# Electricity in the NEM: Briefing to JP Morgan

13 October 2016
Sydney

Bruce Mountain
Director, Carbon and Energy Markets (CME)
*www.cmeaustralia.com.au*

# Outline

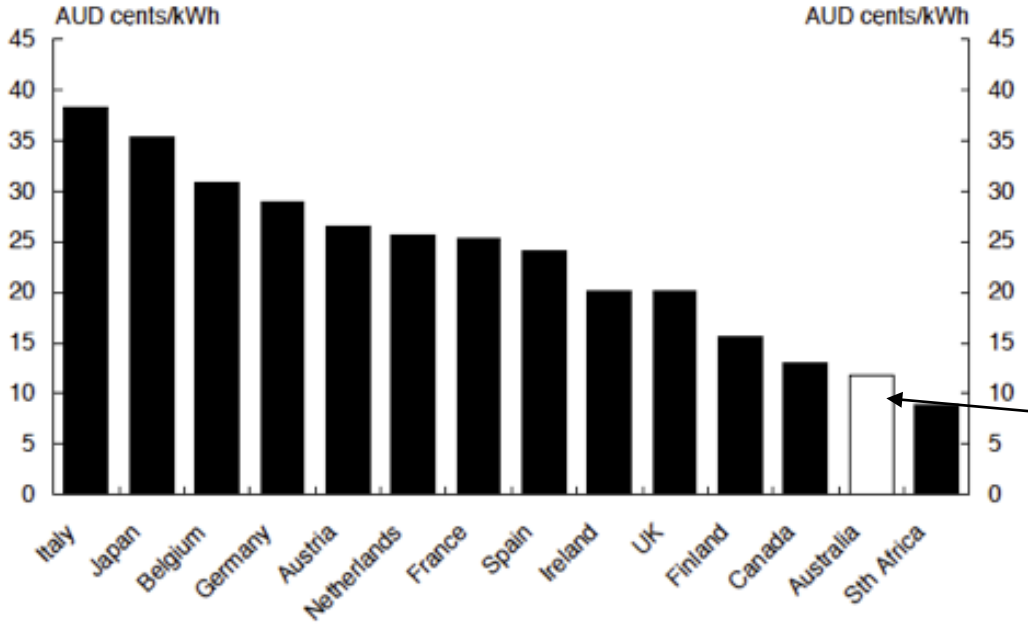
- A brief history and the promises
- Outcomes
  - Wholesale markets
  - Networks
  - Retail markets
- Retail price indices

# The industry today reflects fundamental changes started 20 years ago

- The "Reform" was designed by the Industry Commission and fleshed out by an industry council in the early/mid 1990s. The key elements mirrored changes in Chile & Britain in the late 1980s:
  - Vertical separation of generation, transmission, distribution and energy retailing
  - Competition in production and retailing
  - "Economic regulation" by independent regulators of transmission and distribution
  - Privatisation
- Significant institutional changes followed later:
  - Ministerial Council on Energy created in 2002, then renamed "Standing Council on Energy and Resources" then renamed "COAG Energy Council"
  - Creation of quasi-federal Australian Energy Regulation (AER) and Australian Energy Markets Commission (AEMC) in 2004
  - Transfer of regulation from state regulators to AER/AEMC from 2009

# The reform promised lower prices and higher productivity

- Getting politicians "out of the kitchen" (cf. governance of the Reserve Bank) meant to promote professionalism, expertise - and freedom from the vices associated with populist politicians (at least from the technocrat's perspective).
- The Industry Commission (now Productivity Commission) said prices would be lower and productivity would be higher.




Residential Electricity prices in Australia lower than in other rich countries in 1999 before reforms implemented

Source: (Australian Government Treasury 1999, p. 60).

