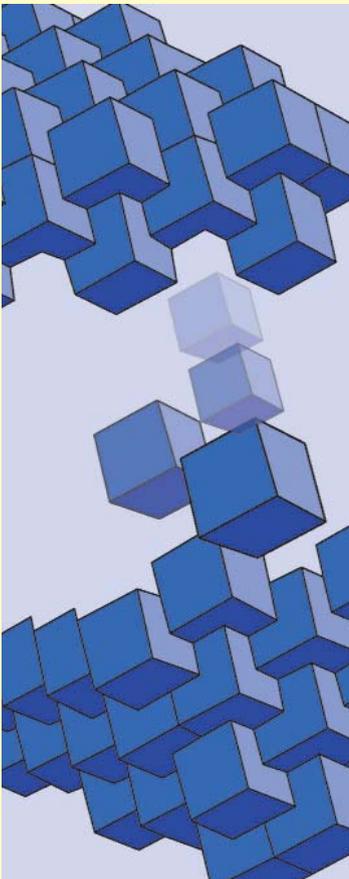


Viewpoint

on industry restructuring



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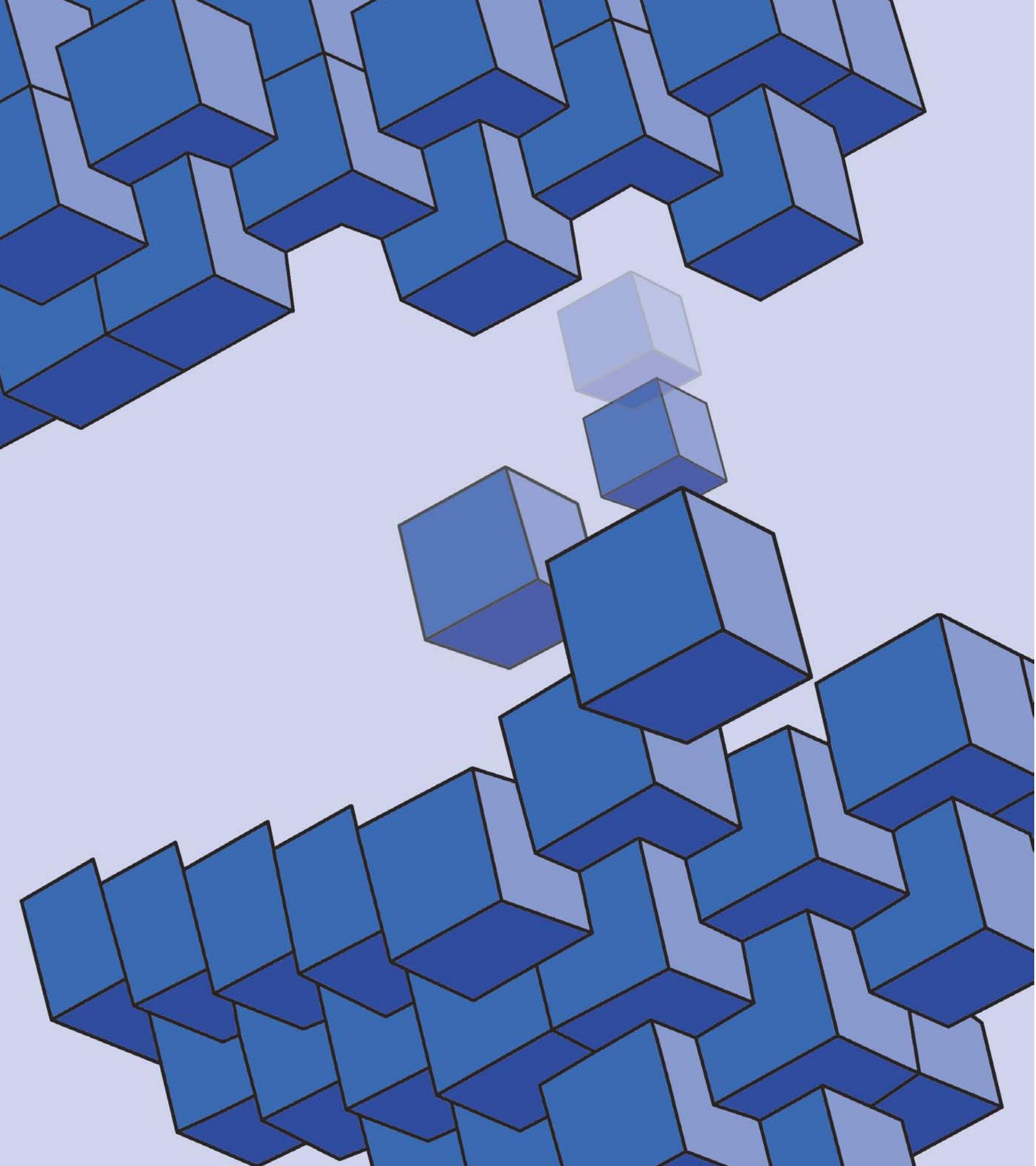
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Industry restructuring

