

Demand Side Participation in the Australian Energy Market: An Institutional Saga

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ABSTRACT

Many countries have instituted free-market energy policies with a narrow definition of economic efficiency which fails to promote demand side participation (DSP). This paper draws on the Australian experience to highlight the roots of these market design, regulatory and governance failures. The paper examines developments in demand side participation in the state of Victoria, Australia. Victoria has moved very far towards liberalization of markets yet DSP has still not captured the full value of the energy market reforms set in motion in the early 1990s. This paper analyses how early decisions on market design and the regulatory framework locked in barriers to effective DSP and impeded a coordinated and effective public energy efficiency effort. The paper focuses on the trade-offs that characterized the market and regulatory design process and the feedback effects that this engendered. The paper draws attention to the neglect of consumer behaviour as well as the institutional inertia that characterizes existing governance arrangements.

Introduction

Victoria has seen a significant transformation in the key infrastructure area of electricity provision since the 1990s and moved further along the liberalization path than other states in the Australian National Electricity Market (NEM). The electricity industry has been fully disaggregated and privatized. The roles of energy retailer and distribution network service provider have been separated to maximize shareholder value. Full retail contestability came into effect in 2001 and price caps were removed in 2009. Interval metering has been available for contestable customers for well over a decade and Victoria has moved first on the national roll out of residential smart meters. Victoria has one of the highest energy retailer switching rates anywhere in the world (Lewis, 2010).

Despite this there is growing consensus that demand side participation has not captured the full value of the energy market reforms set in motion in the early 1990s. The 2001 Parer Review found that NEM systems are supply side focused and that the demand side cannot gain the full value of what it brings to the market (Council of Australian Governments Energy Market Review, 2002). The Energy Reform Implementation Group found the demand side to be relatively inactive (Commonwealth of Australia., 2007). The Australian Energy Market Commission's (AEMC) Review of Demand-Side Participation in the National Electricity Market acknowledged that existing market arrangements placed unnecessary weight on expanding generation and network capacity in order to meet demand for electricity and overlooked more cost-effective alternatives involving planned reductions in demand at key times (Australian Energy Market Commission., 2009).

One of the key objectives of the energy reform process was to maximize customer choice by placing pressure on energy businesses within the NEM to retain customers (Energy Projects Division, 1997). It was envisaged that competition would drive lower prices at both the

generation and the retail ends of the market and that demand management (DM) would emerge as a strategy to add customer value and enhance competitiveness. In other words, a new logic of network management was expected to replace the supply-oriented approach to network management to one that had beneficial effects for demand side management. What was anticipated was a major refashioning of relationships between electricity customers and utilities via a combination of market-based and organizational incentives (Guy & Marvin, 1995). The failure of the demand side to capture its full value almost two decades since the initiation of a major marketization process casts a significant shadow over the success of the reforms.

This paper uses a historical perspective to describe the institutional developments that hindered the progress of DSP in the liberalized energy market. These include, the supply side orientation of the energy market reform process; the unwillingness to see the energy market as a vehicle for addressing multiple policy objectives; the challenge of fully realizing DSP benefits with disaggregation and privatization of the electricity industry; the withdrawal of the state from energy efficiency policy; the adoption of a light handed approach to regulation of networks; and the lack of insight into customer/citizen perception of value of electricity.

Background

This paper draws on economic sociology which focuses on those factors that structure exchange in the marketplace beyond the narrow explanations of neoclassical economics. Rational actors, utility maximization and equilibrium states are downplayed as “undersocialised” explanations of complex human behaviour. Instead, the optimizing decision making behaviour of actors in markets is seen to be embedded in social life (Fligstein & Dauter, 2007; Granovetter, 1985). The challenge is to show the social, cultural, political and cognitive embeddedness of market actors and how this shapes market outcomes.¹

The study of DM in Victoria in the transition from a centrally-planned state owned electricity provider to decentralized privatized competitive market clearly demonstrates that markets do not emerge from a blank page, rather they are devised in a field already structured by institutional legacies, capital investments and skilled personnel. Institutional change and continuity is dependent on past occurrences which come to pattern the emerging market (Streeck & Thelen, 2005). Whilst the introduction of competition and privatization was a rupture with past practice, the failure to capture the value of DM reveals the extent of supply side path dependency. This paper examines aspects of political and institutional embeddedness - focusing on the state’s role in creating and stabilizing markets and firms’ behaviour as they try to expand and survive in the marketplace. The paper touches on aspects of cultural embeddedness by discussing how perceptions of electricity as a public good have endured despite the creation of a competitive wholesale market for electricity and the far-reaching reconfiguration of economic and political relations between consumers, the state and the market.