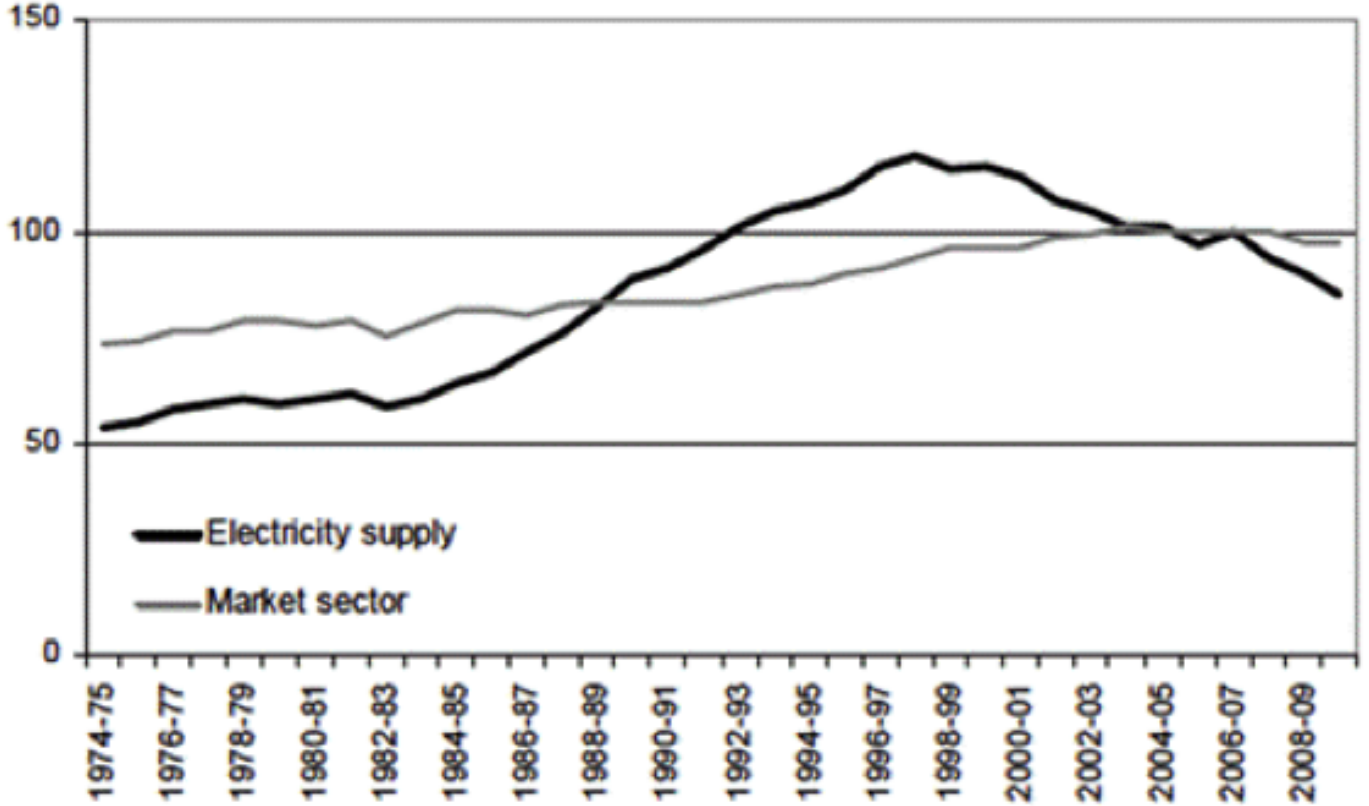


CME carbon+energy markets

# Have the promises been realised?

# Productivity improved before the ”reform” was implemented in late 1990s and has declined since

**Figure 2. Electricity supply: MFP, output and inputs, 1974-75 and 2009-2010. Index 2006-07 = 100.**



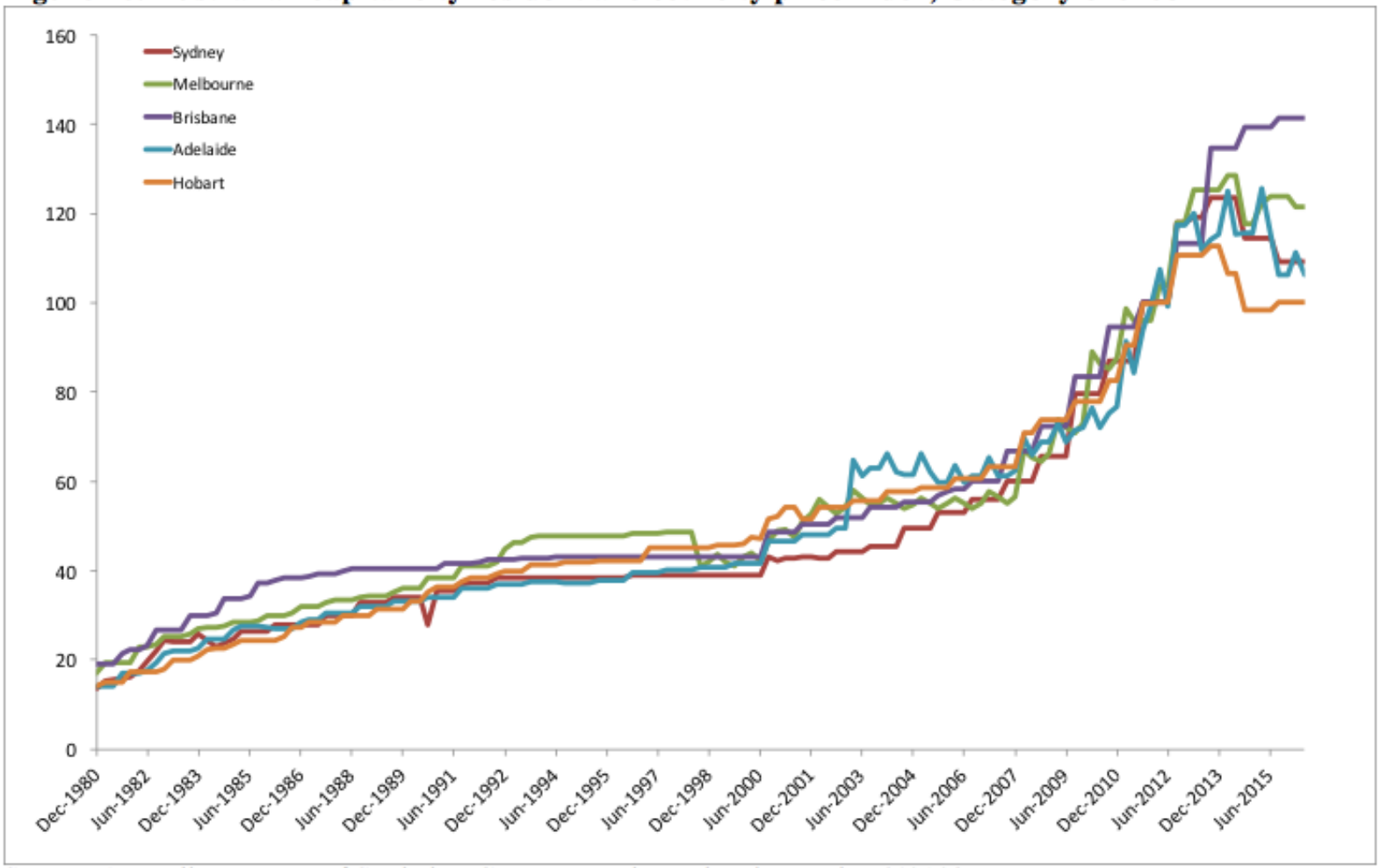

Source: Topp and Kulys (2012, p. 31).



CME
carbon+energy markets

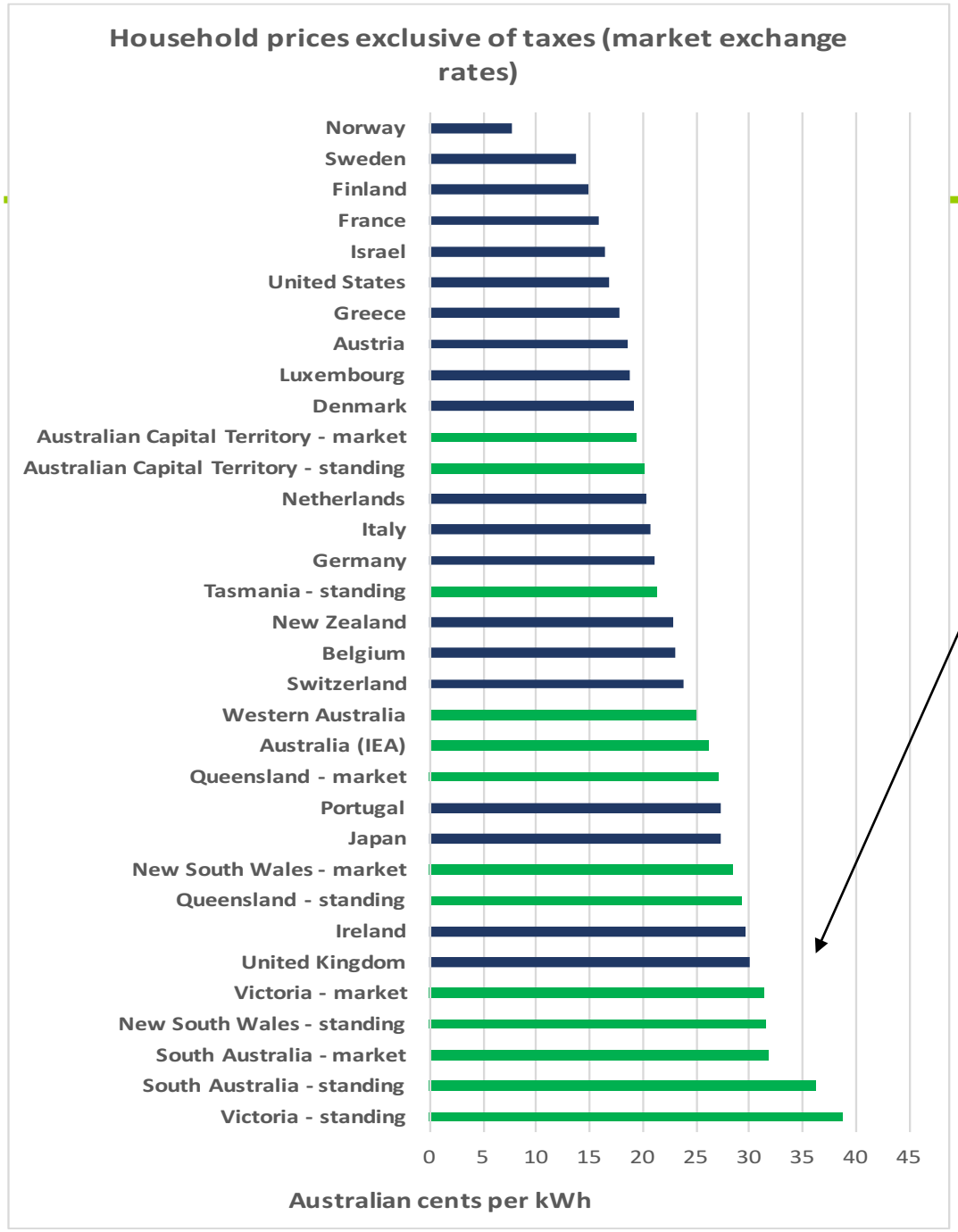
# And electricity prices have increased significantly

