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Assessing a decade of regulatory performance for the Lesotho electricity industry

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ABSTRACT

Government-run electricity utilities around the world have been subjected to reform and regulation over the last two decades in an effort to introduce private investment and competition for reliable and affordable services in support of socio-economic development. Although extensive scholarly literature abounds with regard to experiences with restructuring and regulation in many developed economies, research on electricity-sector regulatory performance in small African developing countries like Lesotho is still rare. This article provides an empirical assessment of the three critical regulatory dimensions of governance, substance, and impact in order to evaluate the performance of electricity industry regulation in Lesotho for the period 2004–2014.

1. Introduction

Gradual reform and regulation of the electricity sector in Lesotho has been witnessed over the last decade in line with global energy-sector reform in many developing countries (World Bank, 1993, 1999; Jamasb and Pollitt, 2000). The reforms by the Government of Lesotho (GoL) have included among others, opening of the market to private-sector participation in 2002, the establishment of an independent regulatory agency (Lesotho Electricity Authority – LEA[1]) in August 2004, and incorporation of the incumbent service provider (Lesotho Electricity Company or LEC[2]) in 2006. The electricity sector in Lesotho during the commencement of regulation by LEA in 2004 had three main players. The first player was the government's Department of Energy (DoE), which was responsible for overall policy guidance for the electricity sector. DoE established the Rural Electrification Unit (REU) in 2004 to carry out rural electrification projects outside the LEC's service territory (where electrification is expected not to be commercially viable). LEC was the second institution, established in 1969 as a single buyer with the core business of transmission, distribution, and supply of electricity while also importing power from Eskom (South Africa) and running several small generation facilities that were below the 5 MW licensing threshold.

The Lesotho Highlands Development Authority (LHDA), which owns the relatively large generating facility (Muela Hydropower station at 72 MW capacity), came on board in 1998 as the third player. On average, LHDA produces about 500 GWh per annum and this must be supplemented by imports from South Africa and Mozambique to meet the growing national energy demands that reached over 800 GWh in 2013, with peak demand of 148 MW in winter. Prior to LEA, technical management was undertaken by the utility, LEC, while the government regulated prices. By 2001, after 31 years of LEC's existence, the household electrification level stood at a mere 5%. Moreover, electricity tariffs had not been allowed to increase since 1993 due to a government moratorium, with LEC effectively not collecting enough revenue to meet its obligations and maintenance costs. This necessitated the restructuring of the LEC under a management contract with the view toward bringing it

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[1] LEA has been transformed into a multi-sector regulatory body with additional powers to assume regulation of urban water and sewerage services from 1st May 2013 (GoL, 2011) and it is now called Lesotho Electricity and Water Authority – LEWA.

[2] Efforts to privatize the former Lesotho Electricity Corporation in the early 2000's after restructuring and expiration of management contract failed until it was incorporated in 2006 as a 100% state-owned Lesotho Electricity Company (Pty) Ltd similar to Namibia, Kenya, Malawi, Tanzania and Rwanda (Eberhard and Shkaratan, 2012).

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to cost recovery in preparation for privatization and regulation (Eberhard and Shkaratan, 2012).

Reforming small electricity systems in developing countries (with peak demand less than 150 MW) has its own systemic and regulatory constraints (Jamasb, 2006). Many such systems as Lesotho's appear too small to be unbundled into several competing firms and, in many cases, institutional arrangements to support well-functioning regulatory authorities are weak. Furthermore, Nagayama (2007) found that factors such as the establishment of a regulatory agency, entry of independent power producers (IPPs), and unbundling of generation and transmission have had a variety of impacts in many developing countries, some of which were not always consistent with expected results (such as reduction in real electricity prices). Improvement of electricity sector efficiency through reforms has also been found to be statistically significant but limited by country-specific variables, including development level and region (Erdogdu, 2011). However, Pollitt (2008) argues that evidence from Argentina's comprehensive electricity reform in the 1990s shows that regulation can work in developing countries unless it is undermined by undue political interference, especially in the pricing of electricity. Independent regulation has also been found to significantly improve the governance of monopoly utilities in many countries (Pollitt, 2012).

After ten years of reform and regulation, in an effort to inform regulatory policies that will promote the efficiency of the electricity sector in Lesotho and avoid unanticipated problems and unintended consequences of regulation on the power sector's performance (Brown et al., 2006), this study undertakes an evaluation and benchmarking exercise. The main aim is to empirically quantify and measure the performance of the electricity sector regulator in Lesotho for the period 2004–2014. The assessment is carried out by determining a regulatory governance index (RGI) and an index of regulatory substance (IRS), and using regulatory impact measures and metrics to assess overall performance of regulation. The study further seeks to identify strengths and weaknesses of the regulatory framework in Lesotho with respect to experiences in other African electricity regulatory agencies, and to identify associated challenges and provide recommendations towards achieving the expected sector outcomes.