This paper is based on extensive archival research and over 50 interviews with a variety of state and non-state actors, including ex-employees of the state-owned electricity provider,

¹ Economic sociology has some overlap with the work of New Institutionalists which acknowledge that actors are limited in their decision making capacity by bounded rationality and that agents will behave opportunistically to promote their own self interest (Williamson, 1985). However, economic sociology does not share New Institutionalism’s view that whichever organizational form the firm takes is considered the most efficient (Granovetter, 1985).

Federal and State government officials, regulators, large energy users, managers in existing generation, distribution and retail companies, academics, environmental and social welfare advocates.

In this paper I use demand side participation to refer to the following:²

- Load shifting: shifting demand from one time period to another with the potential to help smooth the profile of consumption and reduce prices;
- Demand response: withholding demand altogether with the benefit of reducing pressure on prices and system resources during peak periods;
- Energy efficiency: reducing demand through more efficient end-use which can provide a permanent dividend in terms of reducing demand-related pressure on power system capacity (International Energy Agency, 2011).

The Supply-Side Focus of Microeconomic Reform and Market Design

In the late 1980s a consensus began to emerge amongst key Federal and State government decision-makers that major microeconomic reform was required to unlock the economic efficiency potential of state owned enterprises (Industries Assistance Commission, 1989). The electricity industry found itself at the top of this list. It was proposed to divide generation capacity into separate competing companies with open access to the transmission and distribution networks for new private generating facilities (Industry Commission, 1991b).

Initially, enabling the demand side was a low order priority of the industry reform process. The energy reforms were driven by a dominant concern about poor labor and capital productivity in state owned enterprises. The key battle faced by state government reformers was the introduction of competition in generation in the face of fierce opposition from both unions and utility managers who were committed to the model of a vertically integrated monopoly.

The microeconomic reform phase was dominated by concerns about supply side economic inefficiency, transparency and the appropriate role of the state in electricity provision. This involved redefining electricity provision much more within the frame of the economic than the social, and shifting the focus on electricity provision from the state and the vertically integrated firm to the market. The separation of the “economic” from that which was considered a social or environmental objective occurred at many levels. For example, the terms of reference for the seminal Industry Commission inquiry into Energy Generation and Distribution originally included consideration of greenhouse emissions but this was subsequently removed and a separate inquiry was established (Industry Commission, 1991a).

The National Grid Management Council (NGMC) was established by the Council of Australian Governments (COAG) in 1991 to design the competitive market for electricity. It was in this forum, one step removed from the politics of industry reform, that the most cogent arguments were made for including DM in the market design. Demand management was to have “equal opportunity alongside conventional supply-side options to satisfy future requirements” (National Grid Management Council, 1992, ii). There was a clear recognition, based on overseas experience, that the demand side ought to be incorporated into the industry structure from the

² It is important to treat these three aspects of the demand side as distinct because, as I will show, they can involve different economic principles, institutional incentives, address different policy objectives and have different capacities for integration within existing market structures.

outset (National Grid Management Council, 1994). It was also argued that governments had an obligation “to achieve reductions in the emission of greenhouse gases, not only through increases in supply side efficiency but especially through a particular emphasis on increasing the efficiency of end-use of electricity” (National Grid Management Council, 1994).

Despite this groundwork, DSP was not institutionalized within the market framework. In the end, there was a view amongst the key designers of the market that it was unnecessary to design market specifics to deal with DSP and that trying to do so would complicate both the design and operation of the market. The NGMC process also became constrained by political developments.

The Roll Back of the State in Energy Efficiency Policy

In the midst of the microeconomic reform process an important development in state politics changed the ambition of the reforms to the electricity industry. The Liberal/National party under Jeff Kennett won a landslide victory in late 1992 and came to power on a platform to restructure state owned industries. The SECV was disaggregated into three corporatized entities with a view to privatization. As a result of these developments, retail competition rather than market regulation or energy efficiency policies became the main vehicle for action on the demand side, and the timeline and objectives for privatization began to drive the market design process.

