



The Need for Power Transmission Sector Reforms in the Philippines

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OUTLINE



Objectives & Methodology



Background on the Sector



Economic Theories vs Practice



Key Issues



Policy Implications & Recommendations



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Objectives

1. To explore the prescriptions of economic theories when it comes to planning, investing in, and regulating electric power transmission in a liberalized power market, and compare these with the practices in the power transmission sector in the Philippines;
2. To assess key issues in the power transmission sector, including how the current concession agreement with the National Grid Corporation (NGCP) is meeting the requirements of the electric power industry; and
3. To identify needed reforms and formulate policy recommendations.

Methodology



Qualitative analysis (review of concession agreement, transmission development plans, regulatory filings, regulatory decisions, and other government documents; KIIs)

Background on the power transmission sector in the Philippines

Evolution of the national grid: from state monopoly to private concession

Before restructuring in 2001: The National Power Corporation (NPC) controlled generation, transmission, and parts of distribution nationwide.

1980s–1990s: Underinvestment, currency depreciation, and political/economic instability led to power shortages and frequent blackouts, culminating in a severe power crisis in the early 1990s.

Early 1990s response: Government addressed the crisis by contracting Independent Power Producers (IPPs) to quickly expand capacity.

2001 reform: RA 9136 or Electric Power Industry Reform Act (EPIRA); major restructuring of the sector through unbundling of generation, transmission, distribution, and supply; introduction of competition and privatization of generation assets.

Background (continuation)

Institutional Changes:

- Transmission assets were transferred to the National Transmission Corporation (TransCo)
- Power Sector Assets and Liabilities Management Corporation (PSALM) was created to manage the privatization of NPC assets and liabilities

2009 Concession: The NGCP was awarded a 25-year concession (effective Jan 15, 2009) to operate, maintain, and expand the national grid, under a 50-year legislative franchise (RA 9511)

Current setup: NGCP is the sole transmission system operator, while TransCo retains asset ownership

Planning framework: Grid expansion guided by long-term Transmission Development Plans (TDP), aligned with demand growth, generation expansion, and reliability needs (latest: 2024–2050 TDP)

Power transmission in small and isolated grids

Post-EPIRA restructuring: NPC-SPUG retained responsibility; TransCo was later designated as system operator for selected island grids (Palawan, Mindoro, Marinduque, and Catanduanes).

Economic theories of power transmission versus practice in the Philippines

Transmission economics in liberalized power markets

- Transmission is a **natural monopoly** characterized by high fixed costs, economies of scale, and network externalities. In liberalized electricity markets, transmission serves a critical coordination role, enabling competition in generation and supply under regulation.
- Investments are large, irreversible, and lumpy, made amid uncertain demand, fuel prices, generation mix, and policy direction. Risk and uncertainty can delay or reduce investment if regulatory incentives are weak or not credible.
- **Emerging flexibility options** (e.g., storage, demand response, interconnection) can reduce or reshape transmission needs and investment risk profiles.
- In the Philippines, these challenges appear in **long-term planning and implementation. Gaps** are driven by demand uncertainty, generation delays, right-of-way issues, and policy shifts, affecting investment timing and scale.

Economic theories of power transmission versus practice in the Philippines

Regulatory and institutional design

- Transmission is a regulated monopoly, and **traditional rate-of-return regulation can lead to overinvestment or “gold-plating”** (Averch-Johnson effect) as firms expand capital to increase allowed revenues.
- **Performance-based regulation (PBR)** is preferred in economic theory because it links revenues to outcomes like reliability, efficiency, and service quality, reducing the need for detailed regulatory control.
- In the Philippines, the Energy Regulatory Commission (ERC) regulates the NGCP using a PBR framework with elements of return-on-rate base regulation, but implementation challenges and regulatory disputes persist, affecting efficiency and investment incentives.

Economic theories vs practice (continuation)

Unbundling and the role of the system operator

- Economic theory on liberalized power markets **highlights the need to unbundle transmission from generation and supply and establish an independent system operator** to ensure non-discriminatory access, reduce conflicts of interest, and manage information asymmetries.
- In the Philippines, **EPIRA introduced unbundling**, but **NGCP acts as both transmission network provider and system operator**. While this reflects a pragmatic institutional setup, the concentration of functions also raises concerns about accountability and information asymmetry, issues that economic theory flags as critical in monopoly settings.

