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POLITICAL ECONOMY PROGRAM

BARRIERS TO ENTRY AND THE HIGH COST OF ELECTRICITY IN THE PHILIPPINES

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THE PROBLEM OF HIGH POWER PRICE

A major obstacle to Philippine industrialization and economic development is the high cost of electric power. Power is a very important if not indispensable input to simple and complex manufacturing, to distribution, and even to information technology, including artificial intelligence (AI).

The Philippines' high electricity price is second only to Singapore in Southeast Asia and third in the wider East Asia region that includes Japan, which has the highest electricity cost. Unlike the developed economies of Japan and Singapore with high levels of income and productivity which can well afford the high price of electricity, the Philippines is a developing country, struggling to get out of the middle-level income state where it has been stuck for quite some time. In particular, the country's bid to (re)industrialize and attract foreign direct investment into the manufacturing sector, is hampered by the high cost of power.

Philippine policymakers are aware of the problem and are trying to address the high cost of power by, among others, amending the Electric Power Industry Reform Act (EPIRA), which was passed in 2001. A priority amendment of the law, according to Senator Gatchalian, who chairs the Senate Committee on Energy, is to make electric power more available and affordable to individuals as well as firms.

CAUSES OF HIGH POWER RATES

While there is near-unanimity that the cost of power in the Philippines is high, there is divergence of opinion among experts and laymen alike on the cause(s).² A quick perusal of the literature shows the following as some of the possible causes: fuel mix, market structure of the power industry, regulatory capture, the value added tax (VAT), and poor governance, to mention a few (Osorio 2023; Clarete 2018; Escresa 2018).

Fuel mix refers to the proportion of the different fuels (coal, oil gas, geothermal, hydro, solar) used in generating electricity. Ceteris paribus, one expects power price to be high if generation uses a high proportion of the more expensive fuel. In general, a high proportion of the fuel used in majority of the generation plants in the Philippines comes from coal, which is relatively cheaper compared to the other fuels, so the thesis does not seem to hold. But there are other factors that need to be considered.

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² The only discordant note that the author has heard comes from Jose "Viking" Logarta, who, in a roundtable discussion at a UP Center for Integrative and Development Studies roundtable on energy, claimed that high electricity price should be a conclusion to be arrived at and not a fact to be assumed or accepted at the outset.

Market structure, on the other hand, refers to the predominant market organization of the power generation industry: competitive if there are many firms and there is free entry and exit; oligopolistic if there are only a few firms or players, whose every move(s) elicit(s) a reaction from the other firms; and in the extreme case where the industry has a single firm, you have a monopoly. Under the EPIRA, power generation was deregulated and opened to competition. While transmission, and distribution remained a monopoly subject to regulation, supply is supposed to be competitive when the EPIRA is fully implemented.

Regulatory capture refers to the susceptibility of government personnel tasked with regulating the industry to succumb or give in to powerful vested interests. Capture may be inferred from regulators' prior affiliation in the industry that is the subject of regulation and/or from the decisions of regulators that consistently favor a certain group or individual. The Energy Regulatory Commission (ERC), tasked to regulate the energy industry, has been criticized by consumer groups as being a captive of certain vested interests, but we have yet to see a definitive study to back up the case against the regulatory agency.

Another factor alleged to raise the price electricity is VAT. A tax on a commodity generally raises its price, but the extent depends on the elasticity of the demand for the commodity. With electricity being a necessity having an inelastic demand., taxes have the effect of raising its price by practically the whole amount of the tax. Removing or reducing the tax on electricity should have the effect of lowering its price.

A fifth possible cause, poor governance, that includes lack of administrative capability, propensity to commit fraud or corruption, and lack of transparency and accountability. The result of poor governance is also referred to (mostly by economists) as "state failure" or "bureaucratic failure," as distinguished from "market failure." The latter is a rationale for government intervention; the former is a justification for deregulation and privatization. Conceptually, the relationship between the price of electricity and the causal factors can be represented as a function of the form Y=F(X1, X2, X3, X4 +... + XN), where

Y is the price of electricity X1 is fuel mix X2 is structure of the power industry X3 is regulatory capture X4 is poor governance

In the equation, the dependent variable Y is the price of electricity that is sought to be explained. Meanwhile, independent variables X1-X4 are the hypothesized causes of the high electricity price.

FOCUS ON BARRIERS TO ENTRY

I add "barriers to entry," or the more neutral term "entry requirements" as another possible factor to be considered.³ "Barrier to entry" refers to the rules, permits, paperwork, and processes that a firm or individual has to comply with or follow when applying for permission to build and operate a generation plant.

