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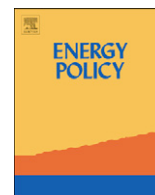
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Contents lists available at ScienceDirect

Energy Policy

journal homepage: www.elsevier.com/locate/enpol

Demise of the standard model for power sector reform and the emergence of hybrid power markets

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article info

Article history:

Received 30 May 2008

Accepted 14 July 2008

Available online 27 August 2008

Keywords:

Power sector reform

IPPs

Hybrid power markets

abstract

Following earlier reforms in the power sectors of industrialized countries and emerging markets (e.g. Chile), developing countries were encouraged to unbundle their electricity industries and to introduce competition and private sector participation. This paper highlights the developments that led to how power sector reform came to be defined as a standard model and theoretical framework in its own right, and how the model was used prescriptively in many developing countries. However, we also show that, after more than 15 years of reform efforts, this new industry model has not fully taken root in most developing countries. Finally, we identify and characterize the emergence of new hybrid power markets, which pose fresh performance and investment challenges.

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1. Power history in brief: market forces once and again

Although the push for private sector participation in the power sector was a departure from the status quo that predominated in most developing countries¹ in the early 1990s, it was not unprecedented. Throughout the end of the nineteenth century and early twentieth century, the electricity supply industry (ESI) and other infrastructure industries such as water, transport and some telephone services, across North America, Europe and parts of South America, Africa and Asia, developed largely within free market conditions (Kessides, 2004, p. 27). The Pearl Street Station, the first central power station, pioneered by Thomas Edison in 1882 in New York City, was the result of privately financed and privately managed efforts (Neil, 1942, p. 322). In the same year in South Africa, public–private partnerships would lead to the first electric street lights in the mining town of Kimberly, and later

more widespread electrification, which helped fuel commercial and industrial development (Steyn, 2006, p. 11; Eberhard, 2007, p. 218).

While the initial push was private, it was not long before deeper government involvement was evidenced. This occurred with varying degrees across countries, especially after World War II. The rationale was four-fold. First, the network component of the ESI was, after considerable trial and error, classified, as a natural monopoly. That is, one firm was thought to produce goods less expensively than if there were multiple firms in the market, as average costs declined as output increased (Joskow and Schmalensee, 1983, pp. 29–20; Newbery, 2001a, pp. 1–2). Government ownership of the monopoly (or public regulation) was often justified on the grounds that the state was the custodian of the public interest and therefore would be the least likely to act in an opportunistic manner, as monopolists were prone to do. Secondly, with regard to public ownership of the generation component, the general argument was based on the fact that significant amounts of capital were needed, as increasingly large plants were built to capitalize on economies of scale. The state was often asked to guarantee these investments and became progressively directly involved through state-owned enterprises. Thirdly, ownership by one sole firm (government) also helped to ensure the necessary coordination among the different segments (generation, transmission and distribution (T&D)). Finally, an overarching argument was made about the strategic nature of the ESI, especially for industrial development, which justified state ownership and operation (Yergin and Stanislaw, 2002, p. 7).

Electric power activities thus were vertically integrated, which meant one supplier provided generation and T&D services to a given area (Hunt, 2002, p. 2.24). The only real variation evidenced

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¹ The general thesis of this paper regarding the demise of the “standard” power sector reform model (i.e. unbundling, privatization and competition) and the emergence of hybrid power markets (where incumbent state-owned utilities coexist with Independent Power Producers)—applies to most, but not all, developing countries. The authors are aware that private participation and competition is evident in a number of Latin American countries as well as parts of Eastern Europe. However, none of the low-income countries of the world (defined by a per capita gross national income of US\$905 or less per annum (World Bank, 2008)) and few middle-income countries, have unbundled, private, competitive power markets. Hence, the arguments of this paper apply to most developing countries—including all low-income countries and many middle-income countries, among them large emerging economies such as Brazil, China, India, Mexico and South Africa.

was whether the monopolies were publicly or privately controlled, with the United States, Germany and Japan, all exhibiting significant private ownership, albeit heavy government regulation of the industry—but most countries opted for public ownership (Kahn, 1988, p. 3; Bacon, 1995b, p. 120,121; Patterson, 1999, p. 124).

By the 1970s and 1980s, however, a number of political, financial and technical factors converged and started to chip away at the logic that electricity provision should be handled via a vertically integrated generally state-owned monopoly. Although not an exhaustive list, five of the major factors are summarized here. First, there was a growing movement away from public sector ownership especially in the UK and Chile, largely due to ideological reasons (Bacon, 1995b, p. 120).² Secondly, as gas-fired combined cycle gas turbines and other smaller, more modular technologies came on the market, capital costs of plants declined, along with the need for government guarantees, making them more easy to finance (Hunt, 2002, pp. 26–27; Victor and Heller, 2007, p. 3). Thirdly, development of information and communication technologies enabled the electricity system to be organized and controlled without vertical integration. Fourth, there was increasing doubt of the efficiency of the highly regulated but vertically integrated utilities (particularly in the USA) (Bacon, 1995b, p. 120). Finally, publicly owned utilities in most developing countries were exhibiting persistent poor performance and governments were either unwilling and/or unable to provide further capital investment. These factors prompted a move toward private participation and competition (for the non-natural monopoly components of the system), which was expected would yield improved and less costly electricity supply (Bacon, 1995b, p. 121; Wolak, 1998, p. 81).

2. Powering ahead: the first reforms and reformers

The reform of ESIs was piecemeal and varied, with the front-runners—USA, Chile, England and Wales and Norway—each tackling the challenge in a slightly different way.³ These reforms were based largely on untested theory (Patterson, 1999, p. 124; World Bank, 2003, p. 50) and would later be brought to bear on countries throughout the developing world (Bacon and Besant-Jones, 2002, 2002, p. 6).

Although ideology played a significant role, particularly in the UK and Chile, and there was no set blueprint, the early reformers and reforms generally sought to improve efficiency across the ESI, primarily by introducing competition, and moving away from government involvement and toward what was perceived to be a more efficient private sector model of business. The text immediately below, excerpted from one of the countries' accountability offices, would therefore largely apply to all.

y the federal government has pursued a policy to restructure the electricity industry with the goal of increasing competition in wholesale markets and thereby increasing benefits to consumers, including lower electricity prices and access to a wider array of retail services. In particular, federal restructuring has changed how electricity is priced—shifting from prices set by regulators to prices determined by markets; how electricity is supplied—including the addition of new entities that sell electricity; the role of electricity demand—through

programs that allow consumers to participate in markets; and how the electricity industry is overseen—in order to ensure consumer protection (United States Government Accountability Office, 2005, p. 2).

Although a comprehensive review of power sector reform outcomes will not be undertaken by this paper, several points are worth noting. First, these first reforms were largely deemed to be positive (Hunt, 2002; Besant-Jones, 2006, pp. 121–125; Newbery, 2006, p. 29).⁴ Second, these reforms gradually crystallized into a standard model for power sector reform, which would be related to countries across the globe. It is worth briefly mentioning some of the linkages at this point. A number of the consultants involved in the reforms in Chile, Argentina (later) and the UK, subsequently were involved as advisors to development finance institutions (DFI) and developing country governments, and were often directly involved in the design of power sector reform in developing countries.

For example, among the many consulting groups to advise Tanzania on its power sector reform path, was one established in Buenos Aires in 1993 (Mercados, 2007a, b).⁵ London Economics, which was instrumental through, among other things, its report, *The Case for Twelve*, in providing advice on steps for UK privatization, also provided policy advice to several countries including Kenya and Mozambique (London Economics, 1993, 1997, 2007). London Economics also collaborated with the World Bank in providing general arguments for power sector reform following the UK model and provided such advice across a wide array of fora (Bates and London Economics (Consultants), 1997; Webb, 1998). National Economic Research Associates (NERA) also played an active role in the UK's reform, along with London Economics, and subsequently went on to share its expertise with several developing countries, including extensive work in India (NERA Economic Consulting, 2007a). Oxera, yet another UK-based consultancy, has played an active role in advising the UK's Department of Trade and Industry, which oversees electricity (Oxera, 2007). Oxera has also since engaged actively in providing training to World Bank staff as well as working throughout Latin America and Africa on reform programmes.