The government quickly moved to shrink the role of the state in energy efficiency. Victoria had accrued a significant amount of expertise in the area of energy efficiency in the 1980s with support from the state Labor government. For example, Amory Lovins was hired as a consultant to advise on reforms within the electricity industry (Lovins, 1990). Much of this expertise was disregarded and its value lost through the microeconomic reform process. The State Electricity Commission of Victoria (SECV) ran a joint Demand Management Program with the Department of Industry from 1990 to 1994. This program explored the potential for DM focusing on commercial and industrial customers and accumulated significant experience about the operational challenges of consumer engagement and the real world drivers and barriers for demand response. The SECV had the goal to “establish demand management as a viable strategic competitor to new power stations for balancing Victoria’s future supply and demand” (State Electricity Commission of Victoria, 1993, 11). Disaggregation made it much more difficult to coordinate firms’ incentives to invest in demand management (this is discussed in more detail later). Once privatization was in full swing the Demand Management Program was viewed as a threat to future revenue streams and unattractive for potential bidders for the distribution/retail businesses. The program was disbanded in 1994 despite some significant and cost-effective demand side outcomes.

Government insulation regulations were dismissed as distortionary and the body designed to coordinate energy efficiency programs, Energy Victoria, had its funding dramatically reduced. Climate change was deemed beyond the scope of the market reform process, making it impossible to achieve any kind of synthesis between economic and environmental objectives. Energy efficiency slid over to the Department of Natural Resources and Environment when

Treasury took over energy policy.³ Market reforms were regarded as the solution to most efficiency problems.

This shift in approach dramatically altered the relationship between citizens and the state. The social benefits of energy efficiency had been well-established under the previous Labor government and a diverse coalition of interests had developed in support. Social welfare advocates and environmentalists found common ground on energy efficiency to address fuel poverty. The SECV focused its DM efforts on the industrial and commercial sectors as a way of deferring future build of power stations. The business sector supported energy efficiency to the extent that it reduced input costs and improved factor productivity. The Victorian Buildings Owners and Managers Association was very active in setting energy benchmarks for commercial buildings recognizing the thermal comfort benefits and the reduction in running costs.

The channels for participation in the demand side debate significantly narrowed with the move towards competition and privatization. The issues of the demand side shifted from the domain of state policy to negotiations between industry participants and customers with minimal regulatory oversight. The regulatory framework for the electricity industry was deliberately light handed to maximize the scope for commercially negotiated outcomes and to avoid placing onerous restrictions or reporting requirements on market participants (The Office of the Regulator General Victoria, 1995, 3.9). Reserve powers were enacted to protect customers and correct uncompetitive market behaviour, however as far as practicable it was for industry participants and customers to negotiate commercial outcomes. It was clearly established from the outset that the regulator had no mandate to decide environmental policy issues such as demand management and energy efficiency initiatives (The Office of the Regulator General Victoria, 1995).

A Customer Consultative Committee was established by the Office of the Regulator General and this could have provided a forum for consumer advocates to discuss DSP. However the sheer weight of work that the regulator had to undertake in the early stages, the narrow constraints of the regulatory process and the complexities of the price review made it hard to achieve progress on DSP. Customer advocates had some important wins in social protection in the early stages of regulation such as universal standing offers, no late payments and an incentive based rather than a penalty based market (i.e. discounts for paying on time). The distribution and equity issues carried far greater political risk than environmental concerns and were dealt with accordingly. Far fewer gains were made on the environmental side.

Consumer Perceptions of Electricity

The hopes of market reformers for an efficient demand side response rested on the presumption of a rational utility-maximizing consumer. The demand side would capture its full value once prices reflected cost and consumers sought out new opportunities for savings through direct negotiation with retailers or via intermediaries such as energy service companies. Yet no research was commissioned to test this assumption and gain an understanding of “consumer utility” as it applied to electricity use. The reform process did very little to shift the underlying attitude that most customers had of electricity as an essential service rather than a commodity.

³ At the Federal level, early work was underway on Minimum Energy Performance Standards. A key figure within the Victorian bureaucracy, Alan Moran, the Deputy Secretary of the Department of Energy and Minerals Victoria tried, ultimately unsuccessfully, to derail this process.