In theory, since power generation is deregulated, new firms are free to enter, and thus compete away the profits of the incumbentsHowever, entry is not really free because of entry barriers.

One such barrier is financial; building, expanding, and/or operating a power plant entail a huge financial outlay. Examples include Aboitiz Power's planned capital expenditures (CAPEX) for 2024 of 73 billion and a projected investment in geothermal energy by First Gen amounting to Php 35 billion.⁴

Meanwhile, the Bataan Nuclear Power Plant (BNPP) required foreign loans that reportedly ran into billions of dollars, which was only fully paid almost 40 years after the loan was contracted. BNPP was doubly expensive: it was very costly to begin with, in large part because of corruption. It never became operational, and thus did not contribute to meeting the country's rising electricity

³ To the author's knowledge, the term "barriers to entry" was first used, although in a slightly different context, in a 1989 study undertaken for the US Agency for International Development by Sycip, Gorres, Velayo and Co. through Mario Lamberte, et al., including the author, on the structure of selected Philippine manufacturing industries. As used in the said study, "barriers" referred to the Philippine government policies and programs that were intended to protect and/or promote Philippine manufacturing, but which served instead to prevent entry to the industry, hence restricting competition.

^{4 &}quot;Aboitiz Power eyes renewable energy expansion for 2024 with 73 billion pesos Capex; "First Gen eyes 35 billion for geothermal focus in 2025"

Another closely related entry barrier is technology. Power generation is generally capital-and technology-intensive, and moreover may have to be large to realize economies of scale. Building and operating a power plant thus requires highly-specialized know how and skills that may be in short supply locally, and may require sending Filipino engineers and technicians abroad of Filipino engineers for training and/or the hiring of foreign experts, at huge expense to the country.

The lack of assured market for the output of the potential entrant is also a barrier entry. This is so since most of the output of the incumbent generation companies (GenCos) may have already been contracted with distribution utilities (DUs) through power supply agreements (PSA). Since a new entrant must build a relatively large plant to realize scale economies, the new entrant will be saddled with excess capacity during the new plant's first few years of operation. Under-utilized capacity means losses during the crucial initial years of the new GenCo when it is trying to recoup the expenses involved in its entry.⁵

The fourth barrier refers to the numerous requirementspermits, licenses, fees, right of way, public consent, etc.needed before building and allowing a power plant to operate. Applying for and obtaining these permits entail a lot of paperwork and legwork—going to and from different government agencies or offices, national as well as local, to file and follow up papers.

As many as 104 different signatures are needed before a new entrant can operate (Escresa 2018). Other authors have come up with a much higher number of signatures (see, for example, Osorio 2023). Appendix A shows that as many as five years may be needed from the start of application to the start of construction of a power plant. Assuming the construction of the power plant also takes another five years, the total time involved before a new generation plant starts operation is 10 years. By any measure, that's a long time to wait before one's investment can start yielding a revenue stream. Clarete (2018) estimates that the potential entrant's opportunity cost of waiting is a non-negligible percentage of the total project cost.

This paper argues that entry requirements or barriers to entry of the fourth type make it difficult (i.e., timeconsuming, costly) for a firm or an individual to enter and engage in power generation—this serves as a disincentive for firms to enter the power generation industry, resulting in a limited supply and high price of power.

BARRIERS A NECESSARY EVIL?

In general, these requirements exist to protect and/or promote the public interest or the general welfare. They may also exist to ensure the protection of rights and interests of certain marginalized or vulnerable sectors in society (e.g., women, indigenous people). An example that comes to mind right away is the requirement for an applicant firm or individual to secure the consent of groups who are to be adversely impacted by a proposed project, such as a hydroelectric or a coal-fired power plant. Another example is the requirement for an applicant to show proof of sufficient financial resources or possession of relevant experience to undertake a project. Indeed, there is no issue that some licenses, permits, paperwork, or waiting time are necessary; the only issue is how much is too much?

Appendix A shows the various processes, steps, timelines, and offices involved in the application to build and operate a power plant. While the time for each step varies, going through the whole process takes anywhere from 3 to 5 years before actual construction, which can also take 5 years, can begin. While some steps can be taken simultaneously, other steps are sequential, with consequent domino effects. Estimates of the number of signatures needed vary from as low as 200 to as high as 360 (Osorio 2023; Clarete 2018; Escresa 2018).

