Philippine Institute for Development Studies *n sa mga Pag-aaral Pangkaumlaran ng Pilipinas* 

ISSN 2508-0865 (electronic)

No. 2018-19 (December 2018)

# The Philippine electric power industry under EPIRA

### Arlan Z.I. Brucal and Jenica A. Ancheta

The Electric Power Industry Reform Act (EPIRA) is one of the landmark promarket reforms implemented to achieve reliable and competitively priced electricity in the Philippines. Due to its perceived ineffectiveness, however, the law has been subjected to a number of criticisms with some calling for its review, if not an outright repeal.

This *Policy Note* revisits the achievements and concerns regarding the implementation of EPIRA in the country. In particular, it enumerates the success and progress of the law, while drawing critical reflections that can be useful in drawing policy implications.

#### **Current arrangements and restructuring**

Generally, EPIRA adopted the "ideal" textbook architecture of the competitive energy markets found to be historically successful in Argentina, Canada, Brazil, and Australia, among others (Joskow 2005). Such adoption led to the creation of institutional arrangements and restructuring intended to provide long-term benefits and ensure that prices reflect the efficient economic cost of supplying electricity and service quality attributes (Joskow 2005). As shown in Figures 1 and 2, these include the following:

**Restructuring of the generation segment** Pursuant to Section 6 of EPIRA, the generation segment of the power sector was made competitive and open to all qualified generation companies. Generation utilities are also no longer required to secure franchise authority from Congress to operate. A maximum permissible market share<sup>1</sup> for participants in the generation segment was also established to foster competition in the power generation sector.

## Integration of transmission facilities and network operations

In 2001, the National Transmission Corporation was created. It assumed the electrical transmission function of the National Power Corporation (NPC), which used to dominate the transmission sector. It was also designated as the single independent system operator to manage the operation of the network.

 $<sup>^{\</sup>rm 1}\,{\rm Prior}$  to the EPIRA regime, this was inexistent because the share of generation before was small.



Figure 1. The electric power industry prior to the passing of the Electric Power Industry Reform Act

Source: Tan (2010)

Separation of competitive and regulated segments

From a two-sector industry, EPIRA divided the electric power industry into four, namely, generation, transmission, distribution, and supply. Generation became competitive and open. The transmission and distribution of electric power remained regulated, subject to the rate making powers of the Energy Regulatory Commission (ERC). Meanwhile, supply of electricity to the contestable market was deemed not a public utility operation and suppliers were not required to secure national franchise. Prices charged by the suppliers were subjected to ERC regulation.

#### Unbundling of retail tariffs

EPIRA seeks to separate prices for retail power supplies and associated customer services that will be supplied competitively from the regulated delivery charges.<sup>2</sup> The target was to have all the distribution utilities (DUs) apply for tariffs unbundling by December 2002. However, it was only in December 2008 that almost all of the unbundling applications of 120 electric cooperatives, 20 private utilities, and the NPC<sup>3</sup> were decided by ERC.

### Elimination of cross-subsidies

In 2002 and 2005, the intergrid (between Luzon and Visayas) and intragrid (within Luzon) subsidies were removed, respectively. Meanwhile, the interclass subsidies (between industrial and residential) were removed in 2005. This was done primarily to reflect the true cost of service delivery in the power sector. Such removal of interclass subsidies was done in two phases to allow for smooth adjustment, where 40 percent of the subsidies was removed in 2004 and 60 percent was taken out in 2005.

<sup>&</sup>lt;sup>2</sup> Refer to those relating to the use distribution and transmission networks that would continue to be provided by regulated monopolies

<sup>&</sup>lt;sup>3</sup> NPC has retained some DU operations in certain areas, such as in missionary electrification, hence is subject to unbundling as well.



Figure 2. The electric power industry after the passing of the Electric Power Industry Reform Act

Source: Tan (2010)

Contrary to the pursuit of having prices reflect the true cost of service delivery, the government instituted two distortionary pricing mechanisms, namely, (1) the lifeline rate and (2) the Universal Charge for Missionary Electrification (UCME). Both of these mechanisms are meant to support underprivileged consumers' additional charges paid by all other consumers.

Pursuant to Section 73 of EPIRA on lifeline pricing scheme, residential consumers in the higher consumption bracket would have to pay extra cost as subsidy to their poorer counterparts. In 2011, Republic Act 10150 was signed, extending the implementation of the lifeline rate for another 10 years, which was supposed to be phased out in 10 years upon the implementation of the EPIRA. Meanwhile, the missionary electrification is heavily subsidized through UCME, which was financed primarily through extra costs incurred by all other end users. Creation of an independent regulatory body and a body to oversee implementation of the law Pursuant to Section 38 of the EPIRA, the ERC was created as an independent, quasi-judicial, and regulatory body that promotes competition, encourages market development, ensures customer choice, and penalizes abuse of market power. EPIRA also created the Joint Congressional Power Commission (JCPC) tasked to oversee the proper implementation of the law. For example, the plan of the Power Sector Assets and Liabilities Management Corporation to privatize NPC assets is subject to endorsement of the JCPC before it is approved by the president of the Philippines.

