

Scaling the Peaks: Demand Management in Network Infrastructure Planning

Mark Lister

8 June 2011

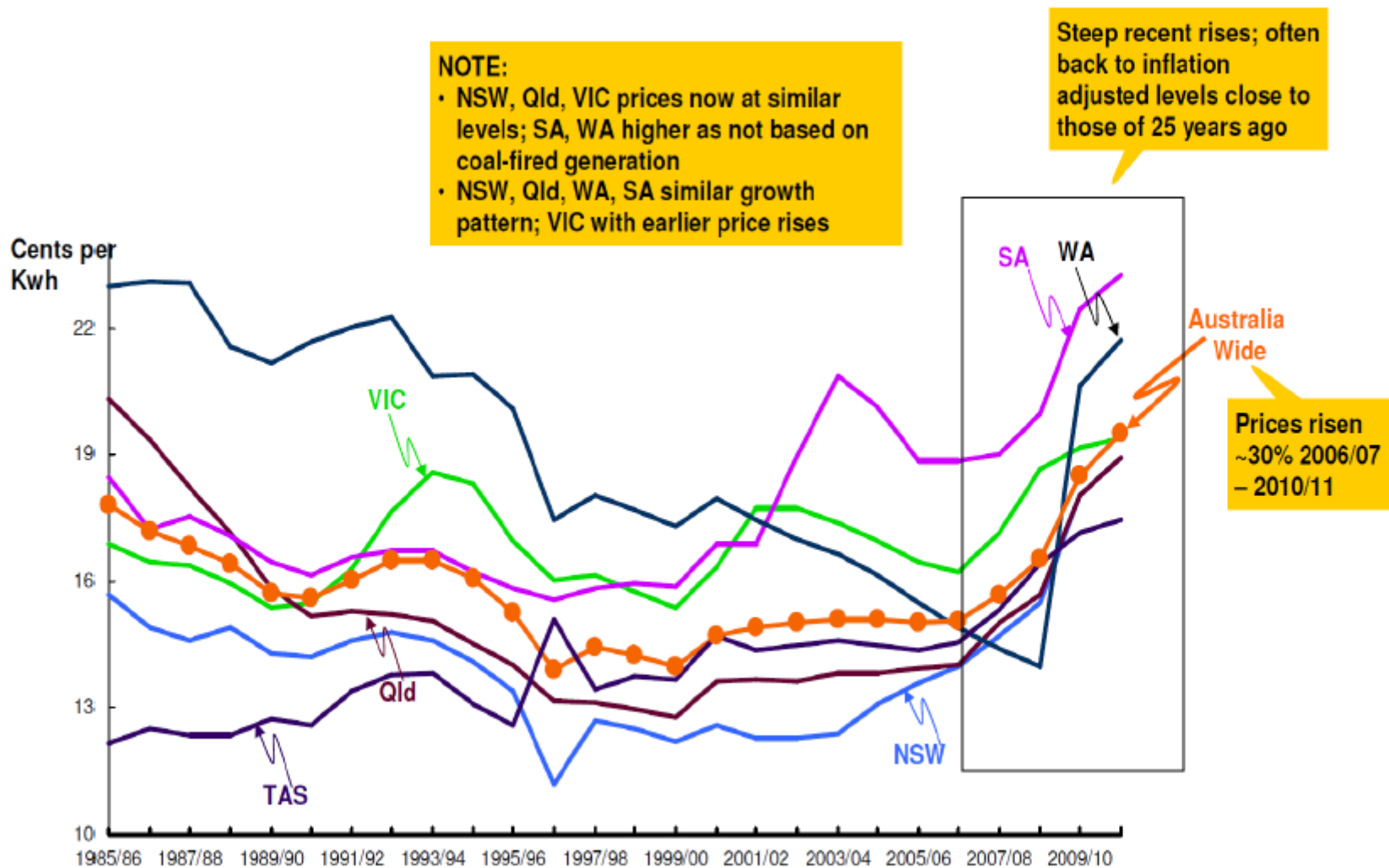


A U S T R A L I A N
A L L I A N C E T O
SAVE ENERGY

Creating an Energy-Efficient Australia

Key questions for the Stage 3 Review

1. How much are power bills rising – and what's driving this increase?
2. Beyond 'giving them options' - what can be done to reduce pressure on consumer electricity bills?
3. Can DSP make a difference or will cutting carbon emissions drive bills even higher under current regulatory settings?

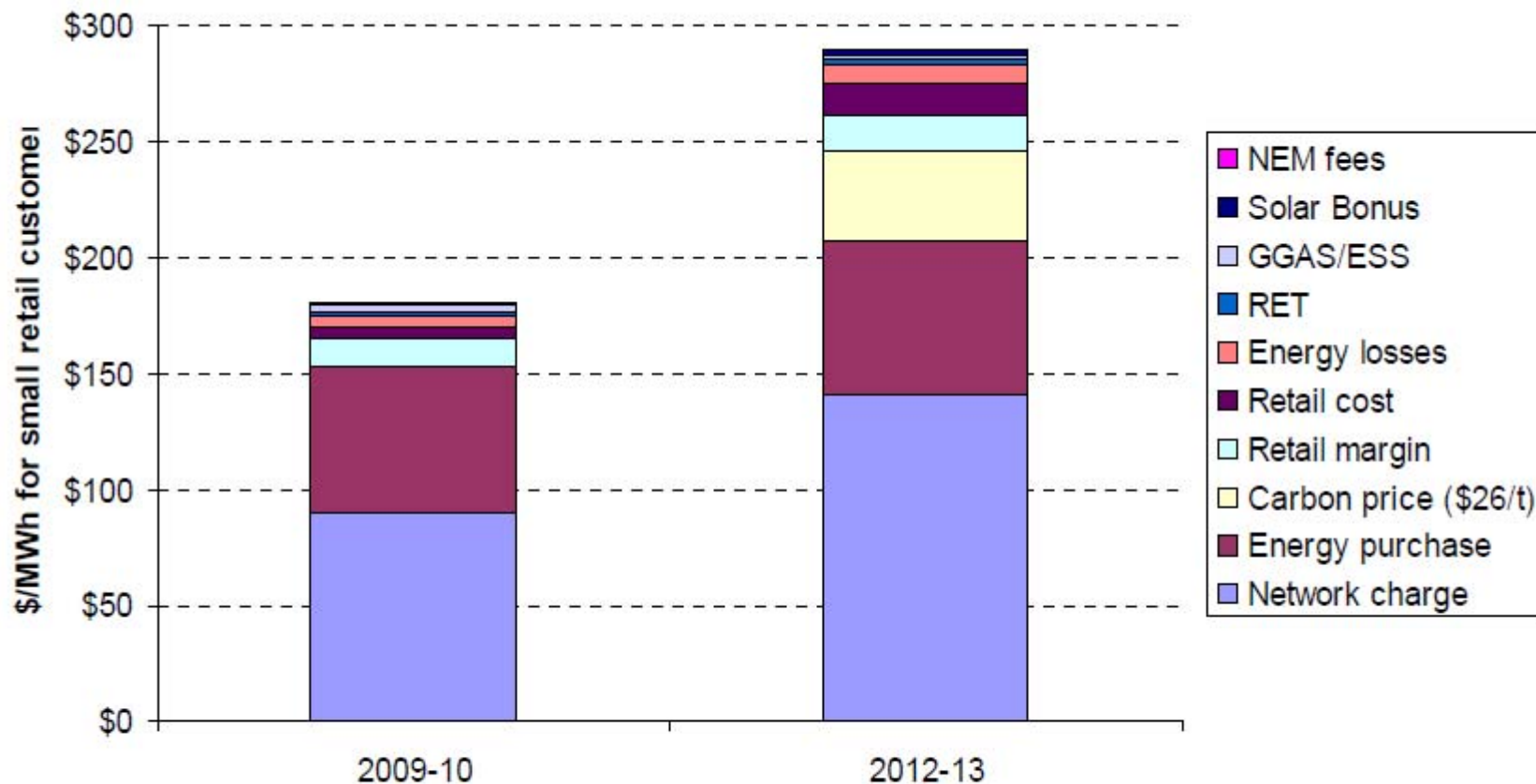


What's driving these electricity price increases?