Empirical benchmarking studies are vastly available in literature and can be broken down as single-country studies (Parker, 1999; Pollitt, 2008; Kapika and Eberhard, 2010) and cross-country studies (Cubbin and Stern, 2004; Hattori and Tsutsui, 2004; Montoya and Trillas, 2007; Zhang et al., 2008; Abbott and Ma, 2013; Gboney, 2014). The benchmarks used may be based on the past or expected performance of the industry (Jamasb and Pollitt, 2000). In their cross-country econometric analysis of 28 developing countries over the period 1980 to 2001, Cubbin and Stern (2004) concluded that the quality of regulatory governance is positively and significantly associated with higher generation capacity level and utilization rates per capita. Hence, a strong legal framework, the autonomy of regulator, clarity of roles and objectives, and other informal attributes (transparency, participation and predictability) should form the key requirements for good regulatory governance. Hattori and Tsutsui (2004), on reexamining the economic impact of regulatory reforms in the electricity supply industry (ESI) using a panel data for 19 OECD countries, found that expanded retail access is likely to lower industrial prices and increase the differential between industrial customers and household customers. The implication is that due to enhanced competition, an embedded cross-subsidy from industrial to residential users tends to be reduced and both electricity prices become more cost-reflective as the electricity sector reform progresses (Nagayama, 2007).

Another cross-country study by Zhang et al. (2008), undertaking an econometric assessment of privatization, regulation and competition effects in electricity generation industry in 36 developing and transition economies over the period 1985 to 2003, discovered that privatization and regulation on their own do not lead to obvious gains in economic performance, unless competition is also introduced. This finding is corroborated by similar studies in telecommunications regulation across a number of countries (Wallsten, 2001; Fink et al., 2003; Gillwald, 2005). Nevertheless, attraction of new investment in electricity generation has proved to be a challenge for the long-term sustainability and quality of electricity supplies in many developing countries in Sub-Saharan Africa (Kapika and Eberhard, 2010; Eberhard and Shkaratan, 2012), constraining economic growth and limiting social benefits of electricity availability. Gboney (2014), in his study of 20 energy regulatory agencies in Africa using principal component analysis, found that in general, the regulatory governance trend shows gradual improvement in the last fourteen years, with average performance measured at about 72% and the National Energy Regulator of South Africa (NERSA) leading at 91%. On the contrary, the regulatory substance trend indicates average performance that is about one-third along the path to what is considered best practice (28%), with NERSA again leading at 59%.

Although the performance of electricity regulatory agencies around the world, and in developing countries in particular, is now well documented, the experience of Lesotho as a small developing country is much less well researched, apart from a few case studies (Brown et al., 2006; Eberhard and Shkaratan, 2012; Eberhard and Kapika, 2013). There is little or no regulatory performance assessment of the Lesotho electricity industry in the research samples of many of the previous works cited above. Hence this study uniquely contributes to the literature by exploring the effectiveness of the electricity sector reforms in Lesotho and overall regulatory performance for the period 2004 to 2014 using various empirical metrics for regulatory governance, substance, and impact.

2. Methodology

In order to determine the effectiveness of a regulatory regime based on the independent regulator model (Johannsen, 2003), Brown et al. (2006) recommended the assessment of two critical dimensions of regulation: governance and substance. Regulatory governance refers to the legal design and institutional arrangements of a regulatory system and processes for regulatory decision-making. It consists of formal attributes, such as legal mandate, clarity of roles and objectives, independence and accountability of the regulatory agency (which should be crafted in law) as well as informal attributes, including transparency, participation, and predictability (found in practice). Satisfying each of the regulatory governance elements as shown in Table 1 gives the desired credibility to the regulatory agency and enhances the legitimacy of regulatory decisions.

Regulatory substance defines the content and actual practice of regulation with key attributes covering the tariff-setting methodology and guidelines, quality-of-service regulation, regulatory accounting systems, cost pass-through mechanisms, network connection policies, and grid codes (including access rights and standards). The desired attributes and elements of regulatory substance that lead to quality and robustness of regulatory actions are elaborated in Table 2.

The proper implementation of regulatory governance and regulatory substance should provide utilities with incentives to improve their investment and operating efficiency in order to ensure that consumers benefit in the form of improved access to affordable and reliable services. Hence a related aspect of