

UP School of Economics

Discussion Papers

Discussion Paper No. 2025-04

August 2025

Competition Considerations in Change Ownership Reforms for Electric Cooperatives

by

Carlos L. Vega¹²³, Jestoni A. Olivo², Antonio Miguel S. Ventura²³, and Eirene Gillian M. Reyes⁴

¹University of East Anglia, School of Economics ²Economics Office, Philippine Competition Commission ³University of the Philippines, School of Economics ⁴University of the Philippines, College of Law

UPSE Discussion Papers are preliminary versions circulated privately to elicit critical comments. They are protected by Republic Act No. 8293 and are not for quotation or reprinting without prior approval.

Competition Considerations in Change Ownership Reforms for Electric Cooperatives*

Carlos L. Vega^{1,2,3}, Jestoni A. Olivo², Antonio Miguel S. Ventura^{2,3}, and Eirene Gillian M. Reyes⁴

¹University of East Anglia, School of Economics ²Economics Office, Philippine Competition Commission ³University of the Philippines, School of Economics ⁴University of the Philippines, College of Law

August 29, 2025

Abstract

Change ownership reforms for electric cooperatives (ECs) have once again attracted policymakers' interest due to current efforts in expediting their privatization. This note serves as input to this ongoing conversation using the lens of competition. We argue that unchecked consolidation especially vertical integration along the power supply chain from generation to distribution may cause more pernicious effects on the industry and welfare than existing inefficiencies of ECs. Consistent with Canlas & Jandoc (2025), we support a franchise competition regime where the threat of displacement may foster an overall competitive behavior among existing and potential players. The necessary conditions for and the challenges to implementing an effective competition for the market framework are determined.

Keywords: market imperfections, legal monopolies, regulation or deregulation, electric utilities **JEL Codes:** D43, L43, L94

^{*}We thank the Office of the Chairman, Office of Commissioner Marah Victoria S. Querol, Edgardo Manuel M. Jopson, and Mario T. Rosete III for their helpful assistance and feedback. Please do not cite or distribute without permission of the authors. As a usual disclaimer, the views expressed in this paper are solely those of the authors, and do not represent those of the Philippine Competition Commission.

1 Background

On 29 May 2025, the Department of Energy (DOE) sent a letter to the Philippine Competition Commission (PCC) requesting input on the formulation of policy on consolidation in the electricity distribution sector. The request was made in relation to Presidential Directive No. PBBM-2025-1478 directing the DOE, Energy Regulatory Commission (ERC), and the National Electrification Administration (NEA) to ensure that mechanisms are in place in the privatization of electric cooperatives (ECs) to promote competition and prevent monopoly in electric distribution.

In the letter, the DOE noted that the franchises of forty-two (42) distribution utilities (DUs) will expire within the next five years and that PCC's insight into the formulation of policies and regulatory mechanisms is necessary to govern these franchises and promote competition in the power distribution market. The DOE further highlighted the growing concerns on the increasing vertical integration of electricity players ranging from the relationship of DUs with power generation companies to their affiliation with retail electricity suppliers.

This note aims to respond to the DOE letter by presenting the nature of ECs in the Philippines, exploring the potential benefits and competitive risks of their privatization, and recommending factors to consider in the formulation of relevant consolidation policies in the power distribution system. The analysis adopts a general definition of *privatization* in which we mean change ownership reforms rather than direct transfer of EC ownership and operation rights from a public to a private entity. Afterall, ECs currently are not state-owned but comprised of member-consumers who are private citizens.

Our contribution is to present the potential harm of increasing consolidation and vertical integration if competition is left unchecked in the existing change ownership reforms. We observed that the highly technical nature of running a distribution network and the large capital requirements needed to do so make eligibility of offtakers more likely to fall squarely on existing players, further entrenching market dominance in power distribution. On vertical integration, both customer and input foreclosure effects are highly likely. Although DUs are required to source power and execute supply contracts in a competitive manner, they have the ability to favor affiliate generation companies (GenCos), suppressing upstream rivals' access to a customer base. Likewise, GenCos tend to favor their affiliate DUs or retail electricity suppliers (RES), possibly foreclosing rival RES's access to essential power supply to their potential contestable customers. The note ends by determining the factors necessary for an effective franchise competition regime to discipline undue consolidation and vertical integration.

The rest of the document is organized as follows: the next section briefly sets out the nature and historical performance of electric cooperatives in the Philippines to contextualize the following discussions. The third section explores the potential harm of the consolidation and vertical integration of DUs. The fourth section presents the necessary conditions for a competitive power distribution market and the challenges moving forward. The last section synthesizes.

2 Electric Cooperatives in the Philippines

From the first electrification in 1890 until the late 1960s, power generation and distribution were dominated by private entities. Because of their profit-driven nature, private utilities were not keen on expanding to remote areas due to high costs and low returns (National Electrification Administration (n.d.); Patalinghug (2003)). As such, electrification was largely limited to urban areas, leaving rural communities without access to electricity.

Recognizing the need for rural electrification, the government established the Electrification Administration (EA) in 1960 under Republic Act No. 2717. The agency was authorized with a total of Php25 million revolving fund for the fiscal years 1960-1965 to be loaned out for electric utility expansion, particularly in rural areas (Governance Commission for GOCCs (2023)). In 1966, the USAID-assisted Philippine Rural Electrification Program led to feasibility studies and the creation of two¹ pilot cooperatives: MORESCO² (Mindanao) and VRESCO³ (Visayas) (Governance Commission for GOCCs (2023); Patalinghug (2003); World Bank (1985)).

In 1969, the NEA was created, declaring total electrification a national policy. By 1973, Presidential Decree No. 269 converted NEA into a public corporation, giving it the sole authority to regulate ECs and formally establishing the electric cooperative framework to expand electricity access, consolidate distribution systems, and ensure affordable, sustainable, and community-driven electrification.

Although NEA had more funding for electric utility expansion in the 1970s and took over 50.8% of households previously served by DUs, ECs continued to experience financial, technical, and managerial problems (World Bank (1989)). Electrifying the remaining barangays required a subsidy policy tailored to high-cost, low-access areas (Patalinghug (2003)). In 2001, the Electric Power Industry Reform Act (EPIRA) introduced competition in the electricity market and restructured the roles of NEA and ECs. While EPIRA maintained NEA's supervisory authority, it allowed ECs to register under the Cooperative Development Authority (CDA) or Securities and Exchange Commission (SEC), affecting their regulatory framework and access to government support. EPIRA also formalized the Missionary Electrification Program, mandating small power utilities group (SPUG) to serve off-grid areas, with ECs acting as local distribution partners - reinforcing their role in expanding rural electricity access.

Following the restructuring of the power industry under EPIRA, the 2013 NEA Reform Act was enacted to strengthen the supervisory authority of NEA over ECs. The law aimed to enhance the financial and operational viability of ECs, ensuring their sustainability amid market reforms. It also reinforced NEA's mandate to expand rural electrification, particularly in underserved areas, while

¹Commemorative reports published by National Rural Electric Cooperative Association (NRECA) International, NRECA America, and Rural Electric Magazine mention three pilot cooperatives in the Philippines; however, the names of these cooperatives were not specified.

