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The Impact of Electric Power Industry Reform Act (EPIRA) on the Philippine Power Sector: A Thematic Literature Review

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ABSTRACT

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The *Electric Power Industry Reform Act (EPIRA) of 2001* was enacted to transform the Philippine energy landscape from a state-owned monopoly into a competitive, market-driven industry. This study presents a thematic literature review assessing the multifaceted impacts of EPIRA over two decades of implementation. Synthesizing academic research, policy papers, and institutional reports, the review identifies five critical themes: (1) the unbundling of the power sector and its influence on operational efficiency; (2) the paradox of electricity pricing, where market competition has struggled to lower costs for residential consumers; (3) the technical and financial performance of Electric

Cooperatives (ECs) compared to private distribution utilities; (4) the persistent challenges of rural electrification and energy security in off-grid areas; and (5) the broader economic consequences of high electricity prices. Methodologically, the study employs a qualitative systematic review with thematic synthesis, ensuring transparency and rigor. Findings suggest that while EPIRA reduced the government's fiscal burden and improved technical efficiency in some sectors, it has faced significant criticism regarding high power rates, regulatory capture, and policy misalignment with renewable energy goals. This review provides a foundation for future legislative amendments aimed at achieving more equitable energy distribution, consumer-focused pricing, and sustainable energy transition.

INTRODUCTION

The Philippine power sector has undergone a profound transformation since the turn of the millennium, shifting from a state-centered monopoly to a decentralized, market-driven industry. This transition was codified through Republic Act No. 9136, or the Electric Power Industry Reform Act (EPIRA) of 2001. Prior to this landmark legislation, the National Power Corporation (NPC) exercised nearly total control over power generation and transmission, a model that eventually led to a fiscal crisis characterized by massive public debt and frequent nationwide brownouts (Navarro et al., 2016). EPIRA was introduced as a corrective mechanism intended to privatize state assets, encourage competition, and ensure a reliable, affordable supply of electricity.

The literature surrounding EPIRA is broadly divided into the four pillars of reform: generation, transmission, distribution, and supply. A central theme in academic discourse is the unbundling of these sectors, which was intended to remove cross-subsidies and reflect the true cost of electricity (Patalinghug, 2014). For Electric Cooperatives (ECs), this shift represented a radical change in operational philosophy. No longer merely beneficiaries of government subsidies, ECs were forced to operate as viable business entities under the regulatory oversight of the National Electrification Administration (NEA) and the Energy Regulatory Commission (ERC).

Despite these reforms, the Philippines continues to record some of the highest electricity rates in ASEAN, averaging $0.20–$0.25 per kWh compared to $0.10–$0.12 in Vietnam and Indonesia (CPBRD, 2023). This pricing paradox underscores the disconnect between market liberalization theory and consumer outcomes. Furthermore, rural electrification remains uneven, with ECs serving the last mile communities facing persistent financial and technical challenges. Understanding these contradictions is critical as the Philippines navigates a

global energy transition toward renewables.

OBJECTIVE OF THE STUDY

The primary objective of this study is to systematically evaluate and synthesize the existing body of knowledge regarding the impacts of the Electric Power Industry Reform Act (EPIRA) of 2001 on the Philippine power sector through a thematic literature review. Specifically, the research aims to analyze the extent to which the law has achieved its core mandates of enhancing operational efficiency, fostering market competition, and ensuring the financial sustainability of distribution utilities, particularly Electric Cooperatives (ECs). Furthermore, the study seeks to investigate the pricing paradox by examining scholarly perspectives on why electricity rates remain high despite the transition to a competitive market framework. By identifying recurring themes and critical research gaps—such as the challenges of missionary electrification and the integration of renewable energy—this study intends to provide a comprehensive foundation for policymakers and researchers to assess the need for legislative amendments that could lead to a more equitable and resilient energy landscape in the Philippines. The guiding research question is: *To what extent has EPIRA achieved its intended goals of efficiency, affordability, and equity in the Philippine power sector, and what reforms are necessary to align it with contemporary energy transition goals?*

FRAMEWORK

The framework for this Review of Related Literature (RRL) is grounded in Market Liberalization Theory and the New Public Management (NPM) paradigm, which posit that transitioning from state-run monopolies to competitive, private-sector-led models increases operational efficiency and consumer welfare. In the context of the Philippine energy landscape, this framework examines how the Electric Power Industry Reform Act (EPIRA) of 2001 serves as the primary driver for structural change, unbundling the industry into four distinct segments: generation, transmission, distribution, and supply. According to Patalinghug (2014), this unbundling is the theoretical foundation intended to eliminate cross-subsidies and introduce "cost-reflective" pricing, ensuring that each sector of the power chain operates based on market signals rather than government mandates.