THE ECONOMICS OF POWER PRICE DETERMINATION

Market structure

The current market structure in power generation can be described as an oligopoly, where there are a few big players, each one of which can affect price or elicit reaction from the other players. In the Philippine power

⁵ This section owes much to my correspondence with Marcelo Tecson, a long-time advocate of reform in the power sector.

industry, the few big players coexist with many small ones (more than 200, as of one count). In Luzon, for example, the seven largest generation plants account for 47 percent of installed generation capacity, as shown in the Table 1 below. The percentage share of the biggest GenCos is probably understated as their owners also own or have controlling interests in some of the smaller firms, in what I call "horizontal cross-ownership."⁶

OWNER	INSTALLED CAPACITY	SHARE
First Gas Corporation	2,163	10%
GNPower Dinginin Ltd. Co.	2,101	10%
South Premiere Power Corporation	1,436	7%
Sual Power Inc.	1,294	6%
Therma Luzon Inc. (TLI)	1,184	6%
Masinloc Power Partners Co. Ltd. (MPPCL)	1,025	5%
SN Aboitiz	603	3%
Total for Highest Producers	9,806	47%
Luzon Total	21, 069	

Table 1. Share of large generation companies in installed capacity, as of October 20	companies in installed capacity, as of October 2024
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Source: Department of Energy

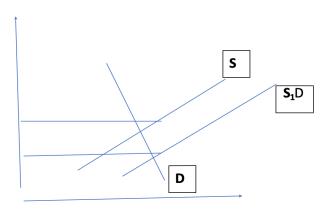
The big players are "price setters," while the many small ones are merely "price-takers". The list of the big players in power generation in the Philippines include the Ayalas, Aboitiz, the Lopezes, San Miguel's Ramon Ang , and Manuel V. Pangilinan. The composition of the big players is very stable, meaning to say, the same firms have been in the power industry for some time, despite the entry and exit of smaller firms.

The big GenCos are, and have been, extremely profitable, with the profit rates of some reaching almost 30 percent or more. Being very profitable, power generation should be an attractive investment, with many potential investors wanting to enter the industry. The entry of new firms—and the resulting increase in competition— should have the salutary effect of bringing down the price of electricity while at the same time reducing the (high) profit rates of the earlier incumbents. This does not seem to happen in the industry.

Power supply and demand

The situation in power generation may be depicted in Fig. 1, which shows a typical supply and demand diagram for the power sector. As the diagram illustrates, demand is relatively inelastic, indicating that changes (either up or down) in the price of power have very little effect on the quantity of power bought by firms and households.

Fig. 1. Supply and demand in power generation



^{6 &}quot;Horizontal cross-ownership" refers to a genco owning another genco. It is distinguished from "vertical cross-ownership" where, for example, a genco owns a distribution utility.

The supply curve, on the other hand, is either elastic or inelastic depending on how the supply of power responds to a change in price: elastic if the amount of power supplied in response to a price change is large, inelastic if otherwise.

An increase in the demand for electricity pushes the demand curve outward or to the right. With the supply of power fixed in the short run due to limited generation capacity, the price of electric power goes up. Short of adopting price control, the only way to bring the price of electric power down is for the supply curve to shift outward or to the right, which shift can be brought about by technological change that increases productivity, an expansion of the generation capacity of the incumbent firms, the entry of new players into the industry, or a combination of these factors.

The problem, however, is the little or no incentive incumbent GenCos have to expand their current capacity to increase their current output or to adopt new or improved technologies, since under the existing arrangement, they are already reaping above- normal profits. But why are not new power generation firms rushing in?

EFFECT OF ENTRY ON PRICE: EMPIRICAL EVIDENCE

Studies on electricity price in the Philippines looked at the impact of the reforms ushered in by the EPIRA; none focused on a single cause or factor. In general, electricity price continued to increase after the EPIRA, although at a decreasing rate.

Clarete (2018) compared the effect on the price of electricity of abolishing VAT and reducing red tape, to determine which one is more effective in reducing the price of electricity. His findings indicate the reduction of red tape as more effective than removing VAT in addressing the high price of electricity, supporting our thesis. It also suggests that if policymakers are faced with a choice between the two alternatives for reducing electricity price, the clear choice is the reduction in red tape. This solution moreover has the advantage of keeping a major source of government revenue and removing a potential source of corruption (bribery, "rentseeking"), thus improving governance.

