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Network regulation and regulatory institutional reform: Revisiting the case of Australia

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HIGHLIGHTS

- Rising electricity prices and network costs is of great concern in Australia.
- Flaws in the existing regulatory environment and economic efficiency exist.
- The AER should be provided with adequate resources (financial and staff experts) and discretion.
- Robust benchmarking techniques should be adopted in the incentive regulation framework for cost efficiency.
- Privatization of the state-owned assets also remains an option.

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ABSTRACT

It is well-understood that the success of liberalizing the electricity supply industry depends crucially on the quality and design of the regulatory and institutional framework. This paper analyses the regulatory arrangements that underpin the work of the Australian Energy Regulator (AER). These arrangements are contrasted with the regulatory structure of electricity provision in Norway. A key difference between the reform processes in the two countries relates to the lack of privatization in Norway and the co-existence of private and publicly owned generators and distributors in Australia. This comparative analysis allows us to make several recommendations to improve regulatory arrangements in Australia. These include greater independence for the AER, better coordination among regulatory institutions, greater use of benchmarking analysis, greater customer involvement, and improving market transparency and privatization of government-owned corporations. However, the success of privatization will hinge upon the effectiveness of the regulatory environment.

1. Introduction

What role does economic regulation play in the success of electricity sector liberalization? Why does the success of liberalization depend on the effectiveness of the existing regulatory framework and regulatory institutions? This paper attempts to address these questions in the context of liberalization of the Australian electricity industry. Our assessment considers growing concerns with rising electricity prices and spiraling network costs in Australia, which are largely attributed to economic inefficiencies and underlying flaws in the regulatory environment (Productivity Commission, 2013).

The structural reform and liberalization of the Australian electricity industry started in 1991 with the establishment of the National Grid Management Council to coordinate the development of the electricity industry in Eastern and Southern Australia (ABS, 2008). This followed the reform of the Victorian State Electricity Commission which languished under public dissatisfaction as a result of mounting electricity prices, with privatization offering an attractive opportunity to reduce significant levels of state debt (Quiggin, 2001; Sharma, 2003; Moran and Sood, 2013). The Victorian power exchange started operating the first Australian wholesale power market in 1994, while transmission was unbundled and a wholesale market was launched in New South Wales (NSW) in 1996. Queensland (QLD) mimicked the reforms

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that took place in NSW in 1998, while in South Australia (SA) accounting unbundling took place in 1997 following the early corporatization efforts of the state-owned, vertically integrated utility in 1995. Thus, the restructuring of the vertically integrated and state owned Australian electricity supply industry (ESI) of the early 1990s involved the separation of competitive (generation and retail) and monopoly segments (transmission and distribution networks, supply) with increased participation of privately owned firms in the competitive segments. The establishment of the National Electricity Market (NEM) in 1998 comprising NSW, VIC, QLD and SA, which is an energy-only market for wholesale electricity trade, indicated stricter adherence to the 'textbook' reform model aimed at widening and deepening competition in the wholesale market. Tasmania was the last state to join the NEM in May 2005.

Electricity sector liberalization in Australia occurred within the wider context of the efforts for improving the competitiveness of the Australian economy, starting with financial deregulation over the 1970s and 1980s. In particular, the floating of the exchange rate subjected Australian exports, comprised mainly of agricultural and mining goods, to global competitive forces, whilst high tariff walls protected manufactured goods from competition. The inward focus of domestic industry led to declining standards of living, unemployment, inflation, and balance of payments deficits (Hodge et al., 2004). This led the Hawke-Keating Labor government to set up an independent Committee of Inquiry into National Competition Policy for Australia in 1992, also known as the Hilmer Report (Hilmer, 1993). The recommendations from the Hilmer Report, delivered in 1993, were to focus on efficiency and productivity throughout the economy, by improving economic management and removing impediments to competition. Included in the rationalization of economic management was the recommendation on the restructuring of the public sector monopoly businesses and granting third party access in network industries.