Thirdly, although not taken up in detail in this paper, reforms were ongoing in many of the early reforming countries. In some instances, second and third waves of reforms have been initiated to address issues overlooked in the initial reform programmes, including policies to ensure social and environmental sustainability as well as more significant competition (Inter-American Development Bank, 2000, p. 6). Finally, although not always the loudest voice in the room, caution was urged in carrying out what was largely unprecedented work, a point which will be returned to later (in Section 3.4) (Joskow and Schmalensee, 1983, p. 93).

3. Powering ahead: subsequent reforms and reformers

In many industrialized countries, as discussed above, reforms were initiated to improve economic efficiency, particularly with regard to the price of power, that is, a lowering of tariffs (Bacon, 1995b, p. 138; Victor and Heller, 2007, p. 262). In contrast, in many developing countries, reforms were sought to address poor

² See also Newbery (2001a, pp. 9–16) and Collins and Lear (1991).

³ For more extensive and up-to-date coverage of the early, large Organization for Economic Cooperation and Development (OECD) reformers, see, among others: Besant-Jones (2006), Dyner et al. (2006), Hunt (2002), Jamasb (2002), Joskow (2003), Littlechild (2005), Newbery (2001a, 2006), Raineri (2006), Sioshansi and Pfaffenberger (2006) and Sotkiewicz (2006).

⁴ It should be noted that successful outcomes have been challenged by among others, Sharon Beder, in *Power Play*, who accredits the reduction in tariffs to reduced fuel costs and describes how only a select few have gained from power sector reform (Beder, 2003, p. 205, 275, 337). See also Thomas (2005).

⁵ Millan (2007a) treats, among other issues, this dimension of international influences and consultants as it relates to the unfolding of power sector reform, including in his discussion of how reforms took place in El Salvador (Chapter 5).

financial management and technical delivery, which were compromising efficiency. This in turn often meant raising tariffs to revenue-sufficient levels. Reform efforts were also targeted at introducing a space for private participation as the public sector was no longer able to provide the requisite funds for system expansion (Jamnasb, 2002, pp. 1–2). Although the challenges faced by countries were different, it was generally believed that the introduction of private sector participation and market competition were the way to achieve improvements in the ESIs (O'Neill et al., 2006, p. 479).

3.1. Pre-reforms: a snapshot of developing region ESIs

By the late 1980s, poor technical and financial performance was the defining feature of many ESIs across developing regions. Among the indicators of poor technical performance was the fact that T&D energy losses averaged about 20 per cent, against a world average of approximately 9 per cent for the same period (World Bank, 2006). South Asia registered the highest T&D losses, with Bangladesh, as one example, recording 35 per cent. These significant T&D losses (estimated to be 300 billion kilowatt hours (kWh) per year) translated into about US\$30 billion in losses through increased supply costs (World Bank, 1993, pp. 22–23). Blackouts were frequent, with the Philippines representing 750 system blackout hours per year (h/yr), against a security standard of 7 h/yr. Load factors of above 70 per cent was the aim, but closer to 50 per cent in reality (Adamantiades et al., 1995, p. 2).

Poor financial performance was reflected by low debt-coverage ratios as well as insufficient cash for new investments. A survey of 60 developing countries in the late 1980s recorded that the utilities generated funds sufficient to cover only 12 per cent of their investment requirements. Other cause for alarm was the average rate of return in many developing country utilities, which fell from about 9 per cent in 1973 to less than 5 per cent by the end of the 1980s, well below the cost of capital (World Bank, 1993, p. 20). Further impeding productivity and impacting financial performance was the number of utility customers per employee. Among the worst performers in this regard was Rwanda with only 6 customers per employee and Burundi at 9 (World Bank, 1993, p. 20).

An additional performance measure, which deserves mention in this context, was the low electricity access rates of approximately 46 per cent across developing regions in 1990, with only 16 per cent of the population in Sub-Saharan Africa with access to electricity (by 1990) (International Energy Agency, 2002, p. 20). Approximately 80 per cent of those without access lived (and still do) in rural areas (International Energy Agency, 2002, p. 17). These low access rates contributed to low per capita consumption. Per capita consumption rates of low-income countries amounted to just 279 kWh or 13 per cent of the world average of 2134 kWh per person (with considerable variation recorded across regions, including an average of 51 kWh per person in Sub-Saharan Africa and 1225 in Latin America and the Caribbean) (World Bank, 2007a).

Among the most immediate causes of the technical and financial deterioration were increasingly below cost tariffs, with tariffs in 1988 across a sample of developing countries amounting to 3.8 US cents per kWh, equivalent to about half of the average tariff in Organization for Economic Cooperation and Development (OECD) countries (World Bank, 1993, pp. 25–26). Another more revealing measure of tariffs was that in 1992, it was estimated that total government subsidies for energy in developing countries were over US\$50 billion, which was greater than the total official development assistance that these countries received that year (Goldemberg and Johansson, 1995, p. 7). Below cost

tariffs meant that the utility itself was not able to finance technical improvements, through its own resources, let alone consider expansion of the grid. The poor financial indicators further prevented many utilities from accessing the capital markets given their perceived lack of creditworthiness (World Bank, 1993, p. 27).

What had caused tariffs to decline to this level, and what were the other factors influencing such poor technical and financial performance? Fig. 1 offers a description of the poor performance and related causes.

A number of points are worth noting. Firstly, there was an interplay between poor technical and financial performance; that is, technical performance was impacted by poor financial performance and vice versa. Secondly, there is some overlap in terms of the different factors and symptoms mentioned. For instance, “low self-financing ratios”, which is included as one of the signs of poor financial performance in Fig. 1, contributed to the “lack of investment”, which had a direct impact on both poor technical and financial performance (World Bank, 1993, p. 19, 21–23). Thirdly, budgetary constraints at the national level together with a host of exogenous factors had a significant influence on overall poor performance as well (World Bank, 1993, p. 19). In sum, although poor performance prompted power sector reform, the causes of such performance were multifold and deep, which helps to explain the mixed outcomes of power sector reform (treated in Section 4.2).

Finally, it is crucial to reiterate that conditions predominating in most developing countries' ESIs at the inception of power sector reform, as described above, were dramatically different from the conditions known in most of the early reforming countries (USA, Chile, UK and Norway). In the latter, there was generally significant excess capacity (Newbery, 2001b, p. 4), electricity access was nearly universal, and utilities did not face the same financial constraints. The drive in most industrialized states, as noted previously, was for economic efficiency, with the institutional foundations largely in place to help facilitate reform (Williams and Ghanadan, 2006, p. 820).

3.2. Antidote for poor performance: evolving power sector reform

Despite the stark contrast in conditions, the experiences of the early reformers became the reference point for countries across the developing world. Stated in somewhat different terms, Bacon and Besant-Jones (2002, p. 6) describe how, “the pioneering reforms to power sectors in Chile, England and Wales and Norway, during the 1980s y have motivated numerous industrialized and developing countries to follow them in the 1990s”. The ways and means of “motivating” were numerous and included both domestic and international initiatives and initiators, including the World Bank, which will be treated in this Section.

Informed by recent reforms in the USA, Chile, England and Wales and Norway, and with clear indicators that developing country ESIs were performing sub-optimally, in 1993, the World Bank issued “The World Bank's Role in the Electric Power Sector: Policies for Effective Institutional, Regulatory and Financial Reform”. The overarching argument was not for outright privatization of assets and competition, but rather improving performance through commercialization, corporatization and enhanced regulation. Private participation was highlighted as a means to improve sector performance and help meet the investment gap (World Bank, 1993, pp. 12–18).

