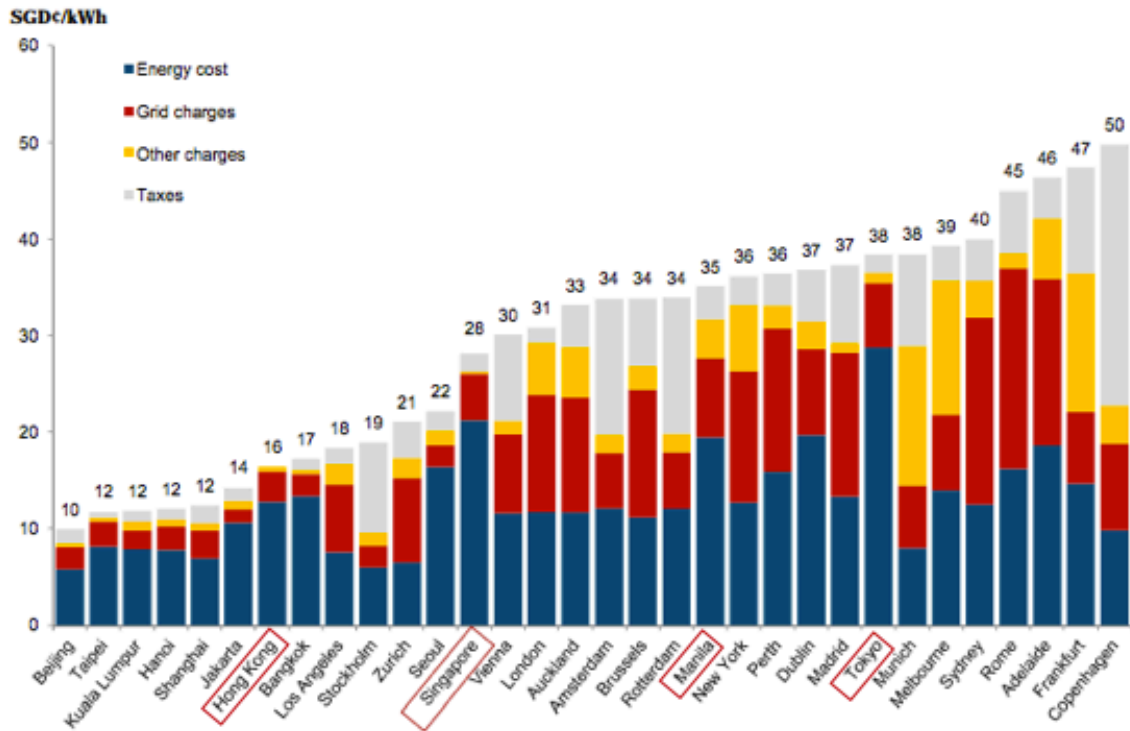
transmission and distribution utilities. Interviewees were contacted through cold emails, LinkedIn and the researcher's network of contacts, especially those who previously worked and currently work in the industry and the government. Getting in touch with interviewees and scheduling a meeting was difficult and because of the sensitivity of the subject matter, interviewees are more likely to respond positively based upon the recommendation of a common contact. The researcher's list of interviewees further expanded with the help and recommendation of previous interviewees.

The interviews revealed that the industry's history is essential in explaining the current energy pricing scheme. Interviewees also highlighted key documents that regulate pricing mechanisms and define the roles of government agencies. Furthermore, interviews further illuminated the veracity of monopolies in the industry that contribute to high energy prices. More importantly, interviews highlighted that energy pricing is not just determined by technical and economic forces; political factors are equally important in defining energy pricing.

IV. Analysis

A Global Benchmark Study of Residential Electricity Tariffs by The Lantau Group shows a comparison of electricity tariffs among selected cities in the world. Manila's generation cost is only third highest in Asia yet Manila has the second, if not the highest, overall residential electricity tariff.

Figure 1: World city residential tariff and its cost components, January 2013



Source: The Lantau Group. (2013). *Global Benchmark Study of Residential Electricity Tariffs*.

Oplas extracted the figures from The Lantau Group’s Global Benchmark Study of Residential Electricity Tariffs and highlights that Manila’s generation costs are lower than Tokyo’s and Singapore’s.²⁷ According to the data extracted by Oplas, Manila’s energy cost drivers are the grid charges and value added tax. Figure 2 shows that Manila’s grid charges are priced at 8.2 SGD¢ / kWh compared to Tokyo’s 6.7 SGD¢ / kWh and Singapore’s 4.8 SGD¢ / kWh.²⁸ Manila’s value added tax are significantly higher at 12% compared to Tokyo’s 5% and Singapore’s 7%.

²⁷ Bienvenido S. Oplas, Jr. (2015, August 13). The Philippine electricity market: Monopoly and competition. *BusinessWorld*. Retrieved from <http://www.bworldonline.com/weekender/content.php?id=113411>

²⁸ Ibid.

Figure 2: Electricity Prices, January 2013

Singapore \$ cents/kWh, except %				
	Residential tariff	Generation cost	Grid charges	VAT/GST, %
Sydney	40	12.5	19.3	10
Tokyo	38	28.7	6.7	5
Manila	35	19.5	8.2	12
Auckland	33	11.7	11.9	15
Singapore	28	21.2	4.8	7
Seoul	22	16.4	2.2	10
Bangkok	17	13.4	2.3	7
Hong Kong	16	12.8	3.1	0
Jakarta	14	10.6	1.4	10
Hanoi	12	7.8	2.5	10
Shanghai	12	7.0	2.9	18
Kuala Lumpur	12	7.9	1.9	10
Taipei	12	8.1	2.6	5
Beijing	10	5.8	2.3	18

Source: Bienvenido S. Oplas, Jr. (2015, August 13). The Philippine electricity market: Monopoly and competition. *BusinessWorld*.

While data suggests that Manila’s generation costs are at an acceptable level, an interviewee from a generation company argues that generation costs comprise 60% of one’s electricity bill and reduction in generation cost will substantially decrease electricity tariffs.²⁹ Higher grid charges, on the other hand, are not surprising. An interviewee from a distribution utility cites Singapore as a comparison and explains that Singapore only has one distribution utility that serves the entire country whereas the Philippines has 140 distribution utilities

²⁹ 20120108-CV

with assigned franchises.³⁰ The interviewee contends that having several distribution utilities makes the network atomistic and each distribution utility is unable to achieve economies of scope and economies of scale.³¹

Aside from the distribution network's effect on energy pricing, the atomistic nature of the network also affects the reliability of energy supply as it makes communication lines between generation companies and transmission lines difficult. It is important to note that the Philippines, compared to Singapore, is an archipelago and because of the country's geographic nature, it might be difficult to implement the same system adopted in Singapore.

The interviewee further attributes high energy prices in the Philippines to the tax imposed on energy; he cites that other countries don't impose taxes on energy.³² However, as shown in Figure 2, other countries apply taxes on energy too albeit at lower rates than Manila. Hong Kong is the only city that does not impose taxes on energy.³³

Aside from Manila's grid charges and value added tax, Figure 1 shows another component that drives Manila's energy cost: a miscellaneous charge categorized as "other charges". What comprises the "other charges" component of Manila's energy cost?

³⁰ 20120114-LF

³¹ Ibid.