²Misamis Oriental Rural Electric Service Cooperative (MORESCO)

³V-M-C Rural Electric Services Cooperative, Inc. (VRESCO) was renamed to Northern Negros Electric Cooperative, Inc. (NONECO) when it was converted into a non-stock, non-profit electric cooperative in 1969 in accordance with R.A. 6038.

providing subsidies and incentives to high-performing cooperatives. ECs continue to operate within this regulatory framework. From two pilot cooperatives, the network has grown to 121 nationwide, underscoring major gains in rural electrification.

Over the years, concerns regarding EC operations have surfaced. Despite receiving government loans, incentives, and subsidies, many ECs struggle to modernize and meet the growing electricity demand, resulting in poor service quality. Reyes (2023) reports on the power supply crisis affecting the country, as evidenced by rotational brownouts in several cities and provinces. Amid these challenges, proponents of privatization argue that private sector involvement could accelerate rural electrification and enhance service reliability, citing the improved efficiency and affordability following MORE's takeover of PECO's franchise area in February 2020.

Navarro & Camara (2023) succinctly put EC problems based on their structured review of energy issues. Building on the current structure and management of ECs, these problems often involve financial insolvency and too much reliance on government bailout of ailing cooperatives. The review suggested that further studies be conducted, especially if privatization, consolidation, and corporatization will be used to address the incentives surrounding ownership in the future.

2.1 Benefits and Objectives of ECs

In an ideal setting where all electric cooperatives have the institutional capacity to serve their respective franchise areas, there are huge benefits from considering this type of ownership structure. We mention some general features of cooperatives and the motivations for choosing this type of organizational structure in the following.

Cooperatives support market access and augment bargaining power of members. ECs expand market access by delivering electricity to areas unserved by private utilities, enabling member-consumers to participate in the broader energy market. By aggregating demand, ECs gain bargaining power with GenCos, securing better supply terms and attracting smaller players unable to meet the large-scale requirements of DUs. This leads to greater supplier diversity, more competitive rates, and stronger consumer representation in energy procurement.

Next, cooperatives promote social inclusion and ethical objectives. The key objective for establishing ECs was to promote inclusive national growth by delivering reliable and affordable electricity to areas left unserved by private utilities. By operating in financially unviable or remote communities, ECs ensure that even the most marginalized households gain access to energy. World Bank (2002) reported that rural electrification enables critical social advancements, including supporting education, healthcare, livelihoods, and local innovation. ECs also introduce supplier alternatives, encouraging competitive pricing and expanding consumer choice, which ultimately improves community welfare and equity.

Lastly, cooperatives facilitate job creation and wealth distribution. Cooperatives generally contribute to local development by generating employment and circulating income within the province or locality. As community-based organizations, ECs often prioritize hiring local workers and contractors, directly supporting household incomes. Furthermore, their cooperative structure

ensures a more equitable distribution of wealth, with surplus revenues returned to members or reinvested in local infrastructure. This mitigates income concentration and promotes a more inclusive form of economic growth.

2.2 Business and Services

ECs in the Philippines earn revenue from the distribution wheeling services they provide to both captive and contestable customers. These services involve the delivery of electricity from power generators to end-users through EC-operated distribution networks. Electricity for captive customers is procured through long-term power supply agreements - typically spanning 15 years - with GenCos. In contrast, contestable customers source their electricity from their preferred RES, resulting in differences in billing structures primarily in the generation cost component.

Although licensed by the ERC as Local Retail Electricity Suppliers (LRES), ECs seldom assume this role due to less favorable power procurement terms compared to RES entities affiliated with GenCos. ECs primarily fulfill their duty of informing customers when the latter become eligible for contestability, and serve temporarily as Suppliers of Last Resort (SoLR) during supply disruptions.

ECs also provide value-added services such as free line installations, infrastructure maintenance, technical assistance, and metering services. While there is no universal pricing framework for metering, ECs typically offer metering data at no cost, recovering these operational expenses through their wheeling fees.

2.3 Regulatory Oversight and EC Management

ECs operate under a non-profit, democratic, member-owned governance model. While this framework is broadly aligned with the Philippine Cooperative Code of 2008 (RA No. 9520), most ECs are not registered with the CDA and instead fall under the jurisdiction of the NEA, as defined by Presidential Decree No. 269 and RA No. 10531. Even those ECs that are CDA-registered remain subject to NEA oversight, as RA 10531 repealed the provision that had exempted them from such supervision. Thus, NEA continues to exercise supervisory and disciplinary authority over all ECs regardless of registration status.

At the core of this model is the General Assembly (GA), composed of all voting member-consumers, who paid a one-time membership upon connection to the grid to be entitled to do so (Escresa & Glova (2024)). The GA elects the Board of Directors (BOD), which sets policies, ensures regulatory compliance, and provides strategic oversight. In contrast to private firms — where directors are accountable to shareholders — the EC Board is accountable to the member-consumers it serves.

The General Manager, appointed by the BOD, oversees the cooperative's daily operations, managing departments such as finance, engineering, and customer service. ECs also maintain statutory committees (e.g., audit, election, mediation, ethics), which ensure transparency, internal control, and participatory decision-making.

While NEA does not participate in the BOD election, it plays a regulatory role. NEA reviews the qualifications of board candidates, sets election guidelines, and may intervene in cases of mismanagement or financial distress. In extreme cases, NEA may appoint interim management.

2.4 Rate Setting Transparency

While the NEA oversees the implementation of the rural electrification program and ensures the technical capability and financial viability of ECs, the ERC serves as the central regulatory authority tasked with overseeing EC pricing. Under Section 43(f) of the EPIRA, the ERC determines rates that allow ECs to recover just and reasonable costs associated with operations and service delivery. These include distribution charges, taxes, system loss, and generation pass-through costs.

In accordance with ERC Resolution No. 24, series of 2005, the system loss rate is calculated to determine the over- or under-recovery of charges due to fluctuations in generation and transmission costs. The calculation accounts for losses as a proportion of total energy purchased, ensuring that the recovered amount reflects the actual energy lost in the distribution process. This methodology ensures that distribution utilities can reconcile actual costs with approved rates, subject to ERC verification. It also reinforces the principle of cost recovery without compromising consumer protection.

To promote transparency, the ERC requires ECs to itemize recoverable charges, including system loss and tax adjustments, as separate line items in consumer bills. This practice improves consumer awareness and accountability in rate setting. Furthermore, ECs must undergo a Competitive Selection Process (CSP) when entering into power supply agreements, as mandated by the Department of Energy DC No. 2018-02-0003. This mechanism ensures that procurement is conducted fairly and competitively, thus protecting consumers from monopolistic pricing and fostering market discipline.