“ The best companies go beyond addressing threats to their current business and seize new opportunities created by industry restructuring. . . these companies are able to recognize and exploit new markets and new skills, reshaping the very nature of their industries or building new ones. ”



Privatization and deregulation:

moving from monopolies to markets

by Ed Kee

Privatization and deregulation have been powerful forces in the transformation of major industries, such as transportation, natural gas, electricity, telecommunications and financial services. Introducing competitive markets into these industries has been a seismic economic change with major ramifications for the affected companies and their consumers.

This article:

- Considers the economic and ideological drivers behind the move to competitive markets
- Highlights the key performance and behavioral characteristics that an organization in a competitive market will exhibit
- Traces the progress of a number of key sectors making the transition – financial services, and two ‘natural’ monopolies, natural gas and electricity
- Identifies some of the key lessons that governments, regulators and organizations can learn from these privatization and deregulation programs.

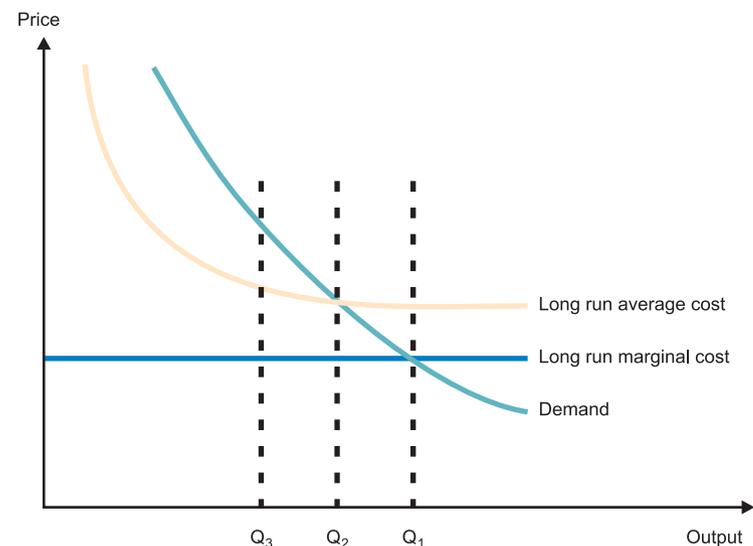


Figure 1: Natural monopoly

A natural monopoly can produce an unlimited output at a constant long-run marginal cost (LRMC) after making a fixed cost investment. The firm cannot make a profit at the efficient output Q_1 , where price = LRMC. But if the monopoly is allowed to set its own price, it may produce less than Q_2 , the amount needed to cover costs, resulting in high prices and an output, such as Q_3 , well below the efficient output.

Economics and ideology – driving competitive markets

In a competitive industry, market prices are at the supply-and-demand equilibrium, allocating resources efficiently and maximizing net benefits. In contrast, in a monopoly system, the monopoly will charge higher prices, sell less output, and receive higher profits compared to a company in a competitive industry (see Figure 1).

'Natural' monopolies do occur in industries that exhibit economies of scale (decreasing average long-run costs due to size), such as telecommunications, transportation, natural gas and electricity. They have been controlled via two means: regulation and government ownership. Regulation aims to limit prices to a level that might be seen in a competitive industry, or control behavior, such as a requirement to provide universal service. The theory of government ownership is that the government can operate a monopoly in such a manner as to match a competitive industry, thus achieving the same aim as economic regulation.