The electricity sector had historically been a major target of World Bank lending, with an estimated cumulative US\$75 billion (in 1990 prices) or about 15 per cent of the Bank's total lending (from 1947 through 1991). It was estimated that in the 1980s, the

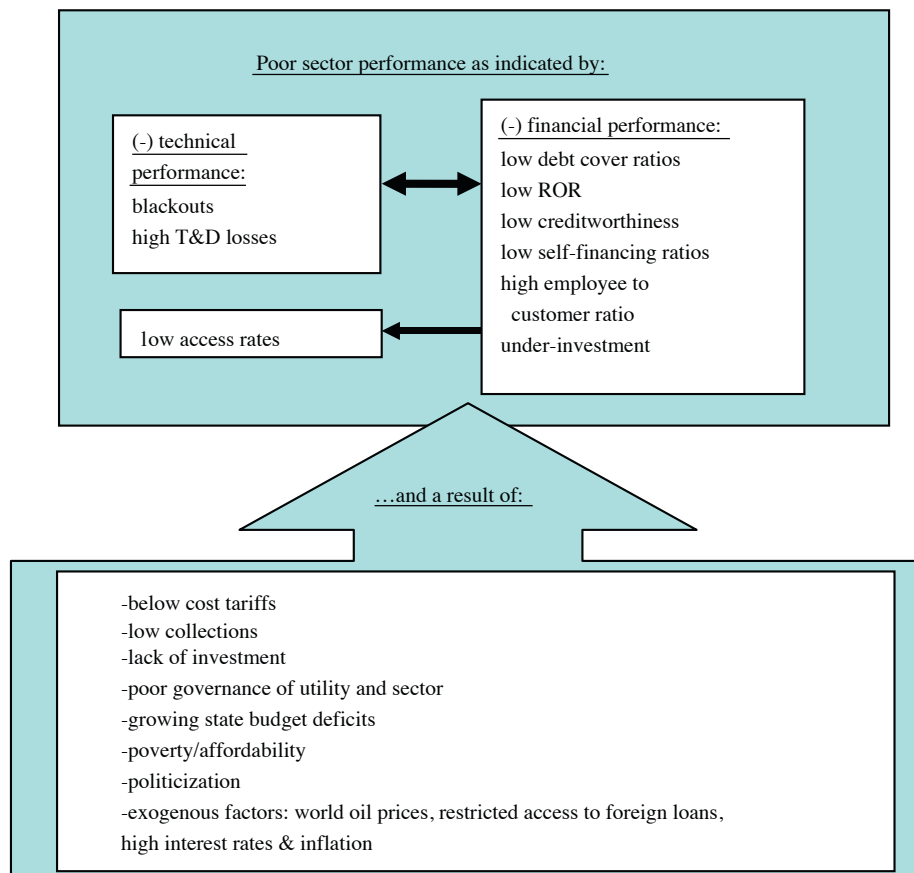


Fig. 1. Poor sector performance: indicators and causes. Source: Based on authors' compilation including: Jhirad (1990, pp. 365–375); Moore and Smith (1990); World Bank (1993, pp. 19–33); Kessides (2004, p. 3); Besant-Jones (2006, p. 10) and Victor and Heller (2007, p. 257).

World Bank accounted for approximately 7 per cent of total power investments in developing countries, not including co-financing that the Bank helped raise (World Bank, 1993, p. 34). Thus, within the World Bank, electricity was recognized as a priority sector, and, in terms of total investment flows, the Bank's contribution was substantial, which made the 1993 electricity policies of particular significance. The document, which is considered among the earliest articulations of the new power sector reform for developing countries, laid out the World Bank's role and a general set of recommendations, grouped under five principles (World Bank, 1993, pp. 59–77).

Transparent regulatory processes, which included a clear legal framework as well as the enforcement of rules and (clear and transparent) means for amending such rules, were generally recommended and made a pre-requisite for any power sector lending on behalf of the World Bank. Market pricing and demand-side management were also enumerated in this context as goals for the sector.

For the least developed countries importation of services were recommended, which would address the issue of insufficient human resources available to spearhead and manage (early) reforms.

It was imperative that commercialization and corporatization be adopted (by which it was meant that the entities within the ESI must operate as commercial enterprises, with government/state participation "more transparent") together with private sector participation.

Commitment lending was an explicit statement that the World Bank would only lend to countries with a clear commitment to improving their ESIs, following the principles laid out.

The World Bank would encourage private investment through a number of initiatives including lending to national financial intermediaries and providing investment guarantees.

These policies would inform World Bank lending practices throughout the 1990s, which will be explored in further depth in Sections 3.4 and 4.1. Evidence may also be found amidst other DFIs such as the Asian Development Bank (ADB), the Inter-American Development Bank (IADB) and the UK Department for International Development (DFID) (DFID, 2002).⁶

To take two such examples (ADB and IADB), in 1995, articulating its policy recommendations for the energy sector, the ADB identified as a first priority: private sector participation as pivotal in funding major energy projects. Thereafter, the multilateral finance institution listed the importance of energy efficiency and more extensive integration of environmental concerns into energy sector development. In sum, however, "The overall thrust of the suggested policy initiatives is to encourage the [developing member countries] to develop appropriate market structures and to encourage greater competition in the energy sector" (Asian Development Bank, 1995, p. 30).

In terms of the IADB, the organization's 1996 Public Utilities Sectoral Operational Policies (under which electricity was included)

⁶ It should be noted that the World Bank did not withdraw from funding power infrastructure exclusively. Rather throughout the 1990s, there was a sharp reduction particularly in thermal power production investments, with some notable exceptions including two plants in Kenya: Kipevu I and Olkaria II. Funds were concentrated in providing technical assistance for investments by the private sector and in T&D projects, which as described in Section 1, represented the natural monopoly component of the system.

outlined five objectives, namely, ensuring long-term sustainability of service; achieving economic efficiency; safeguarding quality; promoting accessibility; and meeting wider national objectives (Inter-American Development Bank, 1996). In the new spirit of commercialization, the IADB indicated that:

A number of important trade-offs exist among the objectives mentioned before. However, there is one area in which no compromise should be made and that is, in meeting the objective of long-term service sustainability by ensuring that financial flows rise to a level compatible with full cost recovery, while guaranteeing economic efficiency as a general goal of service provision (Inter-American Development Bank, 1996).

The means to achieving such objectives, as spelled out by the IADB, were multi-fold, with significant emphasis given to competition throughout each of the steps (Inter-American Development Bank, 1996). Privatization and private participation, although alluded to, were not laid down as policy; at approximately the same time, though, the IADB did encourage extensive private sector participation, via a “private sector window” for privately financed projects, including in infrastructure, that required no sovereign guarantee, as a means to facilitate private sector flows (Inter-American Development Bank, 1996, 2006, p. 3).

It should be reiterated, however, that influences were not merely external, and to quote one individual who played roles in both international and domestic organizations (in Latin America) at varying points of his career, “The [development] [b]anks didn’t impose the reform but promoted it” (Millan, 2007b). In other words, DFIs were at the forefront of reform, but they were not alone. Domestic actors and international policy consultants had a role to play as well in shaping and ultimately carrying out reform policy, as will be sketched in Sections 3.4 and 4.1.

3.3. Advent of a new standard model

Over the course of the decade, as power sector reform was being enacted throughout developing regions and ongoing in several industrialized countries, a series of key steps came to be identified. These steps are loosely connected to the 1993 electricity policies of the World Bank but go much further in setting out a course of action for full liberalization of power markets. By 1999, these reform steps had been formulated roughly as follows:⁷

1. Corporatization: involves the utility being transformed into a separate legal entity (separate from the ministry/government), with all associated rights and obligations including governance structures, managing budgets, borrowing, procurement, labour employment, payment of taxes and dividends.
2. Commercialization: represents a move toward cost-recovery in pricing, improvements in metering, billing and collections and

could involve adopting internationally recognized accounting practices as well as accounting for all subsidies.

3. Passage of the requisite energy legislation: provides a legal mandate for restructuring, as well as the legal framework to allow private/foreign participation/ownership in the sector.
4. Establishment of an (independent) regulator: aims to introduce efficiency, transparency and fairness in the management of the sector, specifically to prevent anticompetitive activity, encourage appropriate investment and protect consumers.
5. Independent Power Producers (IPPs): introduce new (private) investment in generation, with long-term Power Purchase Agreements (PPA).
6. Restructuring: involves unbundling the incumbent (state-owned) utility, which may take the form of vertical and/or horizontal unbundling of generation, T&D assets as preparation for privatization of (profitable) assets and the introduction of competition.
7. Divestiture of generation assets: divests state ownership in part or full of generation assets to private sector.
8. Divestiture of distribution assets: divests state ownership in part or full of distribution assets to private sector.
9. Competition: introduction of wholesale and retail markets.