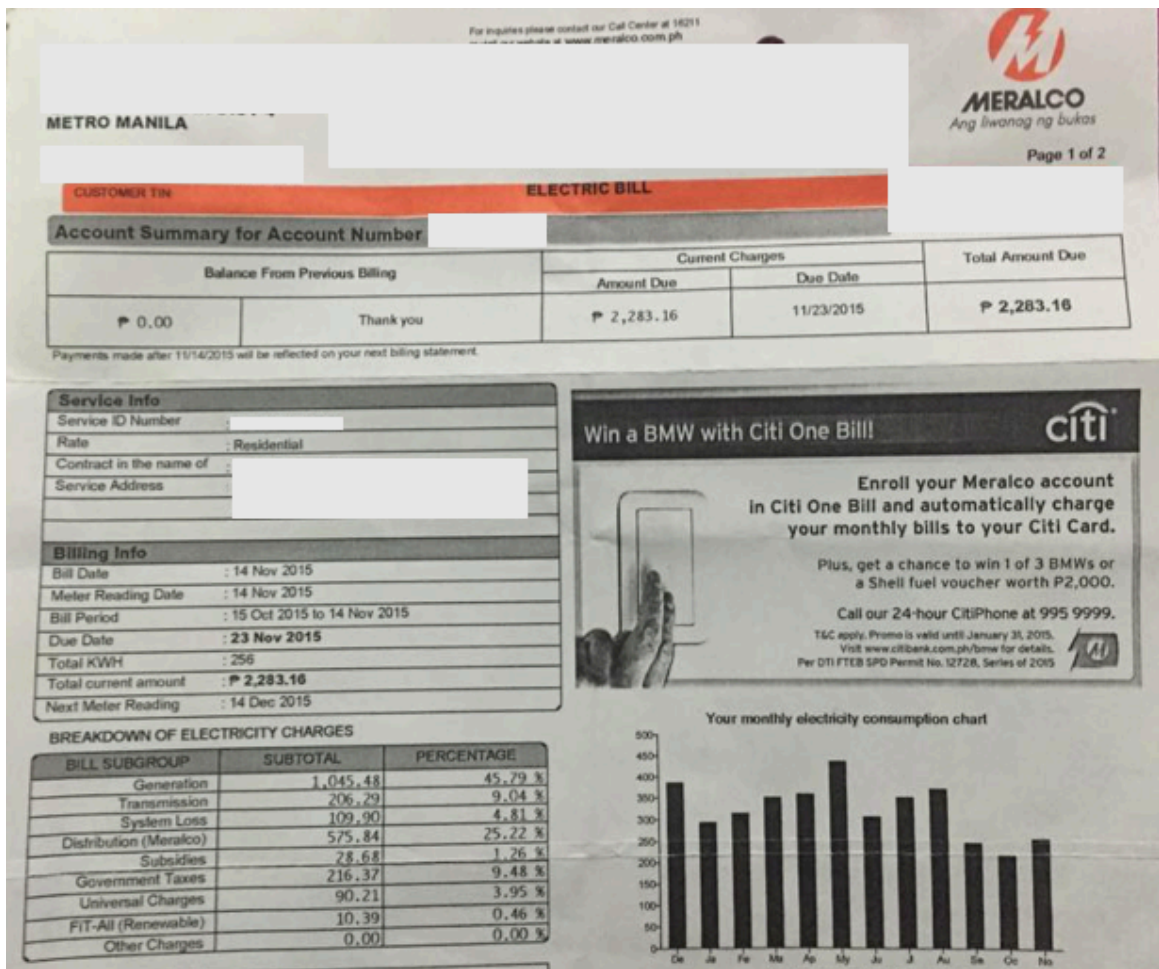
³² Ibid.

³³ Bienvenido S. Oplas, Jr. (2015, August 13). The Philippine electricity market: Monopoly and competition. *BusinessWorld*. Retrieved from <http://www.bworldonline.com/weekender/content.php?id=113411>

a. Probing into Your Electricity Bill

Figure 3 shows a sample Meralco Electricity Bill that lists the components of a residential electricity bill. The rates that apply for each component of the bill vary depending on the consumer's consumption. Higher rates are applied to consumers with higher energy consumption. While the sample electric bill is not representative of a resident's average energy consumption and cost distribution, it provides the energy cost components of an electric bill in the Philippines as of November 2015.

Figure 3: Meralco Electricity Bill, page 1



The above residential electric bill from Manila Electric Company (Meralco) shows the following breakdown of energy cost components.

Table 1. Residential Energy Cost Components

Bill Subgroup	Percentage
Generation	45.79%
Transmission	9.04%
System Loss	4.81%
Distribution (Meralco)	25.22%
Subsidies	1.26%
Government Taxes	9.48%
Universal Charges	3.95%
FIT-All (Renewable)	0.46%

Source: Meralco Residential Bill

For this particular bill, generation comprises 45.79% of the total bill. Grid charges include transmission, system loss and distribution, which sums up to 39.07% of the total bill. Transmission refers to charges paid to the National Grid Corporation of the Philippines for the cost of delivery from power generators to the distribution utilities through transmission grids. Distribution, on the other hand, are charges recovered by the distribution utility for the cost of delivery of energy from transmission grids to end users. Lastly, system loss refers to the cost of energy lost from the delivery of energy through transmission and distribution lines. Energy is transmitted through copper wires and a percentage of energy delivered is lost in the process. Meralco explains that “the maximum level of losses that may be recovered by private distribution utilities was set at 9.5% by the Republic Act No. 7832 which was reduced to 8.5% starting 2010, as provided under ERC Resolution No.17, Series 2008.”³⁴

³⁴ Meralco. *Meralco Bill Components*. Retrieved from <http://www.meralco.com.ph/consumer-information/understanding-your-bill/meralco-bill-components>.

The remaining 15.15% of the electricity bill comprises the “other charges” of Manila’s energy cost. This includes subsidies, government taxes, universal charges and FIT-All (Renewable). Moreover, contrary to what is stipulated in Republic Act No. 9136, Chapter II, Section 6 which states that “pursuant to the objective of lowering electricity rates to end-users, sales of generated power by generation companies shall be value added tax zero-rated,” the above components of the electricity bill including generation cost are still applied a 12% Value Added Tax.

Figure 4: Meralco Electricity Bill, page 2

Billing Information		Billing Period : 15 Oct 2015 to 14 Nov 2015		Page 2 of 2
BRN : Statement number : SIN	CUSTOMER NAME:			
Metering Information				
Meter Number	Prev Rdg	Pres Rdg	Mult	Registered
	286.00	542.00	1.0	256 kWh
Billing Details				
Rate Components	Base	Price	Amount	
GENERATION				
Generation Charge (PhP/kWh)	256kWh	4.0839	1,045.48	
Prev Mos Adj on Gen Cost			0.00	
Previous Years Adjustment			0.00	
SUBTOTAL			1,045.48	
TRANSMISSION				
TRANSMISSION CHARGE(PhP/kWh)	256kWh	0.8058	206.29	
Transmission Charge (NONVAT)	206.29	96.0855%		
Transmission Charge (VAT)	206.29	3.9145%		
SUBTOTAL			206.29	
SYSTEM LOSS				
System Loss Charge (PhP/kWh)	256kWh	0.4293	109.90	
SUBTOTAL			109.90	
DISTRIBUTION (MERALCO)				
Distribution Charge (PhP/kWh)	256kWh	1.3183	337.48	
METERING CHARGE				
Fixed Metering Charge (PhP/cust)	1.00 mo	5.0000	5.00	
Metering Charge per kWh	256kWh	0.3377	86.45	
SUPPLY CHARGE				
Fixed Supply Charge (PhP/cust)	1.00 mo	16.7300	16.73	
Supply Charge per kWh	256kWh	0.5085	130.18	
SUBTOTAL			575.84	
SUBSIDIES				
Lifeline Rate Subsidy (PhP/kWh)	256kWh	0.0837	21.43	
Senior Citizen Subsidy	256kWh	0.0001	0.03	
TRAC*	256kWh	0.0282	7.22	
SUBTOTAL			28.68	
GOVERNMENT TAXES				
Local Franchise Tax	1958.97	0.5700%	11.17	
VALUE ADDED TAX				
Generation Charge	1045.48	11.4500%	119.71	
Power Act Reduction			0.00	
Prev Mos Adj on Gen Cost			0.00	
Transmission Charge(VATABLE)	8.08	12.0000%	0.97	
System Loss Charge	109.90	9.6800%	10.64	
Distribution Charge	575.84	12.0000%	69.10	
Subsidies and Others	39.85	12.0000%	4.78	
Billing Details (continued...)				
Rate Components	Base	Price	Amount	
SUBTOTAL			216.37	
UNIVERSAL CHARGES				
Missionary	256kWh	0.1561	39.96	
Environmental Fund	256kWh	0.0025	0.64	
NPC Stranded Contract Costs	256kWh	0.1938	49.61	
NPC Stranded Debts			0.00	
DU Stranded Contract Costs			0.00	
Equalization of Taxes and Royalties			0.00	
SUBTOTAL			90.21	
FIT-ALL (RENEWABLE)				
FiT-All (Renewable)	256kWh	0.0406	10.39	
SUBTOTAL			10.39	
Energy Bill Amount				
VAT Sales	Base	VAT	205.20	
VAT Zero Rated	1,779.15	0.00		
VAT Exempt	298.81			
TOTAL ENERGY AMOUNT				
				2,283.16
Total Bill				
				2,283.16
TOTAL CURRENT BILL AMOUNT				
				2,283.16
Additional Bill Information				
LOAD FACTOR :	0.0 %			
VOLTAGE LEVEL CLASS :	Secondary			
Previous Service Id Number (SIN) :				
*TAX RECOVERY ADJUSTMENT CHARGE				

What exactly are residents paying for? The second page of Meralco's electricity bill breaks down the subcomponents of the bill.