Over the last two decades, there has been a move against regulation and government ownership, with a wave of deregulation and privatization being driven by a range of factors:

Dissatisfaction

Instead of delivering similar outcomes to a competitive industry, government ownership has sometimes resulted in higher prices/rates/costs and lower service levels. Likewise, regulation can simply incentivize companies to focus too much on investment in assets. This over-investment leads to high prices and less emphasis on customer service and efficiency.

Failure of central planning

Even if government ownership and economic regulation were successful in controlling monopoly behavior, both approaches contain a potential flaw. Without market price signals to drive new investment, some form of central planning must instead decide how, where, and in what assets the monopolies under control will invest and the costs they will incur. Even the most skilled planners sometimes make mistakes. Investment decisions made under government ownership or by regulated entities are made without price signals, without the discipline of risk, and with the potential influence of special interest groups. Central planning has been blamed for some spectacular failures that again resulted in higher rates for consumers.

Market ideology

The school of thought that says the so-called 'natural' monopolies might in fact be more efficient if *certain elements* of the industry were subject to market forces and competition has grown more influential and accepted. This belief that markets can better allocate resources and manage industries has powered significant privatization and deregulation initiatives, as exemplified by the Thatcher government in the UK and the Reagan government in the US. Also, the demonstrated failure of socialism as a viable alternative to free-market capitalism has led some countries to abandon or greatly scale back the role of government in the economy, such as New Zealand.

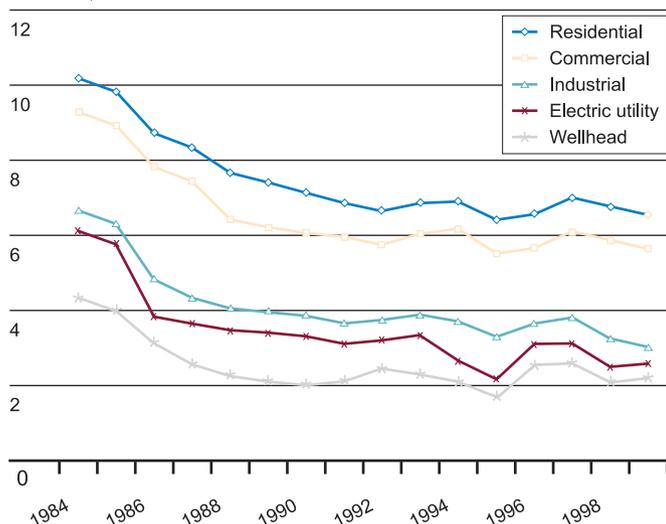
Need for investment

The need for private investment led other less-developed countries to privatize natural monopolies and implement markets in order to encourage foreign private capital investments in infrastructure projects that the local government could not afford. At times, these efforts were also encouraged by international donor agencies, which made privatization and the introduction of markets a pre-condition of assistance and development loans.

Early success

The early experience in privatization and deregulation showed that consumers benefited. As these early efforts were seen to succeed, interest in further privatization and deregulation was stimulated. The benefits of deregulation in some major US industries that have undergone deregulation – natural gas, telecommunications and transportation – were shown to have generated beneficial results. After deregulation in these industries, prices fell, sometimes dramatically, and service quality improved, providing incentives for further privatization and deregulation. Figure 2 (over page) shows the effects on price in the US natural gas market.

1999 US\$
per Mcf (thousand
cubic feet)



Source: US energy information administration; PA Consulting Group analysis.

Figure 2: US natural gas prices

A new incarnation – the characteristics of the competitive organization

The organization operating in a competitive market will be:

De-integrated. Most privatization and deregulation efforts involved both vertical and horizontal de-integration, in order to encourage competition and to separate the parts of the industry that would remain regulated from those that would operate in the market. For example, in the US telecommunications industry, this involved both vertical de-integration (separating the long-distance provider from the local telephone companies) and horizontal de-integration (breaking the local regulated telephone service providers into regional companies).