- > Government gouging of dividends?
- > Carbon Tax?
- > Green Schemes / Solar Bonus?

- > **Network charges driven by network infrastructure investment is by far the dominant factor.**
- > **This review has an important role in creating affordable energy in Australia.**

Components of electricity prices - NSW



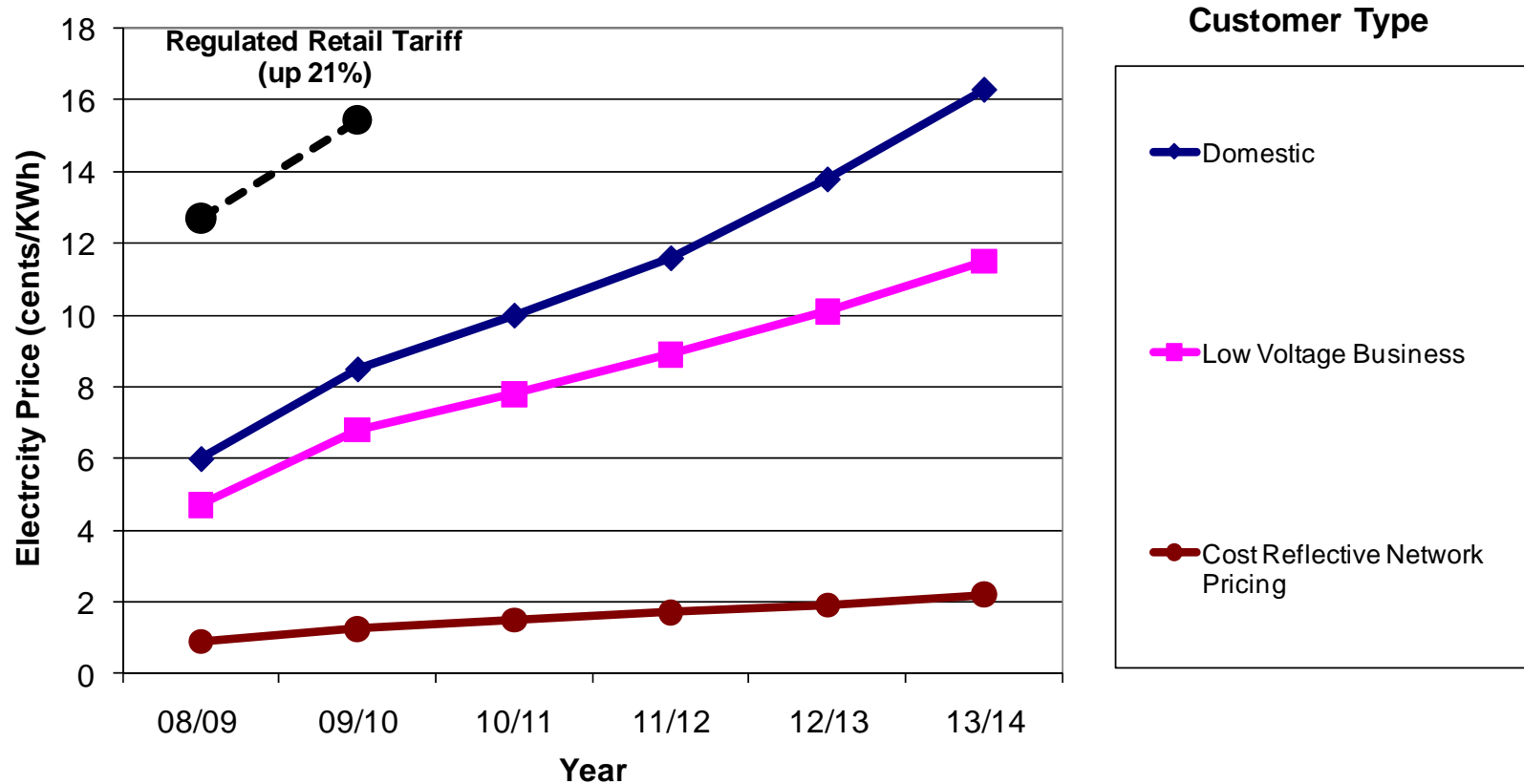
Components of residential Sydney electricity prices in 2009-10 and 2012-13²

Source: Derived from Independent Pricing and Regulatory Tribunal, *Review of regulated retail tariffs and charges for electricity 2010-2013* (Final Report, March 2010)

Rising Network Prices

1

Energy Australia Indicative Proposed Network Charges



The 'under-investment' issue...