## Creation of a wholesale electricity spot market for energy trading

Section 30 of the EPIRA provides for the creation of the Wholesale Electricity Spot Market (WESM) by which competitive market forces would establish generation tariffs and make costs more transparent. WESM commenced commercial operations in the Luzon grid in June 2006. The Visayas grid was integrated into WESM and commenced commercial operations in December 2010. WESM for Mindanao has not yet established to date, although discussions are ongoing.

### Implementation of retail competition and open access

The pinnacle of EPIRA is the full implementation of the Retail Competition and Open Access (RCOA) the landmark policy designed to give consumers the option to choose their own supplier of electricity. In 2012, or 11 years after the passing of EPIRA, ERC commenced RCOA. Nonetheless, there were legal issues raised in relation to its implementation, one of which is the requirement for certain consumers to participate in RCOA. To address legal issues raised in 2017, which hampered the full implementation of RCOA, the Department of Energy (DOE) issued two circulars that allowed qualified consumers to voluntarily choose their suppliers instead of being mandated to switch from their DUs to a retail electricity supplier.

#### **Achievements under EPIRA**

The reforms resulted in significant improvements in the Philippine electric industry, which include the following:

## *Improved reliability, quality, and affordability of electric supply*

Since the passage of EPIRA, the supply of electricity has been adequate to ensure consumers' continuous access to electricity (DOE 2017). The proportion of households experiencing power outages has also dropped dramatically (NSO 1995, 2004). Moreover, the country has seen a generally declining electric price in real terms after the passing of EPIRA (Meralco 2015). In 2015 alone, said price declined by 8.38 percent relative to its 2000 level (Meralco 2015). In general, while the power rates in the post-EPIRA regime are still higher relative to their levels before EPIRA was implemented, the rate at which these prices increases is much lower in the post-EPIRA regime. The real electricity prices have also diverged across customers starting in 2001, driven by the removal of cross-customer subsidies (Figure 3), which is in line with the pursuit to have prices reflecting the true cost of service delivery in the power sector. Commercial and industrial prices also posted a decline of 11.07 and 21.75 percent, respectively, relative to their 2000 level. In contrast, residential prices increased by 3.87 percent during the 2000–2015 period, although their growth rate is significantly lower compared to its 1990–2000 rate.

*Increased number of electrified households* Before EPIRA, only 76 percent of families had access to electricity (NSO 2000). The figure went up to 91.1 percent in 2015, up by 15 percentage points (PSA 2015).

## *Improved efficiency both in the generation and transmission sector*

Using the data from National Electrification Administration (2018), this study noted a negative correlation between average power cost and load factors<sup>4</sup> for all electric cooperatives, suggesting that an optimal structure of resource mix is in place.<sup>5</sup> Meanwhile, the situation is different in Mindanao, where the government continues to be the dominant player in the generation sector.

<sup>&</sup>lt;sup>4</sup> Electrical load factor is a measure of the utilization rate or efficiency of electrical energy usage. It is the ratio of total energy used in the billing period divided by the possible total energy used within the period, if used at the peak demand during the entire period. <sup>5</sup> To attain least costs of service delivery, plants that are cheap to run will be used more consistently while those that have high variable costs will be used to meet peaks in the demand. Thus, it is optimal that retailers with higher load factors should be able to form lowercost portfolios.



Figure 3. Electricity prices for different customers of Manila Electric Company between 1990 and 2015, in 2000 prices

Source: Manila Electric Company (2015) (nominal electricity price); Bangko Sentral ng Pilipinas (2015) (consumer price index)

Moreover, the transmission and distribution losses have significantly declined since 2005 (WB 2018). Specifically, their share to total power output declined, from 17 percent in 1995 to 9 percent in 2014 (WB 2018). Despite this declining trend, the Philippines still ranks among select Asian countries with the highest transmission and distribution losses, placing third in 2014 (WB 2018). This implies that investments in transmission and distribution systems are still warranted.

#### Improved fiscal condition

Under EPIRA, the country's power industry has transformed from a fiscally dependent industry to a net tax payer, which reduced high levels of debt that had been incurred by the government prior to the reform (ADB 2016). Interestingly, looking at the data from the Department of Finance reveals that the country had budget surplus in 2006, coinciding with the initial operation of WESM (DOF 2016). This budget surplus has remained positive, except during the 2009 global recession, whose impact was felt even up to 2012.

#### Lessons and challenges under EPIRA

While the power sector has progressed under EPIRA, this is not to say that everything worked perfectly. For instance, Joskow (2005) warned of the potential risk that may emerge when the energy sector reform is done incompletely or incorrectly. In the case of the implementation of EPIRA, this includes the incomplete elimination of the cross-subsidization. Consequently, the associated costs of this policy are currently being shouldered by the ratepayers in the form of universal charges. As such, it would be very useful to determine how this policy is being valued at the locality to assess whether the current efforts to boost electrification increase or reduce social welfare (Lee et al. 2018).