**Figure 10. Australian capital city residential electricity price index, Category 640108**




Source: Australian Bureau of Statistics, Consumer Price Index data series 640108.

CME
carbon+energy markets

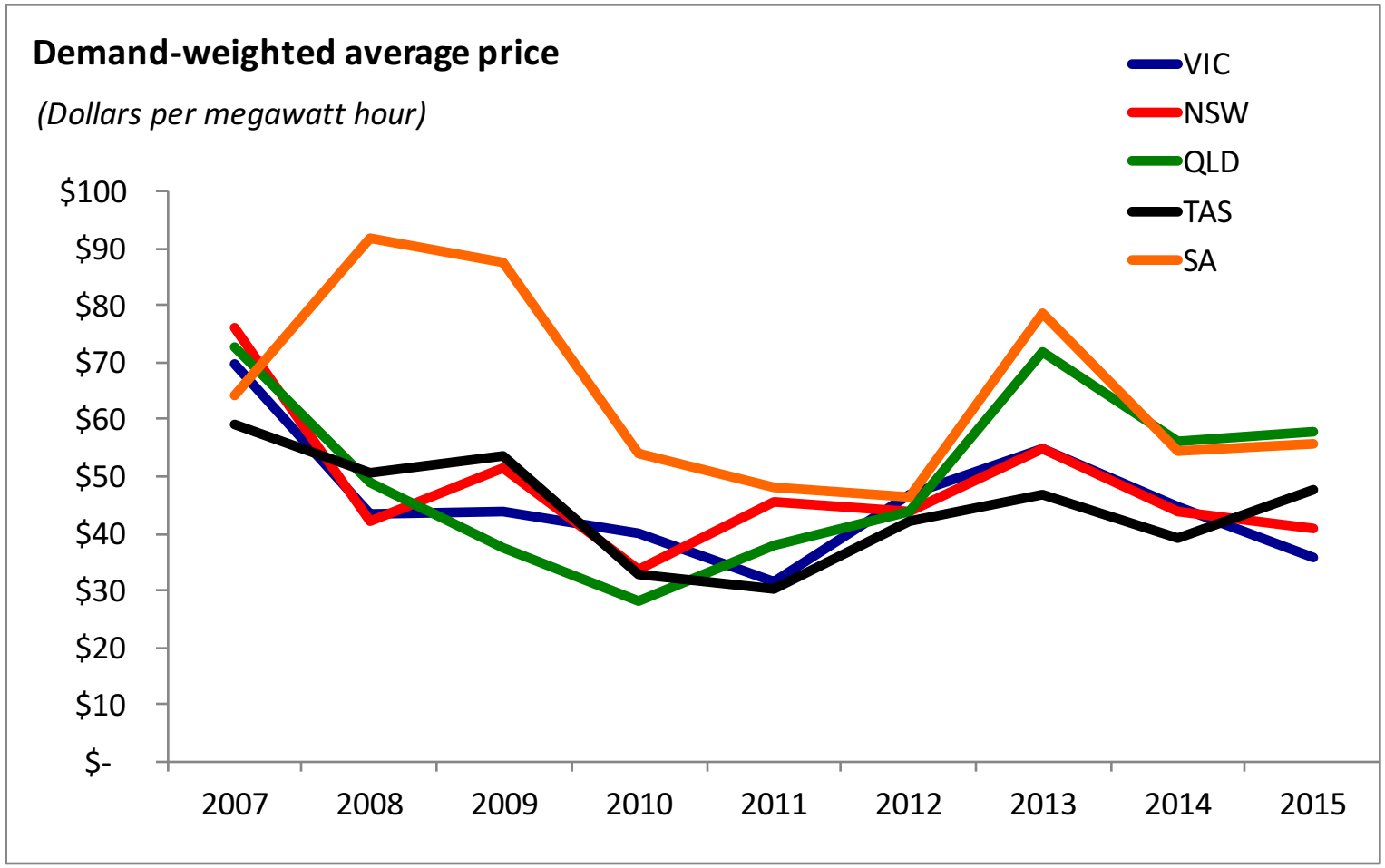



Household electricity prices in Australia (before sales taxes) are now higher than in comparably wealthy countries.