Energy Australia: Reliability

Customer minutes without supply

Minutes

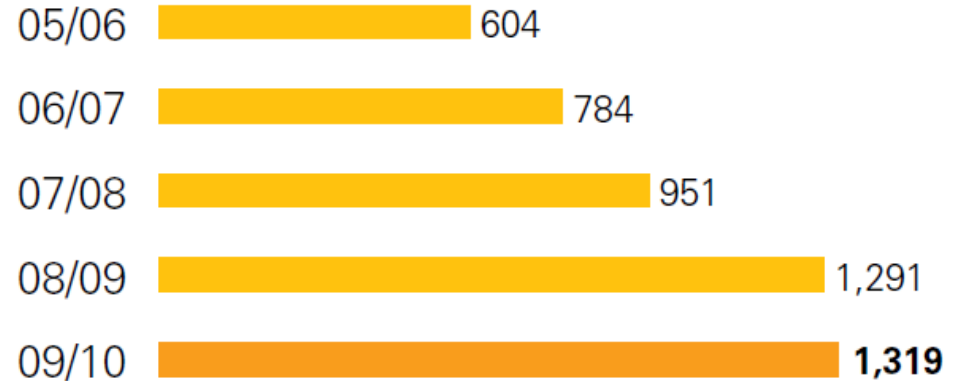


Average performance – 96 minutes

Capital Expenditure

Capital expenditure

\$ millions



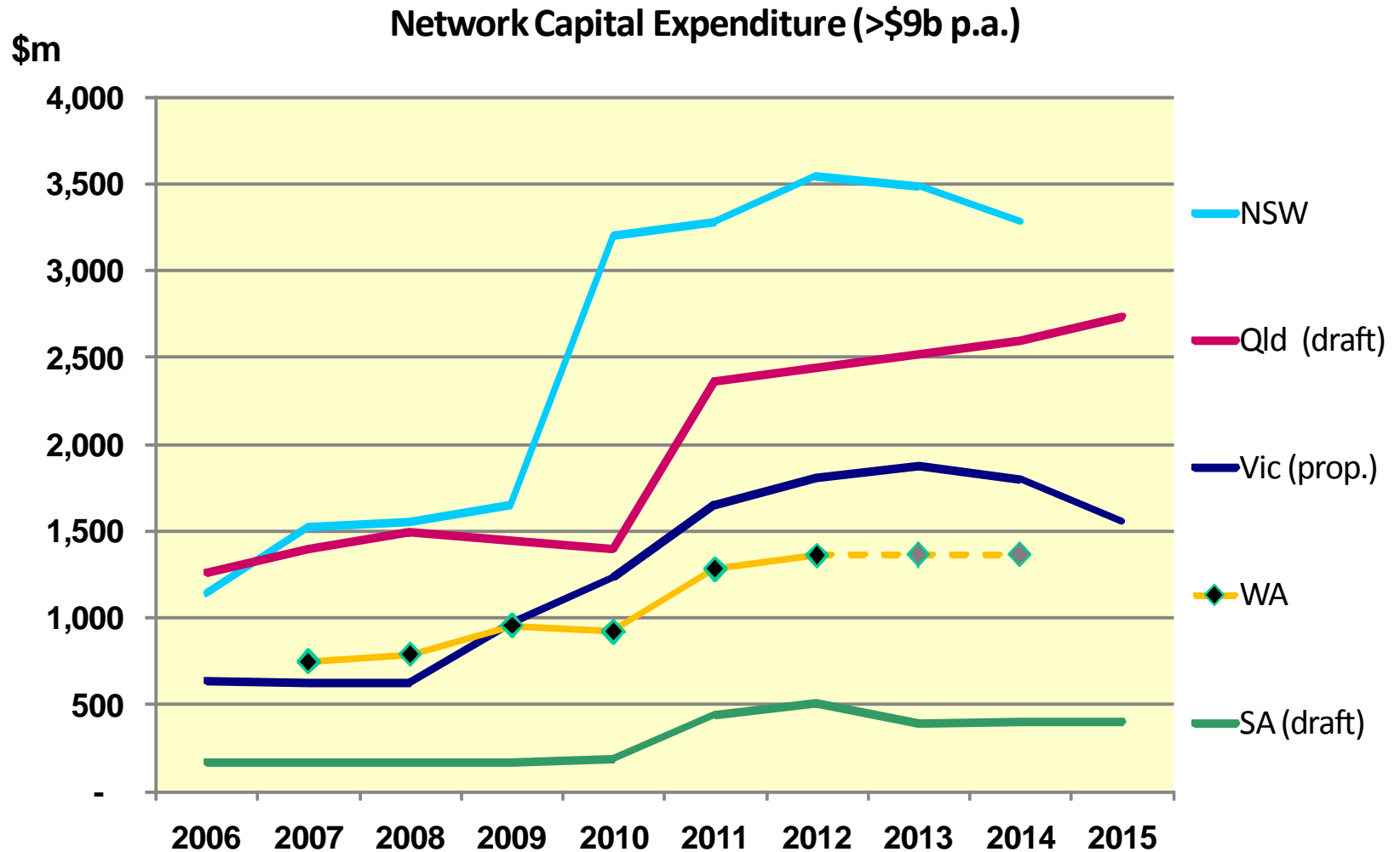
Average capital expenditure – \$990 million

Source: Energy Australia Annual Report 2009/10

http://www.ausgrid.com.au/Common/About-us/Corporate-reports/~/_media/Files/About%20Us/Annual%20reports/EAAR1011.aspx

Network Investment: >\$45 Billion by 2015

- Bigger (and sooner) than National Broadband Network



What drives network investment?

- > Peak demand growth
- > Replacing aged networks
- > Higher reliability standards

Each factor can be addressed with Demand Management (to varying degrees)

Reducing network pressure on electricity bills

“It is the Tribunal’s strong view that there is significant untapped potential for efficient demand management. 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.

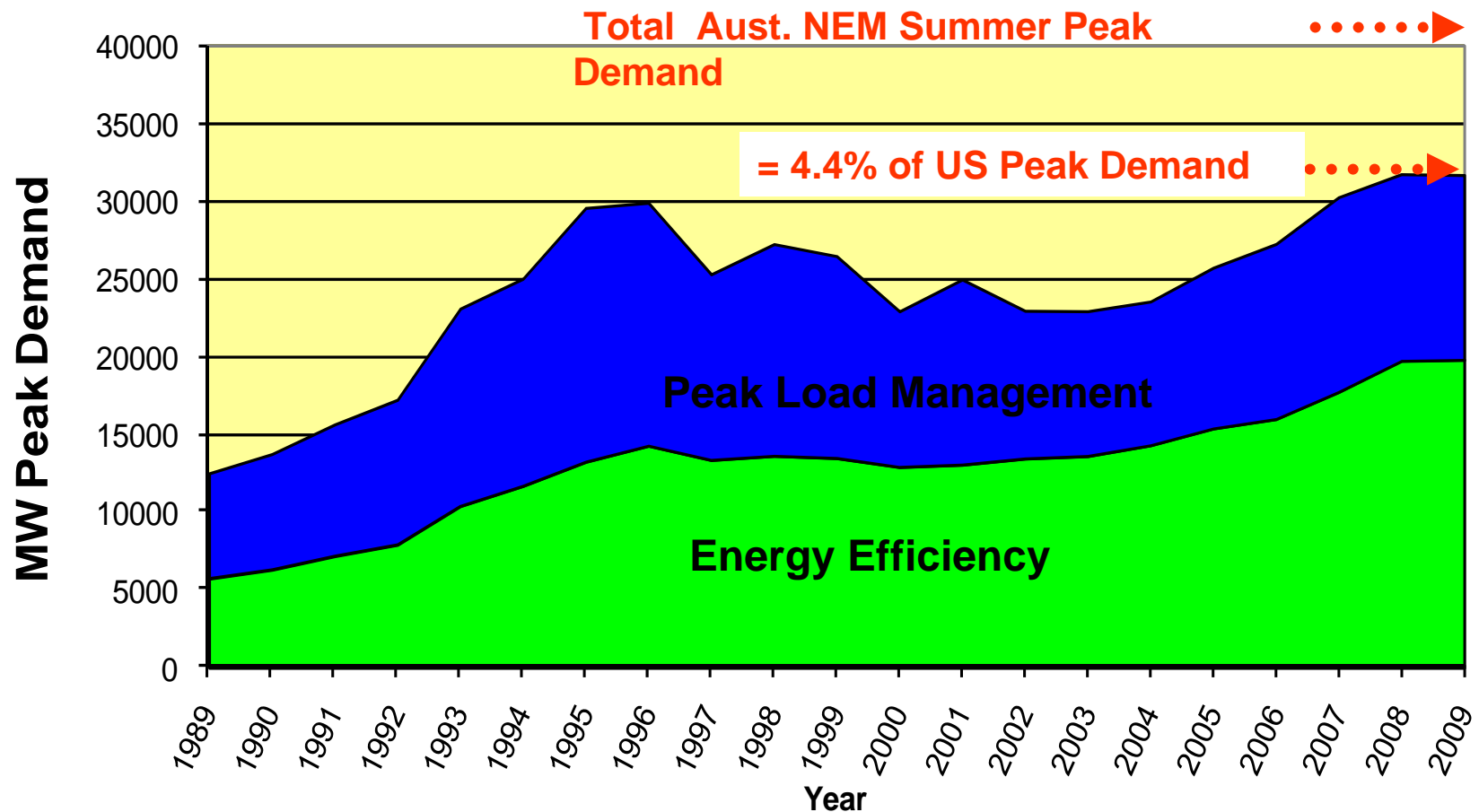
The Tribunal is very concerned about the potential for substantial increases in capital expenditure ..., with adverse consequences for costs faced by end-users. ...