Transparent. Privatization and deregulation exposes long-standing implicit subsidies to classes of consumers, certain suppliers, or other groups. Once these subsidies are no longer hidden in the rates/tariffs of controlled monopolies, they must either be provided explicitly by governments or discontinued. Identifying and re-thinking the implementation mechanisms of subsidies can lead to more focused, effective and cost-efficient subsidies.

Market-driven. The customer relationships and offerings of monopolies are usually explicitly defined by governments or regulators, covering areas such as service offerings or rate/tariff structures that subsidize some customers at the expense of others. In a competitive world, where the market is king, products and services may be discontinued or priced more highly, new products and services will emerge, and some customer classes will not receive preferential treatment at the expense of others.

Risk-focused. Monopolies face little risk compared to a company operating in a competitive industry, and the result of bad decisions is usually higher rates, prices or tariffs. Competitive companies focus on risk, working as they do in an environment where the return may be zero or even negative, with shareholders suffering from bad decisions.

Transaction, not asset focused. Monopolies are often defined by the assets that they have built, operated and maintained. Competitive companies focus on maximizing profitable transactions with customers, with asset ownership playing a supporting role.

Global, not local. Monopolies are often restricted in their ability to own or operate in non-regulated businesses due to concerns about cross-subsidies. Competitive companies develop strategies that result in national or global companies to gain economies of scale and scope and to profitably serve multiple markets.

Inexorable progress – privatization and deregulation in key industries

These changes are being felt across a range of industries – including transportation, natural gas, electricity, telecommunications and financial services – and this section of our paper looks at the financial services sector, as well as two ‘natural’ monopolies, natural gas and electricity.

Financial services

Since the mid-1980s there has been an ongoing program of deregulation in the financial services market around the world. This has included:

- Opening up domestic markets to foreign players
- Removing restrictions on product offerings by different types of institutions, thereby breaking down the distinction between the banking, insurance and securities sectors
- Allowing a financial institution to distribute products of other providers.

Coupled with the removal of regulatory barriers to entry, rapidly evolving technologies have lowered the cost of entry as well. This has led to a variety of new players emerging onto the financial services landscape and many have built their financial services capabilities quickly through the use of outsourcing, alliances and joint ventures.

A financial services organization today can be anything from the traditional bank with a large branch network, or an insurance company with a sales force, to a virtual organization that leverages its brand, deals direct with customers and outsources all the rest of its functions. The vertically integrated financial services organization is no longer the default model. Increasingly financial services companies are specializing in different parts of the value chain – distribution, manufacturing or servicing.

The intensely competitive marketplace that has developed as a result of deregulation is leading to considerable consolidation as all participants seek cost efficiency through greater scale. This is not only occurring amongst the traditional vertically integrated players but also amongst those that specialize in specific parts of the value chain, particularly at the distribution level. This is particularly evident in the independent financial adviser (IFA) sector in the UK where largely small independents are forming powerful national chains or being bought by traditional financial services companies to strengthen their distribution capability.

Natural gas

The US natural gas industry was restructured in stages, beginning with the separation of transport (moving the gas through inter-state pipelines) and merchant (buying and selling gas) functions in the mid-1980s. In 1992, after significant progress in introducing competition, additional steps were taken to preclude inter-state pipelines from operating as merchants of gas, preventing sales of 'bundled' gas (priced to include both gas price and transportation price) by the pipelines.

The result has been the transformation of natural gas into a commodity business, with prices determined by supply and demand. Prices are now determined by competition at the 'burner tip' rather than by regulated well-head prices. There has been significant consolidation of participants in the US pipeline industry.

Winners in the industry changes included those companies that were focused on marketing and high-value assets and services (eg, forward market area gas storage). North American natural gas infrastructure is highly developed and supported deregulation. There are multiple production fields, multiple major underground storage facilities, many large cities that represent significant markets for gas, and multiple options to move gas from production fields to markets.

Australia, in comparison, has a much simpler system that may not be as easily reformed. This system is characterized by single pipelines from production fields into major markets, accompanied by long-term contracts. Until more pipelines are built, there is little opportunity for basin-on-basin production competition or of competition in transportation. Duke Energy's new pipeline from Victoria to New South Wales will introduce competition between the Bass Straits producers in Victoria and the Cooper Basin producers supplying the Sydney market.