2.5 Performance

As a regulator, NEA conducts quarterly compliance measurements of electric cooperatives in compliance with RA No. 10531. Table 1 enumerates the seven (7) parameters by which NEA assesses EC compliance for performance on technical, financial, operational, and institutional matters. The 2020 Guidelines are the prevailing compliance for ECs, summarizing an EC's performance by color codes of Green (all parameters met), Yellow-1 (Up to 3 parameters failed), Yellow-2 (4 or more parameters failed), and Red (ECs declared as "ailing"). It is a simple checklist - any combination of non-compliant parameters can lead to classification as Yellow-1 or Yellow-2.⁴

An EC may be declared as "ailing" under several circumstances, such as having a negative net worth, accumulation of ninety (90) days of arrearage in power supply purchases, inability to provide electric service, unable to efficiently perform its distribution obligations, failure to meet other

⁴ECs are separately rated under "Institutional Standards and Parameters" based on management of operations and effective service delivery. Compliance or non-compliance with this assessment does not affect the Classification status of an EC. It aims to encourage member-consumer owners (MCOs) to participate in EC activities.

operational standards established by the NEA, and unable to support its prudential requirements for the Wholesale Electricity Spot Market (WESM).

Figure 1 illustrates the historical compliance of ECs with Figure 2 carving out the performance of ECs with 0-5 years and 6-10 years remaining on their franchises.⁵ At a high level, performance across the four color classifications appears relatively stable. Green ECs may occasionally slip into the Yellow-1 category, or Yellow-1 ECs may occasionally achieve full Green compliance.⁶

Of note is the large shift of Green ECs into Yellow-1 from 2019 Q4 through 2020 Q2, likely reflecting COVID shocks to EC operations. The share of Yellow-1 ECs remained elevated from 2020 through 2024. As seen in Table 2, this initial COVID shock was slightly more pronounced for ECs with special franchise periods, with larger increases in Yellow-1 for this Classification. Otherwise, ratios by 2024 Q4 had largely returned to ratios from 2019 Q4 for all franchise expiry types.

Figure 3 shows a matrix of ECs based on their quarterly net revenues (must be positive per quarter) and system loss (loss from electricity input to output; capped at 12%).⁸ These are NEA's parameters for the financial operability and system efficiency, respectively. Observing these two jointly should give an ad-hoc representation of an ECs' capability to provide power efficiently with reasonable financial management. Red-rated ECs will generally be running net deficits and provide electricity at largely inefficient levels. Yellow-2 rated ECs have some comparable deficiencies in net revenue generation and system efficiency.⁹ Yellow-1 rated ECs are generally just around the threshold for system, despite the large variance in net revenues. Figure 4 shows the loss of the system from generation to distribution by EC color class.

The Philippine Electricity Market Corporation (PEMC) conducted a short review on possible EC consolidation.¹¹ They raise concerns that consolidation may not be the best solution to address the large liabilities and negative net worth affecting several ECs, further noting that there may be unique circumstances for each "ailing" EC. For example, PEMC notes that the seven failing or Red-rated ECs have had the same performance record since 2016.

⁵We use Sankey or alluvial plots to illustrate both the Year-Quarter distribution of EC Compliance ratings and their overall flow across diagrams. The colors of the stacked bar charts are the actual counts of ECs per Compliance or Color Rating, and the flows indicate some number and direction of change across Color Rating and Year-Quarter, if any. For example, a flow from Green in 2017 Q1 to Yellow-1 in 2017 Q2 indicates that some number of Green-rated ECs in 2017 Q1 had dropped to a Yellow-1 rating in 2017 Q2.

⁶Compiled from quarterly compliance reports of NEA - Office for Performance Assessment and Special Studies. Data does not include ECs with main office in NCR. Not all ECs in the list provided by DOE have information available. ⁷"Expiration date unavailable" refers to ECs that are monitored by NEA but otherwise do not have an available franchise expiry period from the data of DOE Electric Power Industry Management Bureau (EPIMB). The "Remaining column" is the ratio of 2020 Q1 to 20219 Q4 ECs per category.

⁸For 2021 and 2022, several Red-rated ECs had either zero (0) values or 'dns' (presumably 'did not submit') for their System Loss. And yet their interruption/outtage values (SAIFI and SAIDI) were well above the compliance threshold. To wit, these were ALECO (Albay Electric); BASELCO (Basilan Electric); LASURECO (Lanao del Sur Electric); SULECO (Sulu Electric); and TAWELCO (Tawi-Tawi Electric). Also, five (5) entries had negative System Loss - on face value, this indicates that output was higher than input for those year-quarters. We recommend that the NEA Reports be double-checked to clarify these values.

⁹We must recall that the NEA checklist consists of seven (7) parameters, and that Yellow-2 rated ECs fail somewhere from 4 to 7 parameters. Red ECs, on top of such failure, are considered "ailing" due to additional problems.

¹¹Review on the Possible Consolidation of Electric Cooperatives. Wholesale Electricity Spot Market (WESM) - Technical Committee. November 2023. The following link will download a PDF of the PEMC Report to your device. https://www.wesm.ph/downloads/download/TWFya2V0IFJlcG9ydHM=/MzQ2MQ==

Parameter	Standard		
Cash General Fund	At least one (1) month working capital		
Collection Efficiency	Ninety-five percent (95%) and above		
Payment to GENCO; NGCP; NEA and other Financial Institutions	Current/Restructure Current		
Net Worth	Positive		
System Loss	Within the Cap		
System Average Interruption Frequency Index (SAIFI)	25 interruptions per customer per year (On-Grid) 30 interruptions per customer per year (Off-Grid)		
System Average Interruption Duration Index (SAIDI)	2,700 minutes per customer per year (On-Grid) 3,375 minutes per consumer per year (Off-Grid)		

Table 1: NEA Compliance Parameters for Electric Cooperatives

Franchise Expiry	EC Color	2019 Q4	2020 Q2	Remaining
0 - 5 Years	Green	21	7	33.3%
	Yellow-1	8	21	262%
6 - 10 Years	Green	18	11	66.11%
	Yellow-1	4	12	300%
Other ECs	Green	32	11	34.3%
	Yellow-1	10	30	300%
Expiration data	Green	9	7	77.7%
unavailable	Yellow-1	5	8	160%

Table 2: Number of ECs at NEA Compliance Green and Yellow-1, for 2019 Q4 and 2020 Q2

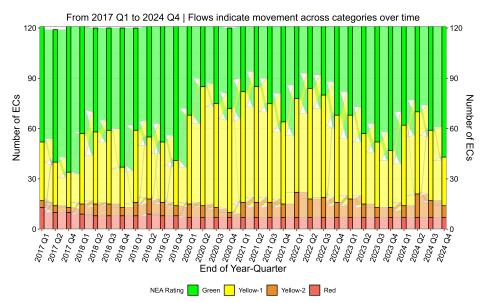


Figure 1: Compliance Ratings, All Electric Cooperatives Source: NEA, Office for Performance Assessment and Special Studies