Centering the framework on the distribution sector, the RRL explores the Technical and Financial Performance Framework of Electric Cooperatives (ECs). Under the oversight of the National Electrification Administration

(NEA), ECs are evaluated based on their ability to mitigate system losses and maintain collection efficiency while navigating the competitive pressures of the Wholesale Electricity Spot Market (WESM). Villafranca and Saguran (2025) argue that the governance structure of these cooperatives is a critical variable; their framework suggests that democratic member control can either enhance organizational performance through local accountability or hinder it through political interference. This creates a thematic tension in the literature between the social mandate of Total Electrification and the neoliberal requirement for financial self-sufficiency imposed by EPIRA.

The framework also integrates Regulatory Impact Analysis (RIA) to assess the "Pricing Paradox" that characterizes the post-EPIRA era. Despite the theoretical promise that competition in the generation sector would lower prices, the Philippine experience suggests a disconnect between market theory and actual outcomes. Navarro et al. (2016) utilize a framework of competition policy to illustrate how market power concentration among a few dominant firms and the pass-through nature of generation charges have led to persistent high rates. This part of the RRL framework investigates the role of the Energy Regulatory Commission (ERC) as a market monitor, evaluating whether regulatory capture or structural flaws in the market design have prevented the benefits of reform from reaching the end-users.

Finally, the framework adopts a Sustainability and Energy Security Lens to address the modern challenges of the Philippine grid. While EPIRA was designed for a fossil-fuel-intensive era, current academic discourse focuses on how the law's market mechanisms interact with the Renewable Energy Act of 2008. Saculsan and Mori (2020) provide a framework for understanding how "Missionary Electrification" in off-grid areas is funded through the Universal Charge, highlighting the conflict between expensive diesel-based power and the push for decentralized renewable systems. This comprehensive framework allows the RRL to move from high-level policy theory to the grounded, technical realities faced by rural electric cooperatives in a changing global energy environment.

METHODOLOGY

The methodology for this study utilizes a Qualitative Systematic Review approach, specifically following a thematic synthesis design. This method allows for the identification, analysis, and reporting of recurring patterns (themes) within the existing body of literature regarding the Electric Power Industry Reform Act (EPIRA) and its impact on the Philippine power sector. By synthesizing diverse sources—ranging from peer-reviewed journals to government policy papers—the

study provides a comprehensive overview of the sector's evolution over the last two decades.

Data Sourcing and Search Strategy

The data collection process involved a multi-stage search of electronic databases including Google Scholar, ScienceDirect, the Philippine Institute for Development Studies (PIDS) repository, and the National Electrification Administration (NEA) archives. Keywords used for the search included "EPIRA Philippines," "Electric Cooperatives performance," "Power sector unbundling," and "Philippine electricity pricing." To ensure the relevance and reliability of the sources, the study prioritized peer-reviewed articles published between 2014 and 2025, while also incorporating foundational policy documents from 2001.

Inclusion and Exclusion Criteria

To maintain the rigor of the review, specific criteria were applied to the literature. Inclusion criteria required that the documents: (1) specifically address the Philippine power sector post-2001; (2) provide empirical data or high-level policy analysis on distribution utilities or cooperatives; and (3) be written in English. Exclusion criteria were applied to opinion pieces without data support, news articles, and studies focusing on non-Philippine energy markets, unless used for brief comparative context.

Data Analysis and Synthesis

Following the collection of 25–30 key sources, the study employed Thematic Analysis. This involved "coding" the findings of each paper into specific categories such as "Technical Efficiency," "Governance," and "Economic Impact." These codes were then grouped into the four major themes identified in the abstract: Structural Unbundling, the Pricing Paradox, Cooperative Governance, and Energy Security. This synthesis does not merely summarize individual papers but compares and contrasts the findings of different authors to identify consensus and contradictions in the field (Acebedo et al., 2020; Navarro et al., 2016).

Ethical Considerations and Reliability

As this is a secondary research study (desk research), ethical considerations focused on academic integrity and the avoidance of plagiarism. All sources were meticulously cited following the APA 7th Edition guidelines. To ensure reliability, the study cross-referenced government-issued statistics from the Department of Energy (DOE) with independent academic critiques to provide a balanced perspective on the law's implementation.