Since the creation of the SECV in 1921 electricity has been regarded as a necessary condition for a minimum standard of living. This meant that consumers, irrespective of location or consumption patterns, had a sense of entitlement to cheap and reliable electricity. Electricity was valued so highly that it was expected to be priced low. As appliances, computers and electronic equipment penetrated households and businesses this only increased the perceived “essentialness” of electricity.

Such well-entrenched attitudes to electricity have made the move to more cost-reflective pricing structures highly politically sensitive. Market reformers tried to address this crucial obstacle to the success of retail competition through negotiated outcomes with interest groups and creating gradual glide paths for tariffs to minimize tariff shock. However, there was little sophisticated analysis of how to shift consumer perceptions from a public good mentality to a risk bearing mentality with electricity regarded *as a commodity*. Nor was there much consideration of how significant a barrier this was to achieving the promise of demand side participation.

Governments of all persuasions have struggled to truly shed responsibility for electricity prices in the customer/voters’ eyes. Private entities and the National Electricity Law make a clear separation between government and the rule making process, so there is little formally that the government can do to control price hikes (Australian Energy Market Commission, 2012a). Having said this, decisions in both the regulated networks and the retailers are constrained by what is politically possible. With recent escalating prices governments have found it more rather than less difficult to manage tariff shock and this plays out as an unedifying blame game between industry and government.

Having outlined some of the key developments in the set up of the market that handicapped DSP I now examine the legacy of these early decisions, namely that there is no body with clear mandated responsibility for promoting the demand side and that there are very few incentives to pursue DM through the supply chain.

A Decade On: Governance Challenges in the Liberalized Market

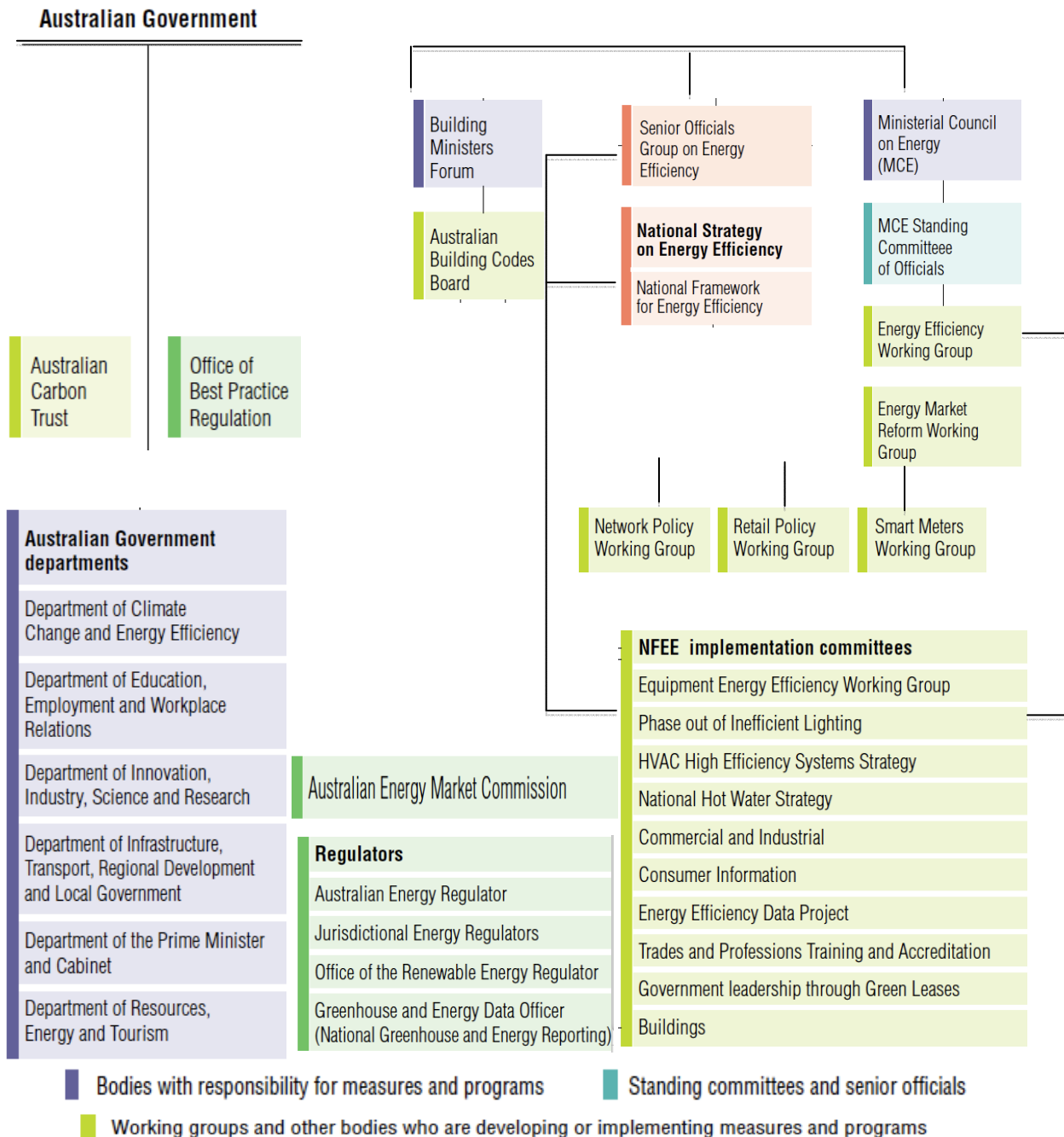
In a recent survey on the key barriers to demand management involving over 800 respondents working in and around the demand management industry the number one barrier identified was a lack of coordination at state and national level (Dunstan, Ross, & Ghiotto, 2011). The emergence of a competitive and privatized electricity industry structure has created a complex architecture of industry governance.