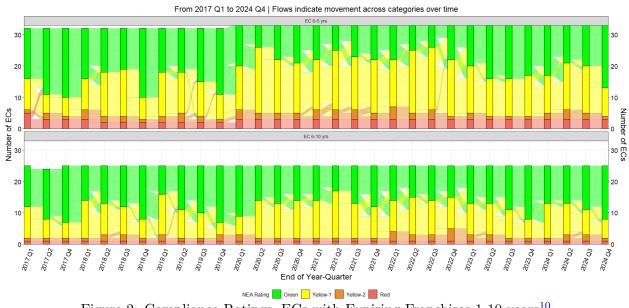


Figure 2: Compliance Ratings, ECs with Expiring Franchises 1-10 years Source: NEA, Office for Performance Assessment and Special Studies

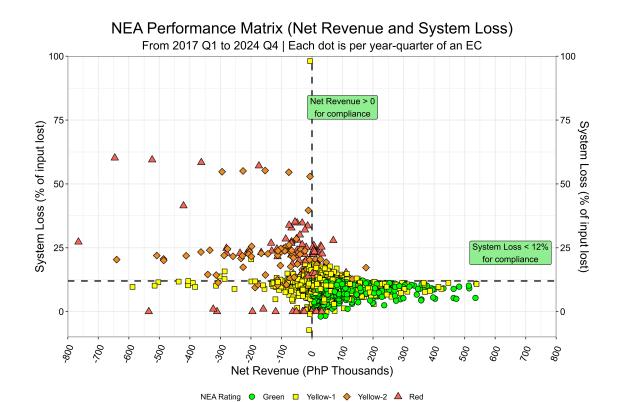


Figure 3: EC Compliance Ratings, Net Worth, System Loss Source: NEA, Office for Performance Assessment and Special Studies

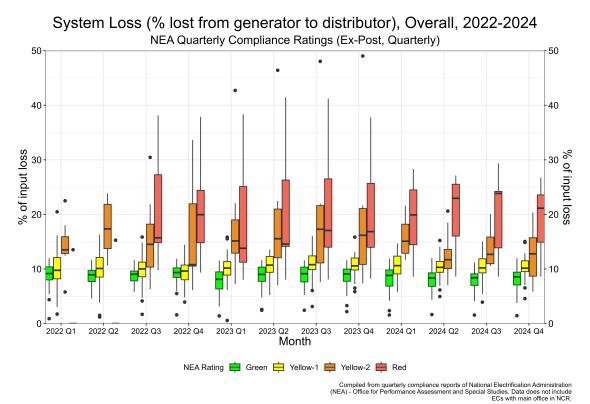


Figure 4: EC System Loss by Rating, 2022-2024 Source: NEA, Office for Performance Assessment and Special Studies

3 Consolidation in Power Distribution

Electricity distribution in the Philippines exists more as a legal monopoly than a natural economic monopoly¹² since the monopolist arises by the grant of a congressional franchise. Applying for a franchise thus becomes the mode of participation for entrants or expansion for existing firms. The type of entities in the power distribution segment are private distribution utilities (DUs), electric cooperatives (ECs), and local government units (LGUs).

From Figure 5, we see that by a large margin, DUs serve the largest share of electricity consumed. In aggregate, while ECs distribute more than 30% of electricity in 2022, the overall average growth rate is 8% since 2000. This shows that a significant portion of distribution still comes from areas served by ECs. Demand in these areas has been growing over time and should continue to be a priority for policy. Relative shares in power distribution hint at what consolidation in this segment can look like in the coming years. The group of ECs with franchises expiring in 0-5 and 6-10 years, represent a total of 16% as of 2022 and could only have grown larger in the subsequent years.

If in the limit, the current largest distributor secures franchises for these areas, consolidation can result in up to 72% of all electricity distributed by just one entity and its affiliates, a move towards a veritable monopoly. Even if the shares of ECs with expiring franchises were to be split among the existing fifteen (15) DUs¹³, certain features of the industry's structure raise serious issues, particularly as they relate to firm dynamics and cross ownership. Although one must be able to characterize demand and pin down ownership for specific transactions, these potential consolidation scenarios are regarded as conditions that engender threats to competitive processes.

Given recent developments, opening ECs to competition can proceed in one of two ways. Type I¹⁴, the operations within a franchise could be effectively transferred to a new operator¹⁵. The EC and its member owners become minority shareholders of the new operator in exchange for ownership of its assets. Competition in the franchise area is non-existent, though technically, rivals have the ability to enter. In its operations without a viable competitor, the new operator becomes a monopolist in its area and the selection of an operator must be carried out properly so that potential benefits to consumers are not lost. A market mechanism should be used and selection done in a fair

¹²Natural monopolies are industries wherein a single entity can serve the entire market at a lower cost than when multiple firms attempt to compete. These often occur in industries with high infrastructure and network requirements, raising duplication costs.

¹³Based on PSALM's records these are AEC, CEDC, DECORP, DLPC, MERALCO, TEI, VECO, MECO, CLPC, ILPI, BLCI, FBPC, IEC, OEDC, and MEPC

¹⁴Privatization à la M&A. Although subsidised to varying degrees by the national government through a universal charge, ECs are owned by its members. Rather than a public enterprise being taken over by a private firm, the policy of transferring ECs operations is more akin to an acquisition. Here the transfer is via an acquisition by a private entity of assets in exchange for shares in the new operating entity. This then opens up the analysis to theories of harm related to foreclosure and coordination.

¹⁵The NEPC-CENECO transaction has been operational since 2024 and is currently being assessed by PCC. While there are no publicly confirmed records of the official takeover date, news agencies reported that NEPC was expected to begin operations by the third quarter of 2024. The House of Representatives approved House Bill No. 9805, granting NEPC a 25-year franchise, on 21 February 2024. This was followed by the Senate's approval on 20 May 2024, with 22 affirmative votes. On 26 July 2024, President Ferdinand Marcos Jr. signed Republic Act No. 12011, formally granting NEPC its franchise.

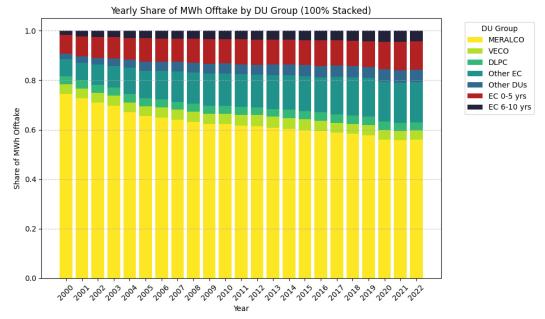


Figure 5: Shares in power distribution over time Source: DOE letter to PCC, 29 May 2025 and DOE, EPIMB

and transparent way. It is crucial to point out that the issue of having a non-exclusive franchise in the interim of a firm's operations therein reduces the expectation of recovery of its investments. This can then dampen firm motivation to participate to compete for the market in the first place.

