Issues with demand-side participation in the NEM

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I was asked to talk about the problems, not about possible solutions
Energy Response’s perspective

- Independent demand-side aggregator
- 227 MW under long-term management
- Typical loads between 50 kW and 30 MW
- Five products:
  - Reserve capacity
  - Frequency control
  - Price-responsive generation
  - Price-responsive load
  - Network support
Demand response done properly

- Comes in many forms, even from one site
  - Different lead times (0.1 seconds to 1 day)
  - Different durations (1 minute to 8 hours)
  - Different marginal costs ($0 to $20,000/MWh)
- Extremely reliable in aggregate
- Costs money to make available
- Needs long-term contracts to be attractive
Four very different markets
Are we serious this time, rather than just going through the motions again?
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I’m assuming that we are.
What problem are we trying to solve?
Data: AEMO. Years to 31 May, excluding Tasmania.
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Effective price signals
Energy prices are not good capacity signals

- The two are only equivalent for participants who:
  - Have very deep pockets, or
  - Can use derivatives to hedge their positions

- This covers the supply side, but not consumers

- Hence consumers insulated by retailers

- No effective price signal reaches consumers

- Consumers will always make this choice
Energy prices are not good capacity signals

- The two are only equivalent for participants who:
  - Have very deep pockets, or
  - Can use derivatives to hedge their positions
- This covers the supply side, but not consumers
- To consumers, extreme spot prices seem punitive
- Hence consumers insulated by retailers
- No effective price signal reaches consumers
- Consumers will always make this choice
Choice
Price-responsive DSP is not portable

- At present, only a consumer’s retailer benefits from price-responsive load reductions
- Hence, a consumer can only sell their DSP to:
  - Their retailer
  - A subcontractor to their retailer
- They have no other choices
Gentailers may not be keen on DSP

“We may be interested in paying you not to use it.”

“We’d sue anyone who tried that with our customers.”
Forced bundling prevents competition

- Price is everything
- It’s very unlikely that consumers will choose retailers on the basis of their DSP schemes
- Hence no pressure on retailers to take DSP seriously
- For competition to develop over DSP, it must be separable from retail supply
Implementation details matter

- Rules give consumers the right to access their meter data

**BUT**

- They have to go through their retailer
- No delivery mechanism is specified
- Neither is a timeframe for a response
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⇒ Retailer becomes gatekeeper
Reserves management
AEMO’s reserves management tools

- Communications
  - *ESOO, PASA, LRC, LOR forecasts, etc*
- Directions
- Blackouts
AEMO’s reserves management tools

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AEMO’s reserves management tools

- Communications
  - ESOO, PASA, LRC, LOR forecasts, etc
- Standing reserve
- Directions
- Blackouts
Summary

- DSP is an efficient way to tackle capacity problems
- Need to redesign reserves management processes to find the best places for DSP
- Spot prices can’t give capacity signals to consumers
- DSP services are distinctly different to network services or retail supply
- Forced bundling must be avoided
- Practical open access is important
Extra material
Price distortions
30 minute trading prices are too coarse

- Demand can respond more quickly than supply
- With 30 minute pricing, there’s no reward for agility
- Ex-post pricing introduces unhedgeable risks
- IT systems have improved since market start; surely we can cope with 5 minute prices now?
Cumulative Price Threshold: SA, 29 Jan 2009

Administered price cap imposed at 15:00

Demand surges at 15:00

Data: AEMO
Duration
Duration is important

- Limited by
  - Retail churn
  - Short-duration network support requirements

- Short duration schemes tend to
  - Cost more
  - Be less reliable
  - Elicit less capacity from a given area