

Systemic Biases in the NEM

Barriers to Demand-side Participation

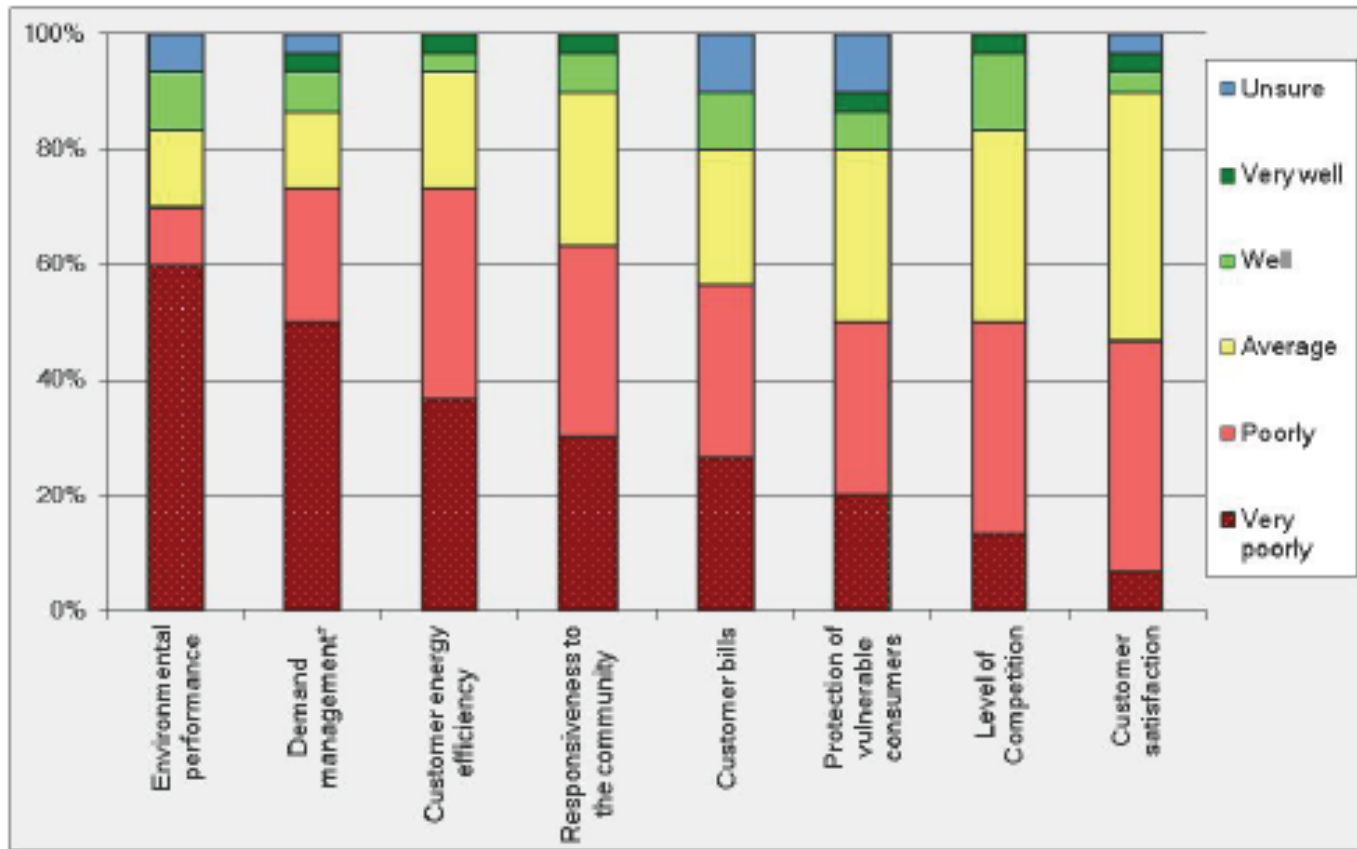
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DSP in the NEM

Figure 4: How well is the NEM meeting other possible criteria for the NEO?