The other route, Type II, is where competition is introduced within an EC franchise, i.e. portions of an EC's area are served by an external entity¹⁶. One can imagine this to be a subtype of the first, but concerns are unique to this type and merit a separate classification. In any case, we recognize that significant efficiencies can be gained to benefit consumers in either type, especially when baseline service in the franchise area is lacking. We stress that such benefits can potentially be undone by negative externalities to consumer welfare. These can come from the operations of a firm holding market power in related markets, such as input markets, or by adverse distributional effects (see Vickers & Yarrow (1991)). We go through these concerns in what follows.

While no official takeover date has been confirmed, operations are expected to begin following the issuance of a CPCN from the ERC, whose final hearing is scheduled for June 2025. MORE is targeting Pavia as the first town to go online once the CPCN is granted.

¹⁶MORE vs ILECO I and ILECO II where the operations of MORE are done in select areas inside existing EC franchise areas. MORE's franchise expansion lapsed into law as Republic Act No. 11918 on 30 July 2022. The Supreme Court upheld its constitutionality and dismissed petitions from ILECO I, II, and III on 30 July 2024, with the final ruling issued on 13 June 2025. ILECOs' petition is as follows:

[&]quot;Petitioners [ILECOs] assert that MORE's expanded areas overlapped with their franchise areas. Specifically, for ILECO I, the overlapping areas are the municipalities of Alimodian, Leganes, Leon, Pavia, San Miguel, and Santa Barbara; for ILECO II, these are the city of Passi and municipalities of Barotac Nuevo, Dingle, Duenas, Dumangas, New Lucena, San Enrique, and Zarraga; and for ILECO III, these are the municipalities of Anilao and Banate."

3.1 Competition Considerations

Opening EC operations to other private operators, either via Type I or Type II, will likely see only existing players participate. Concerns about the sustainability of operations lead to arguments focused on efficiency and cost reduction, but regulators also need to consider the potential impacts to competition.¹⁷ We echo some of the concerns identified by Canlas & Jandoc (2025) and specify the mechanisms by which competition concerns can arise. Though we fully recognize the merits of their recommendation to adopt franchise bidding,¹⁸ we want to highlight that it is important to clarify the non-exclusivity of EC franchises.

In the implementation of a market mechanism, policymakers should be aware of factors that would prevent participation. If a franchise can be subject to competition in the middle of the period given - by changes in the regulatory or political environment - potential investments can be at risk and deemed an inferior option for putting in capital.¹⁹ However well-designed the market mechanism is, it is reasonable for private firms to be averse to participating given this expropriation risk, defeating the policy objective in the first place. Active competitive forces from rivalry for the contract through well-designed allocation mechanisms such as auctions can very well bring benefits to consumers. This outcome can be upended, however, without robust participation to fuel actual rivalry among bidders. A remedy would therefore be to clarify conditions by which carve outs from a franchise can be made.

3.1.1 Vertical Integration of DUs

We share the concern in DOE's letter flagging the increase in vertical integration of DUs with power generation and retail supply. That a vertical integration, by itself, can raise concerns has been flagged by other studies. Consolidation in distribution, a likely result of 'privatization', and in other related markets (e.g. generation, retail electricity market), can make a problematic situation even more so. Vertically integrated firms with a large presence in distribution can create barriers to entry for new firms, reduce competition, and potentially lead to higher prices or reduced service quality.

Figure 6 shows the size distribution of existing DUs in 2022, with Meralco overwhelmingly larger than all trailing DUs, and with those DUs similar in size to another. The highly technical nature of running a distribution network and the large capital requirements needed to do so makes eligibility more likely to fall squarely on existing players. The analysis of what and how harm is likely depends highly on the specifics of an acquisition. If any of the existing DUs were to secure more franchise

¹⁷This is the classic multitask principal-agent problem described by Holmstrom & Milgrom (1991). When an agent must optimize across multiple objectives — which may also conflict with each other, or when some tasks are easier to measure than others — we can expect incentives for one objective to reduce performance in another objective. The multiple objectives facing ECs discussed in subsection 2.1 should be reviewed in this light.

¹⁸According to Canlas & Jandoc (2025), franchise bidding involves the government awarding the exclusive right of providing a specified level of service to a private DU, with end users paying for the service.

¹⁹Laffont & Tirole (1991) describe this general investment problem facing managers of state-owned enterprises. SOEs face expropriation risks on their investment *ex-post* its performance, and a government cannot credibly commit *ex-ante* to not expropriate, as it owns the residual rights to the SOE. An incentive to underinvest therefore arises for the SOE, as discussed in Cavaliere & Scabrosetti (2008).

areas, it would be prudent to investigate their presence upstream and in related markets.

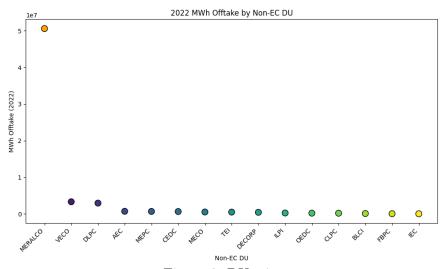


Figure 6: DUs size
Source: PSALM and DOE, EPIMB

3.1.2 Franchise Creep

In Type II scenarios, a concern can be the viability of the stranded areas, as pointed out by Canlas & Jandoc (2025). In expanding franchises into areas of ECs, private firms could eventually take advantage of more profitable areas, leaving the EC stranded with areas that are expensive to maintain and operate. In this case, state intervention may be needed to maintain universal access to electricity. Such a burden will fall on all electricity consumers via the universal charge included in all our bills. Although large efficiency gains can be achieved, considering poor performance by the prevailing franchise operator, endorsing amendments to franchises could effectively entrench already dominant firms.

A comprehensive analysis of market conditions and firm characteristics must be undertaken before a franchise area acquisition can be deemed unlikely to cause harm to consumers via higher prices or poorer service quality. In particular, when we open EC areas to be taken over by other entities, there is a question of whether the firm, which is private, will also be given the mandate of rural electrification. If they are given this mandate without support from subsidies, prices to customers will likely be higher. In addition, as more areas become affiliate territories, there is a question of whether fair competition in bilateral contracting with generation companies can continue if the new operator is itself affiliated with generating assets upstream. Therefore, in introducing franchise amendments or granting a new franchise, policymakers should include provisions that ensure arm's length transaction in the legislative franchise.

3.1.3 Consolidation in Generation

Due to certain regulatory features, we also discuss the rising consolidation in power generation as a related concern. The cost of power supply is a pass-through charge to consumers. Though there is a mandated mechanism by which these contracts are awarded, supply-side imperfections can result in unfavourable outcomes despite well-meaning policy intentions.

Consolidation upstream means that competition among suppliers is reduced for DUs and RES downstream. A large upstream firm can dictate terms and limit options for supplying energy which would result in higher prices or poorer service quality. Input foreclosure strategies may not be a concern as there is virtually no switching of end users. However, for vertically integrated firms and in light of consolidation in distribution, the main issues would be from the increased ability for competitors to coordinate actions and the foreclosure of upstream rivals from potential customers. The main mechanism by which this is done is discussed in the succeeding section.