The Australian Government does not have sole responsibility for the energy market and demand-side participation. It works with the states and territories through bodies established under COAG), principally the Ministerial Council on Energy (MCE, recently renamed the Standing Council on Energy and Resources, SCER). Since the inception of the NEM two decades ago Australia has been moving towards a more coordinated national approach to policies, practices and institutional arrangements. In 2007 the responsibility for economic regulation of distribution businesses passed to the AER from the relevant State authorities.

From 2000 onwards State and Federal governments began to implement their own ad hoc energy efficiency schemes to address growing concerns about climate change and the lack of progress on the demand side via the market. The Prime Minister’s Energy Efficiency Taskforce identified around 300 such measures and reaffirmed the comments of earlier reviews that there is excessive complexity and duplication of energy efficiency initiatives (Commonwealth of

Australia, 2010). Within the energy market there are multiple players in the one policy and regulatory space. The administrative process for changing policy priorities between AEMC and MCE are very complex and poorly understood by most participants in the market. The MCE (now SCER) establishes directives which are the product of compromises between the States. These are then interpreted by the AEMC which has responsibility for rule making development in the energy market. The AEMC in turn makes recommendations back to the MCE for reforms to the market.

Figure A. Taken from the Final Report of the Prime Minister's Task Group on Energy Efficiency, shows the sheer complexity of existing governance arrangements for energy efficiency (Commonwealth of Australia, 2010 75).



The Australian Energy Regulator (AER) is responsible for the economic regulation of the electricity transmission and distribution networks in the national electricity market. The merits of any part of a price/revenue control decision by the AER can be appealed to the Australian Competition Tribunal or the Federal Court. Every regulatory decision by the AER affecting distributors has been appealed and this has had a very significant impact on network prices paid by customers. The Australian Competition and Consumer Commission (ACCC) is also responsible for monitoring and regulating anti-competitive conduct, mergers & acquisitions, and consumer protection. ACCC initiatives, such as the challenge to the vertical integration of generation and retail, have the potential to reconstitute industry dynamics and in turn impact the demand side. ACCC decisions are subject to review and the Federal Court has also exercised an influence via this appeal mechanism.

A Decade On: Electricity Retailer Incentives

More than a decade since the introduction of full retail competition in Victoria the dominant retail business model remains largely at odds with DSP. In theory, retailers can play an important role in DSP in two different ways. DSP can be packaged as a financial product which retailers can purchase to manage risk in a volatile wholesale market. Alternatively, retailers can enable DSP by designing retail tariff structures that reflect the full value of DSP to consumers; offer innovative products or services that respond to consumer demand for DSP eg energy efficiency audits; and raise awareness of the value of DSP through billing or marketing.