Source: (Mountain 2016c p. 10)

CME
carbon+energy markets

# Wholesale markets (except in South Australia) have been the least problematic part of the industry



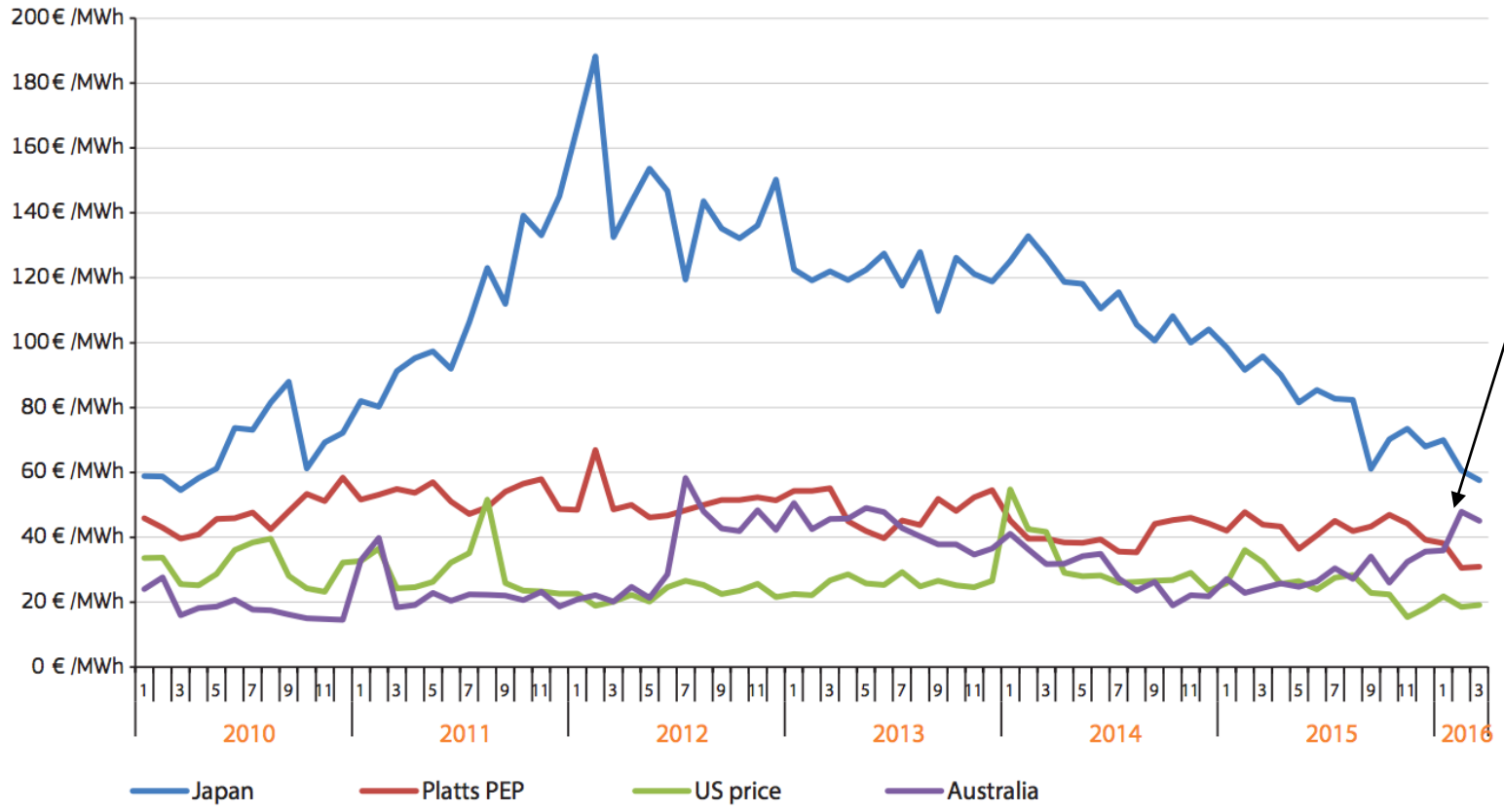

Source: AEMO data, author's analysis



CME carbon+energy markets

# But by international comparison, prices in the National Electricity Market are now rising relative to those in other countries

**FIGURE 32 – COMPARISON OF THE AVERAGE US, JAPANESE, AUSTRALIAN AND THE EUROPEAN WHOLESALE ELECTRICITY PRICES**




Cheaper gas (and growth of renewables in Europe and parts of the US) is depressing wholesale prices relative to Australia

*Source: Platts, PEP: Pan-European Power index US electricity hubs including PJM West: Pennsylvania-Jersey-Massachusetts hub (Western part); ERCOT: Texas hub, JPEX, (Japan) and AEMO: Australian wholesale power market*