Subsidies are comprised of a Lifeline Rate Subsidy, Senior Citizen Subsidy and Tax Recovery Adjustment Charge. A lifeline subsidy as explained by Meralco is "a socialized pricing mechanism under Section 73 of the EPIRA to benefit marginalized/low-income captive market customers. In Meralco's case, as approved by the ERC, residential customers using up to 100 kWh in a given month enjoy a Lifeline Discount to be applied to the total of the generation, transmission, system loss, distribution, supply and metering charges. The discount varies according to consumption and is funded by a Lifeline Subsidy Charge to be paid by all other customers."³⁵

Senior citizen subsidy, on the other hand, "is a socialized pricing mechanism for senior citizens provided under Republic Act No. 8884 or the Expanded Senior Citizens Act of 2010. There are two Senior Citizens Discounts provided to end-users. The first provides a maximum of 5% discount on the electricity bills of residential accounts registered under the name of a senior citizen which consume not more than 100 kWh a month. The second grants a 50% discount on the electricity bills of senior citizen institutions accredited by the Department of Social Welfare and Development (DSWD). The discounts are applied on the qualified customers' total generation, transmission, system loss, distribution, supply and metering charges amount, net of lifeline discount, and

³⁵ Meralco. *Meralco Bill Components*. Retrieved from <http://www.meralco.com.ph/consumer-information/understanding-your-bill/meralco-bill-components>.

are funded through a subsidy to be paid by customers that are not availing of the Senior Citizen Discount or the Lifeline Discount.”³⁶

Tax Recovery Adjustment Charge “is an LGU-specific charge collected from customers of the different local government units (LGUs - cities and provinces) where local franchise taxes prior to rate unbundling were already paid by Meralco but not yet recovered from customers. Prior to the unbundling, there was no recovery mechanism for local franchise tax payments. Billing of TRAC started last April 2012 in accordance with the ERC approval in its Decision under ERC Case No. 2011-045 RC.”³⁷ Mr. Larry Fernandez, Head of Meralco’s Utility Economics explains that “Under the regulations, the cost of power includes all of the cost of delivering service which includes the various business permits, taxes and fees that are imposed by the government including the local government.”³⁸

The **Feed In Tariff** charge is a specialized payment system passed on to consumers to incentivize the development of renewable energy sources.³⁹ After delaying the implementation of the Feed In Tariff since 2009, the Energy Regulatory Commission adopted the FIT in 2012 and provided renewable

³⁶ Meralco. *Meralco Bill Components*. Retrieved from <http://www.meralco.com.ph/consumer-information/understanding-your-bill/meralco-bill-components>.

³⁷ Ibid.

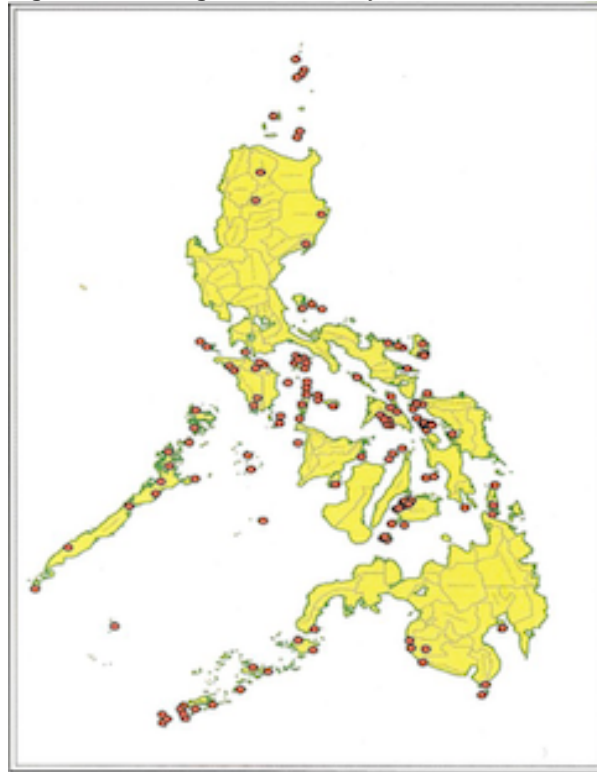
³⁸ GMA News Online. (2012). *Meralco, tataas ang singil sa kuryente sa pagpapataw ng Tax Recovery Adjustment Charge*. Retrieved from <http://www.gmanetwork.com/news/video/114882/24oras/meralco-tataas-ang-singil-sa-kuryente-sa-pagpapataw-ng-tax-recovery-adjustment-charge>

³⁹ Rappler. (2015). *Effective January: New electric bill for renewable energy*. Retrieved from <http://www.rappler.com/business/industries/173-power-and-energy/79787-billing-renewable-energy-january>.

energy sources with fixed tariff benefits as stipulated in ERC Decision Case No. 2011-006 RM.⁴⁰

Universal Charges are comprised of Missionary Electrification Charge, Environmental Fund, NPC Stranded Contract Costs, NPC Stranded Debts and DU Stranded Contract Costs. Missionary Electrification Charge is a charge used to fund the electrification of off-grid islands in the Philippines.⁴¹ As mandated by EPIRA, Section 70, “the missionary electrification function shall be funded from the revenues from sales in missionary areas and from the universal charge to be collected from all electricity end-users as determined by the ERC.”

Figure 5: Coverage of Missionary Electrification



Source: Philippine Energy Plan 2012-2030

⁴⁰ International Energy Agency. (2015). Feed-In Tariff for Electricity Generated from Biomass, Ocean, Run-of-River Hydropower, Solar and Wind Energy Resources. Retrieved from <http://www.iea.org/policiesandmeasures/pams/philippines/name-43253-en.php>.

⁴¹ 20160106-MV

Environmental Charge “is a universal charge that accrues to an environmental fund to be used solely for watershed rehabilitation and management. Such fund is managed by the National Power Corporation (NPC) under existing arrangements and, under Section 34(d) of the Republic Act No. 9136, or the Electric Power Industry Reform Act (EPIRA), is pegged at PhP0.0025 per kWh.”⁴²

Stranded Debts of NPC, is defined under the EPIRA as “any unpaid financial obligations of NPC which have not been liquidated by the proceeds from the sales and privatization of NPC assets.”

NPC Stranded Contract Cost of NPC or distribution utility is defined under the EPIRA as “the excess of the contracted cost of electricity under eligible contracts over the actual selling price of the contracted energy output of such contracts in the market.” A former officer of the Power Sector Assets and Liabilities Management Corporation, a government entity tasked to liquidate NPC’s assets to recover its financial losses, explains that in the past, NPC bought energy produced by Independent Power Producers for a period of time at fixed and variable rates through Power Purchase Agreements.⁴³ NPC then sold power to Distribution Utilities, usually at a loss. Under the EPIRA, these power purchase agreements are transferred to PSALM Corporation, an entity mandated to privatize the assets as well as the Independent Power Producer contracts of NPC. PSALM Corporation is then in a position to liquidate

⁴² Meralco. *Meralco Bill Components*. Retrieved from <http://www.meralco.com.ph/consumer-information/understanding-your-bill/meralco-bill-components>.

⁴³ 20160114-SS

ownership of plants as well as the capacity to supply energy. Similar to NPC's mechanism of selling power to Distribution Utilities, PSALM yields earnings or losses from the sale of contract depending on how much it sells the contract for and how much PSALM owes the Independent Power Producers.

Government Taxes are comprised of Local Franchise Tax and Value Added Tax. Local Franchise Tax "is levied by provinces and cities for businesses enjoying a franchise, and paid to such local government units, in accordance with the provisions of Sections 15 and 137 of the Local Government Code. This is a pass-through charge for Meralco paid and collected in accordance with ERC Regulations."⁴⁴ However, It is unclear how the Local Franchise Tax differs from the Tax Recovery Adjustment Charge. GMA News Online attributes energy price hikes in 2012 to the local franchise tax collected by Meralco under the Tax Recovery Adjustment Charge.⁴⁵

Value added tax "is a consumption tax imposed on the sale of electricity and related services through all the stages of generation, transmission, distribution and sale of electricity to the final consumer. It is a form of indirect sales tax because the total of the VAT collected on each sale transaction in all the stages mentioned is charged to the final consumer as part of the purchased price with sellers and utilities acting merely as tax collectors."⁴⁶ The Value Added Tax

⁴⁴ Meralco. *Meralco Bill Components*. Retrieved from <http://www.meralco.com.ph/consumer-information/understanding-your-bill/meralco-bill-components>.