Two methods are also available to test the hypothesis that reducing or removing entry barriers leads to lower electricity price. One is the "before- and- after" test, for lack of a better term. If the price of power goes down following the entry of a new firm or the expansion in capacity of the incumbent(s), we can conclude that the hypothesized causality holds. Conversely, if an incumbent leaves or exits, the price of power should go up. Both cases assume that a firm's entrance or exit is big enough to influence price, that it is a price-setter as distinguished from a price-taker.

The problem with this method, however, is that the price decrease or price moderation may well be caused by factors other than the entry (or exit), that are simultaneously present or at work in the environment, which factors are almost impossible to hold constant. The other possible problem is that the new entrant (or leaver/exiter) may be so small as to have no effect on price the price of power — although this can be ruled out if there is a minimum size needed for a firm to realize economies of scale or to be efficient.

Moreover, new entrants are not the only source of additional generation capacity; it may also come from the expansion in the capacity of the incumbent GenCos, which expansion has the same effect as the entry of a new player. There is a big difference, though, between the two: capacity expansion adds to the size and therefore the dominance of the incumbent firms, while the entry of a new firm lessens such dominance (Alonzo and Guanzon 2018).

The other test is the counterfactual method, which holds the other factors constant to isolate the "pure effect" of the entry of the new firm or the capacity expansion of the incumbents. This is somewhat like the "with and without" method recommended by Alonzo and Guanzon (2018), but which they did not pursue due to its enormous data requirements. One version of this method is the "synthetic control or counterfactual method" which the author employed in analyzing the effect on ASEAN member-countries of their accession to the ASEAN Free Trade Area (AFTA), specifically its effect on their economic growth and income per capita, which they found to be generally positive (see Tabbada and Bano 2017).

Although the latter method conceptually correct, it is very difficult to adopt, largely because of the difficulty of finding a suitable control group—namely a group of countries with characteristics similar to those of the subject country (in this case, the Philippines) except for the entry of new firms in the latter. Given more time and resources, however, the author may want to pursue this method in the future.

TENTATIVE RECOMMENDATIONS

The problem of long lead time for a new GenCo to start operating has been recognized for some time as a barrier to entry and has elicited several attempted solutions. The most recent and comprehensive of these attempts is the enactment of Republic Act No. 11234, popularly known as the Energy Virtual One-Stop Shop (EVOSS) law, in 2019.7 This law seeks to streamline the permitting process for new power plants by eliminating "unnecessary" steps, shifting (where feasible) to simultaneous instead of sequential steps, and making application online. When fully implemented, the EVOSS law is expected to substantially reduce the number of processing days from 269 to 85, or from nine months to two and a half months. As writing, the implementing rules and regulations, together with the implementing guidelines, have also been crafted and the law is ready to be implemented. However, it is too early to tell whether, and to what extent, the new law will succeed in reducing the lead time and the associated cost of constructing new power generation projects. While the new law has raised hopes for genuine reforms in the power sector, it is also important to remember many Philippine laws falling short in terms of implementation.

Another recommendation is for the ERC to look closely into PSAs between the GenCos and the DUs for evidence of transfer pricing and "sweetheart deals," especially if there is cross-ownership between the two, which is allowed under law. A GenCo and a sister DU can engage in "transfer pricing," where huge profits are made to appear in the unregulated sector (generation) and profit kept within the limit allowed under the law, which is 12 percent, in the regulated sectors (transmission and distribution).

Finally, there is a need for continuing study of public policy on the energy sector. The energy sector is a rapidly-evolving industry, with technologies, costs, prices, players, and policies constantly changing, and in the case of policies, adapting. Changes are particularly rapid in the renewable energy (RE) sector, where climate change currently dominates public discourse and the government's policy priorities. The Philippines aims to increase the proportion of REs in the fuel mix— from the current 20 plus percent to 35 percent in 2030 and to 50 percent in 2040, not only in order to comply with the country's international commitments but also because it is the right thing to do, for the sake of the planet and the future.

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⁷ The EVOSS law may have incorporated the provision(s) of an earlier legislative proposal to declare power projects as "projects of national significance", the effect of which is to do away with some of the required permits, and thus fast-track energy projects.

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APPENDIX A

Overview of the key steps, associated timelines, and the agencies involved for both renewable and non-renewable energy projects.