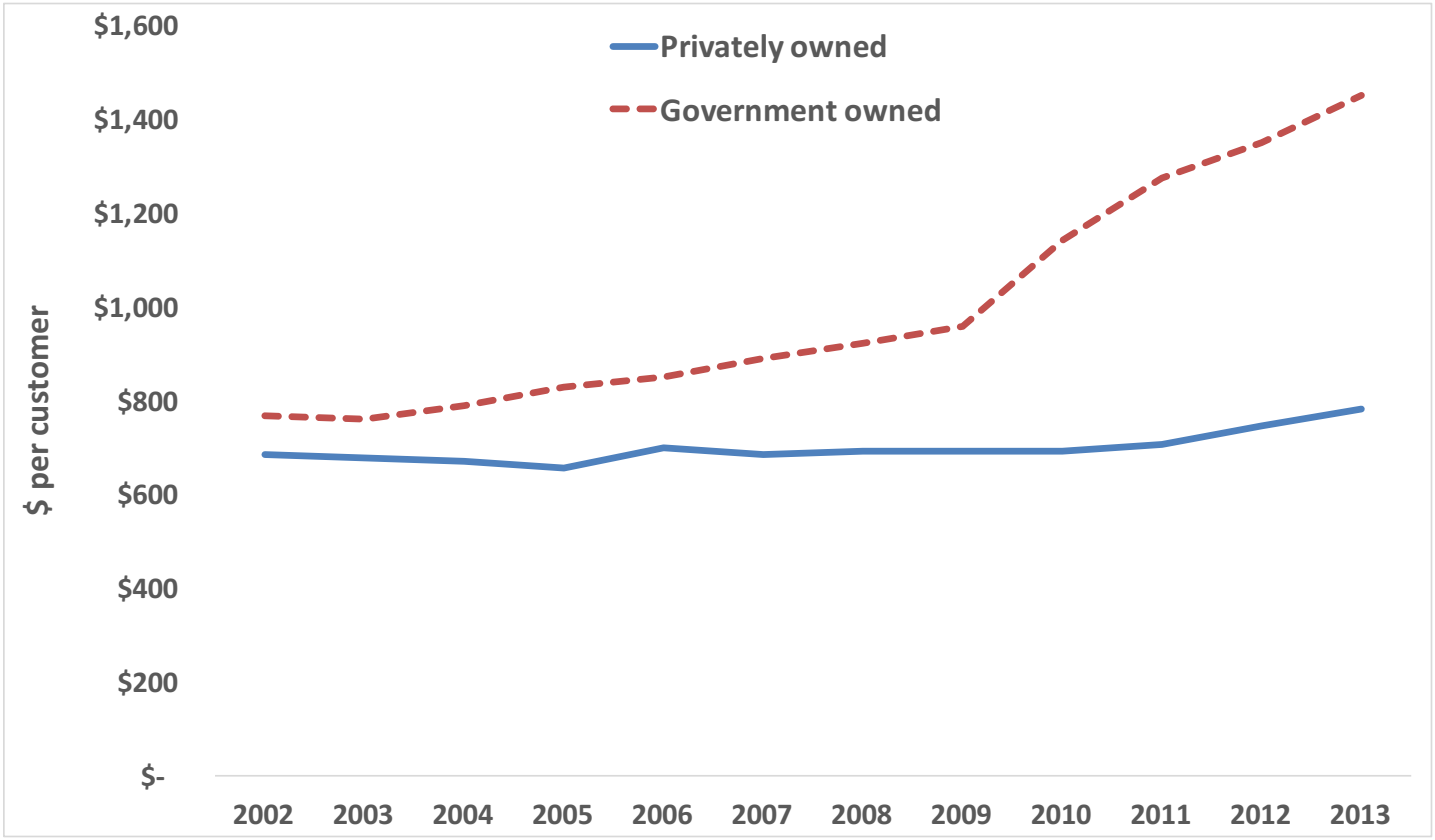


Source: Quarterly Report on European Electricity Markets, DG Energy, Volume 9, July 2016

# (Government-owned) network service provider outcomes have been unsatisfactory

- 4 companies provide transmission network services (all except one is privately owned)
- 12 companies (plus much smaller one in ACT) provide distribution network services (of which 6 privately owned).

**Average annual prices for network services in the NEM ($/customer) (2015 dollars)**



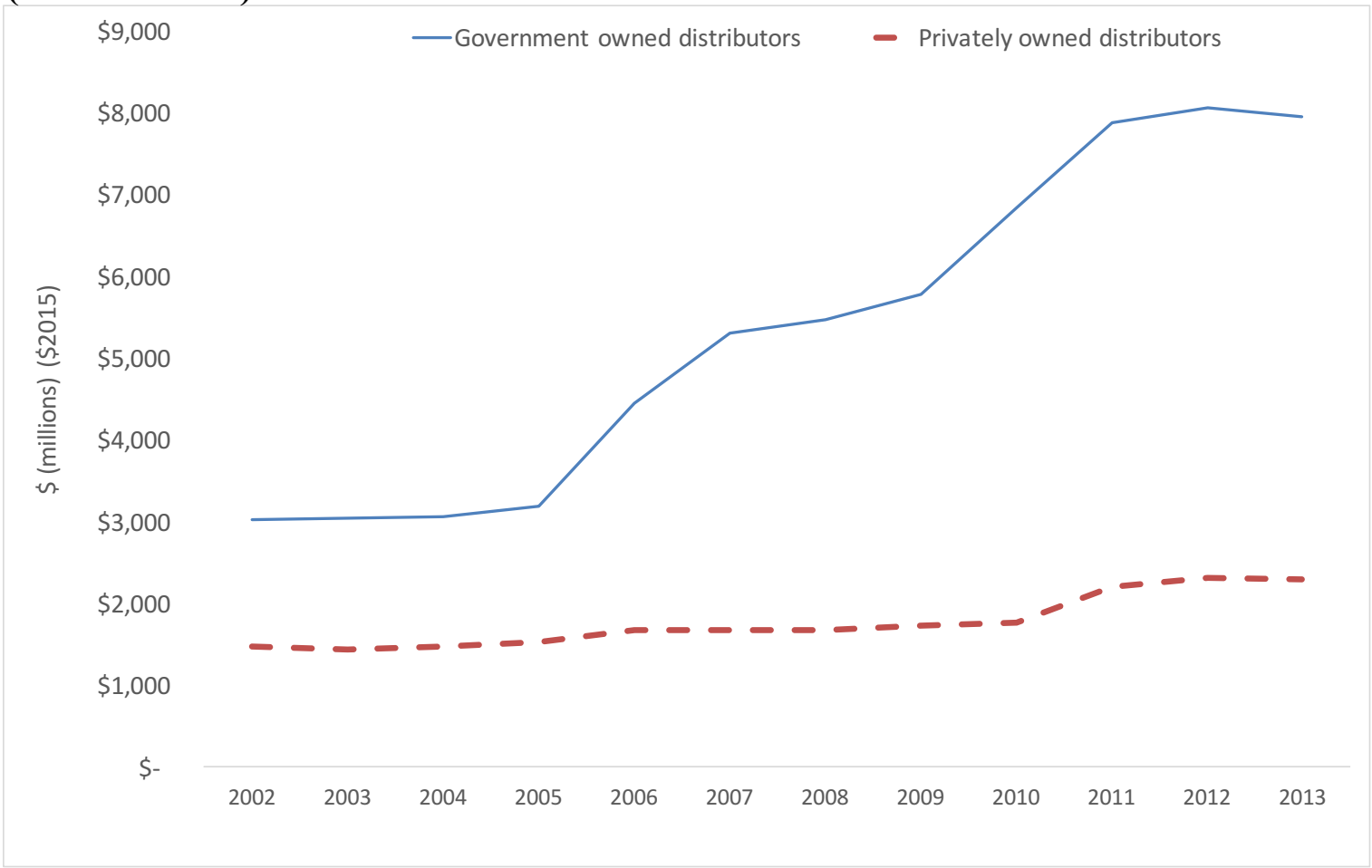

Source: (Mountain, 2016 p.41)