3.2 Coordination

Coordinated behavior among firms — potentially approaching collusion — requires stability in arranging their desired actions (e.g., higher prices, restricted outputs, soften competition). This stability is generally threatened by the incentive to seize market share from competitors by offering marginally lower prices for consumers. The following discussion highlights the factors of stability in coordination behaviors in electricity generation and distribution markets and the importance of robust competition in allocating EC service areas.

We further describe stability in terms of internal stability and external stability. Internal stability refers to the arrangement agreed upon or tacitly arrived at by market participants to maintain their strategies. DUs are sources of current market prices for generators aiming to maximize electricity bid prices. Acquired ECs may serve as a venue for observing other generators, punishing those who deviate from arrangements to soften competition, and therefore enhancing internal stability.

External stability refers to the stability of coordinated behavior given potential threats from new competitors and entrants. Generally, low barriers to entry undermine external stability as new entrants can credibly offer marginally lower prices in an otherwise restricted market. With respect to external stability, it is crucial to design a competitive process that encourages entry and expansion across the electricity supply chain. The ability to coordinate among upstream affiliates increases given the recently approved Ilijan transaction.²⁰ An expansion into the downstream segment will only create multiple loci of information by which upstream affiliates would be able to share sensitive information and coordinate their behavior.

Competitive Selection Process (CSP) refers to the mechanism a power supplier is chosen to supply the power requirements of a DU through transparent and competitive bidding or an alternative mode of procurement as undertaken by a DU based on its evaluation criteria. The ability to

²⁰Although potential coordination concerns were identified during the assessment, the Commission approved the Transaction following the Parties' agreement to undertake specific commitments intended to address and mitigate those concerns.

pursue its least-cost mandate through the CSP is possible only to the extent that the auction serves to encourage participation and fair competition. However, vertical integration coupled with consolidation in power generation can result in DUs acting as a locus of information for their upstream affiliates, making coordination among bidding power plants more likely.

Suppose a DU with an expiring franchise has a low sourcing rate from a prospective operator's affiliate generating companies. This creates an incentive for the prospective operator to take over the franchise, given that it expands the ability of upstream affiliates to supply to this new downstream customer. The new operator will have the incentive to source from its own pool despite being more expensive than sourcing from a more competitive upstream player.

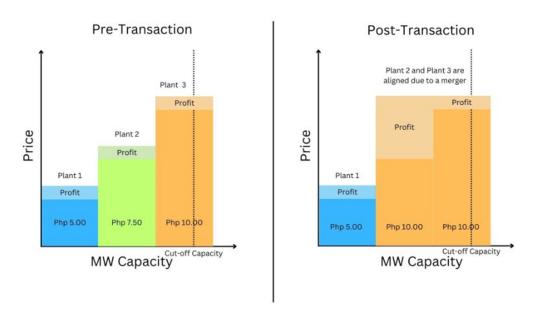


Figure 7: Loss of Competition in CSP from Consolidation in Generation

As generation becomes even more concentrated, offtake entities become a point for coordination. When the auctioneer can dictate the terms of participation in CSPs with information from potential upstream participants, outcomes of a CSP can be suboptimal even with regulatory oversight. Bids in CSPs are submitted separately by generating facility. When assets become subject to the same ultimate parent entity via a merger, incentives for infra-portfolio competition is lost. Because bids are still taken in per power plant, and if the field of eligible participants can be narrowed at the discretion of the auctioneer, significant competitive pressure vanishes with consolidation of interests in generation facilities.

See Figure 7 for an illustration of how prices can be seen to rise as a result of coordination among upstream affiliates when there is ownership of a downstream DU partner. Given sensitive business information available to an affiliate offtake entity, joint profit maximization by generators that have aligned interests would result in dampened competition in CSPs and inevitably higher prices for consumers.

3.3 Foreclosure

3.3.1 Customer Foreclosure

Customer foreclosure strategies would become more likely as demand, though separate legal monopolies, is more concentrated in just a few players. Incentives for upstream firms to increase prices to downstream rivals, measured by a **vertical Gross Upward Pricing Pressure Index** (**vGUPPI**) **test**²¹, would be zero since there is no switching of customers from competing DUs to the downstream affiliate DU. In other words, price increases *against rivals* are not the channel through which customer foreclosure will primarily take place.

The concern with consolidation in distribution lies in ability for the affiliated DU to restrict or suppress upstream rivals' access to a customer base, thereby reducing their ability or incentive to compete. This brings into light discussions of complaints about how some CSPs have been conducted in the past, citing provisions that unfairly limit participation by a larger set of bidders to effectively compete. The CSP Bids and Awards Committee (BAC) holds primary authority in determining the Terms of Reference (TOR), while the DOE and ERC exercise only limited oversight over these specifications.

Consequently, DUs have considerable leeway in crafting their TORs, potentially favoring or excluding certain participants. Some of the specifications that may constrain broader participation include imposing a minimum capacity requirement, specifying narrow age ranges for power plants, setting stringent emission standards, disqualifying plants with existing PSAs despite nearing expiration, and timing the CSP to coincide with the expiry of PSAs held by certain suppliers.

If upstream capacity of rivals is left stranded due to this foreclosure of customer base, then the downstream affiliate can resort to sourcing from its own upstream affiliate even at a higher price. Demand is inelastic, and the CSP can be subject to abuse by an affiliate firm serving as the auctioneer by misuse of sensitive business information.²² To mitigate these issues, affiliate sourcing regulation must be closely monitored and enforceed, taking a view that when EC franchises are taken over by an entity with generating assets, current regulation may already create incentives to self preference. Section 45 of EPIRA currently allows up to fifty percent (50%) of total demand to be sourced from affiliated generation companies. But taking over EC franchises could potentially open up more sourcing opportunities from upstream subsidiaries or affiliates.

²¹The traditional GUPPI considers pricing pressures in horizontal markets, or markets on the same level of the supply chain. The vGUPPI adjusts this test for vertical markets, or markets across the supply chain. See Moresi & Salop (2013) for details and other variants.

²²Very recently, Google was found to have illegally monopolized open-web digital advertising markets (U.S. and Plaintiff States v. Google LLC [2023]). A key part of Google's conduct was the manipulation of its own ads auction platform — on which it was both auctioneer and potential bidder — to raise auction prices for winning rivals or quash rivals entirely from ad space. See "Department of Justice Prevails in Landmark Antitrust Case Against Google", 17 April 2025. https://www.justice.gov/atr/case/us-and-plaintiff-states-v-google-llc-2023

3.3.2 Input Foreclosure

The same factors mentioned above contribute to making coordination in the retail market more likely given the consolidation in power distribution. As distribution areas expand into expired EC franchises, rival RES could be subject to a form of input foreclosure where the terms offered by affiliate GenCos to rival RES are worse. For contestable customers, preferential treatment by a partner DU on wheeling and other related value added services could unfairly favor its affiliate RES over rivals. This in turn restricts the choice of contestable customers, in favor of affiliate RES, from which retail supplier to source their power requirements.

