

Lessons from Australia's National Electricity Market 1998-2018: strengths and weaknesses of the reform experience

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Paul Simshauser

Australia's National Electricity Market (NEM) formed part of a world-wide electricity industry microeconomic reform experiment which commenced in Chile in 1982. The NEM, which covers the eastern and south eastern states of Australia, reached its 20th birthday in December 2018. After two decades it is timely to reflect on the strengths and weaknesses of the reform experience.

This article provides an historical overview of the NEM reform process, then proceeds by examining changes to industrial organisation (i.e. from state-owned vertical monopoly utilities to a disaggregated model), reviews the NEMs unique governance arrangements, and finally, reviews the generation, networks and retail market performance, respectively.

On generation, the centrepiece of NEM reforms was the energy-only wholesale market and accompanying forward markets, and for most of the past 20 years it has displayed consistent economic and technical performance. Following initial reforms, plant costs reduced, prices fell to competitive levels, generation oversupply was cleared and the NEM's reliability criteria of '*no more than 0.002% lost load*' was met with few exceptions. One could conclude with considerable justification that the usual reform objectives of enhancing productive, allocative and dynamic efficiency were achieved. Indeed, for much of the past two decades, the NEM design was widely regarded as a template for power system reform.

More recently however, *missing policies* relating to climate change, natural gas exports and plant exit produced results that have tested political tolerances. The NEM wholesale market is now *attempting to transition without the transitional fuel*, and without a united & synchronized climate change and energy policy architecture. The climate change policies that have existed were poorly designed in that they collided with the NEM architecture by breaking essential links between investment requirements and system operations via certificate side-markets and more recently, via off-market government intermediations. The piecemeal and random interventions that are now following are likely to inflame rather than resolve matters.

Transmission & Distribution Networks across NEM regions are subject to economic regulation based on Littlechild's incentive-based 'RPI-X' approach. While considerable variation exists amongst NEM regions, network performance has been marked by *policy-based Averch & Johnson* (1962) gold plating. The Regulatory Asset Base of combined networks servicing NEM customers surged from A\$32 billion in 2004 to \$93 billion in 2018 while aggregate demand tracked sideways. Underlying policy problems were cauterized by 2012, but utility and regulatory inertia meant network tariffs did not alter from their sharply rising trajectories until 2015.

Retail markets have been forced to deliver this bad news to customers through sharply rising retail prices. Retail markets followed the British approach to Full Retail Contestability, albeit with different NEM regions adopting contestability and price deregulation at different timeframes, which in turn were driven by local political constraints. As with the wholesale market, the NEM's contestable retail markets have, by-and-large, been successful; although as with Great Britain, more recently consumer groups and politicians have conflated the problem of rising electricity prices with price discrimination – a largely unhelpful development. The term '*loyalty tax*' for sticky customers made its media *cameo* in 2018 and the policy of re-introducing regulated tariff caps soon followed. Unfortunately for the market, at the time of writing both the Commonwealth Government and Victorian State Governments had drafted re-regulation legislation.

In my opinion, strengths of the NEM reform experience include the wholesale market design, the 'open source' and non-politicised' approach to rule-making, the manner in which policymakers (largely) allowed capital markets to determine vertical business boundaries, and competition in retail supply. The weaknesses of the reforms include missing policies, viz. those relating to a united energy and climate change policy architecture, plant exit policy and a clear gas market / LNG export capacity policy. In addition, the over-diagnosis of vertical integration, and the under-diagnosis of horizontal integration represent reform weaknesses.