These milestones taken together have been referred to as the “standard prescription” (Hunt, 2002, p. 8, 239) or the “standard model” (Littlechild, 2006, p. xviii), which draws on a “textbook architecture” (Joskow, 2006, p. 4, 8; Littlechild, 2006, p. xviii). In terms of the sequencing of the steps, by 1999, it was posited that:

There is a logical sequence to reform steps if a country is working toward full private sector participation and competition, and the survey results were expected to show this pattern. First the state company must be corporatized and commercialized. Next a law permitting private entry must be passed. Then regulation must be implemented. After that the state enterprise should be restructured through vertical and horizontal separation. Private greenfield investment could then be allowed. Finally, the existing assets should be privatized (Bacon, 1999, p. 3).

Minor variations of the standard model have been laid out, with considerably greater emphasis placed on the creation of competitive wholesale and retail markets (linked to steps 6 and 9 above), for more developed ESIs. The following additional elements have been specified as the textbook architecture for the creation of full competition (Hunt, 2002, p. 8):

1. Demand side: Hourly metering for most of the consumption and pricing plans that expose customers to the spot price for some of their consumption.
2. Trading arrangements: System operations separated from traders and regionally consolidated. Trading arrangements based on an integrated model, with central dispatch and locational energy prices.
3. Transmission business model: Control of transmission separate from traders; pricing and expansion arrangements; [the] preference is for regional profit-making regulated transmission companies (transcos) incorporating the system operator.
4. Supply side: Remove barriers to entry. Buy out of the old regime by valuing assets. Expand market power control, divest utility generation into smaller parcels.
5. Retail access: When production markets are working, choice for all customers, [which requires] extensive settlement mechanism and customer education, and decisions about default provision.

⁷ Reform steps have been identified in Bacon (1999, p. 4), but have been embellished with definitions found in Adamantides et al. (1995, pp. 6–7), Besant-Jones (2006, p. 11) and Williams and Ghanadan (2006, p. 821). Commercialization was not included as a separate step in Bacon’s (1999) report, as has been noted above; however, in earlier work (Bacon, 1995b, p. 131) the author clearly indicates: “an almost inevitable first step is to turn the state enterprise into a corporation and then submit this corporation to commercial discipline.” Thus, commercialization was considered an extension of corporatization. Also not identified in Bacon (1999) was “competition”, step 7, due to the fact that steps were largely based on what the author observed as being carried out in developing countries in 1998 (Bacon, 2007a). “Basically at the time of research (1998) even the possibility of private entry was largely new. Competition would have been effectively meaningless with only a very few cases for those countries which had done some reform” (Bacon, 2007b).

Joskow's (2006, p. 8) latest and more succinct version of the "textbook model" is: privatization of state-owned enterprises; vertical and horizontal restructuring to facilitate competition and mitigate self-dealing and cross-subsidization problems; performance-based regulation applied to the regulated T&D segments; good wholesale market designs that facilitate efficient competition among existing generators; competitive entry of new generators, and retail competition, at least for industrial customers. Victor and Heller (2007, p. 6) refer to the "standard textbook model", which roughly corresponds to these steps and is simply stated as: unbundle; privatize; create regulatory institutions; and create markets. Besant-Jones (2006, p. 11) provides his version, identifying it as "elements of full-scale market reform" not a prescription per se, with the major addition, which is also stated in Bacon and Besant-Jones (2002, p. 4), of "focusing government's role on policy formation and execution." Dubash (2002, p. 12) in *Power Politics* refers to "a complex new model for the electricity sector" and details some but not all of the steps listed in the text above. Other references include Williams and Ghanadan's (2006, p. 821) "standard menu for reform," which is largely based on Bacon's steps, but again with the addition of competition as a final, separate step.⁸

These steps have been associated with four different industry models that illustrate the degree of competition for and in the market (Joskow and Schmalensee, 1983, pp. 93–105; Adamantides et al., 1995, p. 9; Hunt, 2002, pp. 42–54; Kessides, 2004, p. 144, 148, 150). The first model (below) depicts the vertically integrated monopoly structure, which characterized most ESIs at the inception of power sector reforms (Figs. 2 and 3).

The above models do not necessarily represent the reform paths of the pioneer countries exactly. The changes these countries made were by no means uniform and often were driven by ideology. Later, through a process of trial, error, research, writing and policy formation, a gradual understanding developed of the different elements of reform, which in turn were grouped into different categories. These categories subsequently came to be viewed as the building blocks of a standard model for power sector reform. This model served two core purposes. First, it provided an analytical framework to understand and characterize reform processes in different countries. Second, it could be used prescriptively to advocate reform in other countries.

Three points should be made in concluding. First, four of the nine reform steps laid out above, namely corporatization, commercialization, passage of an energy law and establishment of an independent regulator, may all take place under the first model (monopoly) to enhance performance. These preliminary steps are what are required to transform the ESI from a government agency or department into a commercial enterprise (Hunt, 2007). Secondly, the extended standard model for competition, detailed above as five steps, is applicable to models 3 and 4 (Hunt, 2007), namely wholesale and retail competition, and presupposes the completion of the earlier steps outlined in Bacon (1999). Finally, to implement these five steps and achieve either wholesale or retail competition (models 3 or 4), sophisticated legal and financial infrastructure is required (Hunt, 2007)⁹—the absence of which, as alluded to previously, is one of

the main characteristics of many developing countries. Thus, although the model described above, emerged as a standard, it is arguable that almost half of the steps were not necessarily relevant to the conditions on the ground in most developing countries on which it (the standard) was brought to bear.

3.4. Exceptions to the standard model and the role of the World Bank

As noted above, there were clear pre-requisites to introducing wholesale and retail competition, also known as the culmination of the standard model. Commercialization, corporatization and unbundling were among such pre-requisites. In addition to this emphasis on proper sequencing, a series of exceptions to the reform model have been raised since the inception of power sector reforms in developing countries.¹⁰ This Section does not purport to be an exhaustive inventory of references to exceptions, but rather to showcase approximately 10 examples, in roughly chronological order. The Section also revisits broad generalizations on how the World Bank formulated, advocated and advanced the standard model for power sector reform in its client countries.

Three years before the 1993 electricity sector policy document was issued, the World Bank's Industry and Energy Department, recommended through a discussion paper (not official Bank policy) that what was needed was not wholesale competition, which was deemed irrelevant to most least developing countries (Teplitz-Sembitzky, 1990, p. 81).

Competition at the wholesale level is a policy issue that does not rank high on the agenda for power sector reforms in LDCs [Least Developed Countries]. In most countries, the efficient structure and size of the power industry leaves little or no room for market forces to guide the use of generation capacity. Furthermore, the concept of wholesale competition in itself is a questionable approach since the market forces it intends to stimulate may merely replicate the existing industry structure on the basis of contracts (Teplitz-Sembitzky, 1990, p. 81).

Instead what was advanced was "re-regulation" to ensure that utilities, whether privately or publicly owned, had both sufficient oversight and autonomy to improve performance (Teplitz-Sembitzky, 1990, p. vi, 82).

Although by 1993 ideas had advanced as previously described in the World Bank's electricity sector policy, the policy document makes explicit that: it should serve as guiding principles; consideration should be given to the variation in country situations, and specific actions must be worked out at the country level (World Bank, 1993, p. 13), i.e. a one-sized approach would not work for all.

In 1995, Bacon, in another World Bank discussion paper, challenged policy makers to reconsider whether horizontal and/or vertical unbundling was appropriate to small systems. According to Bacon, "the most prominent case (England and Wales) is operated on a scale completely different from that in many countries for which it is being referred to as a model" (Bacon, 1995a, p. 4). With high costs associated with many of the steps related to unbundling and the introduction of competition, caution was urged, along with detailed economic analyses to ensure that benefits outweighed costs. Before the reform model is implemented, decision makers should be able to answer a series

⁸ There is an important distinction among the authors cited here and above—with Joskow, Hunt and Littlechild providing a normative framework and Victor and Heller, Dubash, and Williams and Ghanadan providing a descriptive framework. Bacon and Besant-Jones' work appears to be partially descriptive and partially normative.