4 Challenges and Policy Consideration

In the last section, we discussed the two general types of competition that can be supported by change ownership reforms. Type I refers to an effective transfer of ownership and operation to another entity from the existing electric cooperative. Type II refers to a carved out portion of the franchise area as the subject of competition. We said that in either type, the presence of competition is generally more favorable where consumers benefit from efficiency gains, especially when baseline service in the franchise area is lacking due to current ownership setup. We also discussed how vertical integration in power distribution could lead to a declassification of confidential business strategies among consolidating firms that should have otherwise acted independently and competitively. Considering the legal uncertainty of Type II competition, the following discussions focus on Type I where there is competition in the acquisition of franchises.

Much like any other reforms in industries of economic significance, the introduction of policies that will permanently alter the dynamics of stakeholders involved in electricity distribution is not immune from disapproval. To maximize reception among these stakeholders, it behooves relevant government authorities to strike a balance between their interests (e.g., the benefits and advantages derived from the current ownership setup) and the general objective of affecting meaningful changes in the energy sector.

Considering the complexity of the sector, the existing strength of institutions, and anticipated feedback from affected players, the balancing act starts from taking stock of the conditions necessary to achieve tangible results and the potential challenges limiting these results.

4.1 Necessary Conditions

The necessary conditions for a meaningful reform can be viewed on a conditional basis where fulfillment of one leads to a variety of other conditions to be considered. If a robust ownership structure is the ultimate goal through competition for the market, we first examine the necessary market conditions conducive to a franchise competition regime.

Vickers & Yarrow (1991) argue that any form of ownership arrangement is inevitably imperfect and one after the other introduces a new class of economic issues that punctuate the trade-off between private and social welfare. Whether privately or publicly owned, the effect of ownership changes on welfare largely depend on the relative magnitudes of market, government, and monitoring failures. Market failure skews welfare distribution to the private sector, since businesses naturally maximize individual profits, whereas government failure leads to bureaucratic processes often at the expense of welfare objectives.

With this, the question as to which arrangement between privatization and public ownership is favored should be carefully assessed. Vickers & Yarrow (1991) proposed that privatization of natural monopolies is beneficial when competition for the market is robust, there are limited market failures, and externalities along the value chain are limited. When there is significant market power and externalities affecting consumer welfare are large, public ownership may be better.

Assuming that market failures and externalities along the value chain are limited, the government's key agenda should be to establish a competition for the market regime. In doing so, it has to consider certain conditions for a functional franchise competition. In examining these conditions, it is essential to understand how the regulator establishes its relationship and authority over the regulated franchise holder to minimize government failure.

According to Reiter (1998), there is no regulatory compact between the natural monopoly and the regulator that the former is insulated from competition in exchange for its delivery of quality services at affordable (often heavily regulated) prices. Utilities are regulated because they possess market power and because competition (if still available as a market mechanism to foil exercise of such market power) may be insufficient to negate the effects of abuse of market power. Therefore, when regulators take action within their lawful authority to promote competition, they are not violating any 'regulatory compact' - they simply recognize that regulation and competition are complementary forces.

Franchise competition works as a mechanism to display credible threat to an incumbent franchise holder. When the current operator becomes inefficient and, given the limited time for the same to operate in the franchise area, it is the threat of displacement that has the salutary effect on the performance of operators (Reiter (1998)). Hence, it can be gleaned that the necessary conditions for a functional franchise competition regime are as follow. First, the regulator and the franchise holder do not have an explicit agreement that the contract is insulated from future competition through franchise bidding. It follows that the franchise should not include any provisions on automatic renewal (even those that depend on the achievement of service commitments) or any other promises of franchise extension. The default arrangement after the expiration of the franchise should be clearly defined - one of which could be the ability of the EC to defend its franchise area at the end of its franchise term.

Second, the pool of potential bidders should be sufficiently large. This means that the pool should include any potential bidder, including the existing electric cooperative, especially if the pool consists of the same entities over a large set of franchise bidding in other areas. Encouraging the EC's participation is highly desirable. After many years of operating in the same area, it could offer more efficient systems at less cost during the bidding process. Eager to win the bid, other well-informed

bidders may wish to account for the EC's experience and potential efficiency advantages when they prepare bid documents, further pushing the terms of bidding more competitive. While this suggestion may be prone to incumbent advantage, it is important that the EC will not be denied of its opportunity to defend its franchise area and that the threat of displacement is stronger when the EC knows that it still has the chance to continue operations by hurdling the imminent bidding process.

Third, even when the pool of potential bidders is large, participants may benefit from clear, transparent, and enforceable bidding rules. Clear rules will minimize, if not totally eliminate, uncertainty which could maximize participation of the pool of bidders. Likewise, transparent rules ensure that all bidders are well-informed of the process and documents, and that those rules are free from unfair treatment of bidding participants. At the very least, the eligibility criteria for technical, financial, and operational capacity should be informed by existing market conditions and qualities of current players. Enforceability is also a necessity. Those rules should be guided and supported by existing legal frameworks that any administrative and legal dispute will be dealt with accordingly.

Fourth, in addition to the typical initial screening criteria for eligible bidders, such as technical, financial, and operational capacity, the bidding rules should already include measures that would prevent anti-competitive horizontal and vertical coordination. One effective mechanism is to limit the participation of firms with extensive presence in various segments of the supply chain. This means that new entrants with little to no stake in other segments may be favorable. Fifth, strong institutions are necessary to enforce those rules and facilitate the bidding process. When enforcement is weak, positive results of the reform efforts will be limited, undermining the first four necessary conditions mentioned.

Lastly, a well-defined geographic area which may or may not overlap with the original scope of the franchise area. The important thing is that the franchise area should have already been identified before commencing any bidding process. The area should not be so small so as not to discourage economic returns on investment and not so large so as not to perpetuate dominance in large markets.

4.2 Response of Existing ECs

The introduction of reforms in the power market may invite rigid stakeholder scrutiny. As the primary stakeholders who will be affected by these reforms, the management and well-informed members of the ECs may view these reforms as putting themselves in a precarious position as they may be disenfranchised of their long-held authority over electricity distribution. We have seen some of these concerns in the landmark legal dispute between MORE and ILECOs in which the Supreme Court later ruled in favor of the former. Therefore, if intended reforms are not strategically implemented and communicated with the objectives of balancing stakeholders' interest, the existing EC may respond in two diverging ways - both positive and negative.

On one hand, recognizing the threat of displacement by a potentially more efficient franchise operator, the EC may do its best to improve efficiency in the remaining years, sending a signal

to regulators and the market of its ability to deliver quality services and compete with rivals. On the other hand, since these reforms may be publicly known well in advance or years prior to the expiration of the EC's franchise, the same - knowing that it could be displaced by a more efficient franchise operator - may shirk in its obligation in the remaining years, forcing consumers to accept the mediocre quality of services.