⁴⁵ GMA News Online. (2012). *Meralco, tataas ang singil sa kuryente sa pagpapataw ng Tax Recovery Adjustment Charge*. Retrieved from <http://www.gmanetwork.com/news/video/114882/24oras/meralco-tataas-ang-singil-sa-kuryente-sa-pagpapataw-ng-tax-recovery-adjustment-charge>

⁴⁶ Meralco. *Meralco Bill Components*. Retrieved from <http://www.meralco.com.ph/consumer-information/understanding-your-bill/meralco-bill-components>.

is applied to all components of energy cost except for a portion of the transmission charge, the universal charges and the Feed-In-Tariff charge.

Table 2: Miscellaneous Charges and Policy References

Miscellaneous Charges	Reference
Subsidy	
- Lifeline Rate	EPIRA, Section 73
- Senior Subsidy	Republic Act 8884 (Expanded Senior Citizen's Act of 2010)
- Tax Recover Adjustment Charge	Energy Regulatory Case No. 2011-045 RC
Feed-In Tariff	Energy Regulatory Case No. 2011-006 RM
Universal Charge	
- Missionary Electrification Charge	EPIRA, Section 70
- Environmental Fund	EPIRA, Section 34(d)
- NPC Stranded Contract Costs	EPIRA, Section 32
- NPC Stranded Debts	EPIRA, Section 32
Government Taxes	Section 15 and 137 of Local Government Code, ERC Regulations

The above analysis of the energy cost component of the Philippines suggests that end-consumers not only pay for the current cost of producing energy but also shoulder the cost of debt incurred by the government in the past, electrification of underserved areas as well as subsidizing the elderly and marginalized end-users. The Philippine average monthly wage is approximately P11,700 (US \$279).⁴⁷ For an average earner, the 15.15% miscellaneous component of one's energy bill, translates to P345 that can be spent on other basic needs. Where did these miscellaneous costs come from and why do end-consumers shoulder these costs that have no direct benefits to them? These

⁴⁷ Rappler. (2012). PH at bottom 3 of 'world's wages'. Retrieved from <http://www.rappler.com/nation/4612-philippines-at-bottom-3-of-world-s-wages>.

costs can be traced back to the history of the energy industry of the Philippines as well as the policies adopted throughout the restructuring of the industry.

b. History of the Energy Industry

1890 was a historical year for the Philippines because it was the year the country was first introduced to electricity; three electric arc lamps were installed in Escolta Manila succeeded by the first power station in 1895.⁴⁸ In 1901, private electric utilities were emerging in major cities and towns nationwide with Manila Electric Light and Railroad Company (Meralco) serving the demand in Manila and 57 other municipalities.⁴⁹ In November 3, 1936, the government adopted Commonwealth Act 120 for the purpose of creating the National Power Corporation and prescribing it power to undertake development of hydroelectric power in the country.⁵⁰ Power generation was served by both the public and private sectors. When Meralco decided to focus its business in the Manila area in 1953, NPC acquired Meralco's assets outside of Manila.⁵¹ By 1956, one-third of the country's energy was generated by NPC with the remaining two-thirds accounted for by 336 private and municipally owned electric utilities, more than half of which was generated by Meralco.⁵²

⁴⁸ Ma. Rowena M. Cham. The Philippine Power Sector: Issues and Solutions. The Philippine Review of Economics. Vol. XLIV No. 1 June 2007p. 33-63.

<http://pre.econ.upd.edu.ph/index.php/pre/article/view/218/631>

⁴⁹ Ibid.

⁵⁰ Chan Robles. *Commonwealth Act No. 120*. Virtual Law Library. Retrieved from <http://www.chanrobles.com/commonwealthacts/commonwealthactno120.html#.Vu91fJMrLVr>

⁵¹ Ma. Rowena M. Cham. The Philippine Power Sector: Issues and Solutions. The Philippine Review of Economics. Vol. XLIV No. 1 June 2007p. 33-63.

<http://pre.econ.upd.edu.ph/index.php/pre/article/view/218/631>

⁵² Ibid.

In the early 1950s when the energy sector was just growing, only 20 percent of the population, mostly residents of Manila, had access to electricity.⁵³ Due to inadequate transmission systems, it was a challenge to transmit reliable electricity between the main islands. Recognizing the need to expand electrification nationwide, the government created the Electrification Administration in 1960 and enjoined the private sector in energy distribution in rural areas by awarding franchises.⁵⁴ Ten years later, despite efforts in rural electrification, only a meager 23 percent of the population had access to electricity.⁵⁵ Many private distributors encountered technical and financial problems causing them to cease operations. Private distributors were then replaced by rural electric cooperatives upon the creation of the National Electrification Administration (NEA).

To put the national electrification program into action, the National Electrification Administration was empowered to grant loans and borrow funds. The National Electrification Administration was responsible for funding the construction of distribution network and delegating its ownership to rural electric cooperatives with the understanding that rural electric cooperatives will repay the National Electric Administration from the tariffs they collect.⁵⁶ The National Electrification Administration gained financial support from international commercial banks, financial assistance from donors and strong

⁵³ Ma. Rowena M. Cham. The Philippine Power Sector: Issues and Solutions. The Philippine Review of Economics. Vol. XLIV No. 1 June 2007p. 33-63.

<http://pre.econ.upd.edu.ph/index.php/pre/article/view/218/631>

⁵⁴ Ibid.

⁵⁵ Ibid.

⁵⁶ Ibid.

government support during the 1970s and 1980s.⁵⁷ With the combined efforts of NPC and NEA, electricity was made available to 50 percent of rural areas.⁵⁸

While the electrification program significantly improved electrification rate in rural areas, political patronage, unrealistically low tariffs, weak collection efficiency led to the insolvency of NEA in 1989.⁵⁹ Moreover, several interviewees alluded that local politics came into play, which not only made expansion of networks and power plants difficult but also affected the capacity of rural electric cooperatives to repay the National Electrification Administration.⁶⁰ An interviewee involved in the rural electrification program contends that local politicians have control over rural electric cooperatives and divert tariff revenues elsewhere rather than use the funds to repay the National Electrification Administration for the development of rural distribution networks.⁶¹ The interviewee further observes that the National Electrification Administration fails to regulate rural electric cooperatives and is loose in policy implementation.⁶²

Hosting the development of energy generating facilities is supposed to be attractive for local governments given the benefits the local government units will be entitled to. Pursuant to Republic Act Nos. 7638 and 9136, communities hosting energy generating facilities will receive an electrification fund,

⁵⁷ Ma. Rowena M. Cham. The Philippine Power Sector: Issues and Solutions. The Philippine Review of Economics. Vol. XLIV No. 1 June 2007p. 33-63.

<http://pre.econ.upd.edu.ph/index.php/pre/article/view/218/631>

⁵⁸ Ibid.

⁵⁹ Ibid.

⁶⁰ 20120106-JW, 20120112-IM, 20120115-CH

⁶¹ 20120115-CH

⁶² Ibid.

development and livelihood fund, and reforestation, watershed management, health and/or environmental enhancement fund.⁶³ Furthermore, pursuant to Republic Act 9136 and the Local Government Code, host communities are entitled to subsidies that shall be applied to lower the cost of electricity.⁶⁴

Despite this, local governments are unsupportive of energy development efforts. An interview with a project developer explains that development of power plants requires permit approvals from local government.⁶⁵ The permits process is critical to any project because it determines whether the project is built. The interviewee further reveals that in order to secure permit approvals, developers have to expend miscellaneous expenses as local government approvals are contingent on monetary conditions.⁶⁶ These miscellaneous expenses then add up to the project's cost and since developers need to recover their investment, this expense is eventually passed on to consumers.

Another case reveals that local government in Mindanao resist the development of energy generating facilities because they argue that additional sources of energy will drive electricity prices up.⁶⁷ An interviewee from a national government agency argues that the local government fails to realize that shortage of electricity supply is more costly to the region than the electricity

⁶³ Department of Energy. *Benefits to Host Communities*. Retrieved from http://www.doe.gov.ph/doe_files/pdf/Researchers_Downloadable_Files/Brochures/Benefits_to_Host_Communities.pdf

⁶⁴ Ibid.

⁶⁵ 20120106-JW

⁶⁶ Ibid.

⁶⁷ 20120112-IM

price increase brought about by new sources of energy.⁶⁸ The interviewee explains that addressing electricity supply and balancing it with the affordability of energy requires convincing not only the local government but also the general public because energy price increases affect the popularity of local politicians.⁶⁹

Republic Act 9136, Section 60 addressed NEA's insolvency by transferring outstanding obligations of electric cooperatives to the National Electrification Administration amounting to P18.07 billion worth of loans to the Power Sector Assets and Liabilities Management Corporation.⁷⁰

In 1972, Presidential Decree 40 nationalized the power sector of the Philippines granting NPC monopoly in power generation and transmission in major islands of the country for the purpose of total electrification of the country.⁷¹ To put this plan into action, NPC acquired foreign financing, purchased Meralco's generating capacity and invested \$1.9 billion in the construction of the 2x600 MW Bataan Nuclear Power Plant.⁷² The plant was completed in 1984 and is considered to be one of the best nuclear power stations in the world as it was built to withstand an intensity 8 earthquake and is well protected against tidal waves and tsunamis.⁷³ Despite the International

⁶⁸ 20120112-IM

⁶⁹ Ibid.