⁹ In its Sectoral Operational Policies for Public Utilities, as previously referenced, the Inter-American Development Bank (1996, p. 4), indicated that, "the existence of competition in the market, and some kinds of private sector participation can only function effectively within a specific legal context, countries

(footnote continued)

should carefully study the adequacy and compatibility of the proposed options with their legal systems".

¹⁰ Recall as well that caution was urged (Joskow and Schmalensee, 1983, p. 93), as previously referenced, for all reformers (Section 2).

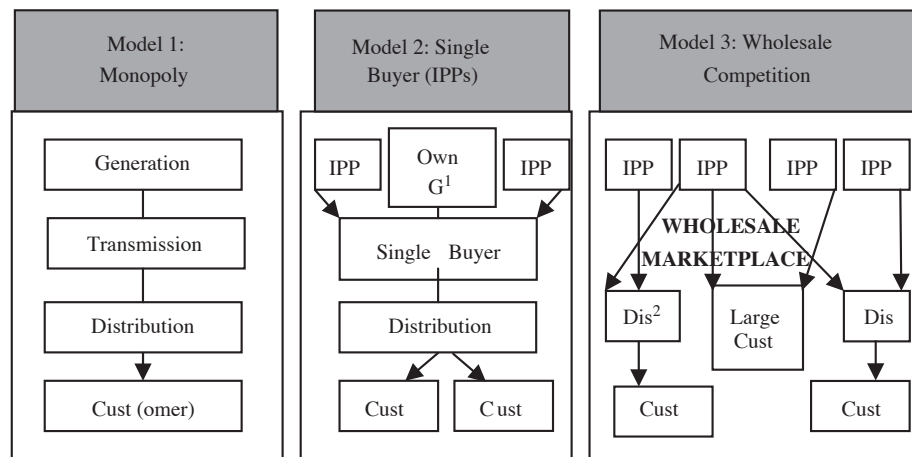


Fig. 2. Standard model: models 1–3. Source: Hunt (2002, pp. 42–45). Notes: ¹“Own G” refers to state-owned generation, ²“Dis” distribution company. Hunt (2002, pp. 42–44) provides two different variations of models 1 and 2, not depicted here, which include (in model 1) a distinct distribution company and (in model 2) many distinct distribution companies.

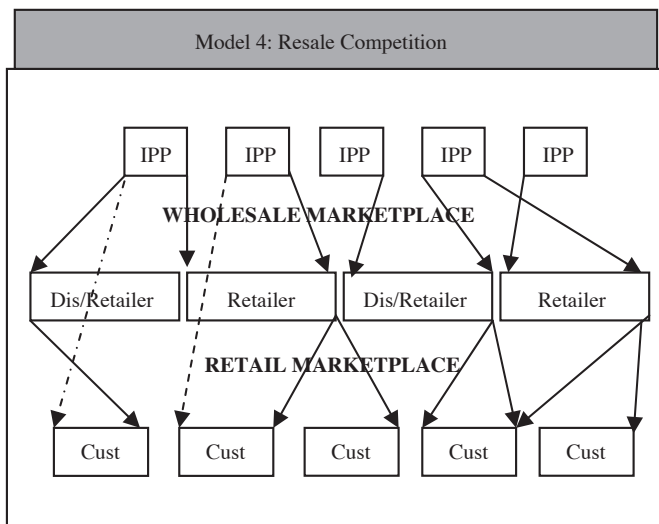


Fig. 3. Standard model: model 4. Source: Hunt (2002, p. 54). Notes: “Dis/Retailer” to distribution company and/or retailer; “Cust” to customer, as noted above.

of questions including the extent to which unbundling of small systems will impact on employee efficiency, as career advancements may be stunted in a newly organized, smaller, firm (Bacon, 1995a, p. 19, 33).

Hunt and Shuttleworth (1996) provided such exceptions and Hunt (2002, p. 27) reiterated them again in Making Competition Work in Electricity when she indicated that small countries, or those with low demand and/or inadequate transmission networks were considered possible candidates for continued monopolies.

Alternatives to wholesale and retail competition were expounded on by Jamasb (2002, pp. 43–47), who described how countries with smaller systems should aim for competition for the market, rather than in the market, through: the single buyer model, bilateral contracts (PPAs) and management contracts.¹¹

Although a strong proponent of the prescription, Joskow (2006, p. 8) acknowledges that there may be some regulated vertically integrated monopolies that may perform well and for which

“comprehensive reforms reflected in the textbook model might have little positive effect on performance.”

In 2004, the World Bank’s “Operational Guidance for World Bank Group Staff: Public and Private Sector Roles in the Supply of Electricity Services,” again raised the exception of small systems, which may, as indicated by Hunt, be more efficient as monopolies (World Bank, 2004, pp. 7–8). However, this document, which will be discussed below and represented the first major World Bank policy document since the 1993 electricity sector policy, also went much further than simply referencing an exception. Rather, the document was premised on the need to rethink the approach to power sector reform, which included: integrating stronger poverty, affordability and environmental elements; treating all reform steps as means to enhanced performance and poverty reduction, not ends in themselves; and consideration that many of the Bank’s client countries actually fall into the category of being too small to support competition (World Bank, 2004, pp. 2–3,7).

These points were reinforced by Besant-Jones, in his 2006 treatise, published by the World Bank, which was intended to complement the 2004 Operational Guidance note, cited above, and provide relevant and detailed applications of the policy advice to World Bank staffers as well as all those involved in making critical decisions related to ESI reform. Almost two decades since the first cautionary note was issued, Besant-Jones (2006, p. 61) writes, “The case for unbundling gets weaker the smaller the system, the more undeveloped the institutional capacity, and/or the weaker the general country conditions”.

In summary, attention to important exceptions to the standard model has been raised throughout. There has, however, often been a misunderstanding: namely, the extent to which the World Bank, among the most significant development agencies in Africa and other developing regions, formulated, implemented and advocated what has come to be known as the standard prescription (as detailed by Bacon in general terms and Hunt and Joskow, among others) specifically with regard to creating competitive wholesale and retail markets.

The World Bank did advance power sector reform through its 1993 policy, but never advocated outright liberalization (in any official policy documents) as per many of the critics (Wamukonya, 2003, p. 1274; Williams and Ghanadan, 2006, p. 821; Yi-chong, 2006, p. 804). Caution about application was noted since the inception of the first reforms, recommending tailor-made solutions (Besant-Jones et al., 1993, p. 6). Such caution would be reiterated by specific World Bank staff over the decade. Although numerous technical papers were published, no formal policy

¹¹ The Inter-American Development Bank (1996, p. 2) in its 1996 Sectoral Operational Policies for Public Utilities also included warnings to consider market size and shape as well as the fact that such size and shape may preclude unbundling.

guidance was provided between 1993 and 2004 when the *World Bank* (2004) issued its “Operational Guidance for World Bank Staff”.¹² The oft-cited Bacon Scorecard was not intended to be prescriptive, but rather in the words of the author “was essentially designed to allow simple yes/no answers for the maximum number of countries and what we thought at that time were key reform steps” (Bacon, 2007a).

Nevertheless, certain World Bank staff as well as World Bank consultants appear to have advocated and ultimately implemented liberalization in power sector reform. There is also evidence of the enthusiasm for the model being home grown, as seen for example in the case of Tanzania's Parastatal Sector Reform Commission (PSRC), which while funded in part by donor agencies, also had significant local input and influence, and which rallied around the standard prescription (as treated in greater detail below in Section 4.1). Furthermore, as previously discussed (Section 2), numerous consultants working independently of the World Bank were also involved in spreading the standard model.