After more than two decades of electricity sector reforms, the current state of electricity reform progress in Australia is marked by individual heterogeneity across different states.[3] The natural monopoly segments remain economically regulated where the independent regulator sets network charges. However, network charges have experienced sharp increases, resulting in network costs constituting around 40–50% of an average household's electricity bill. This has largely been driven by increasing network and retail allowances, which have more than doubled since 2007. For example, the regulated network companies in New South Wales and Queensland with significant public ownership have experienced increasing transmission and distribution network revenue allowances leading to increasing network costs that are not necessarily efficient (AER, 2013). Hence, average electricity prices rose by around 70% in real terms from June 2007 to December 2012 in Australia, largely blamed on increasing network costs in most states and the flaws in the existing network regulatory environment (Productivity Commission, 2013). NSW households experienced an 80% increase in electricity prices from 2007 to 2012. End-user electricity prices have also increased in Victoria, where private ownership is persistent (Reeves, 2013). These price increases contradict the proclaimed perception of the benefits of electricity sector liberalization: that it would lead to lower consumer prices (Chester and Morris, 2011).

This paper, therefore, reviews the role and structure of the current regulatory framework and the institutions surrounding the economic regulation of electricity networks in the NEM. By 'economic regulation' we refer to both direct legislation and administrative regulation of prices and entry in line with Joskow and Rose (1989). We also study the role, structures and procedures of electricity regulation in Norway. Norway is an interesting case study as it is a forerunner of ESI liberalization that has been able to nurture both wholesale and retail competition and incentive-regulation without privatization (Moen and Hamrin, 1996; Magnus, 1997; Askim and Claes, 2011). The liberalized Norwegian electricity wholesale and retail markets has performed well in terms of economic efficiency and market functionality (Midttun and Thomas, 1998; Bye and Hope, 2005). Furthermore, cross-country case studies are well-suited for in-depth investigation and qualitative analysis (Jamasb et al., 2004).

This paper also seeks to contribute to the existing, though limited, literature that analyses the regulatory issues and options in the NEM. We believe that there are relevant conclusions to be drawn and suggestions that can be made for improving the structure of the independent regulatory environment in Australia. This is necessary because the success of liberalization in network and infrastructure industries is only realized by effectively managing the interface between the competitive and regulated segments where economic regulation – in terms of the regulatory regime, regulatory arrangements and its varying supporting institutions – plays a pivotal role (Newbery, 2002).

The remainder of the paper is structured as follows. Section 2 provides an overview of economic reasoning on the importance of establishing a suitable regulatory framework and regulatory institutions while undertaking regulatory reform in order to liberalize electricity industry. Section 3 presents the regulatory institutional organization in Australia and Norway. We also compare the role, structures and procedures of electricity regulation between Australia and Norway. Section 4 identifies regulatory shortcomings in the NEM and recommends improving key regulatory issues. Section 5 concludes the paper.

2. Background and scope: Institutions and economic regulation

Electricity networks are capital intensive and generally viewed as exhibiting natural monopoly characteristics such as large economies of scale, scope and densities (Kahn, 1971). These characteristics imply that in practice, entry to network businesses is restricted and price regulation is required to minimize inefficiencies associated with monopoly pricing. Regulated prices are typically set by an independent regulator in such a way that the regulated firm is allowed to recover the efficient costs of providing the service. The price setting process is concerned with two different types of incentives (Joskow, 2013).

The first is the incentive for regulated firms to make regulatory submissions that more accurately reflect their actual expectation of cost required for providing the regulated services over the next control period. The economic literature refers to the case where the firm has an incentive to overstate its cost forecasts as *adverse selection* (or hidden information). The second is the incentive for firms to reduce costs during the regulatory period below those initially approved by the regulator. The economic literature refers to the case where firms have no incentives to reduce costs as *moral hazard* (or hidden action) (Laffont and Tirole, 1993).

The emergence of adverse selection and moral hazard is related to a fundamental asymmetry of information between the regulator and the regulated firm. Adverse selection may result as the regulator cannot perfectly determine whether the regulated firm's cost forecasts reflect best practice. For example, some cost drivers may only be observed by the regulated firm, and not by external consultants that are often hired by the regulator to scrutinize the firm's cost proposals. In a similar vein, the regulator may not be able to observe the opportunities that the firm has for cost reduction, which can lead

[3] See Moran and Sood (2013) on the evolution of Australia's National Electricity Market.