⁷⁰ Inquirer. (2011). PSALM assumes power cooperatives' debt worth P12B. Retrieved from <http://business.inquirer.net/17961/psalm-assumes-power-cooperatives%E2%80%99-debt-worth-p12b>

⁷¹ Department of Energy. *Presidential Decree No. 40*. Retrieved from http://www.doe.gov.ph/doe_files/pdf/OCSP/PD_40.pdf

⁷² Ma. Rowena M. Cham. The Philippine Power Sector: Issues and Solutions. *The Philippine Review of Economics*. Vol. XLIV No. 1 June 2007p. 33-63. <http://pre.econ.upd.edu.ph/index.php/pre/article/view/218/631>

⁷³ Napocor. (2014). *Bataan Nuclear Power Plant*. Retrieved from <http://www.napocor.gov.ph/index.php/bataan-nuclear-power-plant>

Atomic Energy Agency's approval for the plant's commercial operations, the power plant was not operated because of "safety" concerns. Mauro Marcelo Jr. manages the decommissioned Bataan Nuclear Power Plant and explains that the plant was never operated because of the Chernobyl accident in 1986.⁷⁴ Despite the irrelevance of the incident to the Bataan Nuclear Power Plant, political indecision has left the country's only nuclear plant, which could significantly drive energy prices down, idle and deteriorating.⁷⁵

Depreciation of the peso, increase in interest expense on foreign loans and increasing oil prices in the 1970s as well as economic and political crisis in 1983, which prompted the government to declare a moratorium on payment of its foreign obligations contributed to the deterioration of NPC's financial position.⁷⁶ NPC's weak financial position made rehabilitation and maintenance of systems difficult and with the absence of new generating plants to augment existing capacity and serve rapidly growing demand, the country experienced blackouts and power system failures. To address this, the government revoked NPC's exclusive rights to power generation and enjoined the private sector in energy production as Independent Power Producers.⁷⁷ Power shortage in the

⁷⁴ The Telegraph. (2014). *Why has the Philippines nuclear power plant been dormant for 30 years?* Retrieved from <http://www.telegraph.co.uk/finance/newsbysector/energy/11030508/Why-has-this-Philippines-nuclear-power-plant-been-dormant-for-30-years.html>

⁷⁵ Ibid.

⁷⁶ Ma. Rowena M. Cham. *The Philippine Power Sector: Issues and Solutions*. The Philippine Review of Economics. Vol. XLIV No. 1 June 2007p. 33-63.

<http://pre.econ.upd.edu.ph/index.php/pre/article/view/218/631>

⁷⁷ Ibid.

country was addressed but NPC's financial position was still weak because of decreasing profitability and rising debt load.⁷⁸

Independent Power Producers were only beginning to operate their newly built power plants when the 1997 Asian economic crisis significantly decreased the demand for electricity in the country.⁷⁹ Because of the nature of contracts between Independent Power Producers and NPC, IPPs were not affected by the economic crisis as NPC was obligated to pay IPPs a minimum contracted volume equivalent to 85 percent plant factor even if IPPs were only producing at an average plant factor of 36 percent during 1991 to 2000.⁸⁰ These costs were ultimately shouldered by end consumers and with government intervention in 2002, stranded costs associated with IPP contracts were estimated at Php1.09 per kWh; tariff increase shouldered by end consumers was limited to Php0.40 per kWh with the remaining balance of stranded costs to be shouldered by NPC.⁸¹ The peso further depreciated from P26 to a dollar in 1996 to P44 to a dollar in 2000 thereby exacerbating NPC's outstanding obligations.⁸² Furthermore, tariff increases passed on to consumers were annulled by the courts in 2004.⁸³ Ultimately, NPC was declared insolvent and the government recognized the need to involve the private sector in providing the country with sustainable energy. The Electric Power Industry Reform Act transferred NPC's

⁷⁸ Ma. Rowena M. Cham. The Philippine Power Sector: Issues and Solutions. The Philippine Review of Economics. Vol. XLIV No. 1 June 2007p. 33-63.

<http://pre.econ.upd.edu.ph/index.php/pre/article/view/218/631>

⁷⁹ Ibid.

⁸⁰ Ibid.

⁸¹ Ibid.

⁸² Ibid.

⁸³ Ibid.

liabilities to the Power Sector Asset and Liabilities Management Corporation, which recovers NPC's financial losses by liquidating its assets and collecting universal charges from end consumers.

Table 3: Key Events in the Philippine Energy Industry

Year	Events
1890	Electricity was introduced in the Philippines.
1901	Meralco was the electricity provider for Manila & 57 other municipalities.
1936	NPC was created to develop hydroelectric power in the country.
1953	NPC acquired Meralco's assets outside of Manila.
1956	NPC accounted 1/3 of the country's generation capacity. The remaining 2/3 was served by the private sector.
1960	Electrification Administration was created to expand access to electricity.
	Power distribution system franchises were awarded to the private sector.
1969	National Electrification Administration was created. NEA was mandated to: (1) develop distribution networks (2) empowered to borrow funds and grant loans RECs (3) regulate RECs for distribution of electricity in rural areas. Ownership of distribution systems developed by NEA were devolved to RECs.
	RECs were responsible for meeting operational expenses. RECs were also obliged to repay NEA for development of distribution networks from tariff revenue collected.
1970	Increases in oil prices, depreciation of the peso, and a substantial increase in interest expense resulted to NPC's financial losses.
1972	NPC was granted monopoly in power generation and transmission.
1977	NPC began the construction of the Bataan Nuclear Power Plant.
1983	The government declared a moratorium on payment of foreign obligations resulting to shortage of financing for NPC's projects.
1989	Private sector was enjoined in power generation. NEA was declared insolvent.
1993	The government arranged for NPC to enter into fast-track power project contracts with the private sector to address capacity shortfalls.
1996	Sharp depreciation of the peso exacerbated NPC's financial problems.
1997	NPC's contract with Independent Power Producers obligated NPC to pay power producers a minimum contract amount.

Source: Ma. Rowena M. Cham. The Philippine Power Sector: Issues and Solutions.

The industry's history reveals that the Philippines has struggled to find a balance between providing reliable energy supply and affordable electricity rates. Ultimately, loose implementation policies at the local level, external economic factors such as currency depreciation, increase in interest rates and oil prices, ineffective demand projections and poor planning of the pipeline as well as political influences led to the current conditions of the country's energy industry. While the private sector has been effective in addressing the shortage of energy supply in the country, the issue of affordability remains an issue.

c. Electric Power Industry Reform Act

An annual average of US \$1bn was estimated to fund the country's generation, transmission and distribution network.⁸⁴ Considering the government's fiscal constraints and taking a long-term perspective on the complex issues of the power sector, the government restructured the industry to privatization. Under the Electric Power Industry Reform Act, the industry was divided into four sectors: generation, transmission, distribution and supply.

In accordance with Republic Act 9136, Section 31, retail competition and open access requires the privatization of at least 70 percent of NPC's total capacity of generating assets in Luzon and Visayas. Except for the power plants owned by NPC in Mindanao, the generation sector is mostly owned and operated by the private sector. Section 6 of Republic Act 9136 states that "the prices charged by a generation company for the supply of electricity shall not be

⁸⁴ Ma. Rowena M. Cham. The Philippine Power Sector: Issues and Solutions. The Philippine Review of Economics. Vol. XLIV No. 1 June 2007p. 33-63.
<http://pre.econ.upd.edu.ph/index.php/pre/article/view/218/631>