The theory of retail competition has failed to translate into practice for a number of reasons. Firstly, DSP as a value added service provides no guarantee for acquisition or retention of the customer base. As the different tranches of the customer market were made contestable the retail side quickly collapsed into a fierce price war making it difficult for retailers to differentiate on service, particularly energy management services. From 1994 to 2000 there was not a lot of incentive outside of internal industry requirements to pursue demand management. Even as the market has matured most customers are unwilling to be exposed to the price volatility that exists at the wholesale level and will pay a premium to avoid this (Australian Energy Market Commission, 2012b).

Secondly, retail is a volume based business. The most cost-effective energy efficiency initiatives can significantly cut into sales at both peak and non-peak times and undermine profits. Load shifting behaviour can be unpredictable and create revenue uncertainty. This may then drive retailers to increase the fixed supply charge to provide a more predictable cash flow. Peak demand response, on the other hand, may be a cost-effective strategy: retailers buying in the volatile wholesale market and selling at relatively stable prices have an incentive to minimize the amount of electricity purchased during peak periods. Demand side aggregation offers some opportunities as a risk management product in this financial market. However, retailers interviewed for this research cited operational costs and lack of certainty as the main barriers to taking up demand side options.⁴

Thirdly, managing price and volume risk is key to a retailer's survival and the preferred risk management strategy for retailers has been vertical integration which comes at the expense of demand side options. Retailers have joined with generators to produce a class of "gentailers" that now dominate the retail sector. Through vertical integration high wholesale prices during

⁴ Interestingly, ongoing demand reduction via energy efficiency rather than load interruption was perceived as a more certain and viable product from a risk management point of view.

peak periods actually benefit the generation side of the business creating a powerful disincentive to pursue demand management as a hedge or to offer DSP options in retail contracts.

Fourthly, retailers trying to provide more sophisticated time of use pricing are limited by the fact that they buy electricity via the wholesale market and networks both of which have different pricing structures. In the wholesale market there are mainly peak and off peak and seasonal prices and for networks there are standing charges, peak, off-peak and shoulder rates for energy and demand/capacity charges. Because the pricing structures are not equivalent it is hard for a retailer and customers to determine the savings they would make through demand management. They may save money on the wholesale market energy component but not necessarily in distribution. Retailers manage this risk by simply re-packaging these costs as a fixed price tariff with separate (unregulated) energy charges and regulated network charges in the customer's bill.

A Decade On: Distribution Network Service Provider Incentives

Distribution pricing has changed little since privatization and investment in DSP has been completely dwarfed by capital upgrades to the networks. In theory, demand management has an important role to play in reducing peaks thus deferring or displacing the need for further capital investment. However, there are a number of key characteristics that drive Distribution Network Service Providers (DNSPs) and these factors, coupled with the dynamics of the regulatory process, have led to a high degree of inertia in tariff structures and inhibited end user efficiency.

DNSPs are driven by the need for capital investment in poles and wires to meet peak demand and ensure system reliability. These are highly capital intensive businesses with up to 70% of their regulated return comprising returns on capital investment. The focus of distribution businesses tends to be on construction and equipment installation. They have minimal customer interface (mainly for fixing faults and ensuring physical safety) and lack the customer relationship that would enable them to effectively deliver demand management outcomes. As such, the organizational culture of distribution businesses tends to be driven by capital solutions rather than what are perceived to be more high risk, less firm options such as demand management.

DNSPs are required to consider non-network alternatives to infrastructure investments, however that still does not put demand side alternatives on a level playing field with supply-side options from the risk/return perspective of participants. This regulatory requirement does little to overcome the organizational and cultural biases that cause them to focus their expertise on supply side solutions. As regulated monopolies, network businesses are regarded as low risk by investors and attracts shareholders such as superannuation funds. As a result of this low risk perception DNSPs take the opportunity to assume higher levels of debt. In turn, they seek a high degree of revenue certainty to manage their debt (Gallaughan, 2009). To do this they design tariff structures that favour historical rather than innovative pricing strategies that would promote DSP.

DSP is still considered a “non-firm” investment option which compares unfavorably with so-called “firm” capital investment. There is no clear and transparent method for discerning the value of DSP to a network business. The value will change depending on location, the mix of customer classes and season. DSP will have a lower value in the early stages of the capital investment cycle and a higher value as network constraints increase. This makes it challenging to forecast the value and outcomes from DSP over a five year regulatory review period. In addition, the application of high discount rates to financial analysis will tend to reduce the perceived value

of DSP by reducing the estimated benefit from long term measures. The variability in outcome increases the perceived risk of DSP as a “resource” to be deployed.