CME carbon+energy markets

# Distribution network expenditure ballooned following the reforms

**Total expenditure allowances for government and privately owned distributors in the NEM (2015$millions)**



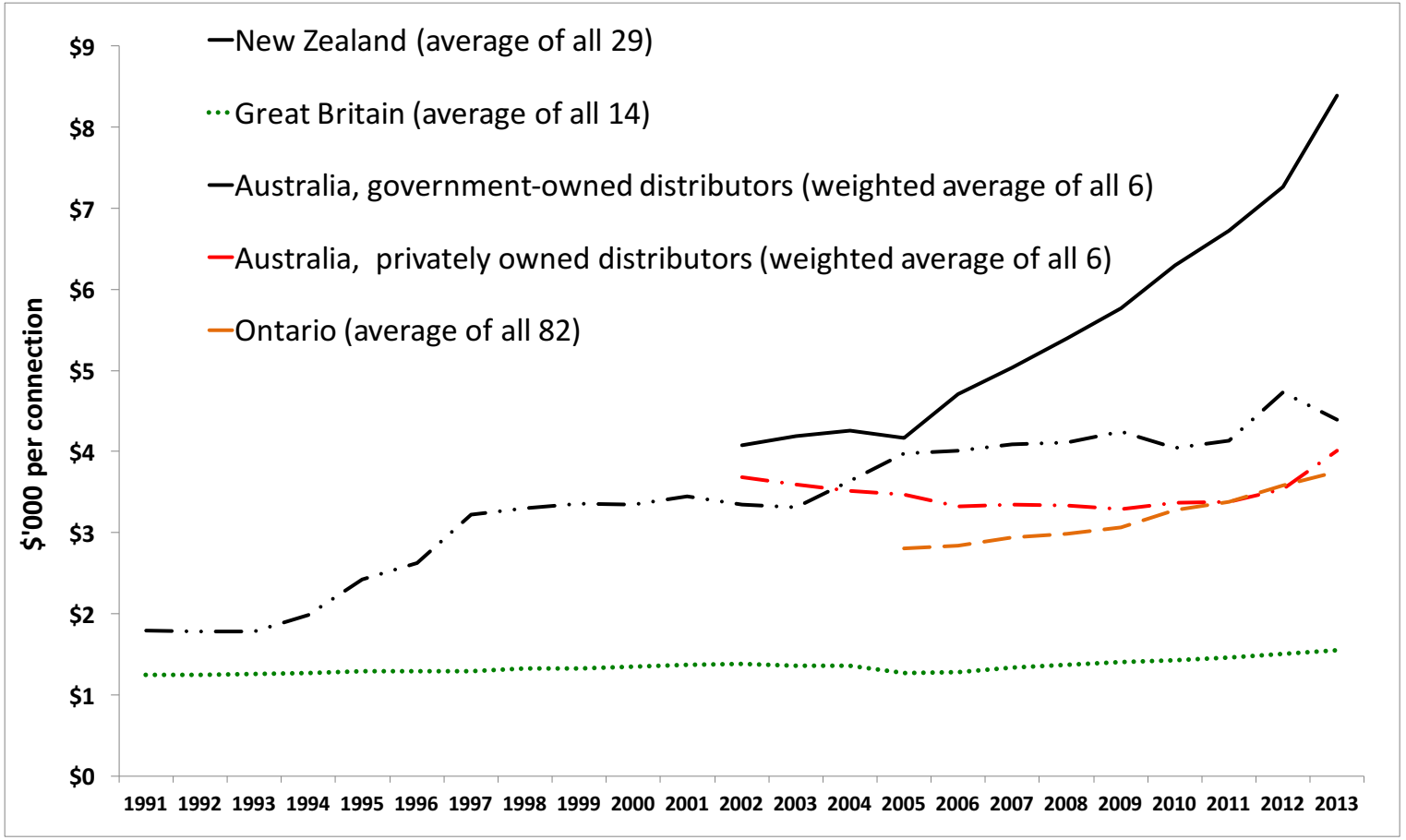

Source: (Mountain, 2016 p.52)



CME carbon+energy markets

# And regulated asset values now compare unfavourably in international comparison

**Regulated asset value per connection ($'000 per connection) for electricity distributors in New Zealand, Great Britain, Australia and Ontario (2015 Australia dollars, PPP exchange rates)**



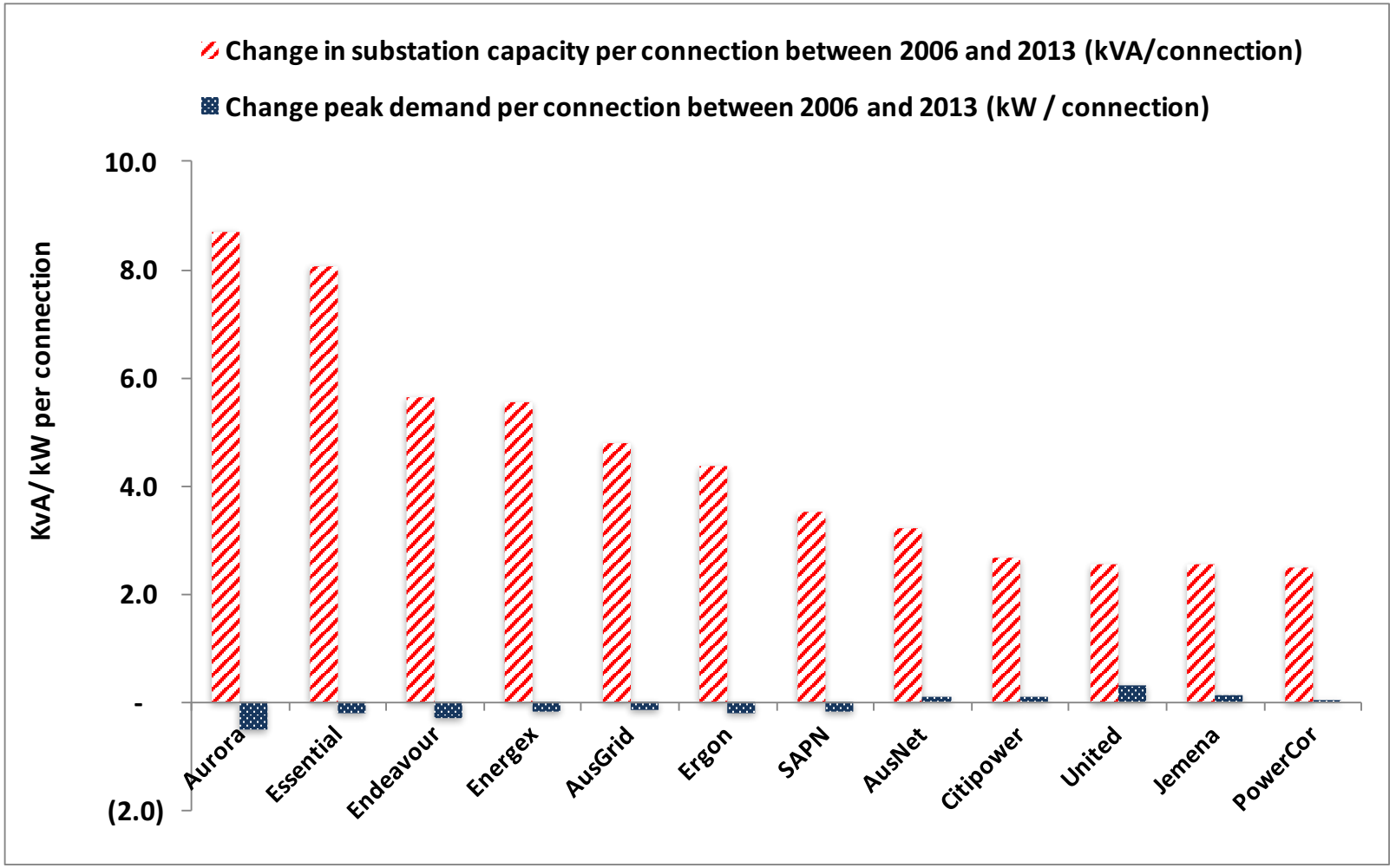

Source: (Mountain, 2016 p.56)