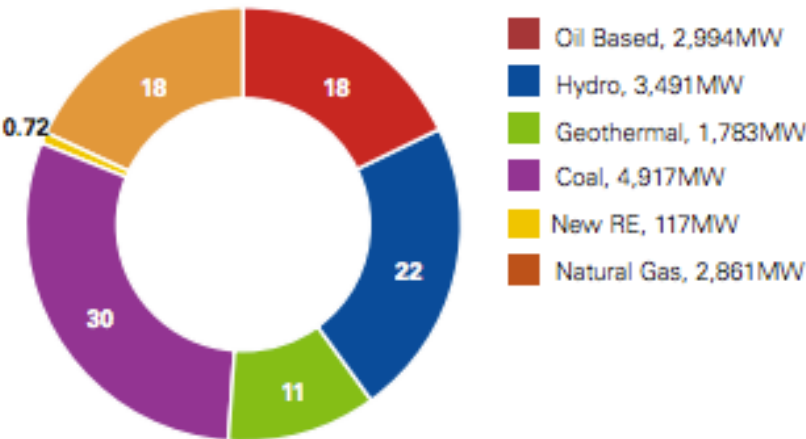
subject to regulation by the ERC.” However, since the ERC regulates pricing of distribution utilities that source its energy supply from generation companies, the cost of generation is indirectly regulated by ERC as well. The primary factor driving generation cost is the mix of energy sources in the Philippines. KPMG’s 2013-2014 Energy Report on the Philippines shows that majority of the country’s energy is supplied by coal. An interviewee explains that with the reduction in coal prices, this raw material makes energy production cheaper.⁸⁵ In fact, the Department of Energy is encouraging power producers to build coal power plants in response to a forecast of an additional consumption 10 to 15 million tonnes in the next 10 or 20 years by the Philippine Chamber of Coal Mines.⁸⁶ A Filipino economist with expertise on power generation cautions against encouraging development of coal power plants because of its environmental consequences. Furthermore, taking a short-term view on the energy mix of the country may prove futile because by the time coal power plants are ready to operate, coal prices may have changed. The interviewee further explains that in the long run, renewable energy might be a more sustainable and affordable source of energy.⁸⁷ While the fixed cost required to produce power from renewable sources exceeds that of coal’s, the variable cost or renewable sources is cheaper than coal’s and the demand will reach a point where it is cheaper to use renewable sources of energy.

⁸⁵ 20160108-CV

⁸⁶ Reuters. (2015). Philippines coal demand to grow by up to 15 mln T in a year. Retrieved from <http://www.reuters.com/article/philippines-energy-coal-idUSL3N1341BP20151110>

⁸⁷ 20160108-CV

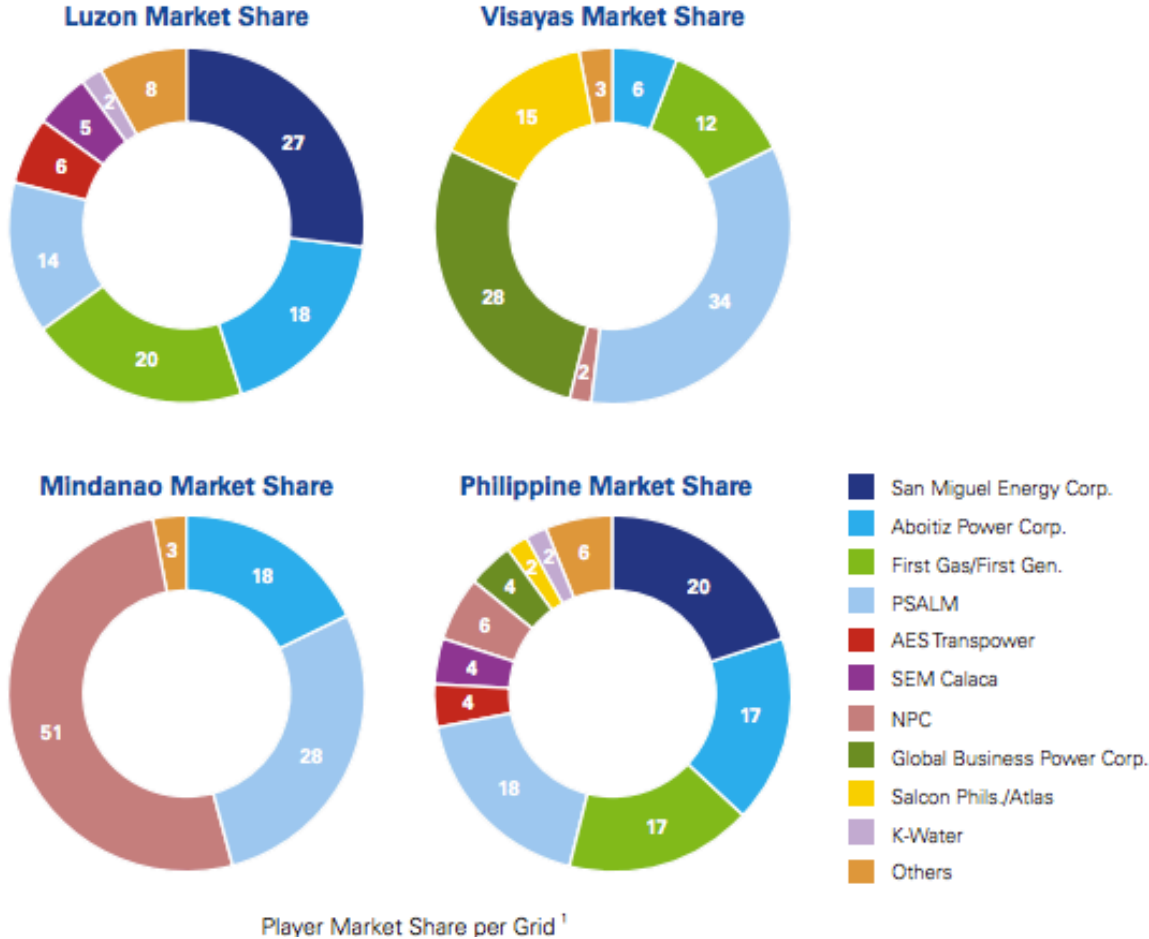
Figure 6: Philippines Installed Generation Capacity by Fuel Type (2011)



Source: KPMG The Energy Report Philippines 2013-2014

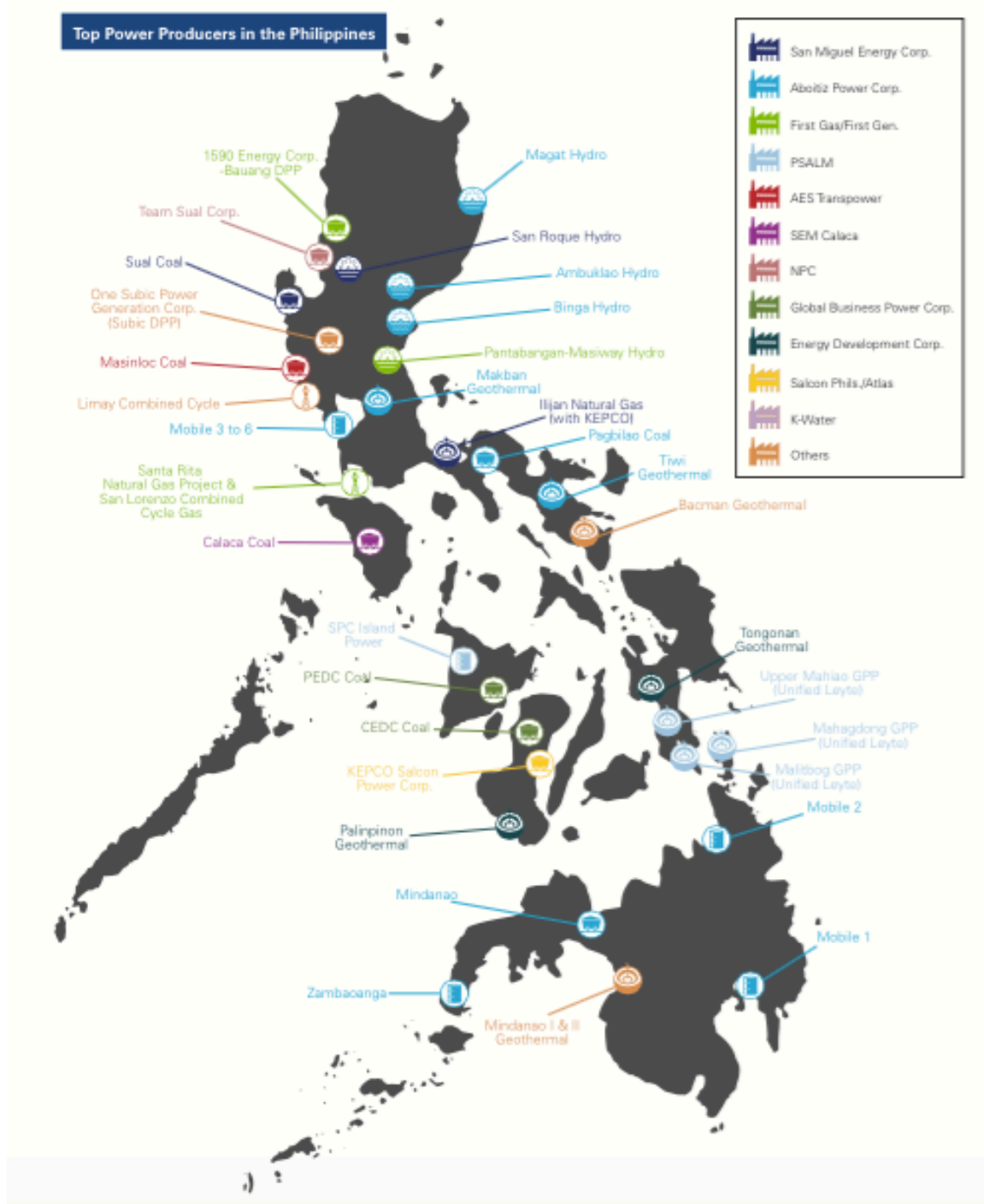
While Section 28 of the EPIRA stipulates dispersal of ownership and de-monopolization of public utilities, only a handful of companies serve the country’s energy needs. It is important to note that the industry is capital intensive. This being the case, only large-scale corporations with financial capabilities are able to penetrate the market. KPMG provides a breakdown of the energy market share in the Philippines.