Potentially massive increases in network expenditure to meet demand growth highlight the importance of getting demand management right.”

Prof Tom Parry, Chairman IPART, 2002

Inquiry into the Role of Demand Management and Other Options in the Provision of Energy Services Final Report 3 October 2002 <http://www.archive.ipart.nsw.gov.au/>

US Utility Demand Management (DM) - Actual Peak Load Reductions



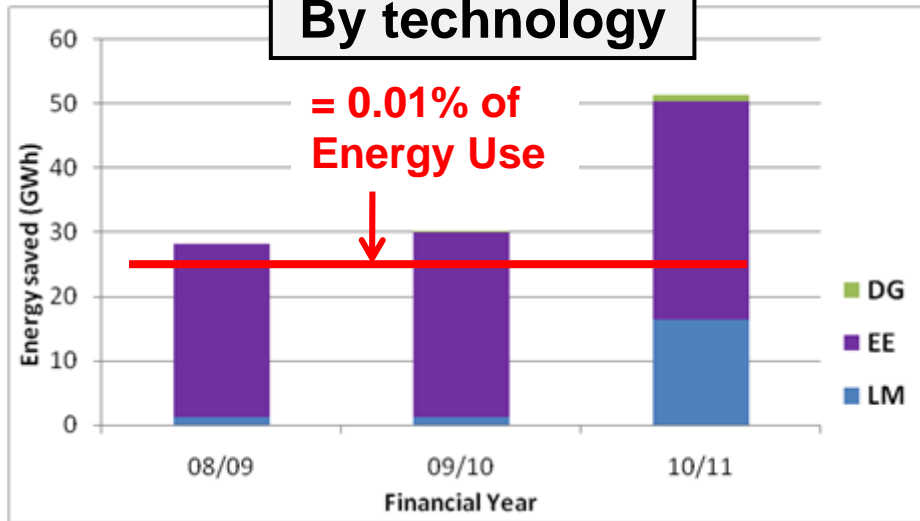
A²SE Survey of Network DM

- > To understand current practice:
 - What is it delivering, what does it cost?
- > To share experience and lessons
- > To raise awareness of potential, barriers and solutions
 - among policy makers, utilities and community
- > To establish a baseline and test an approach

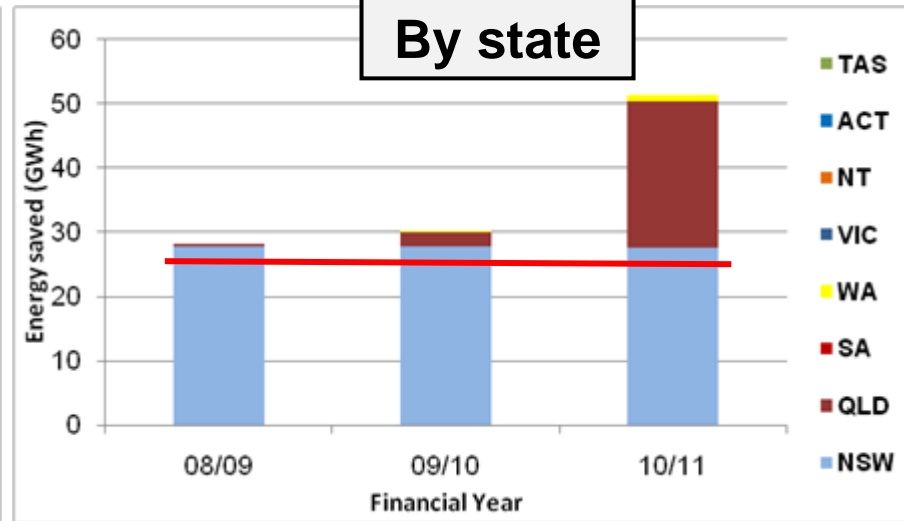
“You can’t manage what you don’t measure”

Energy Savings (and Distributed Generation)