Barriers to DSP

Australian Alliance to Save Energy survey of stakeholder perceptions:

1. Lack of coordination
- 2. No DSP/environmental objective**
- 3. Poor cost reflectivity in electricity prices**
- 4. Utility bias toward centralised supply**
5. Competing priorities in utilities

Barriers to DSP

Lack of a DSP/environmental objective

The National Electricity Objective (NEO)

“To promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to –

- price, quality, safety, reliability, and security of supply of electricity; and*
- the reliability, safety and security of the national electricity system.”*

National Electricity Law (Schedule to the National Electricity (South Australia) Act 1996), s.7

DSP Objective

- The NEM was originally intended to be a two-sided market
- Precursor to the NEM included statement about DSP:
 - *“Demand Management and renewable energy options are intended to have **equal opportunity** alongside conventional supply side options to satisfy future requirements.”*

National Grid Management Council, National Grid Protocol (First Issue 1992)

- *“Initial commitments to include the demand side were not followed through, in either the original version or the current version of the market rules.”*

Crossley, D., ‘Demand-Side Participation in the Australian National Electricity Market: A Brief Annotated History’ (Regulatory Assistance Project 2011) 8

DSP Objective

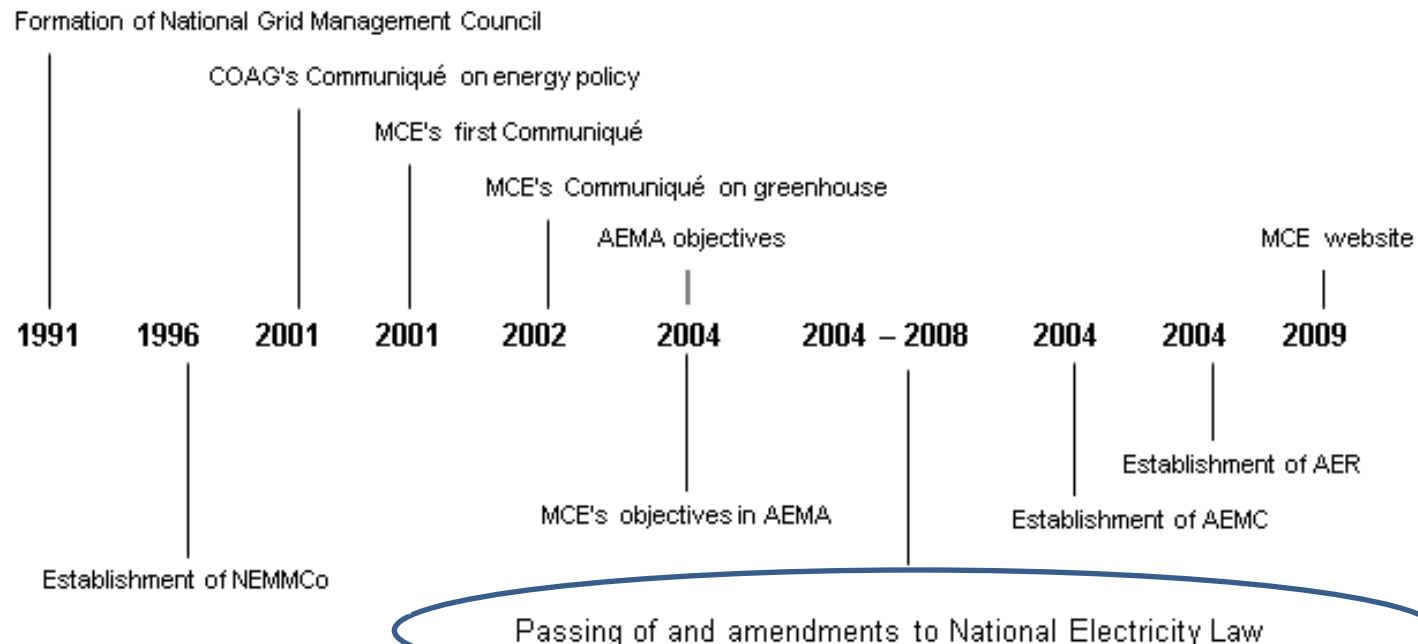
- No DSP objective in the current Rules
- Rules only require DSP to be *considered*, e.g.:
 - TNSPs must publish a report when proposing network investment that must include a description of all credible options for meeting demand, including DSP
 - A NSP must not be biased against DSP solutions
- Recent changes have continued this trend, e.g.:
 - Demand-side engagement strategy
 - Demand-side database
- There is a risk that, without an objective in place, DSP will be considered a formality rather than a fundamental component of a balanced energy market