The Bank's approach to sector reform, as it evolved in the 1990s, went beyond what was mandated by the 1993 Electric Power Lending Policy. The policy promoted commercialization and corporatization before privatization, as a means to introduce competition and innovation. It was based mainly on the reforms in Chile, England, and Wales, which were the only experiences available at that time. Most power sectors of Bank client countries, however, showed little prospect for reaching commercial standards because of the inefficiencies from state ownership and poor governance. Subsequent to the 1993 policy, and without enunciating it as a major strategic change, the Bank thus mostly advocated privatization (as well as private participation through management contracts) as a means to achieving commercialization (World Bank, 2003, p. 50) (italics added by authors).

The text clearly spells out how the Bank advanced privatization as a first step where commercialization was not initially achievable, however, as previously indicated, not only was this unwritten practice not official policy, it was practiced by some and not all. This disconnect between policy and implementation may explain why for instance many of the stakeholders across Africa and throughout many other developing regions have indicated that the World Bank was requiring competitive markets. The argument here is there appears to have been one official policy and one less official policy that was advanced on the ground. While this has been acknowledged in some reports, including Besant-Jones (2006, p. 31) and Williams and Ghanadan (2006, p. 821), it has not been widely appreciated to date and not been clearly documented.

4. An unexpected ending to the story

Despite the difference in starting conditions, and despite the exceptions noted, power sector reform and the standard model, shaped largely in industrialized countries, were applied to developing countries. And so it happened that Tanzania, one

among many such country examples, became a candidate for wholesale competition, with installed capacity of approximately 900 megawatt (MW), a largely hydro-dominant system (at the time that plans for power sector reform were being developed), and a state utility that was far from following commercial practices. The next Section commences by briefly reviewing the example of Tanzania to illustrate how power sector reform and the standard model were enacted. Subsequently, an overview of reform paths across developing countries is presented.¹³

4.1. An illustration: Tanzania

Still on the books, but not yet implemented, in Tanzania, is a plan to unbundle the Tanzania Electricity Supply Company (TANESCO), the state-owned utility, into separate generation and T&D companies, privatize assets and introduce competitive markets into the ESI (Mercados, 2007a–c; Parastatal Sector Reform Commission, 2007; EWURA, 2007). The plan was developed by Mercados, a consultancy, as previously noted (in Section 2), founded in 1993 in Buenos Aires, Argentina, a country which established wholesale competition starting in 1992 (Dyner et al., 2006, p. 604).

PSRC, a government agency established in 1992 to privatize government-owned enterprises in order to increase efficiency and enhance performance, commissioned Mercados, as well as a number of other consultants (including Stone and Webster), to design a series of plans to advance power sector reform in Tanzania. The World Bank and DFID, the primary DFIs that fund the PSRC, may also be linked to the advancement of power sector reform.

The challenge of assigning responsibility for the nature of the reform plans increases not only with the myriad actors involved, but also due to the inter-linkages. For instance, the World Bank provided the funding for Mercados' consultancy work, through credit #Q073:3304, the Privatization and Private Sector Development Project. According to PSRC and Mercados, however, World Bank staff did not interfere with the consultancy work, which was carried out independently by Mercados, and which both (Mercados and PSRC) also contend was tailor-made to suit Tanzania's conditions, that is, not as the critics allege, a copy and paste job, based on early experiences in Latin America (Mercados, 2007c; Parastatal Sector Reform Commission, 2007). Still, the World Bank did facilitate this exchange by underwriting it.

Furthermore, long before Mercados' plan was issued in 2004, power sector reform, following the model carried out by the early reformers had found its way into Tanzania's policy. “In October 1999, the government approved a [World Bank funded] power sector restructuring strategy, which recommends unbundling TANESCO vertically and horizontally into generation, T&D businesses with the objective of introducing private sector investors and operators...Implementation of the reform programme is being supported by the Privatization and Private Sector Development Project [which was also later used to fund the Mercados work above] y” (World Bank, 2001, p. 5). The World Bank thus played a critical role in funding this initiative; however, the project was also supported by a host of domestic actors (Tanzania Ministry of Energy and Minerals, 2007; EWURA, 2007).¹⁴

¹² In Power for Development, the authors urge the World Bank Group to provide operational guidance to staff on how to promote private sector development in the electricity sector, given increased macroeconomic and political risk and limited private sector interest, and further recommend that such guidance should clearly emphasize how to deal specifically with poverty reduction and environmental aspects together with technical and financial performance improvements (World Bank, 2003, p. 57). The response was two-fold, first the 2004 Operational Guidance for World Bank Staff (World Bank, 2004) and subsequently Reforming Markets in Developing Countries: What We Have Learned (Besant-Jones, 2006).

¹³ What this Section deliberately does not undertake is a review of the literature assessing outcomes of power sector reform, including performance measurements, due to the controversial nature of such literature, which is partly the result of insufficient quantitative data mapping actual outcomes (as acknowledged most recently in Besant-Jones (2006, p. 31)).

¹⁴ Further evidence for both multilateral involvement in supporting power sector reform a la standard model may be noted in Tanzania's Interim Poverty Reduction Strategy Paper, issued in March 2000, which listed among other

This inter-linkage of influences and ideas may be seen perhaps most clearly through the steps that led to the 1999 strategy document referenced above, also known as The Framework for the New Direction of the Power Sector. The Framework was drafted throughout 1998, by experts from the Ministry of Energy and Minerals (MEM), Ministry of Finance, Ministry of Planning, Ministry of Justice and Constitutional Affairs, TANESCO and the PSRC. Subsequent to the drafting, the authors of this document went on a tour of three Latin American countries, namely Argentina, Bolivia and Jamaica, which had all carried out degrees of power sector reform, with Argentina the most advanced of the three in terms of implementing the standard model (Tanzania Ministry of Energy and Minerals, 2007; World Bank, 2007c).¹⁵ This tour was funded by the Swedish International Development Corporation Agency and organized together with the World Bank (World Bank, 2007c). Following the tour, the findings and lessons of the visit were internalized in the draft framework, which was then finalized through two workshops, arranged by the MEM in collaboration with PSRC, with input from the World Bank, International Monetary Fund, Swedish government, Japanese government, Spanish government, European Union, African Development Bank and European Investment Bank (Tanzania Ministry of Energy and Minerals, 2007).

Among stakeholders in Tanzania as well as international funders, there is disagreement about who is most responsible for advancing the standard model, with Mercados, the World Bank and PSRC, each singled out.¹⁶ Also disputed is the applicability of the standard model, with PSRC and Mercados asserting that the creation of competitive markets is apt, but as per the consultants' recommendations, not right now, i.e. it will be appropriate in the long-term (Mercados, 2007c; Parastatal Sector Reform Commission, 2007). Other policy makers in Tanzania and the World Bank staff hold differing opinions, questioning the ultimate applicability given the country conditions (EWURA, 2007; World Bank, 2007b). It is not the goal of this paper to settle the dispute, but rather to showcase how the standard model evolved in the case of Tanzania. In closing, it is important to mention that however applicable or not the standard model may be to the Tanzania ESI, at this point, the only elements of the model actually in place are IPPs and a regulator (albeit almost 5 years after the first IPP came online).¹⁷

4.2. Reform paths taken

The example of Tanzania highlighted above was intended to show how the standard model took root in the developing world.

(footnote continued)

proposed completion conditions, the following: "initiate process for the unbundling of TANESCO into autonomous commercial entities" (Tanzanian Authorities, 2000, p. 3). As noted for the 1999 World Bank funded initiative, however, each initiative had its domestic champions/counterparts (EWURA, 2007).

¹⁵ Tours of the following countries were also conducted: Uganda, Mozambique and Zambia to address issues associated with the formation of the institutional framework for the handling of rural electrification programmes; Zambia, South Africa, USA and Mozambique for lessons and experiences in arranging regional grid interconnections and electricity trading via the power pools, which were arranged after the drafting of the Power Sector Reform Framework; and India, Malaysia and Singapore to enable the government to understand the pros and cons of implementing the recommendations that were put forward by the restructuring and trading consultants. Finally, a tour in Sweden was made during the time when the Ministry was drafting its Energy Policy of 2003 (Tanzania Ministry of Energy and Minerals, 2007).

¹⁶ The Ministry of Energy and Minerals, although involved throughout and including champions of power sector reform, is largely seen to have been less involved in advancing the standard model than PSRC, the World Bank and Mercados (EWURA, 2007; World Bank, 2007c).