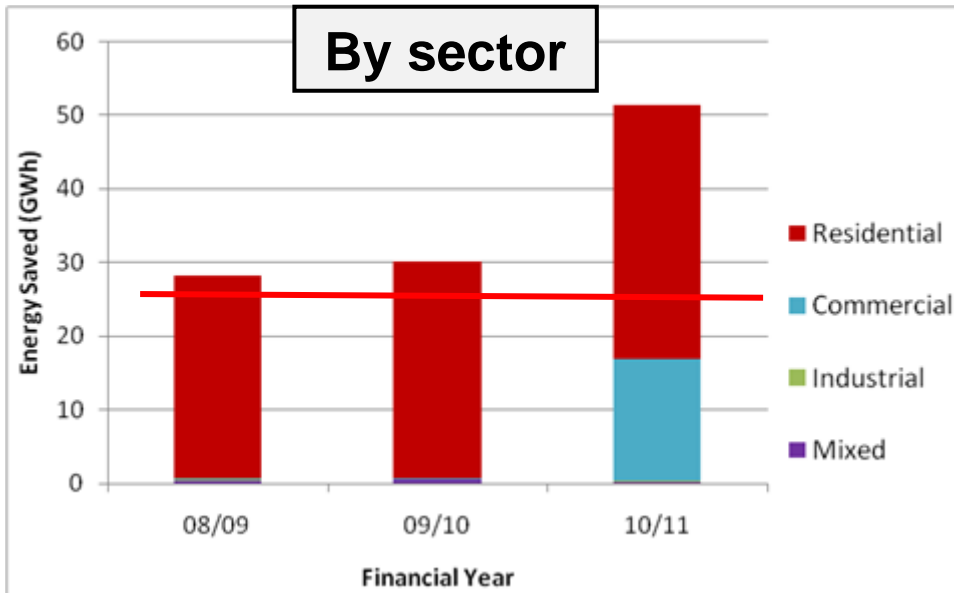
By technology



By state



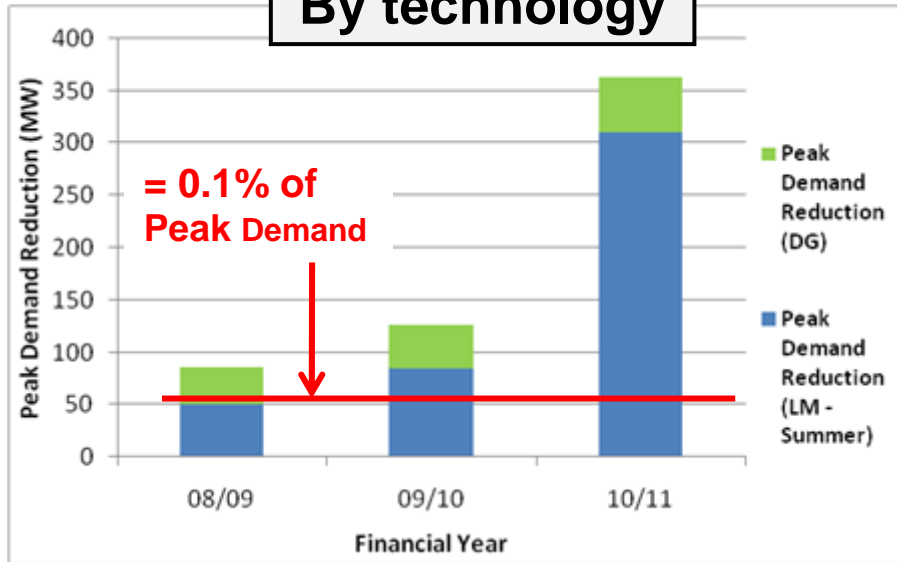
By sector



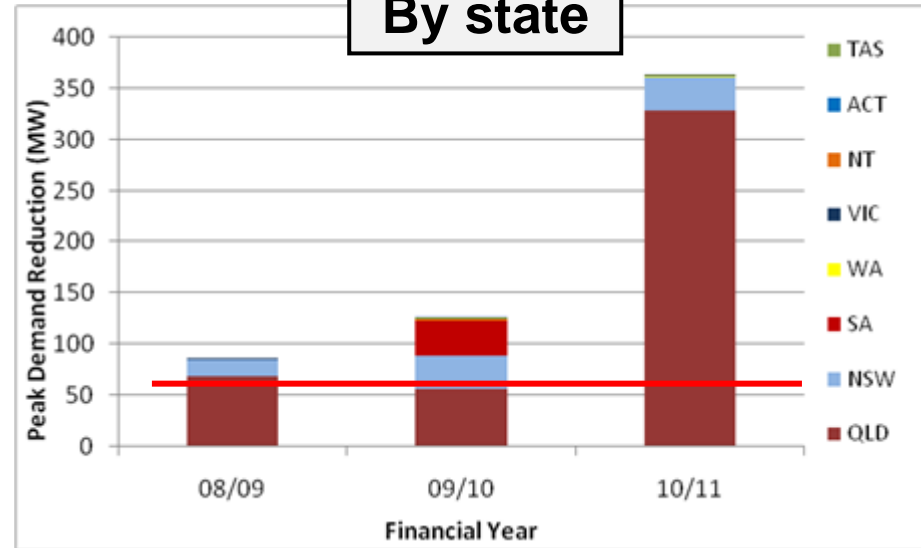
Note that energy generation was reported for 2 NSW DG projects in 08/09, but not in subsequent years.