Regulators have taken a light handed approach to DNSPs and have been unable to actively impose obligations to pursue DSP options that produce net social benefits. The AER claims that it does not have adequate powers to control the market participants (Martin, 2011). An interventionist regulatory approach is hindered by the high degree of information asymmetry between the network businesses and the regulators. The aim of incentive regulation is to provide strong incentives for regulated businesses to reduce costs, improve service quality and undertake efficient investment (Australian Energy Market Commission, 2012c). The regulator must review the business’ costs and make a decision as to what efficient costs might be. This is an information-intensive and subjective process which depends heavily on professional opinion (Australian Energy Market Commission, 2012c). For example, it is difficult for the AER to access the necessary information to accurately estimate the costs of DSP projects based as they are on a negotiation between DSP provider and the network. This creates the risk of the regulator being hoodwinked by networks about the efficiency of costs and the rate at which efficiency goals can be achieved. The distribution businesses exploit this strategic informational advantage in dealings with the regulator (Mountain, 2011). The result is increasingly complex and technical proceedings which are adversarial and litigious in nature.

Conclusion

The demand side was never clearly established within the market framework. There is no one culprit nor event that sealed its fate. It was overwhelmed by concerns about supply side economic inefficiency and inhibited by the desire for a simple and clean market design. Its potential to overcome implementation barriers was significantly overestimated by a belief in the theory of consumer sovereignty and the enduring consumer perception of electricity as a public good.

The reforms to the market were grounded in the theory not the practice of consumer sovereignty. The idea that price and technology would coordinate consumer behaviour in a way that overrode the incentives of a capital intensive industry, the self-interested behaviour of firms and a history of poor consumer engagement was optimistic or perhaps naïve. Having said that, technological development and a resurgence of interest in consumer behaviour may combine to produce greater demand management opportunities *for certain customer classes*. Driven by faith in the enabling power of technology, Victoria has been ahead of many other markets in the roll out of residential smart meter technology.⁵ Now with ever-cheaper main memory hardware becoming available gentailers are using faster analysis tools to take advantage of the data flow. Armed with such valuable data on energy demand, more sophisticated market segmentation may reveal niche markets for DM that benefit both retailer and customer alike. As these DM initiatives become better established retailers may gain more confidence and accrue the

⁵ Victoria has taken the lead in the national roll out of smart meters. The roll out was suspended by the new Liberal/National government in 2011 and is currently under review (Department of Treasury and Finance, 2012). There is a high level of community suspicion that the roll out is not consumer-oriented, rather it is designed to deliver savings to energy networks and retailers through reductions in billing costs and access to valuable data on energy demand profiles. The decision to install the smart meters with no user feedback technology has exacerbated this perception.

necessary skilled personnel to develop DM for other customer classes where outcomes are harder to predict. Under these conditions, energy service companies (ESCOs) may be able to provide value and develop their business model in a way that has not been possible until now. The emergence of a carbon market in Australia may also have some positive, albeit uneven, outcomes for DM. With the carbon tax being one of a number of factors driving rises in the underlying price of electricity, energy businesses may see additional value in ESCO services. Whilst price alone is not enough to drive DM, in combination with the increased focus on customer engagement by gentailers this could further stimulate innovation in the energy services market.

At a national level, regulatory directions to incentivize and promote demand management based on social and environmental objectives were not a key priority in the design and implementation phase of the NEM. Attempts by states to redress this through energy efficiency programs have had uneven outcomes and lacked coherence and coordination from a whole of market perspective. Recently, the Commonwealth government has begun consulting on a national Energy Savings Initiative with retailers as the point of obligation (Department of Climate Change and Energy Efficiency, 2012). The scheme is designed to replace and streamline the existing state based schemes in Victoria, New South Wales and South Australia. The scheme will require decisions to be made about the level of the annual target, sectoral coverage and the scope of eligible activities. If stringent annual targets are established and the program is implemented effectively this could see a change in retailer incentives at a national level.

Whilst there are some opportunities for change on the horizon the problem facing DSP in the national energy market still requires deep institutional changes which are most likely to come through wholesale rather than incremental reforms.

References

Australian Energy Market Commission. (2012a). *National Electricity Rules*.