Practical constraints that theoretical models often abstract away from

- ERC capacity limitations and political sensitivity of pricing

Key issues facing the power transmission sector in the Philippines

- 1. Project delays:** one of the most pressing issues, persistent delays in NGCP projects; with only 75 out of 258 planned projects reportedly completed as of 2025; NGCP unable to keep pace with demand and generation patterns
- 2. Regulatory concerns:** transmission rate regulation - significant delay and inconsistency in the ERC's regulatory resets under Performance-Based Regulation, particularly the failure to timely set rates for the 4th Regulatory Period (2016–2020); “as spent” approach being questioned (weakens incentives)
- 3. Right-of-way constraints:** a major bottleneck in Philippine transmission expansion due to fragmented land ownership, valuation disputes, and lengthy expropriation and court processes that delay projects for years
- 4. Grid reliability, reserves, and ancillary services:** especially given increasing shares of variable renewable energy
- 5. Coordination and institutional frictions:** hindered by weak inter-agency coordination, with overlapping permitting requirements from local governments and environmental authorities; tensions between private grid operation and public interest goals

Key issues (continuation)

- 6. Ownership and national security concerns:** Ownership structure concerns in the Philippine transmission sector have become increasingly significant, particularly due to foreign equity participation in NGCP through the State Grid Corporation of China. But recent government initiatives, including the Maharlika Investment Corporation (MIC)'s acquisition of a stake in Synergy Grid and Development Philippines Inc. (SGP), which holds a major share in NGCP, reflect efforts to rebalance public oversight.
- 7. Insufficient transmission capacity and congestion:** Insufficient transmission capacity is causing congestion, delaying grid expansion and limiting integration of new and renewable energy, which increases system costs and reliance on more expensive generation. These constraints, especially in fast-growing areas like the **Visayas**, reflect broader structural issues requiring stronger coordination and regulatory alignment.

Policy Implications

The sector needs **stronger alignment between regulatory incentives, institutional roles, and long-term system goals**, as current mechanisms do not adequately ensure timely project delivery or accountability.

Reforms are needed in rate-setting, permitting and right-of-way processes, and inter-agency coordination to reduce delays, improve predictability, and support renewable energy integration.

Governance and ownership issues require continued attention to strengthen oversight, accountability, and address national security concerns in critical infrastructure management.

Transmission congestion must be addressed due to its impact on higher and more volatile electricity costs, reduced reliability, and constraints on renewable energy integration.

Recommendations

1. Reassess regulatory incentives and cost recovery rules

- **Strengthen enforcement of Transmission Development Plan** timelines through agreed milestones, binding triggers, and escalating penalties for unjustified delays: NGCP would internalize the welfare costs of delayed grid expansion.
- **Reassess “as-spent” CAPEX recovery:** While it supports investment certainty by allowing early cost recovery, it may reduce incentives to complete projects and raise concerns about cost pass-through to consumers.
- **Need for balanced regulatory design:** A hybrid approach (provisional CAPEX inclusion with full recognition only upon commissioning) may better align investor incentives with consumer protection, as seen in international models like the UK “split CAPEX” method.

Recommendations

2. Strengthen regulatory capacity and credibility

- **Effective transmission incentives** depend on the ERC's ability to conduct timely rate resets, adjust the weighted average cost of capital (WACC), and enforce compliance
- Delays or weaknesses in regulatory action can amplify uncertainty, distort incentives, and fuel perceptions of regulatory capture.
- **Amending the EPIRA to strengthen the ERC's mandate, resources, and institutional independence** is therefore important
 - Enhance ERC independence, staffing, analytical capability, and enforcement powers
 - This could improve the credibility of regulatory decisions and reduce the scope for prolonged disputes over rates, investments, and penalties.

Recommendations

3. Accelerate right-of-way (ROW) acquisition and permitting

- **Coordination and alignment around priorities in grid expansion:** ROW and permitting delays require stronger coordination among DOE, ERC, NGCP, local governments, and courts; align these institutions around clearly defined grid expansion priorities; streamline processes
- **Standardized valuation guidelines for land acquisition, faster judicial processes for expropriation, and enhanced community engagement in affected areas** are needed
- **Early community engagement and coordination with security forces and civil society** are essential, especially in conflict-prone areas, to ensure project continuity and infrastructure protection.

Recommendations

4. Have judicious policies on national security considerations

- **Strengthen oversight and resilience mechanisms:** Require stronger disclosure, independent cyber/physical security **audits**, and **mandatory stress-testing** or “red team” exercises (adversarial simulation) to improve grid operational resilience.
- **On structurally separating system operations from transmission asset management:** Placing system operation under a government-controlled or tightly regulated entity merits careful study, as a way to reduce governance and security risks.
- **Ensure transparent, evidence-based regulation going forward:** For example, developments like MIC owning economic interest in NGCP via SGP should not pre-empt regulatory decisions; concession renewals must be based on rigorous performance review, transparency, and public interest rather than speculation.

Recommendations

5. Address congestion, reliability, and grid resilience

- **Need for more proactive approach to grid expansion and modernization:** Note that transmission congestion and project delays raise system-wide costs by limiting renewable energy integration, increasing fossil fuel dependence, and raising outage risks.
- **Curtailement of new capacity due to grid constraints is evident:** Some renewable projects face dispatch limits or curtailment conditions when grid capacity is insufficient, as evidenced by ERC rulings on interconnection approvals (e.g., Lihangin Wind Energy Corp. project in Northern Samar).
- **Incentivize timely capacity upgrades and grid resilience investments:** Compel investments in smart grid technologies, stronger substations for extreme weather, and overall grid resilience to manage rising complexity and climate risks.



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