The last decade of relatively low US gas prices, coupled with an explosion in the amount of gas-fired electricity generation (a result of new high-efficiency gas turbine technology combined with the de-integration of the electric utility industry), has stressed this system and created high prices in the last two years. In response to these high prices, there is a flurry of drilling to bring in new sources of gas and a number of pipelines are under development.

Electricity

Today, electricity is the most visible industry undergoing privatization and deregulation. After the introduction of reforms and privatization in the UK market in the early 1990s, Australia, New Zealand and some South American countries followed quickly. The US is also adopting electricity industry reform, but more slowly.

The primary reason that the UK, Australia, and New Zealand were able to move quickly to reformed and privatized electricity industries was government ownership, which was the pre-existing industry structure. These governments disaggregated the industry, put wholesale markets into operation, and then sold off the bits of the industry to private owners. If there were excess capacity, the lower prices for generation assets (due to low spot prices) would be absorbed by Treasury.

In the US, privately owned regulated companies are the primary industry structure. In this system, a shift to electricity markets would result in significant value dislocations for the owners of assets. For example, the owner of a large nuclear plant might be earning a regulated return on the asset, but might earn much less as a seller into a spot market. The potential for 'stranded assets', as these value dislocations were termed, drove much of the debate in the 1990s. Most large utilities only agreed to deregulation and markets if they could be allowed to recover a significant portion of these stranded assets.

In addition to the stranded asset problem, electricity regulation in the US is the responsibility of a separate regulator in each state, with some states even having city-level regulators (eg, the city of New Orleans).

The primary electricity industry structure change was a separation of the industry into the parts that would remain regulated (eg, distribution and transmission) and those parts that would operate in a competitive industry (eg, retail and generation). In addition, the opening of markets created opportunities for newly formed trading companies. As in the natural gas industry, these new trading companies have grown and prospered in the new industry.

In addition to the de-integration of the existing functional parts of the electricity industry, industry reforms have created some new entities. In most of the reforms, there are market and system operators (sometimes one entity does both) that are independent from the participants in the markets. These entities may be formed from the system control functions of predecessor utilities or may be an entirely new entity.

An example is the National Electricity Market Management Company (NEMMCO) in Australia, a large entity with significant investments in communications and computer equipment to operate the Australian market and transmission system. NEMMCO did not exist before electricity industry reforms. Similarly the move to Regional Transmission Operators in the US is creating new entities.

Hard-won lessons from success and failure

Significant changes have come from privatization and deregulation, with huge ramifications in particular for the natural monopolies. There is also great momentum still to be unleashed, as privatization and deregulation programs complete, more countries make the shift (like Singapore, which is now undertaking electricity sector reform), and other sectors become targets for similar programs. Deregulation and privatization have not always gone smoothly. For every success story, there are tales of discord and failure (see Profile of California electricity crisis).

Profile: California electricity crisis

Many countries have looked at the news coming out of California and have asked: “Can the California crisis happen to me?”. Our view is that the California electricity crisis is not evidence that electricity industry reforms will fail. This crisis is not even proof that electricity deregulation can only work if there is an excess of capacity and low spot prices. Instead, this crisis demonstrates that a deregulation plan based on a belief in low spot prices, without hedging, is very risky.

Belief in low spot prices led to the requirement that California utilities buy spot market power, largely without hedge contracts, for resale at frozen retail rates. This approach created enormous financial risk and made California’s deregulation plan into a bet-the-state electricity trade that could succeed only if spot prices were low.

Now, high spot prices and losses of over \$15 billion make the California electricity crisis larger than some earlier well-known hedging disasters – Metallgesellschaft (1991), Barings Bank (1995), and Long Term Capital Management (1997) – combined. While these earlier hedging disasters involved sophisticated traders and complex hedging strategies that went wrong, the California crisis appears to be as simple as the failure to hedge.

Hedge contracts signed before spot prices were high could have locked-in utility power costs, largely preventing the current financial crisis. Even better, hedge contracts assigned to generators prior to divestiture, referred to as vesting contracts, could have easily supported the original rate freeze. Vesting contracts have been used in electricity market introductions outside the US, with South Australia providing a good example.