This, however, is a general assertion. The response of ECs may well be influenced by their relative performance according to NEA's scorecard. One major motivation for ownership reforms is the financial insolvency of many ECs stemming from their consistent inability to collect payments from their customers and continued reliance on the government to relieve them of their financial obligations (Navarro & Camara (2023)). In this case, while franchise competition may merit favor as a general solution in change ownership reforms, authorities should still be mindful of conditions peculiar to a franchise area - especially those operated by ECs who have notoriously been tagged in the lowest tier of performance classification.

4.3 Legal and Administrative Concerns

Building on the institutional and regulatory conditions for an effective franchise competition regime, legal and administrative concerns may also arise. Questions such as the treatment of stranded costs of displaced ECs should be properly addressed. One option is for those stranded costs to be shouldered by the government itself through taxpayers' money. Another is for the winning bidder to pay off the stranded costs within the duration of its franchise, but the government should compensate the same by either providing proportional subsidies or forcing the displaced EC to compensate the new operator.

Another question is the recognition of JVs to participate in the bidding process. One could argue that a JV may be well suited to participate in light of our desire for a larger set of bidders. However, it is better to take a more cautious approach in allowing them to take over franchise areas due to the threat of unwarranted consolidation or vertical and horizontal concentration. This can be resolved by limiting the operations of a party to the JV either in terms of size of franchise area, size of customers, location, etc. An extreme approach is totally disallowing JVs from participation, but this may raise concerns on the ability of smaller independent firms to bid, risking the important condition of a wider set of potential bidders.

Relevant to vertical consolidation of players through JVs is the concern on cross-ownership. The change ownership reforms should clearly identify which segments of the energy supply chain cross-ownership of distribution utilities will and will not be allowed. This will hopefully alleviate the concerns raised in Canlas & Jandoc (2025) that the provisions on cross-ownership in the EPIRA are relatively limited, and that the law should address conflicts of interest and promote fair competition by ensuring the separation of ownership across the generation, transmission, and distribution segments of the electricity market. This may come in the form of outright prohibition of cross-ownership in both retail distribution and generation to tame the seemingly large bargaining power of the distribution company when bidding for franchise areas.

One potential challenge, however, would be the burden on the government to enforce unbundling of the already vertically integrated private players who may participate in the franchise bidding. In any case, this goes beyond the mere amendment of EPIRA or the crafting of strict policies and will require strong leadership and political will to ensure effective implementation.

5 Concluding Remarks

Given the structure of the industry, the discussion of potential harm suggests that issues from consolidation in the distribution sector can be more pernicious than inefficiencies in cooperatives. Well-meaning change ownership reforms should, therefore, minimize the unintended consequences of consolidation by establishing an effective competition for the market regime - a regime where there is no state guarantee that existing operators are insulated from outside competition but at the same time not denied of the opportunity to defend their franchise area. Ultimately, in markets where legal or natural monopoly is more efficient than ruinous competition, the threat of displacement is consequential in fostering competitive behavior. The policy for transferring the franchise should create effective entry into power distribution.

Along with franchise competition, stricter governance and incentivizing good performance are highly recommended. Classifying ECs' performance using clear and transparent parameters is a step towards the right direction since it opens an opportunity for regulators to adjust rules based on data. Echoing the observations of Canlas & Jandoc (2025), stricter governance may be possible if cross-ownership regulations are tightened and that the EPIRA should be updated to tame increasing consolidation in various segments of the power sector.

As this note only provides brief policy considerations based on available information and data at the time of DOE's request, we recommended conducting a full study on the potential impacts of various change ownership reforms. An in-depth study on consolidation in the energy sector may clarify the conditions by which a franchise can be amended in favor of a different operator. This is akin to Type II competition - not discussed in this note - where a portion of the franchise may be carved out for DU competition. A common thread in these concerns is that theory points to the possibility of harm, but each transaction is defined by unique variations in the circumstances faced by different market players that are responsible for the relevant active competitive processes of interest. This behooves regulators to closely scrutinize pertinent facts and relationships to understand firm dynamics along different segments of the supply chain.

References

- Canlas, D. B., & Jandoc, K. R. L. (2025). Promoting Competition and Regulatory Reforms in Franchising Electricity Distribution. UP School of Economics Discussion Papers 202502, University of the Philippines School of Economics. https://ideas.repec.org/p/phs/dpaper/202502.html.
- Cavaliere, A., & Scabrosetti, S. (2008). Privatization and efficiency: From principals and agents to political economy. *Journal of Economic*, 22, 685–710.
- Escresa, L. C., & Glova, A. M. G. (2024). Politico-economic determinants of the performance of electric cooperatives in the philippines. *Utilities Policy*, 91, 101815.
- Governance Commission for GOCCs (2023). National electrification administration (nea) profile. Accessed: 19 June 2025, https://icrs.gcg.gov.ph/profiles/nea/.
- Holmstrom, B., & Milgrom, P. (1991). Multitask principal-agent analyses: Incentive contracts, asset ownership, and job design. *Journal of Law, Economics, and Organization*, 7, 24–52.
- Laffont, J.-J., & Tirole, J. (1991). The politics of government decision-making: A thoery of regulatory capture. The Quarterly Journal of Economics, 106, 39.
- Moresi, S., & Salop, S. C. (2013). vguppi: Scoring unilateral pricing incentives in vertical mergers. Antitrust Law Journal, 79(1), 185–214.
- National Electrification Administration (n.d.). About NEA. Accessed: 19 June 2025, https://www.nea.gov.ph/ao39/about-us/about-nea.
- Navarro, A. M., & Camara, J. E. L. (2023). Mapping the energy sector issues in the philippines. Tech. rep., PIDS Discussion Paper Series.
- Patalinghug, E. E. (2003). An analysis of the philippine electric power industry. Office of the Ombudsman UNDP. Accessed: 19 June 2025.
- Reiter, H. L. (1998). Competition between public and private distributors in a restructured power industry. *Energy LJ*, 19, 333.
- Reyes (2023). Privatization of ECs pushed. Accessed: 27 June 2025, https://www.philstar.com/business/2023/07/29/2284542/privatization-ecs-pushed.
- Vickers, J., & Yarrow, G. (1991). Economic perspectives on privatization. *Journal of Economic Perspectives*, 5(2), 111–132.
- World Bank (1985). Philippines: First rural electrification project (loan 1547-ph). Tech. rep., World Bank. Accessed: 19 June 2025, https://documentsl.worldbank.org/curated/en/895431468914412307/pdf/multi-page.pdf.
- World Bank (1989). Country background paper on the philippines. Accessed: 26 June 2025.
- World Bank (2002). Rural electrification and development in the philippines: Measuring the social and economic benefits. Tech. rep., World Bank. Accessed: 19 June 2025, https://documents1.worldbank.org/curated/en/765461468776759888/pdf/multi0page.pdf.