ETHICAL STATEMENT

As this study is a Thematic Literature Review based exclusively on secondary data sources, it did not involve direct interaction with human subjects, animal testing, or the collection of private personal data. Consequently, formal institutional review board (IRB) approval was not required. However, the study adhered to the highest standards of academic integrity and research ethics. All sourced data, including academic journals, government reports, and institutional white papers, have been meticulously cited to acknowledge the intellectual property of the original authors and to avoid plagiarism.

The researcher maintained an objective and unbiased stance throughout the synthesis process, ensuring that both proponents and critics of the Electric Power Industry Reform Act (EPIRA) were represented fairly. To ensure the reliability of the findings, the study utilized a triangulation approach, cross-referencing government-issued statistics from the National Electrification Administration (NEA) with independent critiques from academic institutions (Villafranca & Saguran, 2025; Navarro et al., 2016). No proprietary or classified information was used, and all documents accessed are within the public domain or available through academic databases.

The authors used AI-assisted tools, including ChatGPT by OpenAI and Grammarly during the preparation of this manuscript. These tools were utilized solely for language refinement, grammar checking, paraphrasing, and improving the clarity and organization of the manuscript.

RESULTS AND DISCUSSION

The Disconnect Between Privatization and Electricity Pricing

The primary result identified across the literature remains the "Pricing Paradox." While EPIRA succeeded in privatizing National Power Corporation (NPC) assets and reducing government fiscal risk, it has failed to deliver the promised reduction in electricity rates. Studies from Navarro et al. (2016), CPBRD (2023), and Ravago (2023) confirm that the Philippines continues to have among the highest electricity prices in Asia.

Recent regulatory developments highlight attempts to address this issue. The Energy Regulatory Commission (ERC, 2025) introduced market share limits to prevent any single generator from controlling more than 30% of grid capacity or 25% nationally. This measure reflects recognition that oligopolistic dominance, rather than lack of capacity, drives volatility in the Wholesale Electricity Spot Market (WESM). However, the persistence of pass-through fuel costs in Power

Supply Agreements (PSAs) means that consumers remain exposed to global fuel price shocks, limiting the effectiveness of competition in lowering household electricity bills.

Operational Efficiency: Private DUs vs. Electric Cooperatives

The review continues to show a disparity in technical performance post-EPIRA. Acebedo et al. (2020) found that the top five private distribution utilities achieved high efficiency scores due to investments in smart grids and automation.

Electric Cooperatives (ECs), however, present a mixed picture. While "Class AAA" cooperatives demonstrate efficiency comparable to private firms, many rural ECs suffer from system losses exceeding the ERC's 12% cap. New case studies (Villafranca & Saguran, 2025) show that SURNECO in Surigao del Norte improved efficiency through member-driven governance reforms, suggesting that cooperative success is not solely determined by geography but by organizational innovation. This highlights that EPIRA's framework can support cooperative efficiency when governance structures are strengthened.

Governance as a Determinant of Success

Governance emerges as the most critical determinant of cooperative performance. Villafranca and Saguran (2025) demonstrated that professionalized boards correlate with higher collection efficiency and financial stability. More recent research (Bonita, 2025) on Central Luzon ECs reveals persistent challenges of political interference and weak managerial capacity, underscoring the uneven governance landscape across regions.

The dual oversight of NEA and CDA continues to create jurisdictional confusion, leaving cooperatives caught between social-service mandates and financial viability requirements. This regulatory gap suggests that governance reforms must be prioritized alongside technical upgrades to ensure equitable electrification.

Energy Security and the Renewable Energy Transition

EPIRA's least-cost generation principle has entrenched reliance on coal, a trend increasingly at odds with national energy transition targets. The Department of Energy (2024) and Dimatatac et al. (2025) highlight the Philippines' commitment to achieve 35% renewable energy by 2030 and 50% by 2040. EPIRA's fossil-heavy market design is misaligned with these goals, creating policy friction between the 2001 law and the Renewable Energy Act of 2008.

For off-grid ECs, reliance on the Universal Charge for Missionary Electrification (UCME) to subsidize diesel power is unsustainable. Scholars

argue that decentralized micro-grids and renewable integration are the logical next step (Dawal, 2025; Saculsan & Mori, 2020) However, EPIRA's current Grid Code and Market Rules remain barriers to rapid adoption, highlighting the need for regulatory greening of the framework.