Peak Demand Reduction

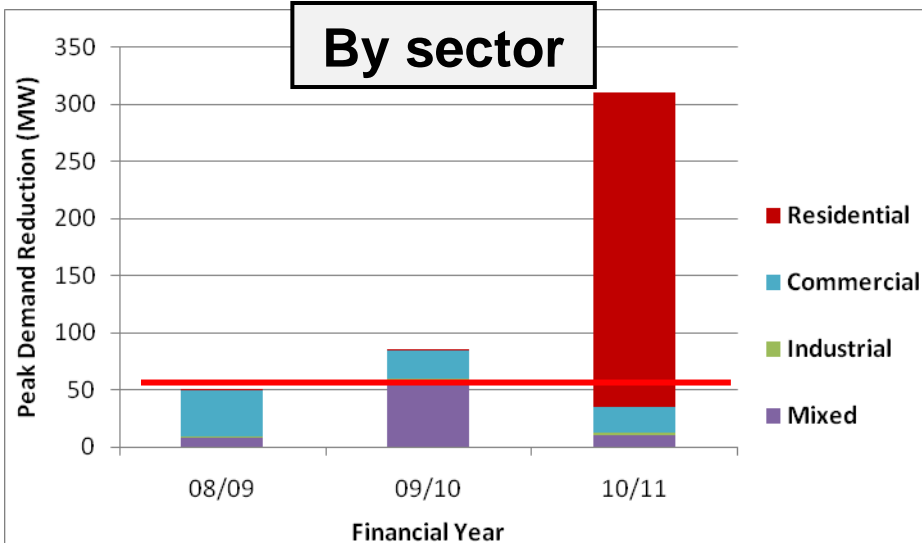
By technology



By state

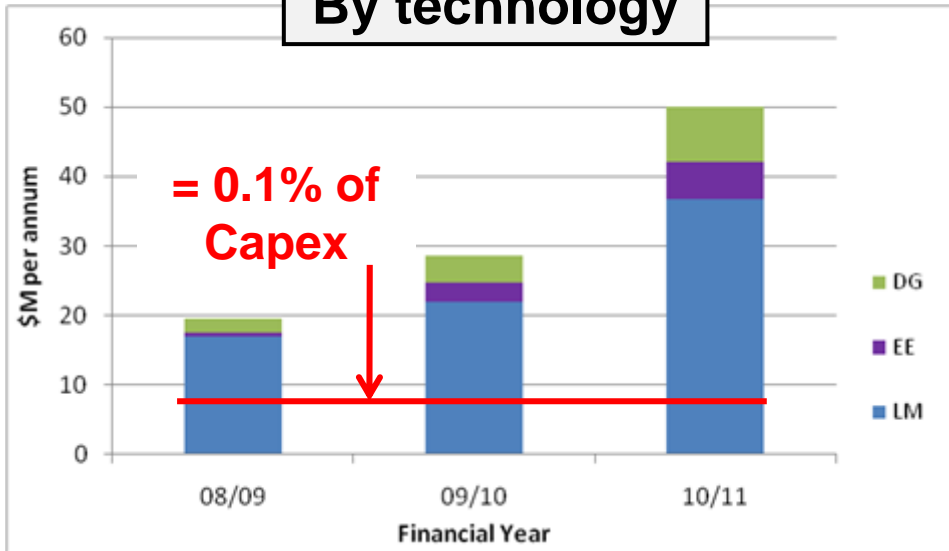


By sector

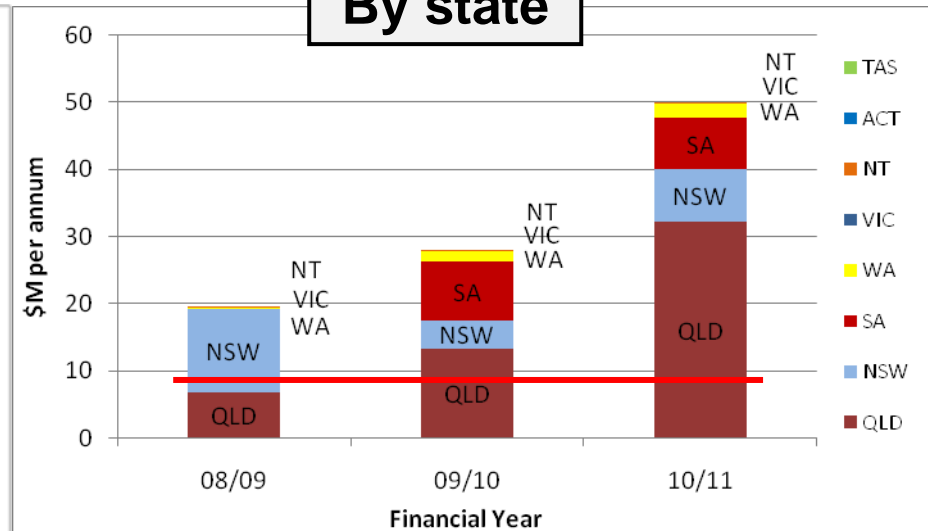


Expenditure on DM

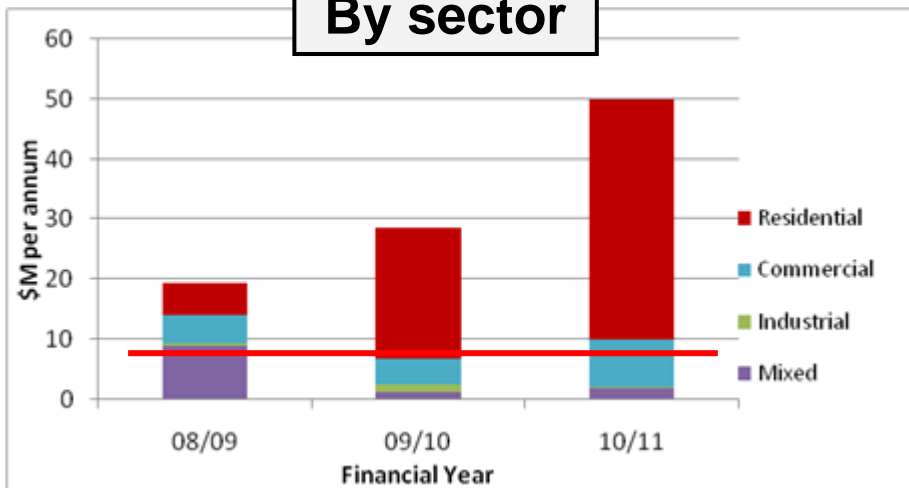
By technology



By state



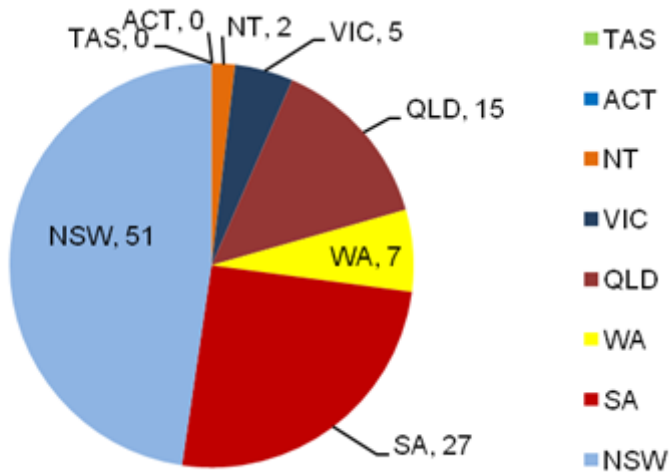
By sector



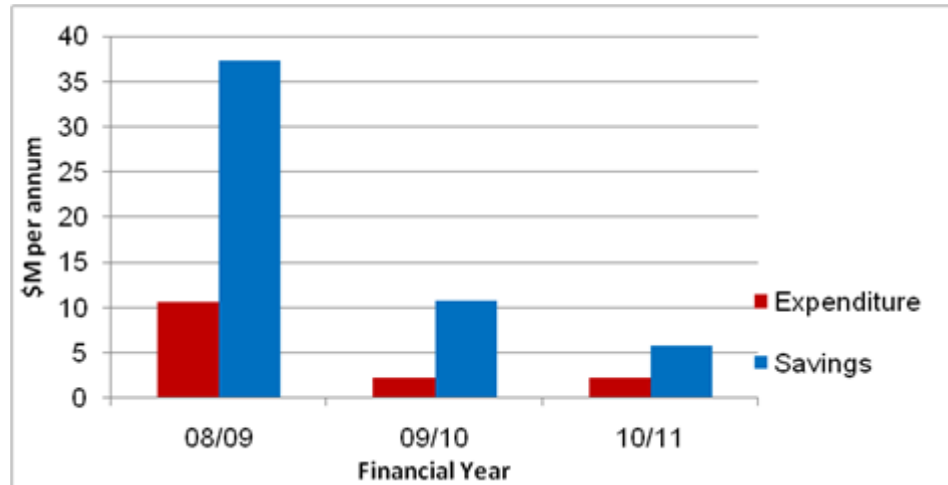
Figures shown here are without estimated NSW FIT expenditure estimates for 10/11

Projects Summary

Number of projects by state



Expenditure vs. savings



Why so little DM in Australia?

A²SE Survey of Perceived Barriers to DM

- > To assess perceived relative importance of barriers.
- > To improve understanding of different stakeholder's perspectives

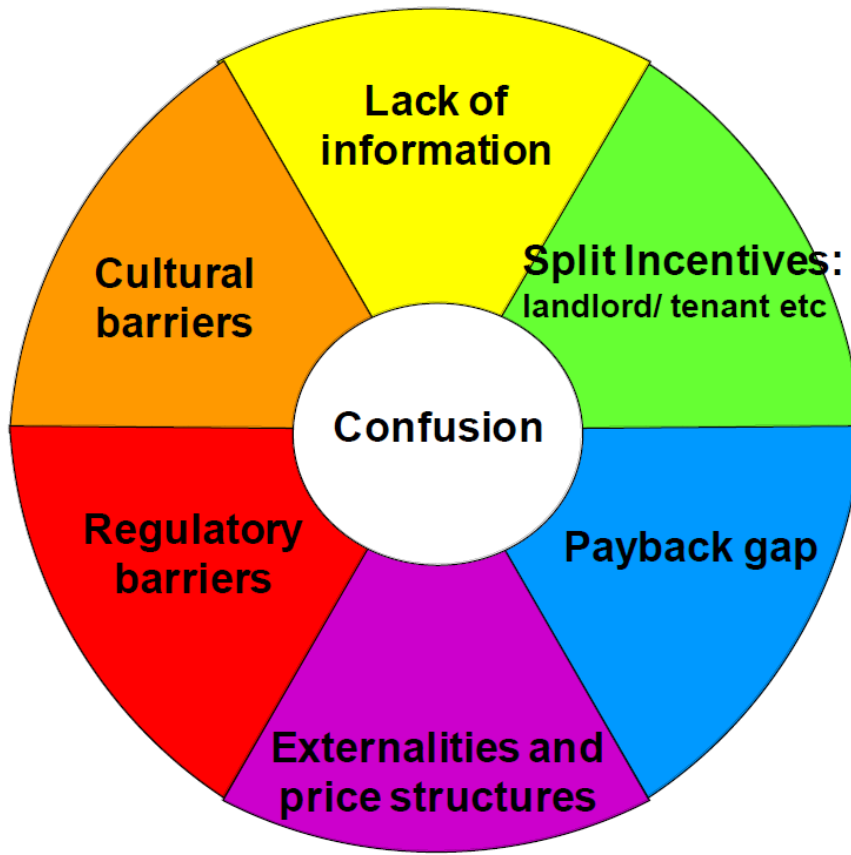


A U S T R A L I A N
A L L I A N C E T O
SAVE ENERGY
Creating an Energy-Efficient Australia