Establishing a power plant is a multi-faceted process requiring compliance with numerous regulations and securing approvals from various government agencies. Both renewable and non-renewable energy projects must comply with the EPIRA Law (RA 9136), among other legislative frameworks. Renewable projects also adhere to the Renewable Energy Act (RA 9513). The process is segmented into four major phases:

1. Registration and Application

3. Development

2. Pre-Development

4. Post-Development and Operations

1. PROJECT REGISTRATION AND APPLICATION		
Renewable Energy Projects	Non-Renewable Energy Projects	
Department of Energy (DOE): Developers must obtain a Renewable Energy (RE) Service or Operating Contract, granting the right to explore, develop, and utilize renewable energy resources. The DOE has streamlined this process by issuing a Certificate of Authority (COA), allowing developers to commence permit processing and feasibility studies before the official contract term begins.	DOE: Obtain a Certificate of Endorsement for the project. Processing time is similar to that of renewable projects.	
The COA is valid for varying periods depending on the project type: three years for biomass, geothermal, hydropower, ocean, and wind projects; two years for floating solar; and one year for land-based solar projects		
Securities and Exchange Commission (SEC): Register the project company to establish its legal identity.	SEC and BIR: Similar registration requirements and timelines as renewable projects.	
Processing time is approximately 1 to 2 months.		
Bureau of Internal Revenue (BIR): Bureau of Internal Revenue (BIR): Secure a Tax Identification Number (TIN) and Certificate of Registration. This process usually takes a few weeks.		
2. PRE-DEVELOPMENT STAGE		
Environmental Compliance:		
 Department of Environment and Natural Resources (DENR): Secure an Environmental Compliance Certificate (ECC) after conducting an Environmental Impact Assessment (EIA). 		
△ This process can take 6 to 12 months, depending on the project's complexity.		
 Local Government Units (LGUs): 		
 Obtain endorsements and permits, including Barangay Clearance and Business Permits. 		
Δ Processing times vary but generally range from 1 to 2 months.		
Indigenous Cultural Communities:		
 National Commission on Indigenous Peoples (NCIP): If the project affects indigenous lands, secure a Certificate of Non- Overlap or Certificate of Precondition. 		

 \triangle This process can add several months.

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3. DEVELOPMENT (CONSTRUCTION AND COMMISSIONING) STAGE				
Grid Connection:				
National Grid Corporation of the Philippines (NGCP): Conduct a System Impact Study and Facility Study to assess the project's effect on the grid.				
△ This can take several months.				
□ NGCP: Negotiate and sign a Connection Agreement and Transmission Service Agreement.				
Δ Processing time varies.				
Energy Regulatory Commission (ERC):				
D Obtain a Certificate of Compliance (COC) to operate the power plant.				
Δ This process can take several months.				
Construction Permits:				
LGUs: Secure Building Permits, Electrical Permits, and other necessary construction- related permits.				
\triangle Processing times range from 1 to 2 months.				
4. POST-DEVELOPMENT STAGE				
Market Registration:				
 Philippine Electricity Market Corporation (PEMC): Register with the Wholesale Electricity Spot Market (WESM) to participate in the electricity market. Δ This process can take a few weeks. 				
 Incentives Registration: 	- 11.1.			
	 Board of Investments (BOI): Apply for fiscal incentives if eligible. 			
△ Processing time varies.				
ESTIMATED	ESTIMATED TIMELINES			
Renewable Energy Projects	Non-Renewable Energy Projects			
Pre-Development Stage: Up to 3 years, depending on the	Pre-Development Stage: Approximately 1 to 2 years.			
technology (e.g., up to 5 years for geothermal projects).	Development Stage: 2 to 3 years.			
Development Stage: 2 to 3 years.				
GOVERNMENT AGENCIES INVOLVED				
Department of Energy (DOE) for policy and oversight	 National Commission on Indigenous Peoples (NCIP) for 			
 Securities and Exchange Commission (SEC) 	 indigenous lands National Grid Corporation of the Philippines (NGCP) for grid studies and connections 			
Bureau of Internal Revenue (BIR)				
Department of Environment and Natural Resources (DENR)	 Energy Regulatory Commission (ERC) 			
for environmental compliance Local Government Units (LGUs) for local permits 	 Philippine Electricity Market Corporation (PEMC) 			
	 Board of Investments (BOI) for investment incentives 			

The permitting process has historically been lengthy, sometimes taking up to 3 to 5 years due to the numerous permits required. However, recent government initiatives aim to streamline these procedures. For instance, the DOE has issued new guidelines to simplify the application process for renewable energy projects, allowing developers to commence certain activities before the official contract term begins.

Additionally, the Energy Virtual One-Stop Shop (EVOSS) is an online platform designed to facilitate the application process for energy projects by providing a single portal for all necessary permits.

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