Economic Impact of High Electricity Prices

Beyond household affordability, persistently high electricity prices have broader macroeconomic consequences. CPBRD (2023) and Ravago (2023) emphasize that elevated power costs deter industrial investment and reduce competitiveness in manufacturing. This dimension, absent in earlier discussions, underscores that EPIRA's shortcomings extend beyond consumer welfare to national economic growth.

Table 1

Summary of Findings

Theme	Finding	Expanded Discussion/Implication
Market Competition	High price volatility in WESM	ERC's 2025 market share limits aim to curb oligopoly power, but pass-through costs keep prices high.
Technical Efficiency	Private DUs > Electric Cooperatives	Case studies (SURNECO, 2025) show cooperatives can achieve efficiency gains through governance reforms.
Governance	Governance correlates with financial health	Regional disparities (Central Luzon ECs, 2025) reveal persistent political interference and weak boards.
Sustainability	Market favors fossil fuels (Coal)	Misaligned with national targets (35% renewables by 2030, 50% by 2040); regulatory greening needed.
Economic Impact	High electricity prices deter investment	Elevated costs reduce industrial competitiveness and hinder inclusive economic growth.

CONCLUSION

The thematic review of literature regarding the Electric Power Industry Reform Act (EPIRA) of 2001 reveals a complex and often contradictory landscape. On one hand, the legislation successfully achieved its fiscal objectives by privatizing the National Power Corporation's assets and transferring the massive financial risks of power generation and transmission from the government to the private sector. The unbundling of the industry fostered a more professionalized distribution sector, where technical efficiencies and grid reliability have seen measurable improvements, particularly among large-scale private distribution utilities (Acebedo et al., 2020). For Electric Cooperatives (ECs), EPIRA acted

as a catalyst for professionalization, shifting their operational model toward financial self-sufficiency and accountability under the oversight of the National Electrification Administration (NEA, 2021).

However, the literature highlights significant failures in achieving the promise of affordable electricity. The pricing paradox remains the most critical unresolved issue; the Philippines continues to struggle with exorbitant power rates driven by a market design that remains vulnerable to global fuel price volatility and limited competition among dominant generation firms (Navarro et al., 2016). Furthermore, the disparity between urban and rural electrification persists. While total electrification is within reach in terms of household connections, the quality and cost of power in areas served by smaller ECs remain substandard compared to urban centers. The governance of these cooperatives emerges as the single most important factor in determining whether a rural community benefits from the reform or suffers from chronic supply instability (Villafranca & Saguran, 2025).

Ultimately, the impact of EPIRA is characterized by a policy lag where a law designed for a 20th-century fossil-fuel-based economy is now struggling to accommodate a 21st-century shift toward decentralized renewable energy. As noted by Saculsan and Mori (2020), the market mechanisms of EPIRA often conflict with the country's sustainability goals. This review concludes that while EPIRA provided a necessary structural foundation, it is no longer a complete solution. Future reforms must focus on enhancing the regulatory powers of the Energy Regulatory Commission (ERC) to prevent market power abuse, incentivizing the integration of renewable energy within the WESM framework, and professionalizing the governance of failing Electric Cooperatives to ensure energy equity for all Filipinos.

TRANSLATIONAL RESEARCH

The findings of this review hold significant translational value for three primary stakeholders: policymakers, regulatory bodies, and the management of Electric Cooperatives (ECs). In the context of Research-to-Policy translation, the identified Pricing Paradox suggests that current market mechanisms under EPIRA require a legislative pivot toward Performance-Based Regulation (PBR). By translating the academic evidence of market power concentration into policy, the Energy Regulatory Commission (ERC) can develop stricter monitoring tools to ensure that the benefits of the Wholesale Electricity Spot Market (WESM) are passed down to the end-users rather than being absorbed as corporate profit (Patalinghug, 2014).

Furthermore, for Electric Cooperatives, this research translates into a "Best

Practice" framework for governance. The correlation found in the literature between professionalized board oversight and technical efficiency (Villafranca & Saguran, 2025) provides a roadmap for NEA to implement mandatory governance training and stricter qualification standards for EC directors.

Decisively, the study highlights a critical path for Energy Transition. The evidence suggests that the current unbundled structure often acts as a barrier to decentralized renewable energy. Translating this insight means advocating for a Smart Grid integration policy that allows rural ECs to become prosumers, generating their own renewable power locally rather than relying on expensive, centralized coal-based transmission (Saculsan & Mori, 2020). This move translates theoretical energy security into tangible, lower-cost electricity for marginalized rural communities.

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