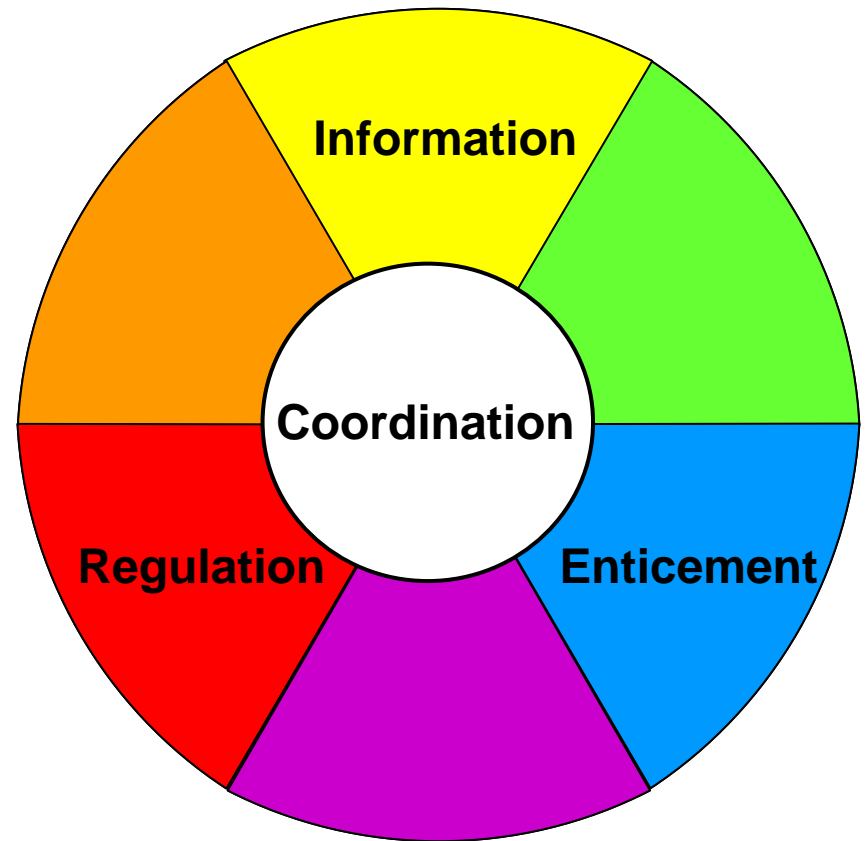
Survey Respondents

Category	Respondents	# Respondents
Utilities	Energy Utility – Network	29
	Energy Utility – Retailer	5
	Energy Utility – Generator	1
Government	Government Agency – Federal	2
	Government Agency – State	20
	Government Agency – Local	8
End User	Energy Consumer – Commercial	12
	Energy Consumer – Industrial	2
DM Provider	Demand Management Provider	8
	Demand Management Consultancy	17
	Energy Supply Consultancy	14
Other	Environmental organisation	16
	Consumer organisation	8
	Industry organisation	3
	Regulator	2
	Research Institution	26
	Other	28

Institutional barriers



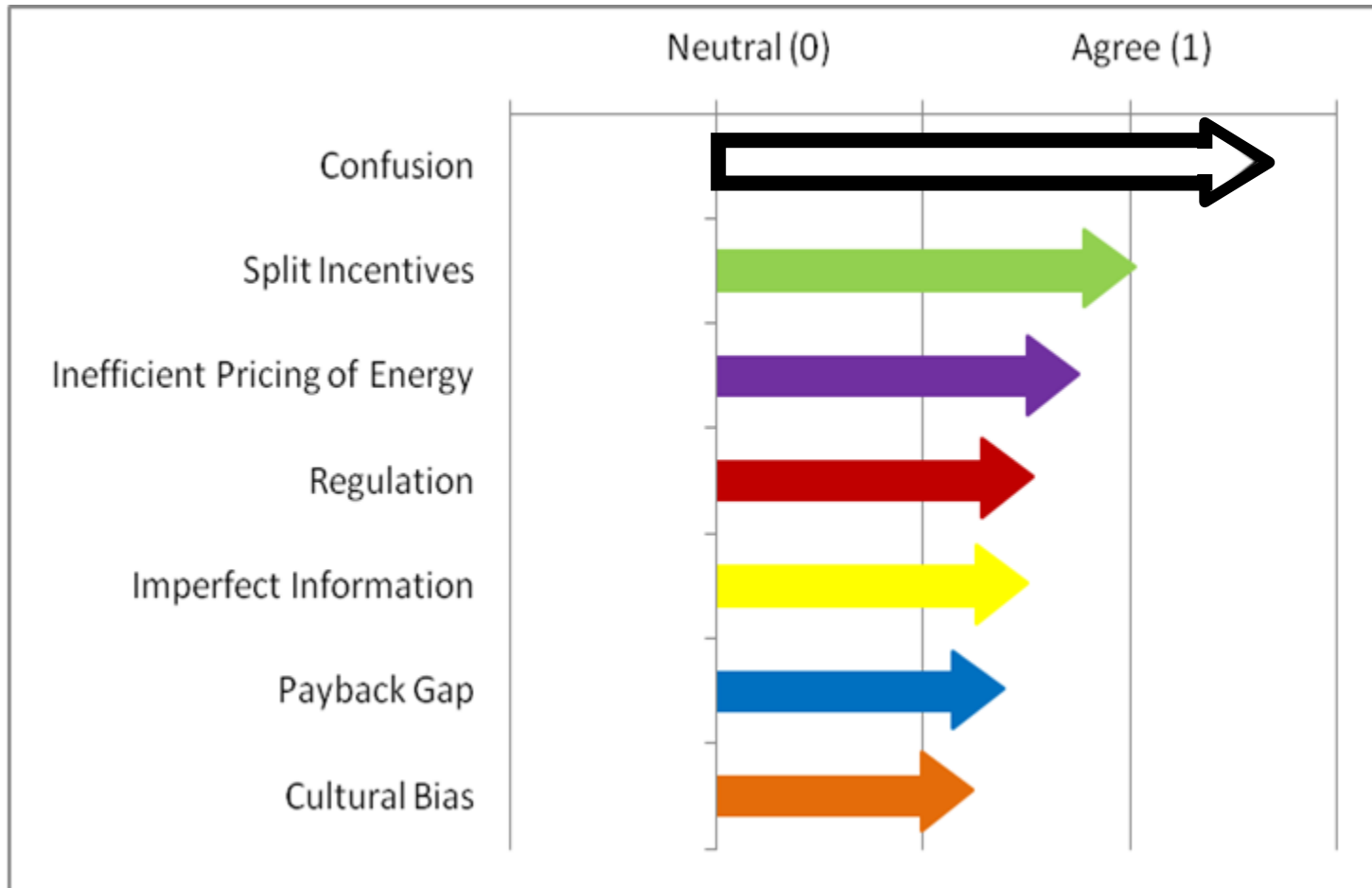
The Policy Palette ('PERFICT')



Barriers to Demand Management

I1	Limited experienced / skilled DM service providers
I2	Lack of data on costs, reliability, potential from DM precedents
I3	Lack of information about network constraints
S4	Competing priorities in utilities limit consideration of DM
S5	Disaggregated electricity market - DM benefits hard to capture
S6	Landlord-tenant relationship
G7	Lack of capital, financiers, funds for DM project proponents
G8	Consumers / utilities want shorter DM payback than for supply
G9	Utilities have easier access to finance than DM providers
P10	Lack of carbon price
P11	Local peak / network constraints not reflected in power prices
P12	ToU tariffs don't represent time / location cost of energy
R13	Electricity suppliers profit from electricity sold, DM cuts profits
R14	Networks don't invest in DM unless constraint is imminent
R15	Regulatory processes (security, reliability) don't consider DM
R16	Regulatory Test (RIT) limits assessment of DM
R17	High \$ threshold of Regulatory Investment Test restricts DM
B18	Lack of state / national government consideration for DM
B19	Utility bias towards centralised supply
B20	Electricity suppliers lack expertise / experience with DM
B21	Absence of DM / environmental objective in National Electricity Law
B22	Electricity consumers lack interest in saving energy
B23	Consumers want to use power when & how they choose
B24	Electricity suppliers prefer CAPEX to OPEX, DM is OPEX
C25	Coordinated approach lacking at state / national level