CME carbon+energy markets

# There is compelling evidence of substantial capacity surpluses, particularly where governments own the networks

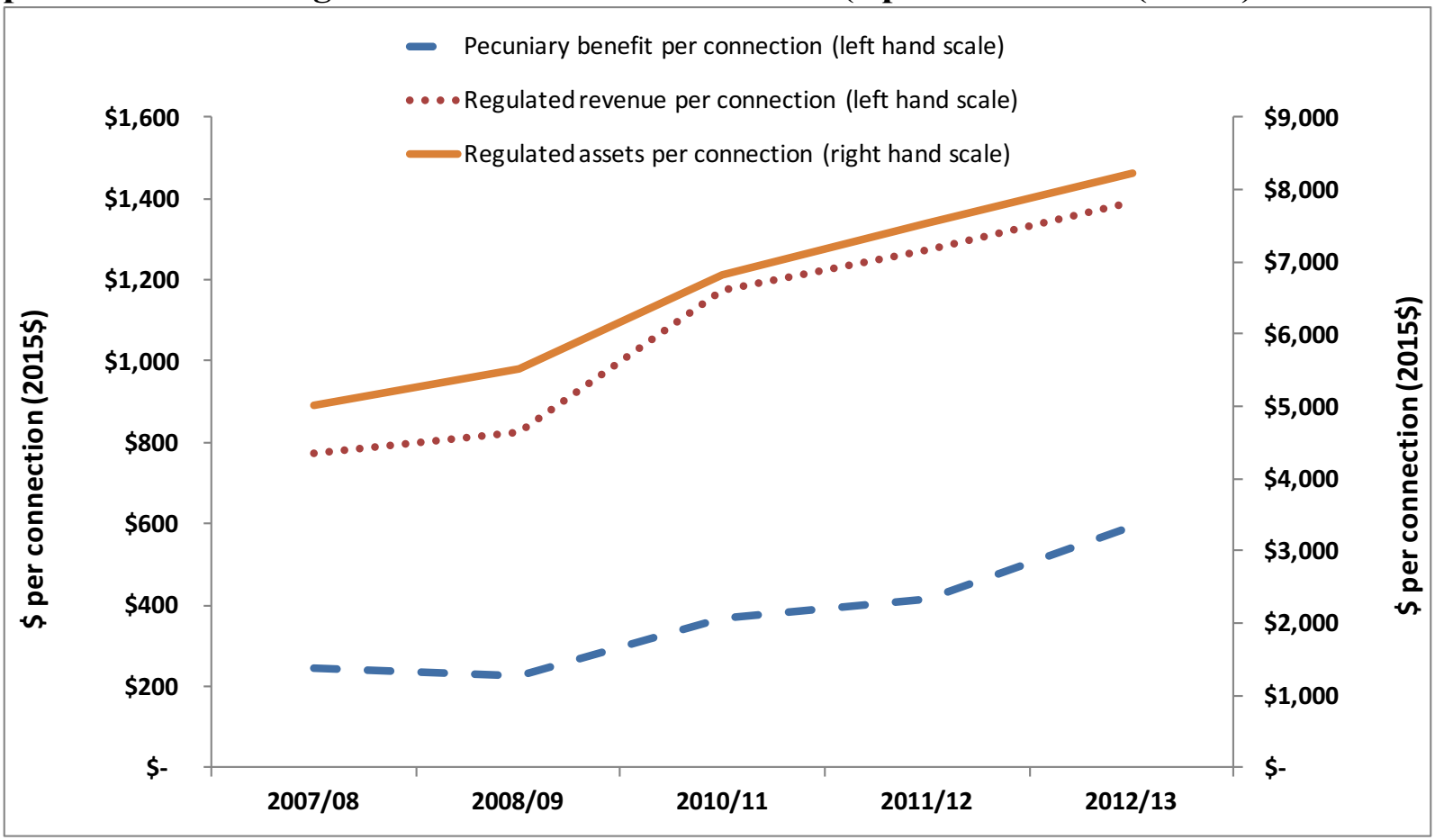
**Change in substation capacity compared to change in peak demand, 2006 to 2013 per connection**




Source: (Mountain, 2016 p.50)

# Larger regulated asset values combined with generous regulatory determinations of the cost of capital means networks have become very profitable

**State Governments' pecuniary benefit, regulated assets per connection and regulated revenue per connection for government owned distributors ($ per connection (2015$)**