Environmental Objective

- Same story as DSP – strong environmental goals watered down in NEM implementation
 - In 2001 COAG agreed on goals for the NEM, including:
 - *“Mitigating local and global environmental impacts, notably greenhouse impacts, of energy production, transformation, supply and use”*
- COAG, Energy Policy Details (8 June 2001).
- The Australian Energy Market Agreement (2004) (AEMA) mentioned environmental concerns, but failed to allocate responsibility to any of the NEM’s governing bodies
 - NEO was implemented in 2005 without environmental objective

Environmental Objective

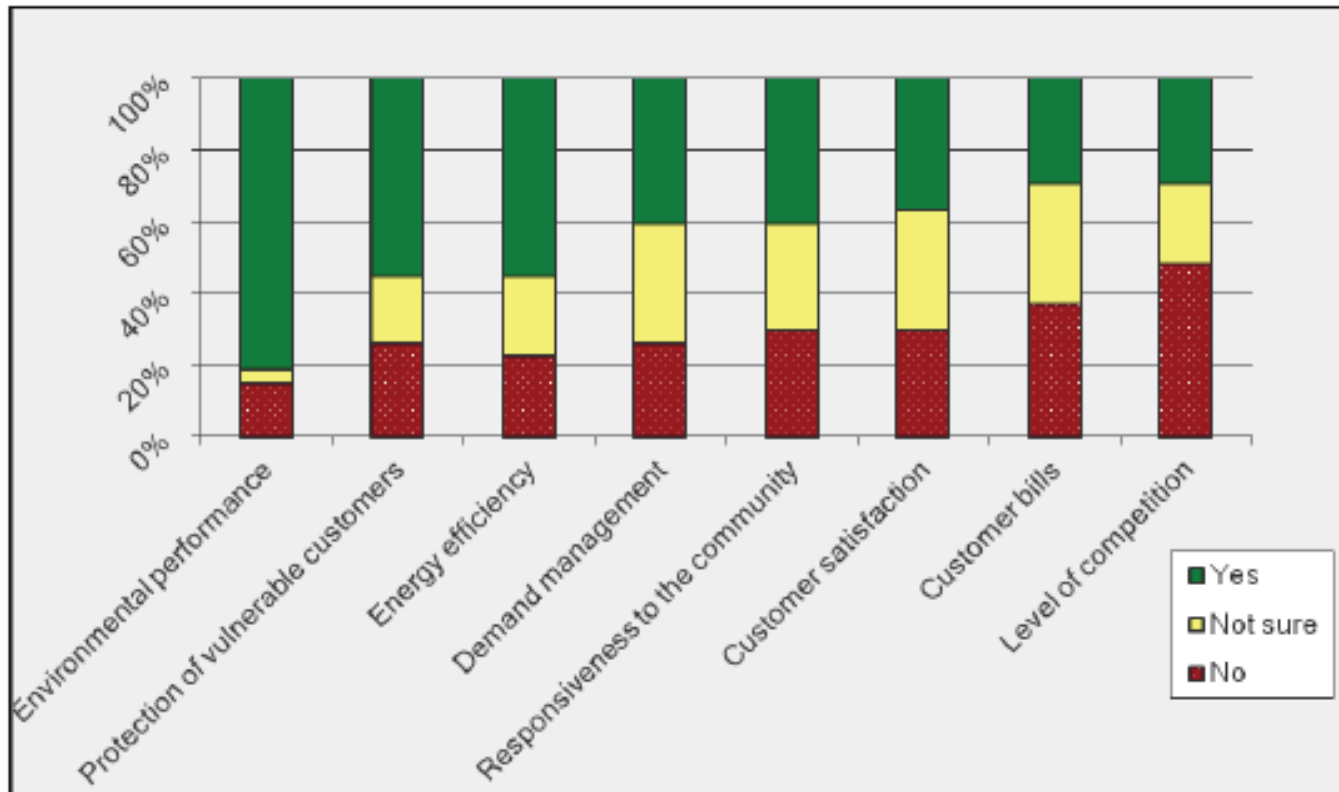
Explicit Environmental Objective



No Environmental Objective

Environmental Objective

Figure 1: Which other criteria should be in the NEO? (Survey results, all stakeholders)



TEC, NEM Report Card (ISF, 2012) v

Environmental Objectives in Other Jurisdictions

- US

- *“Assist consumers in obtaining reliable, efficient and **sustainable** energy services at a reasonable cost through appropriate regulatory and market means”*

Federal Energy Regulatory Commission, ‘About Us’ <<http://www.ferc.gov/about/about.asp>>

- Canada

- *We regulate pipelines, energy development and trade in the Canadian public interest... a balance of economic, **environmental and social** consideration”*

National Energy Board, ‘Strategic Plan’ (2011)

- UK

- *“protect the interests of existing and future consumers... having regard to [security of supply, prudential requirements and] the need to contribute to the **achievement of sustainable development**”*

Gas Act 1986, s. 4AA, as amended by the Energy Act 2008

Environmental Objectives in Other Jurisdictions

- Europe
 - *“Environmental issues have taken centre stage in the design of European electricity markets due to the stringent climate-change mitigation objectives implied by mainstream climate science and partially reflected in current E.U. policies”*

Federivo, G, *The Spanish Gas and Electricity Sector: Regulation, Markets and Environmental Policies* (2010)