¹⁷ For further discussion of Tanzanian IPPs and African IPPs in general, see Gratwick et al. (2006).

Although this paper does not argue that such experience was uniform across developing countries, it is suggested that such experience is not altogether uncommon. This Section provides a birds-eye view of reforms actually carried out, with IPPs emerging as among the most significant pieces.

Results for power sector reform across developing countries were reported in a systematic way starting in 1999 in the oft-cited Scorecard, which found that from a total of 115 developing countries, about a third of the reform steps¹⁸ had been carried out (Bacon, 1999, p. 1). By this time, only 12 countries had embarked on all steps of reform identified, and 42 had not yet embarked on any, with the most activity occurring within the Latin American and Caribbean region and the least occurring in Sub-Saharan Africa (Table 1). Also noteworthy is that IPPs were second only to corporatization in terms of reform steps undertaken (Bacon, 1999, p. 4).

By 2000, the World Bank surveyed 116 developing countries, albeit not according to the Scorecard metric, and progress was noted. For example, industrial firms in 17 countries had a choice of power supplier; independent or quasi-independent regulators appeared to be working in 37 countries; and in 27 countries private sector participation was deemed to be significant. In general, there was little evidence of competition (Bacon and Besant-Jones, 2002, p. 8, 2000 analysis cited).

Among the latest and most extensive surveys of reform steps taken was reported in Besant-Jones (2006), results for which are summarized in Table 2. Retail competition is not featured as one of the categories,¹⁹ as it is deemed largely inapplicable to the sample of developing countries (Besant-Jones, 2007). Instead, what is featured are the models presently predominating among developing countries, namely vertically integrated monopolies, with and without IPPs (see rows A and B in Table 2) as well as varying degrees of wholesale competition (see rows C–E in Table 2).

Regional trends have continued with Latin America and the Caribbean being the forerunner in terms of advancing toward full privatization and competition, followed by Europe and Central Asia. Sub-Saharan Africa meanwhile continues to represent the largest number of vertically integrated monopolies (39). These regional trends are in turn reinforced by size of ESI and income per capita. No country with less than 1000 MW installed is operating a wholesale market (either group D or E above). Furthermore, in terms of low-income countries, there is no evidence of the most developed form of wholesale competition (group E above), and only one example of the second to most developed form of wholesale competition (group D above). The majority of low-income countries (43) appears to be vertically integrated monopolies, with some (15) having introduced IPPs (Besant-Jones, 2006, pp. 23–24).

Two main points are worth making in conclusion. First, in her assessment of power sector reform, Hunt (2002, p. 5) observes that no country that has introduced competition has reverted to a monopoly.²⁰ However, the second point, is that in their survey of Brazil, China, India, Mexico and South Africa, Victor and Heller (2007, p. xv, 256) note that full implementation of the textbook reform model is not evident in any one of the countries, which are

¹⁸ These reform steps refer to: corporatization/commercialization, energy law, IPPs, regulation, restructuring/unbundling, generation assets divested, distribution assets divested, as discussed in Section 3.3.

¹⁹ Retail competition is only included in terms of "aggregators of retail demand that buy into the wholesale market" (Besant-Jones, 2007).

²⁰ This point is also made by Bacon and Besant-Jones (2002, p. 15) who note in concluding that despite macroeconomic shock that impacted unfavourably, particularly on IPPs, the liberalization programme has not been reversed or undone.

Table 1
Number of countries having taken key reform steps by region as of 1998

Key step	Region (No. countries)					
	AFR (48)	EAP (9)	ECA (27)	LCC (18)	MNA (8)	SAR (5)
Corporatization	15 (31%)	4 (44%)	17 (63%)	11 (61%)	2 (25%)	2 (40%)
Law	7 (15%)	3 (33%)	11 (41%)	14 (78%)	1 (13%)	2 (40%)
Regulator	4 (8%)	1 (11%)	11 (41%)	15 (83%)	0 (0%)	2 (40%)
IPPs	9 (19%)	7 (78%)	9 (33%)	15 (83%)	1 (13%)	5 (100%)
Restructuring	4 (8%)	4 (44%)	14 (52%)	13 (72%)	3 (38%)	2 (40%)
Gen privatization	2 (4%)	2 (22%)	10 (37%)	7 (39%)	1 (13%)	2 (40%)
Dis privatization	2 (4%)	1 (11%)	8 (30%)	8 (44%)	1 (13%)	1 (20%)
Reform indicator	0.88 (15%)	2.44 (41%)	2.70 (45%)	4.28 (71%)	1.00 (17%)	3.00 (50%)

Source: Bacon and Besant-Jones (2002, p. 8).

Notes: AFR: Africa; EAP: East Asia and Pacific; ECA: Europe and Central Asia; LCC: Latin America and the Caribbean; MNA: Middle East and North Africa; SAR: South Asia, Gen: generation; Dis: distribution. Italics added by authors.

Table 2
ESI structure in 150 developing countries

Group	Current structure of power supply	Number of countries
A	Vertically integrated monopolies	79
B	Vertically integrated monopolies with IPPs	36
C	Single buyer as a national genco, transco or disco OR a combined national genco-transco or transco-disco+IPPs	16
D	Many discos and gencos, including IPPs, transco as single buyer with third-party access	6
E	Power market of gencos, discos and large users, transco and ISO	13
	Total countries	150

Source: authors' compilation based on Besant-Jones (2006, p. 22).

Notes: genco: generation company; transco: transmission company; disco: distribution company.

noteworthy for having the biggest power systems within their respective regions as well as among the most rapid growth in electricity demand in the world. Besant-Jones (2006, p. 22, 2007) reinforces this point as he notes that only about 20 developing countries have introduced wholesale competition and that retail competition is negligible. In abundance, however, are vertically integrated monopolies as well as such utilities with IPPs (see A and B in Table 2). The model for power sector reform, although widely propagated throughout developing countries, was, in the end, only taken up in part.

4.3. Enacting the reform agenda

Power sector reform, a la standard model, has been promulgated across developing regions. Despite these efforts, in no country in Africa (and in few other developing regions) has the end state of the standard model been realized.

That is not to say that pieces of the model are not in evidence. Over the course of the past two decades, ESIs have adopted greater commercialization practices, and steps have been taken toward corporatization. There is evidence for the passage of energy laws providing for third party access to grids; new regulatory organizations abound. Numerous countries, as documented by this paper, have also adopted IPPs. It is here, however, where the steps of the standard model stop, with little achieved in terms of full unbundling (vertical as well as horizontal), privatization of the ESI and the introduction of wholesale and retail competition. Furthermore, it should be noted that the sequencing of the steps that has been undertaken, has not always been per the original model. For instance, in many countries, regulators came into existence only after the first IPP contracts were negotiated

(Gratwick and Eberhard, 2008, pp. 315–316). Commercialization efforts have often only picked up post-IPPs as well.

Not only have the steps been out of order, but the actual motivating forces have also differed from what was conceived of in the standard model. For instance, the rationale for IPPs, according to the model, was that the introduction of privately financed and often privately owned generation would help the sector move toward greater efficiency by providing a benchmark to state-owned plants. Further advantages cited were that IPPs would introduce competition for the market (yielding lower tariffs), which was also considered a step toward competition in the market (APEC Energy Working Group, 1997; Woodhouse, 2006a, p. 127; Gratwick and Eberhard, 2008, p. 310).

In practice, however, IPPs have often been adopted in numerous countries at a time when there were no public funds available and often an electricity supply crisis prevailed. Thus, the situation was often one of emergency, with the need for urgent power the impetus, rather than long-term efficiency of the ESI (Gratwick and Eberhard, 2008, p. 317). Decisions taken in such crisis situations have frequently locked countries into 20 year commitments, with widespread evidence for renegotiations in such instances, as the original terms are deemed obsolete.