Extent of Agreement



C25. Lack of coordination at state / national level

B21. No DM / environmental objective in National Electricity Law

P12. Time based prices poorly reflect time & location cost of energy

B19. Utility bias towards centralised supply

S4. Competing priorities in utilities limit consideration of DM

S6. Landlord-tenant relationship

S5. Disaggregated electricity market - DM benefits hard to capture

R15. Regulatory processes (security, reliability) don't consider DM

P11. Local peak / network constraints not reflected in power prices

I3. Lack of information about network constraints

B18. Lack of state / national government consideration for DM

G9. Utilities have easier access to finance than DM providers

R14. Networks don't invest in DM unless constraint is imminent

R16. Regulatory Test (RIT) limits assessment of DM

I2. Lack of data on costs, reliability, potential from DM precedents

R17. High \$ threshold of Regulatory Investment Test restricts DM

G8. Consumers / utilities want shorter DM payback than for supply

P10. Lack of carbon price

B20. Electricity suppliers lack expertise / experience with DM

B24. Electricity suppliers prefer CAPEX to OPEX, DM is OPEX

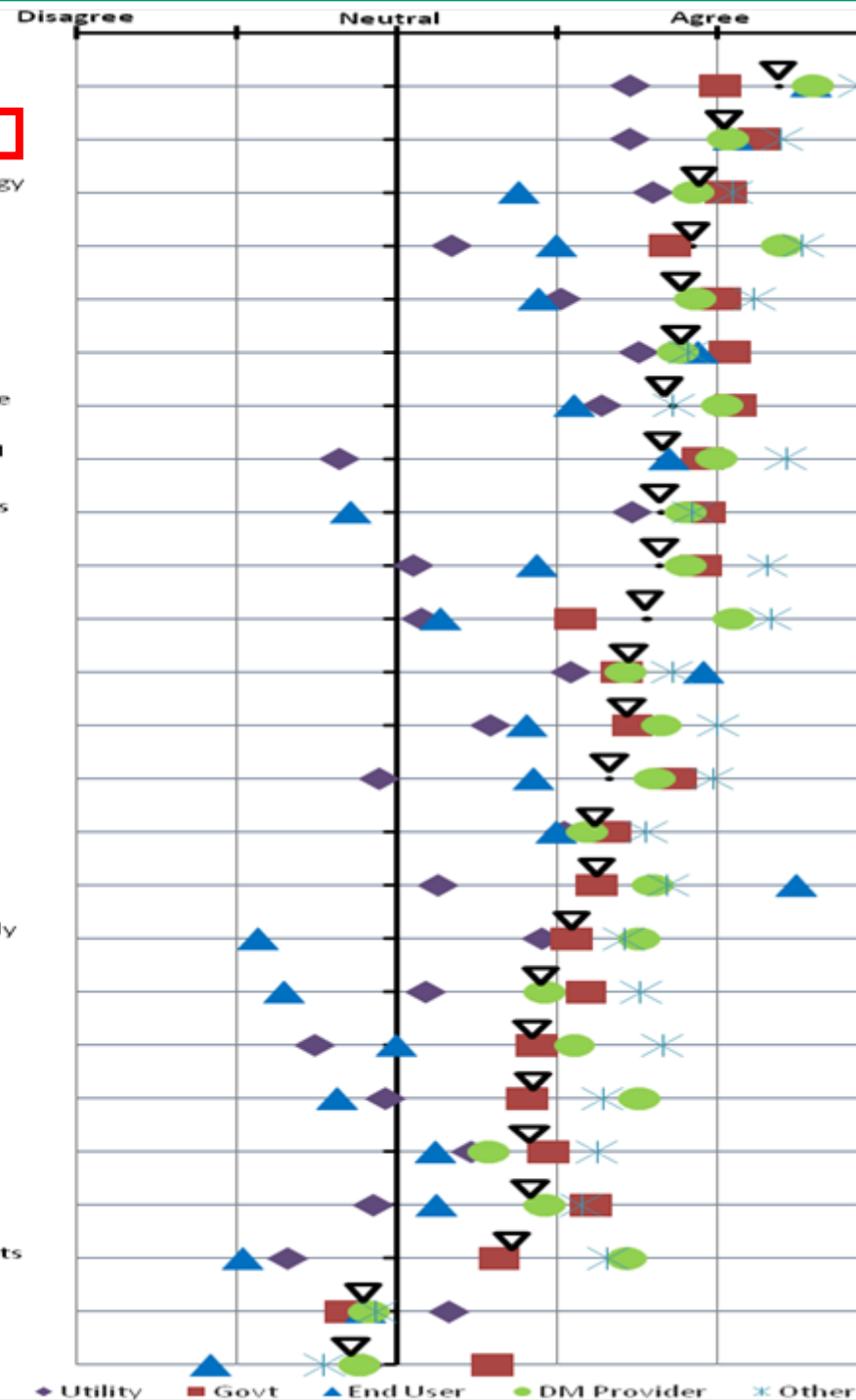
I1. Limited experienced / skilled DM service providers

G7. Lack of capital, financiers, funds for DM project proponents

R13. Electricity suppliers profit from electricity sold, DM cuts profits

B23. Consumers want to use power when & how they choose

B22. Electricity consumers lack interest in saving energy



20 Policy Tools for DSP



- 1: Decouple electricity sales from network profits**
- 2: Reform National Electricity Rules**
- 3: Streamline DG Licensing**
- 4: Carbon Price**
- 5: Cost reflective pricing**
- 6: Network support payments**
- 7: Distributed Energy Fund**
- 8: Reform feed-in tariffs**
- 9: Public recognition & awards**
- 10: Streamline network negotiation process**
- 11: DE Ombudsman**
- 12: Annual DE Review**
- 13: Training & skills development**
- 14: Energy audits & technical support**
- 15: Network planning info**
- 16: DSP handbook and advisory service**
- 17: Resource assessments and case studies**
- 18: Extend retailer EE targets**
- 19: DE targets & reporting**
- 20: DE Coordination Agency**

Towards an effective policy package

An Energy Savings Partnership:

- > Focus on reducing peak demand and reducing consumption
 - > Set ambitious collaborative **targets** with electricity networks
 - e.g. \$1 billion p.a. in avoided capex and consumer savings
 - > Regular performance **reporting** by each network
 - > Savings Partnership **Fund** to drive actions (say, \$300m p.a.)
 - > Any unallocated funds offered to other savings providers
 - > Build into business as usual through economic regulation
- cf UK £500m Low Carbon Networks Fund

Conclusions

- Network investment is driving rapid rising power prices
- Energy Efficiency and Demand Management are the best real prospect for reining in increasing bills
- Giving consumers 'options' may not be sufficient - solution must be strategic, coordinated and collaborative
- Electricity network businesses have a key role to play in DSP
- Addressing affordability is crucial to implementing DSP
... and vice versa

Thank you

Mark Lister

Executive Director

Australian Alliance to Save Energy

mark.lister@a2se.org.au

Tel 0402 320 906

www.a2se.org.au



A U S T R A L I A N
A L L I A N C E T O
SAVE ENERGY

Creating an Energy-Efficient Australia