The spot market opened in South Australia at the end of 1998 with a shortage of generating capacity and reliance on imported power resulting in high spot prices (often reaching the cap of AUS\$5,000 per MWh). Vesting contracts permitted controlled consumer rates while creating a viable retail entity that was successfully privatized, controlled the potential market power of privatized generators and allowed the spot market to

work. As a result, South Australia has seen a rapid increase in new generation and market-based demand reduction arrangements.

With little hedging of spot market purchases, California has focused on spot price caps to control losses – removing important market price signals. New generation plants in California already face significant environmental and siting hurdles and price caps will further reduce the attractiveness of power plant investments. Also, retailers and customers are unlikely to hedge spot market exposure when frozen retail rates and spot market price caps are in place.

California is now negotiating hedge contracts that will reduce or end the exposure to spot prices. However, it is unlikely that negotiated contracts will contain all the features of vesting contracts or that negotiated prices will be consistent with low retail rates. High contract prices are the cost of waiting until spot market prices are high to arrange hedging for retail rates.

Vesting contracts are a powerful tool to facilitate electricity market transition. These contracts can protect customers (or the retailers serving the customers) from spot market prices even in capacity-tight markets, kick-start the hedge contract market, maintain a viable spot market, provide incentives for new entry, and facilitate other aspects of a transition to electricity markets.

Wholesale spot market price caps, as seen in California, are not a necessary part of electricity reform. Deregulation plans that recognize the potential for high spot market prices and incorporate appropriate hedging strategies will be viable regardless of spot prices.

The California crisis does not mean that electricity markets are unworkable. Instead it reminds us that spot market prices can be unpredictable and sometimes very high; demonstrates that deregulation plans without appropriate hedging strategies are risky; and shows that being wrong on a bet-the-state electricity trade can be very expensive.

By looking at what went wrong and what went right, we can build a solid foundation for ongoing and future initiatives. We would point to these lessons in particular:

Powerful forces unleashed

Governments, politicians and regulators should be aware that privatization and deregulation unleash very powerful forces, especially when enormous and pervasive industries such as electricity are involved. Mistakes, flawed assumptions or wrong decisions can very quickly create mammoth problems. These problems may confound reformers, as controls to rescue the situation may be no longer present, or the political will to take difficult decisions may be absent. Indeed, political intervention may exacerbate problems and delay functional markets, with the problems in California being an excellent example of this. We urge reformers to take note and actively learn from situations like California, and to avoid novel solutions pressed on them by any special interest groups.