It is perhaps valuable to briefly consider what has happened in African countries that have experimented with the standard model, but have not developed IPPs. How have they fared, and are they any closer to or further from the end state of the standard model? Malawi, Mozambique, Zambia and Zimbabwe have flirted with the idea of unbundling, privatizing and introducing competition, but did not attract any IPPs. In each case, however, the countries also stopped in the reform path, long before unbundling and competition were completed.²¹ Thus, the presence or absence of IPPs does not appear to explain the lack of progress in achieving the standard model to date.

4.4. Mid-way or a new model?

What does the fact that no African country and few developing countries in other regions, have adopted the standard model full cloth, despite the intense pressure to reform ESIs, say about the model? Is the road simply longer than anticipated and the standard model still applicable, or has a new model come into play?

²¹ A number of authors chart the reforms of one or more such countries: Zimbabwe (Dube, 2000, pp. 121–151); Malawi, Mozambique, Zambia Zimbabwe (SAD-ELEC, 2004, p. 24, 27, 51, 55); Malawi, Zambia and Zimbabwe (United Nations Environment Programme and United Nations Economic Commission for Africa, 2006).

Although IPPs may slow the process, particularly when associated with alleged corruption, they are not necessarily impediments to the enactment of the standard model, particularly if they are procured in a transparent manner and are part of a country's power system master plan. The means to integrating IPPs into wholesale competition are many and may include: forced market integration by enacting legislation; integration through a change in market rules; forced renegotiation; financially facilitated market integration, contract buy-out and facilitated voluntary renegotiation or buy-out (Woolf and Halpern, 2001, p. 13).

Despite such a wide range of alternatives for moving from IPPs to wholesale competition, there is little evidence, for such movement. Instead, largely state-owned utilities are maintaining significant (often dominant) market share. New publicly funded plants are being built, often with support of concessionary loans. A hybrid market is emerging where long-term take or pay contracts with IPPs exist alongside publicly owned and operated plants. Might this signal then not a mid point in the standard model but rather a new model altogether?²²

The rejoinder may well be—are we not simply seeing the development of a single buyer market as illustrated in Fig. 2? However, the single buyer model, as mapped out in most of the “text book” approaches implies that clear policy choices have been made around the relative roles of the incumbent utility and new IPPs and that the appropriate regulatory and institutional arrangements have been put in place for procuring, contracting and dispatching new power (Arizu et al., 2006).

What we find in the power sectors of most developing countries often is a confused and contested policy and institutional space that arises from the fact that the incumbent state-owned utility remains intact and dominant, but where IPPs are also invited into the market, often with less than enthusiastic support from the incumbent. In many cases, the incumbent state-owned utility may at a later stage also start investing again in new generation capacity (or even if such utilities are not investing, many retain the desire to once again be involved in generation) (Woodhouse, 2006a, p. 210).²³ Thus, the new model is fundamentally a hybrid market, where public and private investment coexist. The characteristics of these hybrid power markets need to be recognized explicitly, for they present an array of new challenges related to generation planning, how to allocate new investment opportunities, timely initiation of competitive bidding processes, institutional capacity to contract effectively and fair and transparent power dispatch arrangements.

If a new model is indeed emerging, which the evidence would suggest, then it is time to acknowledge that the standard model, which has been the organizing principal for power sector reform over the last decade and a half, serves neither a descriptive nor a prescriptive role. Simply stated, the demise of the standard model in most developing countries must be broadcast.²⁴ Instead, a

tailor-made solution as recently acknowledged again by Besant-Jones (2006, p. 1) is in order, given the range of economic and political/institutional conditions that predominate.

5. Conclusion: the birth of hybrid power markets with fresh challenges

The demise of the standard model does not mean that there has been no reform in developing countries. Nor does it imply the disappearance of the original reasons for reform, viz. poor utility performance and the need for accelerated investment. The technical and financial performance of state-owned power companies in developing countries continues, on the whole, to be inadequate. There is insufficient generation capacity, costs are high, power unreliable and too few have access. One of the enduring challenges is investment. With utilities unable to finance expansion and governments unwilling or unable to commit public resources, many developing countries have invited IPPs to expand capacity. Yet, in most of these countries, the incumbent, usually vertically integrated, state-owned utility retains dominant market power and, in some cases, continues also to build new capacity.

In most developing countries, we now have hybrid power markets with elements from both the old and new industry models. The public and the private sectors coexist. New planning, procurement and contracting challenges arise, which if not specifically addressed, could frustrate further investment in new power generation capacity. Indeed, there is already significant evidence that investment in much needed new capacity is lagging and that these delays are in part due to the new challenges of hybrid markets neither being recognized nor tackled explicitly (Eberhard et al., 2008). For example, in these hybrid markets, confusion often arises as to who is responsible for planning. In the old industry model, the national utility generally forecast demand and developed scenarios and plans for future generation capacity options. There were clear linkages between planning, investment decision-making and the procurement of new capacity. In hybrid markets, the planning function is often transferred out of the utility (which is seen, correctly, to have a vested interest) to a government department and, in many cases, planning capacity deteriorates or is neglected. Where it does survive, it often takes the form of rigid master plans, which soon become dated. No rational or transparent criteria are developed on how to allocate new-build opportunities between the incumbent state-owned utility and IPPs. And expansion plans seldom translate into timely decisions to run international competitive bidding processes. Insufficient attention is given to building adequate procurement and contracting capacity and the incumbent, as the off-taker of electricity from IPPs, often undermines the process of timely or efficient private investment.

Although seemingly mundane, these issues could hamper investment as private producers perceive that they are competing in an unfair game where the incumbent state-owned utility always has the upper hand, or vice versa. It has been demonstrated that the standard model no longer serves a descriptive or prescriptive role. What now needs to be developed is how to

²² Two points are worth noting in this context. A country's commitment has often been cited as the key (missing) ingredient (World Bank, 1993, p. 72; Bacon and Besant-Jones, 2002, p. 4; Besant-Jones, 2006, pp. 2–3; Woodhouse, 2006b, p. 22). In their recent work, Victor and Heller (2007, p. 256, 259) posit that the answer to this question may run deeper than mere political will/commitment and relate to investment crises predominating in countries at the inception of reforms as well as the lack of financial and judicial reforms undertaken by a country.

²³ The Egyptian Electric Holding Company is one such example, which demonstrates how the state firmly reasserted itself in new generation investment after considering 15 IPPs (only 3 of which were ultimately built). In Kenya, there is ample evidence of KenGen, the state-owned utility, continuing to play a very active role, alongside IPPs (Gratwick and Eberhard, 2008).

²⁴ Numerous authors have challenged the applicability of the standard model, describing how a mismatch between the conditions that predominated in those countries where power sector reform was initiated and most developing countries, has led to negative outcomes (Wamukonya, 2003, p. 1285; Williams and

(footnote continued)

Ghanadan, 2006, p. 836; Yi-chong, 2006, p. 821). Proponents of the model are, however, still numerous, and as indicated previously, plans to enact the model are still being considered in among other countries Tanzania (Joskow, 2006, pp. 7–8,14; Mercados, 2007c; Parastatal Sector Reform Commission, 2007). Such criticism is slowly beginning to make its way into the mainstream as seen through the recently published World Bank treatise Reforming Power Markets in Developing Countries: What Have We Learned, cited previously (Besant-Jones, 2006).

efficiently manage a hybrid market, taking into account the wide array of considerations of stakeholders.

This paper found that the standard model for power sector reform had many authors and proponents, including a band of international consultants involved in some of the earliest reforms in the UK and Latin America; that is, it was not exclusively owned or led by the World Bank or other DFIs. In addition, despite numerous warning signs not to apply the standard model to small systems such as those characteristic of most Sub-Saharan countries, the model was used extensively with little regard to country specifics. Furthermore, such a model although applied, has not actually been realized. Instead, hybrid electricity markets have emerged, which present a series of challenges, outlined above. We do not suggest that these hybrid markets represent a normative ideal. We simply note that their existence is widespread in most developing countries. The question arises as to how stable or sustainable will these hybrid markets prove to be? Part of the answer lies in the degree to which the above planning, procurement and contracting challenges are recognized and addressed. Future research will be needed to further characterize the nature of these hybrid power markets and to develop appropriate policy, regulatory and institutional mechanisms to ensure that they function effectively in expanding access to adequate, reliable and competitively priced power in developing countries.

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