Barriers to DSP

Poor Cost Reflectivity in Electricity Prices

Cost Reflectivity of Prices

- Australia has historically had some of the lowest electricity prices in the world – no incentive to lower use
- This is now changing: prices are increasing as NSPs (over)invest in infrastructure
 - *“For many years Australia enjoyed relatively stable electricity prices. But this situation has changed markedly, with substantial price increases since 2007. The increases are mostly attributable to rising charges for energy network”*
- Some reduction in demand as a result

AER, 'State of the Energy Market' (2011)

Cost Reflectivity of Prices

- An estimated 94% of residential consumers are on flat or inclining block tariffs: no sense that cost changes nor any incentive to vary use in response to market conditions
- *While consumers are motivated to participate in demand response programs for various reasons – including financial, environmental, or social good – the **opportunity to receive some form of financial benefit appears to be one of the most important drivers***

Futura Consulting, Investigation of existing and plausible future demand side participation in the electricity market (2011) 87

- Greater cost reflectivity could therefore increase DSP
 - Note distinction between residential customers and business/industry customers
- However, there are considerable challenges

Challenges for Improving Cost Reflectivity

- Improved cost reflectivity in electricity prices will require:
 - widespread availability and consumer awareness of pricing options
 - incentives for retailers and NSPs to investigate and implement these initiatives and market them
 - consumer protection and compensation frameworks for vulnerable consumers
 - long term contracting arrangements: continuity so consumers are able to earn a return on investment (particularly true of businesses which are making large investments in DSP technologies)
- Unforeseen problems can arise, e.g. costs have hampered efforts to rollout smart meters in Victoria and in the UK