Figure 7: Energy Market Share



Source: KPMG The Energy Report Philippines 2013-2014

Figure 8: Top Power Producers in the Philippines



Source: KPMG The Energy Report Philippines 2013-2014

While transmission, distribution and supply pricing are regulated by the Energy Regulatory Commission. Several interviewees have alluded that oligopolies in the power industry make it possible for these companies to control supply and consequently have a hand on energy pricing.⁸⁸ An interviewee pointed out that a high level official of the National Grid Corporation of the Philippines has vested interests in a generation company indicating that conflicts of interests exist in the industry.⁸⁹

d. Pricing Mechanism

One of the mandates of Republic Act 9136, also known as the Electric Power Industry Reform Act (EPIRA) is to “ensure transparent and reasonable prices of electricity in a regime of free and fair competition and full public accountability to achieve greater operational and economic efficiency and enhance the competitiveness of Philippine products in the global market.” To achieve this, the National Power Corporation’s functions was segregated and electric rates were unbundled to transparently reflect generation, transmission and distribution costs.

The distribution utilities collect tariffs from end-consumers which include the cost to produce energy (generation, transmission and distribution) as well as the other components indicated in the electric bill. The generation component of a residential electric bill will vary depending on where the distribution utility contracts its energy supply. A distribution utility can source its energy supply from the Wholesale Electricity Spot Market, a market that

⁸⁸ 20160106-MV, 20160114-SS, 20160115-CH

⁸⁹ 20160106-MS

functions like a stock market, where prices fluctuate depending on the demand and supply conditions. An interviewee from the Philippine Electric Market Corporation, an organization incorporated by the Department of Energy and represented by various sectors of the energy industry for the purpose of regulating the spot market, confirms that market irregularities often happen and that this is because generation companies are able to withhold supply thereby pushing prices at irregularly high levels.⁹⁰ The interviewee adds that despite reporting these incidents to the Energy Regulatory Commission, no action has been taken to address the matter.⁹¹ Such a pricing mechanism should not be applied to basic commodities like electricity because it is prone to market irregularities and shortage of the commodity results to price increases. Electricity is a basic need and is inelastic to price; demand for electricity is insensitive to price changes. Therefore, a shortage in electricity is indicative of the need to produce more energy and policies should prevent opportunistic price increases.

Distribution utilities also have the option to directly contract energy supply from Independent Power Producers through bilateral contracts. This mechanism supposedly lowers electricity rates passed on to consumers. However, Oplas observes that “electric companies and DUs [distribution utilities] have bilateral contracts with different gencos [generation companies], and such bilateral arrangement is sometimes suspected of being ‘sweetheart’ deals, wherein both the gencos [generation companies] and DUs [distribution utilities]

⁹⁰ 20160115-CH

⁹¹ Ibid.

benefit to the disadvantage of the customers.”⁹² He also suspects that cross-ownership of generation companies and distribution utilities contribute to high energy prices.⁹³

While the Energy Regulatory Commission regulates energy pricing, an interviewee contends that the Energy Regulatory Commission treats petitions for tariff increases as a legal document rather than deciding on the petitions based on its economic impact and its effect on end-consumers.⁹⁴ The interviewee further questions whether the Energy Regulatory Commission commits to its mandate of protecting public interest and cites that for a period of time, certain generation companies and distribution utilities have doubled their assets while affordability of electricity in the country has not yet been addressed.⁹⁵ Interestingly, even the private sector complains of tight financial margins and asserts that the energy industry is not financially lucrative.⁹⁶ However, aggressive investments in the energy industry does not support this claim. While the Energy Regulatory Commission is mandated to protect public interest, it is also responsible for balancing public and private interests to ensure the reliability of energy supply in the country. A representative from the Energy

⁹² Bienvenido S. Oplas, Jr. (2015, August 13). The Philippine electricity market: Monopoly and competition. *BusinessWorld*. Retrieved from <http://www.bworldonline.com/weekender/content.php?id=113411>

⁹³ Ibid.

⁹⁴ 20160114-SS

⁹⁵ Ibid.

⁹⁶ 20120114-LF

Regulatory Commission says, “We can never really please everyone. For as long as everyone is on the same level of unhappiness, we are okay with that.”⁹⁷

The determination of pricing is a heavily top-down process with minimal or absent public participation. The Energy Regulatory Commission has complete discretion on how to regulate energy prices. Similarly, the government’s financial obligation incurred by NPC in the past is passed on to consumers through the Electric Power Industry Reform Act. In addition to the cost of producing, transmitting and distributing energy as well as debt repayment of the government’s financial obligations in the past, the Electric Power Industry Reform Act also obliged end-consumers to subsidize marginalized end-users. Consumers who consume less than 100kWh of electricity are qualified as marginalized end-users; this criterion qualifies 4.5 million residential customers who may not necessarily need the subsidy.⁹⁸ Furthermore, in promoting the development of renewable energy in the country, the implementation of the Feed-In Tariff under the Republic Act 9513 was implemented in 2011 and further burdened end-consumers with increased tariffs.⁹⁹

V. Findings

Examining a Meralco residential electric bill led to the discovery of miscellaneous charges that are unique to Philippine energy pricing. These

⁹⁷ 20120112-IM

⁹⁸ GMA News Online. (2011). *Senators want new criteria for EPIRA lifeline users*. Retrieved from <http://www.gmanetwork.com/news/story/222189/money/senators-want-new-criteria-for-epira-lifeline-users>.

⁹⁹ Bienvenido S. Oplas, Jr. (2015). *Business World. Feed-in tariff means more expensive electricity*. Retrieved from <http://www.bworldonline.com/content.php?section=Opinion&title=feed-in-tariff-means-more-expensive-electricity&id=118551>

miscellaneous charges can be traced back to the convoluted history of the Philippine energy industry. The government has struggled to find a balance between expanding energy access across the nation and providing reliable and affordable electricity. In the process of expanding energy access in the country, the government incurred massive financial obligations caused by loose implementation policies, currency depreciation, increases in interest rates and oil prices, ineffective demand projections and poor pipeline planning, as well as political influences in the energy industry. At present, end-consumers shoulder the cost of energy reduction, transmission and distribution, debt repayments of the government's financial obligations and subsidies to marginalized users, senior citizens and development of renewal energy.

Even the industry's current pricing mechanisms are ineffective at maintaining the affordability of energy. With a growing population, the country's energy needs will inevitably grow and adopting the Wholesale Electricity Spot Market as a pricing mechanism suppresses demand for energy. Furthermore, oligopolies in the industry allow for generation companies to have control over supply and consequently, energy pricing.

The top-down process of the determination of energy pricing and the absence of public participation result to end-consumers carrying the burden of subsidizing seniors and the marginalized. However, a loose definition of who qualifies as marginalized result to subsidizing end-consumers who may not necessarily need the subsidy and unnecessarily burden consumers who shoulder these subsidies. Lastly, providing subsidies for the development of renewable

energy in the country create an imbalance in public and private interests in favor of developers.

VI. Scope of Study

This study uncovered the underlying reasons why energy prices remain high in the Philippines by focusing on the history, policies and pricing scheme surrounding it. The study was limited to the supply side of the supply chain, particularly energy generation, transmission and distribution. This entailed limiting interviewees to representatives of government agencies responsible for regulating energy supply as well as organizations responsible for energy generation, transmission and distribution. This study covered the history of the energy industry of the Philippines beginning in 1890 until 2015 to provide a comprehensive understanding of how current energy prices are affected by the restructuring of the industry. The Philippines is comprised of three regions, divided into 7,107 islands; since regulations are applied at a national level, the scope of this study includes Manila and the rural provinces.