EPIRA also missed some of its major targets. This includes the delayed creation of a competitive retail sector under RCOA. At present, the mandatory migration of large electric consumers to RCOA is halted by a temporary restraining order issued by the Supreme Court. This signals uncertainties and the



The Electric Power Industry Reform Act (EPIRA) is one of the landmark promarket reforms implemented to achieve reliable and competitively priced electricity in the Philippines. Since the passage of EPIRA, this study found that the supply of electricity has been adequate to ensure consumers' continuous access to electricity. The country has also seen a generally declining electric price throughout its implementation. (Photo: Nayuki/Flickr)

lack of commitment on the part of the government to implement its agenda of having a competitive power sector. This can have far-reaching implications particularly on the pursuit to secure adequate private sector-led investments in the energy sector.

The Philippine power sector can also push for stronger political commitment to the reform. Any increase in competition is anchored on how effective a sector can attract additional players. This will ensure that no huge markups of the incumbent can be maintained in the long run. However, the long-run tendency of the market to have more competition in the market is hampered by the uncertainties brought about by sudden interventions of the government. A case in point is when ERC imposed a cap of PHP 62/kWh in 2013 as a result of a price spike in the WESM. Felder (2007) warned that such immediate response to reduce prices through sudden regulatory mandates can undercut price signals, which later on can get worse and result in a vicious cycle of regulatory uncertainty, unfriendly investment climate, and counterproductive policies. Clearly, the government needs to first determine the consequences of such intervention and assess if the perceived benefits outweigh the costs to the entire industry.

### Recommendations

Thus far, two major findings stood out. First, the EPIRA appears to be a well-thought power sector reform design, having followed most of the features of the kind of reform structuring found to be successful historically (Joskow 2005). Second, significant progress has been attained, although a number of measures should be in place to sustain the progress and promote more competitive power supply and retail rates for all consumers. In 2014, the Task Force to Study Ways to Reduce the Price of Electricity has published its recommendations, which this study reviewed and supports in line with the findings of the assessment. Nonetheless, other recommendations include the following:

### Generation

DOE needs to undertake generation mapping, as a policy and regular practice, and implement optimal decisionmaking on the location of the generation plants. It should likewise develop a sustainable and optimal energy mix policy and demand-side management practices, such as dynamic pricing or the provision of economic nudges that seek to lower peak consumption. An initiative to develop an optimization model that has both supply- and demand-side measures, e.q., incorporating lowcost yet intermittent renewable power source while shifting peak demand where power cost is lesser through dynamic pricing, is being discussed between the University of the Philippines College of Engineering and the University of Hawaii. Results of this initiative should inform the DOE in carving out what the optimal investment portfolio in the sector.

### Transmission and system operation

The National Grid Corporation of the Philippines must undertake capital expenditures to further strengthen transmission, and even distribution, systems; resolve transmission congestions; and modernize the infrastructure. Modernizing the grid can incorporate more renewables, which, at the pace of their wholesale price relative to that of fossil fuel, can be more competitive in the future.

### Distribution

DUs must continue improving the generation mix at the DU level, particularly in Mindanao. On the same hand, ERC must streamline and fast-track the approval of power supply agreements to encourage more investments in the sector. This may entail building additional capacities and government funding to perform the task.

#### System losses

With the help from the industry players and academic institutions, DOE must carefully examine the components of the systems loss, with the view to identify ways of reducing them. Consequently, this exercise may lead to a review of the ERC-set cap on systems losses. ERC must also strictly enforce Anti-Electricity Pilferage Law and aim for a long-term goal of single-digit losses.

### **Universal charges**

With the help from the industry players and academic institutions, DOE must also review the cost effectiveness of the universal charges and determine ways of attaining the same objective with less distortions in the power sector. Meanwhile, NPC must improve the missionary electrification implementation to reduce these charges. NPC can partner with the private sector and academic entities to evaluate the cost effectiveness of missionary electrification. Moreover, the group can look into the prospect of the national government absorbing universal charges and how they influence overall welfare.

#### Taxes

DOE must review whether or not the government is overtaxing the energy sector. This may include reviewing the legislations on taxes on electric power and whether or not these can be gradually reduced or phased out.

#### **Demand management**

Lastly, DOE must develop and implement demand-side measures (e.g., dynamic pricing). This may entail conducting an analysis of the potential of these measures and opportunities that the country can exploit.

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#### **Contact us**

Address:	Research Information Department
	Philippine Institute for Development Studies
	18/F Three Cyberpod Centris - North Tower
	EDSA corner Quezon Avenue, Quezon City
Telephone:	(+63-2) 372-1291 to 92
Email:	publications@mail.pids.gov.ph
Website:	www.pids.gov.ph

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