Challenges for Improving Cost Reflectivity

- *“International experience indicates that... modest time-of-use pricing works best if combined with real-time communication with customers [this is] possible if the networks redirected more of their capital investment to smart meters and smart grids”*

Fanning, E., ‘THE HIDDEN COST OF INFINITE ENERGY (PART 2)’ *The Global Mail* (7 February 2012)

Barriers to DSP

Utility Bias Toward Supply

Utility Bias

- Generally known that utilities prefer supply-side solutions
- Why?
 - Partly cultural
 - *“To a large extent, one of the major obstacles continues to be **a culture which favours traditional 'build' engineering solutions** and which pays little more than lip service to alternative options”*
IPART, Inquiry into the Role of Demand Management and Other Options in the Provision of Energy Services (Final Report 2002)
 - Partly due to biases in regulatory frameworks
 - *“common perception that the NEM is supply-side focussed and that, as such, DSP is under-represented in Australian electricity markets”*
MCE, Demand-Side Participation in the National Electricity Market (2010)

Supply-side Bias in the Rules

- Utilities profit by building more infrastructure and increasing capital expenditure (capex) under the ‘building block’ approach to regulation
 - Perverse incentive to increase energy usage
 - George Malthabrow (CEO, Ausgrid) says that regulated utilities in Australia have “absolutely no incentive to drive down energy use”
- Utilities do not make a regulated profit on DSP because it is considered operating expenditure (opex)
- While NSPs can, in theory, make a saving by undertaking DSP projects that supplant network expenditure, this means that the NSP foregoes the addition of the capex to its regulatory asset base

Supply-side Bias in the Rules

- Revenue setting process is weighted heavily in favour of NSPs: facilitates the 'build' culture
 - This has been noted by IPART, Garnaut and the Regulator
 - Rule change process currently in progress to tighten Rules
- No 'capacity market' – third party aggregators unable to participate in the wholesale market for electricity. NSPs have less options for DSP
- Excessive reliability and security standards driving expenditure
- Gentailers – incentive to increase electricity throughput

Barriers to DSP

Recommendations

Recommendations

- Add an environmental objective to the NEO, and implement a DSP objective/target
- Continue work toward improving cost reflectivity: time of use pricing, smart meters, removal of price regulation – ensuring protection for vulnerable consumers
- Increasing the incentives available to NSPs to instigate DSP projects
 - UK's RIIO model of regulation
- Decouple NSP revenue from expenditure
 - California's longstanding decoupling policy

Recommendations

- Open up the wholesale market for electricity to third party aggregators
 - The AEMC has flatly rejected incorporating discussion of this idea into its DSP review as it is not intending to ‘fundamentally alter market design’
- Harmonise reliability and security standards and reduce them to reflect the value consumers truly place on levels of service

Barriers to DSP


Recent Progress

Progress?

- DSP3: The Power of Choice
 - Review of DSP in the NEM
 - Focus on pricing
 - But: early stages, narrow focus
- Demand Management Incentive Scheme
 - demand management innovation allowance: recovery of costs for DSP projects, fixed amount of revenue at the commencement of each regulatory year
 - recovery of forgone revenue by a DNSP as a result of reductions in the quantity of energy sold
- Efficiency Benefit Sharing Scheme – amended so as not to penalise NSPs for investing in DSP

Progress?

- National Energy Savings Initiative
 - Part of the Clean Energy Future Package
 - Will require retailers/utilities to assist customers to reduce their energy use
- Overall, there have generally only been piecemeal changes to the Rules
- Minor barriers are removed while the tenor of the NEM remains supply-focused



“Electricity networks were designed back in the time of Thomas Edison as a one-way system to supply power to the customer”

Fanning, E., ‘THE HIDDEN COST OF INFINITE ENERGY (PART 2)’ *The Global Mail* (7 February 2012)

We need to fundamentally rethink the way we operate electricity markets and reconceive them for the 21st century

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