Passive acceptance is not enough

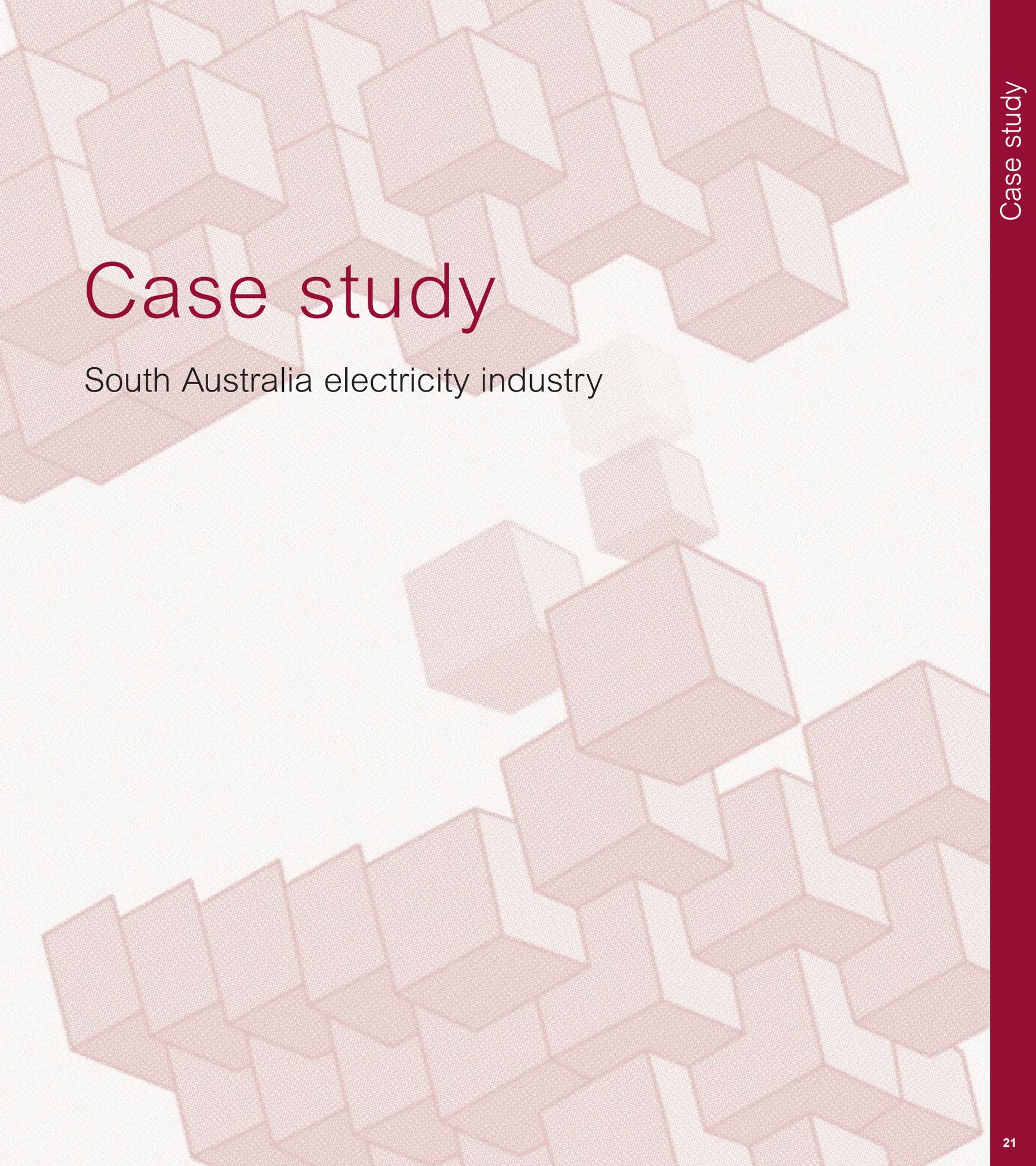
Companies that are destined for, or aspire to, a state of privatization and deregulation should not simply wait for events and decisions. Neither should these companies look only to their own narrow self-interest. It is doubtful that the generators selling power in California would have wanted the current outcomes (litigation, price caps, and refunds), even though they have been selling at high prices. Most would have been much better off under a more successful deregulation scheme. Companies in an industry should strive to maximize profits within the rules of the newly established markets. But they should be wary of influencing the deregulation or privatization scheme in a way that produces one-sided gains.

As private companies are most likely to be in the position of investing capital in newly deregulated or privatized industries, there is a risk that any excessive gains may be taken away. However, losses due to overpayment for privatized assets or poorly performing investments are unlikely to be made up. In the California context, this means that price caps may become a political necessity when prices are very high, but that price floors are unlikely if prices become low. Active involvement in the deregulation planning process is important, but if any particular part of the market succeeds wildly at the expense of another part of the market, political action may result.

Careful planning translates into successful action

Governments, regulators and the affected organizations themselves should embark on an exhaustive analysis of all options and potential outcomes. Effective transition and mitigation measures can ensure negative outcomes are nipped in the bud, as long as they are in place before the process begins, rather than developed in reaction to events. This analysis will need to draw on extensive investment analysis and proven risk management techniques, and will be formulated against a background of great complexity, with multiple stakeholders and potential scenarios. The case study that follows of privatization of the Australian electricity industry illustrates how complex an undertaking this is, but how rigorous work made a success of the program.

Ed Kee is a member of PA's Management Group and a specialist in the electricity and natural gas industries, including industry restructuring and market reform, competition policy, and transmission pricing and regulation. Views and comments on this article are welcomed at: viewpoint@paconsulting.com



Case study

South Australia electricity industry

South Australia electricity industry

Reform and privatization of the electricity sector

Our thought-piece examined how privatization and deregulation are driving corporate restructuring across industries. Our case study looks at PA's work with the Government of South Australia – helping it transform an integrated, government-owned electricity sector into a de-integrated industry with an electricity spot market.