VII. Policy Implications

The findings of this research will help inform policy makers on the underlying reasons behind why energy prices remain high in the Philippines. Policy makers have learned from the industry's history that reliance on foreign financing and oil imports make the industry susceptible to external economic factors. The energy crisis preceded by the 1997 Asian economic crisis was a result of ineffective demand projections and poor pipeline planning that ignored the international scene. At the time, especially since the government relied

heavily on foreign financing, taking into account international events that affect the country's energy demand and supply was crucial. The government's failure to accurately plan the country's energy demand and supply led them to enter into emergency contracts with independent power producers making the cost to produce energy more expensive.

Given the government's fiscal constraints and massive financial obligations, the industry was privatized. While the privatization of the industry has addressed the instability of supply in the country, the problem of affordability remains unsolved. The government should not leave energy pricing to market forces and balance the interests of the private and public sector. The government should refrain from providing incentives to the private sector at the expense of the public. In as much as the private sector needs to realize profits to expand its capacity to produce energy, the public cannot bear these costs entirely especially since the public pays taxes on energy too.

Provisions to regulate energy pricing and prevent monopolies and oligopolies in the industry are stipulated in the Electric Power Industry Reform Act but implementation and monitoring are loosely defined. To address high energy prices in the country, implementation and monitoring policies need to be reformulated and further defined. Adopting stringent implementation policies especially in rural areas is crucial in ensuring the sustainability of the energy industry in the country. Furthermore, this will prevent end-consumers from shouldering the cost of rural electrification.

Policymakers should also review the pricing mechanisms applied to energy. The Wholesale Electricity Spot Market should not be applied to basic commodities such as electricity because it is dependent on demand and supply interactions. Such a pricing mechanism suppresses demand because shortages of electricity drive prices up. Furthermore, oligopoly in the market enables generation companies to control supply and consequently energy pricing. Furthermore, oligopolies and conflicts of interest in the industry impede the reduction of energy prices.

Policy makers should also take a long-term perspective on the sustainability of the industry and should not adopt policies that only achieve affordability of energy in the country. Policy makers should be cognizant of environmental issues and the security of energy supply in the country.

Lastly, the determination of pricing has historically been a top-down process. This being the case, end-consumers end up shouldering the cost to subsidize the elderly and the marginalized as well as industry programs incentivizing renewable energy. Without public participation, these costs passed on to the public are unjustified and the affordability of electricity for end-consumers is not ensured.

VIII. Conclusion

A comparison of the components of energy cost among selected cities in Asia reveals that Manila has the third highest generation cost, highest grid cost and the third highest value added tax imposed on energy. An examination of a residential bill in Manila further reveals an energy cost component unique to the

Philippines. At least 15 percent of a residential electric bill comprises of miscellaneous charges that represent subsidies for the elderly and marginalized end-consumers, rural electrification, subsidies to incentivize development of renewable energy and the cost of debt incurred by the government in the past. Power generation in the Philippines was originally served by both the public and private sector. To expand energy access in the country, the government nationalized the industry in 1972. The history of the energy industry in the Philippines reveals that loose implementation policies especially at the local level, external economic factors such as currency depreciation and increase in interest rates and oil prices, ineffective demand projections and poor pipeline planning as well as political influences led to the massive debt incurred by the government. To repay the government's debt, the Electric Power Industry Reform Act mandated the Power Sector Asset and Liabilities Management Corporation to liquidate the National Power Corporation's assets as well as collect universal charges from end-consumers. The government also recognized the need for reforms in the industry but due to the government's fiscal constraints, the industry was privatized. Pricing is currently regulated by the Energy Regulatory Commission but oligopolies and conflicts of interest in the industry, as well as the current pricing mechanisms suppress demand and impede the reduction of energy prices. Furthermore, the process of determining who shoulders the cost of subsidizing the elderly and the marginalized end-consumers, the cost of repaying the government's debt, the cost to expand energy access in the country, and the cost to encourage development of

renewable energy sources is dictated by lawmakers with little or no public participation. Without public participation, the general public is at a disadvantage because they have to shoulder the burden of paying for these miscellaneous costs.

The problem of the energy industry in the Philippines is not just a technical and economic problem; it is largely a political problem. The Energy Regulatory Commission is the only deciding body that ultimately decides on how energy is priced. Without a balance of power, and without defined pricing regulations, pricing distortion is inevitable. This, combined with the oligopolistic nature of the industry, allows the private sector to control supply and influence energy pricing. It appears that the government incentivizes the private sector by not addressing the oligopoly in the market, providing subsidies and exempting them from sharing the losses the government incurred during the energy crisis preceded by the 1997 Asian economic crisis. Joseph Stiglitz describes this problem as *rent seeking*, where the private sector is rewarded much more than what they are contributing to society and where those rewards are taken from the less-privileged and uninformed.¹⁰⁰ The private sector creates wealth by taking it from others, not by creating value and in so doing, creates inequality without growing the economy.

¹⁰⁰ Stiglitz, Joseph. *The Price of Inequality*. New York: W. W. Norton & Company, Inc. 2013. Print.

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Appendices

A. Interview / Survey Protocol

Beginning Script

Hi Mr. / Ms. [Insert name],

Thank you for taking the time to meet me. I am Irene Uy, a graduate student of Urban Planning in Columbia conducting research for my thesis on the relationship of energy and economic growth in the Philippines.

I have been reading about your work as [insert position] in [insert organization] and I'm particularly interested in your experiences and insight on the industry.

Consent

I asked to meet with you because I wanted to interview you about your opinion on the energy industry in the Philippines, particularly about (a) the supply chain (b) demand projections (c) supply efficiencies / inefficiencies (c) energy pricing scheme (d) policies and (e) privatization of the industry.

I'd like to ask for your consent to interview you and to use the materials for my research. Please feel free to tell me if you are uncomfortable answering any question I might ask during the interview. You are not obligated to answer anything you do not want to disclose.

Thesis Topic & Significance

Developing countries like China and India experienced sharp increases in energy consumption congruent with its economic growth. Despite the abundance of natural resources in the Philippines and its growing population, energy consumption, constrained by energy price, is not growing at the same rate. The National Economic Development Authority of the Philippines cites that high cost of electricity deters investments in the region's industries and consequently potential economic growth in the region.

I believe that understanding the issues of the energy industry will contribute significantly not only to potentially improving the industry but also to unlocking economic potential in the country.

Interview

- a. In your opinion, how does energy affect economic growth in the Philippines?
- b. How is energy priced in the Philippines? Why do you think energy pricing in the Philippines is higher than its neighboring countries? Do you think it is necessary to reduce energy prices to induce economic growth? Do you think the existing pricing scheme is an effective way to price energy? What is your opinion on the policies regulating the energy pricing scheme?
- c. How can the energy industry be improved to induce (rather than deter) economic growth? Would you say that the problem in the energy industry lies in the shortage of energy supply? If not, how would you frame the problem of the energy industry?
- d. Do you think energy consumption is constrained in the Philippines? Why or why not? Is this solely because of high energy prices or are there other factors to be considered? What are these factors?
- e. In your opinion, does the current supply of energy constrain demand? How is demand projected? Is it possible that projections do not account for underserved communities?
- f. How is energy generated, transmitted and distributed? Are there inefficiencies in energy production? What are they? Do you think streamlining inefficiencies in energy production will contribute significantly to the reduction of energy prices? How do you think it can be improved?
- g. What existing policies affect / contribute to the determination of energy pricing? How do you think these policies affect energy pricing in the country? Do you agree with the policies or are there amendments you would like to be considered?
- h. Do you think that the privatization of the energy industry has created a better economic environment for the country? How can the organizational structure of the industry be improved to create a balance between the interest of private companies and the general public?

Ending Script

Again, thank you so much for taking the time to meet me. I hope you don't mind if I get in touch with you for follow up in the subsequent months. I am confident that my research will progress significantly and I believe you have more valuable insight that we have not captured during this interview. May I have your contact information please?

Would you happen to know anyone else I can get in touch with who might provide light on this topic?

My email address is [insert] and my phone number is [insert] if you have any clarifications / if you want to discuss this further.

B. List of Interviewees & Organizations

Organization	Role	Sector
Energy Regulatory Commission	Regulatory Commission	Public
National Power Corporation	Generation	Public
First Gen	Generation	Private
Energy Development Corporation	Generation	Private
National Grid Corporation of the Philippines	Transmission	Private
Manila Electric Company	Distribution	Private
Philippine Electricity Market Corporation	Market Operator	Public / Private
Power Sector Assets and Liabilities Management	Management of NPC's liabilities	Public