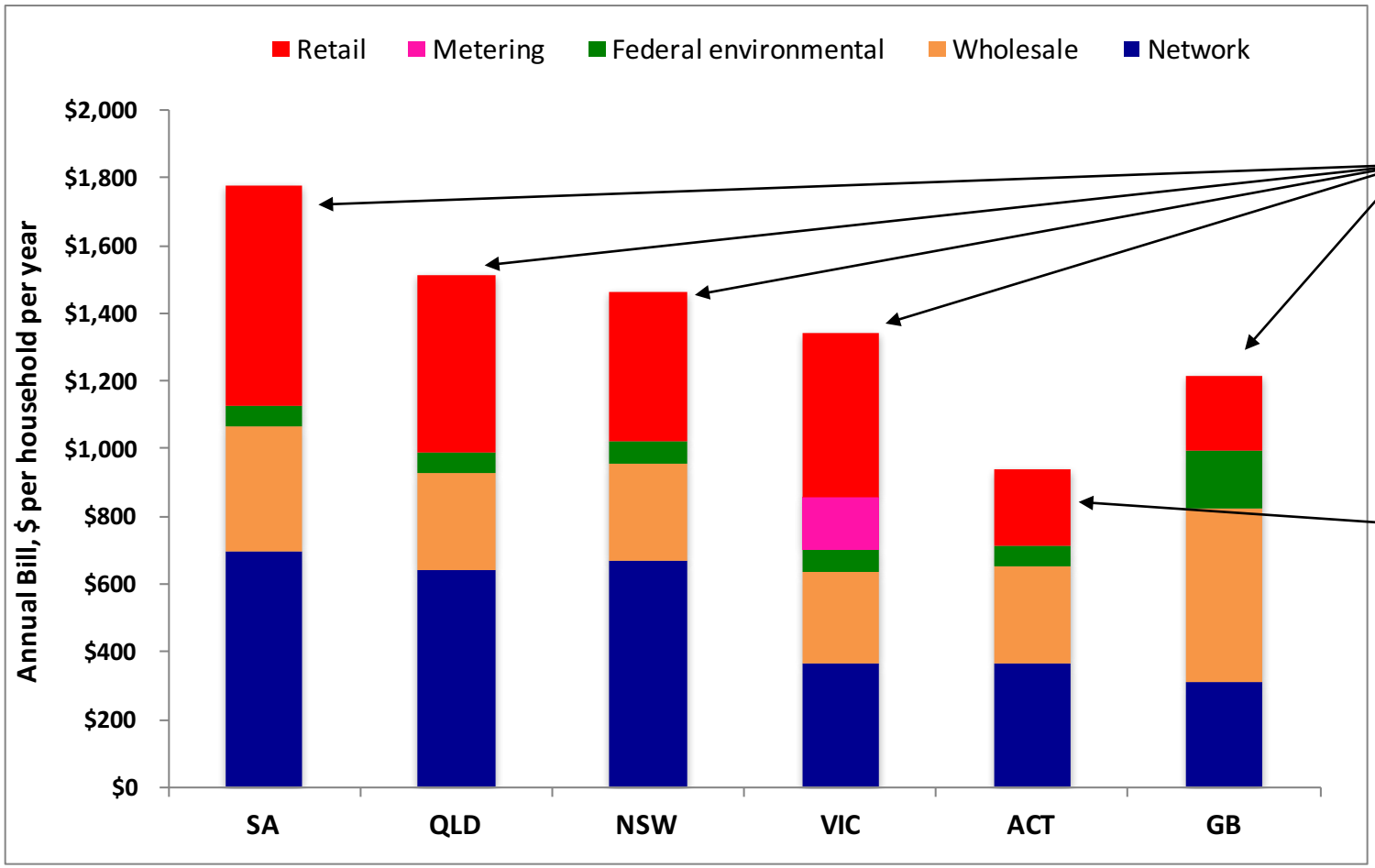

Source: (Mountain, 2016 p.44)



CME carbon+energy markets

# Retail market outcomes are also problematic

**Breakdown of household electricity bills in regional markets and Great Britain (GB)**



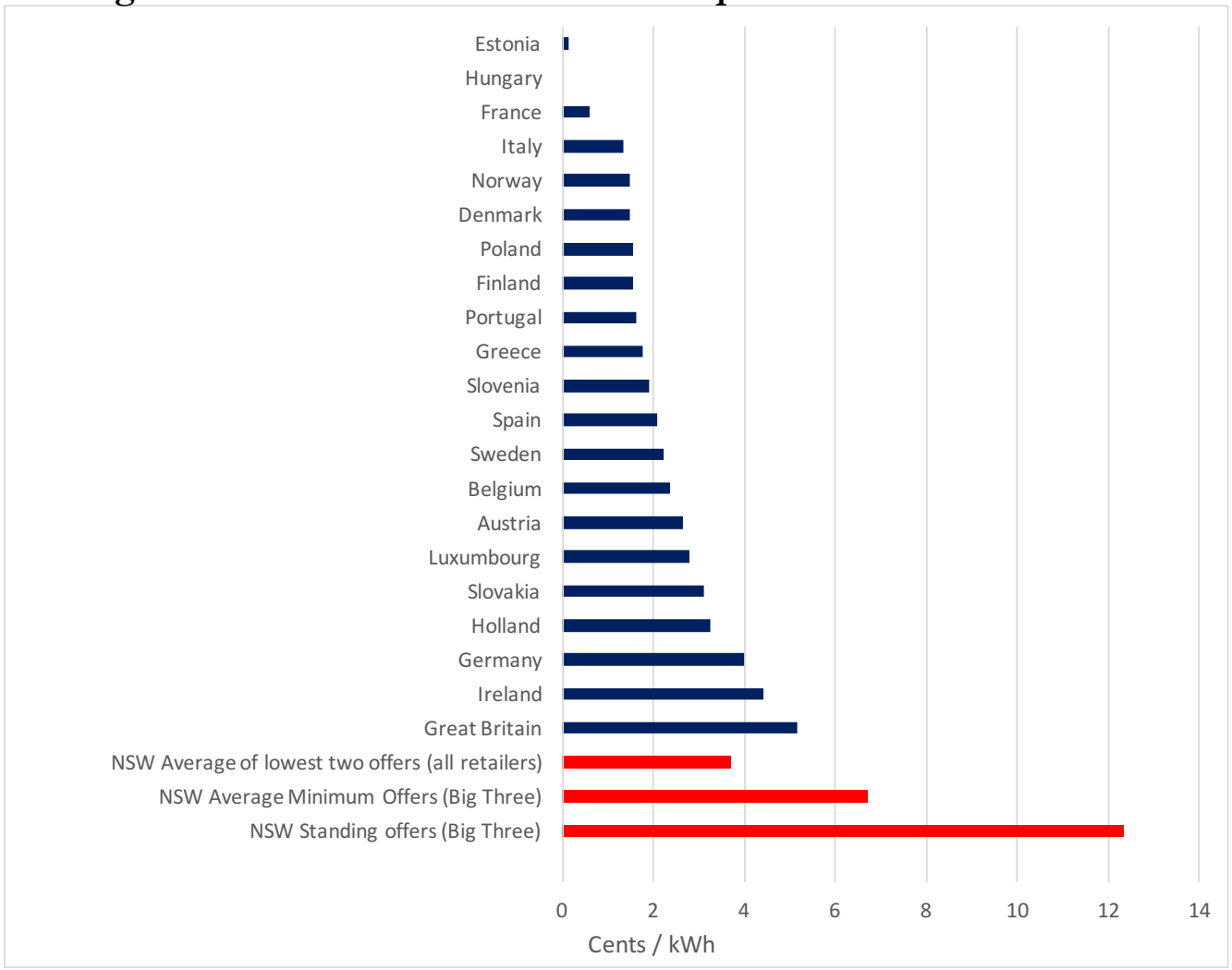

Source: (Mountain, 2016b p.18)



CME carbon+energy markets

# Retailer charges in Australia compare unfavourably with those in Europe

**Charge for retail services in New South Wales on different retail offers compared to average charge for retail services in various European countries**




Source: (Mountain, 2016a p.3)

CME
carbon+energy markets

# References


- Mountain, B. R. July 2016. "*Ownership-invariant Regulation of Electricity Distributors in Australia: A Failed Experiment".* PhD Dissertation.
- Mountain B.R October 2016a. "*Submission to IPART: Review of the performance and competitiveness of the retail electricity market in NSW*"
- Mountain B.R. August 2016b. "*Australia's retail electricity markets: who is serving whom?". A report for GetUp!*"
- Quarterly Report on European Electricity Markets, DG Energy, Volume 9, July 2016.
- Mountain B. R. July 2016. "*International comparison of Australia's households electricity prices.*" A report for One Big Switch.
- Topp, V & Kulys, T 2012, Productivity in Electricity, Gas and Water: Measurement and Interpretation, Productivity Commission, Canberra.




CME
carbon+energy markets