Australian electricity reforms

The Eastern states of Australia (Victoria, New South Wales, Queensland and South Australia) had agreed on fundamental reforms of the electricity sector.

The electricity sector in Australia was largely government-owned, with significant over-capacity and associated high rates in Victoria and New South Wales. Aside from unhappiness with the existing industry, these reforms were driven by the success of electricity industry reform in England and Wales and were consistent with Australia's broad shift toward markets.

Victoria and New South Wales had been the first movers in this electricity sector reform, implementing spot markets in the early 1990s that exhibited low spot market prices due to the excess of capacity. Queensland also initiated a spot market in early 1998 before the national market began, even though it was not physically connected to the other states' transmission lines until their completion in 2000. Victoria had completed the privatization of its electricity industry, largely eliminating the state's government debt.

South Australia's challenge

South Australia was faced with a commitment to undertake the reforms, but without the level of excess capacity present in Victoria and New South Wales. The state was nearing the time when it would need to invest in new generating capacity to maintain reliability.

South Australia had not participated in the state-operated spot markets and other reforms that were present in Victoria, New South Wales and Queensland. For these latter states, the start of the National Electricity Market (NEM) in late 1998 was to be a fairly simple switch from their existing markets, while South Australia had significant work to catch up.

Scheduled to join the Australian NEM in 1998, the South Australian government embarked on fundamental reform of its electricity sector in early 1998. This reform involved a shift from two government-owned electricity companies (SA Generation Corporation, covering principal generation, and ETSA Corporation, covering distribution, transmission and retail) to a market-based, disaggregated and privatized electricity sector.

This was accomplished over a much shorter period than in neighboring Victoria, with South Australia building on the experience in the other states to deliver an ambitious schedule. An experienced team of consultants, bankers, lawyers, accountants and engineers with experience in electricity industry reforms were retained to drive the process. Many of these key advisors had been involved in the efforts in the other states.

The first step in this process was the disaggregation of the existing incumbent utility companies into corporate entities in mid-1998. These newly formed companies were provided with the resources to operate as independent companies under government ownership before and during the establishment of the electricity market.

After the NEM was implemented at the end of 1998, the corporatized companies were privatized in a series of trade sale auctions under long-term (eg, 100-year) leases. All the companies had been transferred to new operators by late 2000.

South Australia after electricity sector reform

The State of South Australia put in place legislation, established regulations and regulatory bodies to regulate the privatized electricity distribution and transmission businesses. The Government used vesting contracts between privatized companies, sale conditions and undertakings, as well as a long-term electricity pricing order, to ensure a smooth transition to electricity markets for both participants and consumers.

The privatization process resulted in fundamental changes in the ownership and structure of the electricity industry and the entry of a number of large multi-national companies into the electricity business in South Australia:

- UK-based International Power controls the peaking power plants around the state and has constructed a new combined-cycle power station

- US-based TXU controls the large gas-fired power plants at Torrens Island
- US-based NRG Energy controls the coal-fired power plants at Port Augusta and the associated coal mine
- AGL (Australian Gas Light Company), owner of gas transmission and gas and electricity distribution companies elsewhere in Australia, controls the non-regulated retail electricity supplier
- Hong-Kong-based Cheung Kong Infrastructure (affiliate of Hong Kong Electric and Hutchison Whampoa) controls the regulated electricity distribution company
- A consortium composed of ABB, Queensland Electricity and Transmission Company (Powerlink), YTL Power Investments and Macquarie Bank have a long-term lease for the electrical transmission network
- The South Australian Government's gas trading company (holding a portfolio of gas purchase and gas haulage contracts) was sold to Tarong Energy.

Electricity customers in South Australia are now able to buy power from about ten retailers and traders, including the incumbent retailer. International Power and Origin Energy built new generation plants shortly after market start. Other private investments in power plants and major transmission lines to other states (where excess capacity remains) are under development.