Australian Energy Market Commission. (2012b). *Power of choice - giving consumers options in the way they use electricity, Directions Paper*.

Australian Energy Market Commission. (2012c). *Power of Choice – giving consumers options in the way they use electricity, Supplementary Paper - demand side participation and profit incentives for distribution network businesses*. Sydney: AEMC.

Australian Energy Market Commission. (2009). *Review of Demand-Side Participation in the National Electricity Market, Final Report*.

Commonwealth of Australia. (2010). *Report of the Prime Minister's Task Group on Energy Efficiency*. Canberra: Australian Government Publishing Service.

Commonwealth of Australia. (2007). *Energy Reform: The way forward for Australia A report to the Council of Australian Governments by the Energy Reform Implementation Group*. Retrieved from http://www.ret.gov.au/energy/Documents/erig/ERIG_exec_summary20070413112814.pdf.

- Council of Australian Governments Energy Market Review. (2002). *Towards a truly national and efficient energy market*. Canberra: Commonwealth of Australia.
- Department of Climate Change and Energy Efficiency. (2012). Energy Savings Initiative. Retrieved 4 May 2012, from <http://www.climatechange.gov.au/government/initiatives/energy-savings-initiative.aspx>
- Department of Treasury and Finance. (2012). Review of the advanced metering infrastructure program. Retrieved 4 May, 2012, from <http://www.dtf.vic.gov.au/CA25713E0002EF43/pages/df-projects-review-of-the-advanced-metering-infrastructure-program>
- Dunstan, C., Ross, K., & Ghiotto, N. (2011). *Barriers to Demand Management: A Survey of Stakeholder Perceptions*: Institute for Sustainable Futures.
- Energy Projects Division. (1997). *Victoria's electricity supply industry : towards 2000*: Department of Treasury and Finance (Victoria).
- Fligstein, N., & Dauter, L. (2007). The Sociology of Markets. *Annual Review of Sociology*, 33, 105-128.
- Gallaagher, J. (2009). *Network Pricing Options from the Network Business's Perspective*.
- Granovetter, M. (1985). Economic Action and Social Structure: The Problem of Embeddedness. *The American Journal of Sociology*, 91(3), 481-510.
- Guy, S., & Marvin, S. J. (1995). Reconfiguring urban networks: Demand side management in the United Kingdom. *Journal of Urban Technology*, 2(3), 45-58.
- Industries Assistance Commission. (1989). *Inquiry into Government (Non-Tax) Charges: The Electricity Supply Industry in Australia*. Commonwealth of Australia, 17 March 1989.
- Industry Commission. (1991a). *Costs and benefits of reducing greenhouse gas emissions*. Canberra: Australian Government Publishing Service.
- Industry Commission. (1991b). *Energy generation and distribution*. Canberra: Australian Government Publishing Service.
- International Energy Agency. (2011). *Empowering Customer Choice in Electricity Markets: Information Paper*.
- Lewis, P. E. (2010). *World Energy Retail Market Rankings*: vaasa ett.
- Lovins, A. B. (1990). *Report to the Minister for Industry and Economic Planning Victoria Australia 30 November 1990 on matters pertaining to Victorian energy policy*. Snowmass: Rocky Mountain Institute.

- Martin, P. (2011). Rising power prices blamed on over-investment *The Age* Retrieved 21 June 2012, from <http://www.theage.com.au/national/rising-power-prices-blamed-on-overinvestment-20110620-1gc3p.html>
- Mountain, B. R. (2011). *Australia's rising electricity prices and declining productivity: the contribution of its electricity distributors*. Melbourne: Energy Users Association of Australia, .
- National Grid Management Council. (1992). *National Grid Management Protocol First Issue*.
- National Grid Management Council. (1994). *Demand Management Opportunities in the Competitive Electricity Market Vol 1: Discussion Paper*.
- State Electricity Commission of Victoria. (1993). *Demand Management Annual Report*. Melbourne.
- Streeck, W., & Thelen, K. A. (2005). *Beyond continuity : institutional change in advanced political economies*. New York: Oxford University Press.
- The Office of the Regulator General Victoria. (1995). *Electricity Industry Regulatory Statement*.
- Williamson, O. E. (1985). *The economic institutions of capitalism : firms, markets, relational contracting*. New York: Free Press: Collier Macmillan.