Energy Markets and Climate Change Policies
Australian Economic Forum

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THIS PRESENTATION

- AEMC's energy market role
- Energy market structure and emerging challenges
- AEMC review of energy markets in light of climate change policies
- Likely energy market impacts of climate policies
- Managing energy market transformation

AEMC'S ENERGY MARKET ROLE

- Energy policy advice and market development
  - MCE or self-initiated market reviews
  - Rule change reviews and determinations
  - Policy and market advice to MCE

ELECTRICITY MARKET DESIGN & PERFORMANCE

- Market structure
  - Competitive generation and (increasingly) retail
  - Regulated transmission and distribution networks
- Market performance
  - Reliability – generally strong performance
  - Investment – increasing expenditure
  - Competition – generally effective at wholesale and retail levels

EMERGING MARKET CHALLENGES

- Tightening demand and supply conditions
  - Rapid growth in peak demand
  - Drought constraints on energy capacity
  - Requirement for new investment in network and generation
- Economic and policy uncertainty
  - Impacts of global financial crisis and recession
  - Impacts of climate change policies

Review of Energy Market Frameworks in light of Climate Change Policies

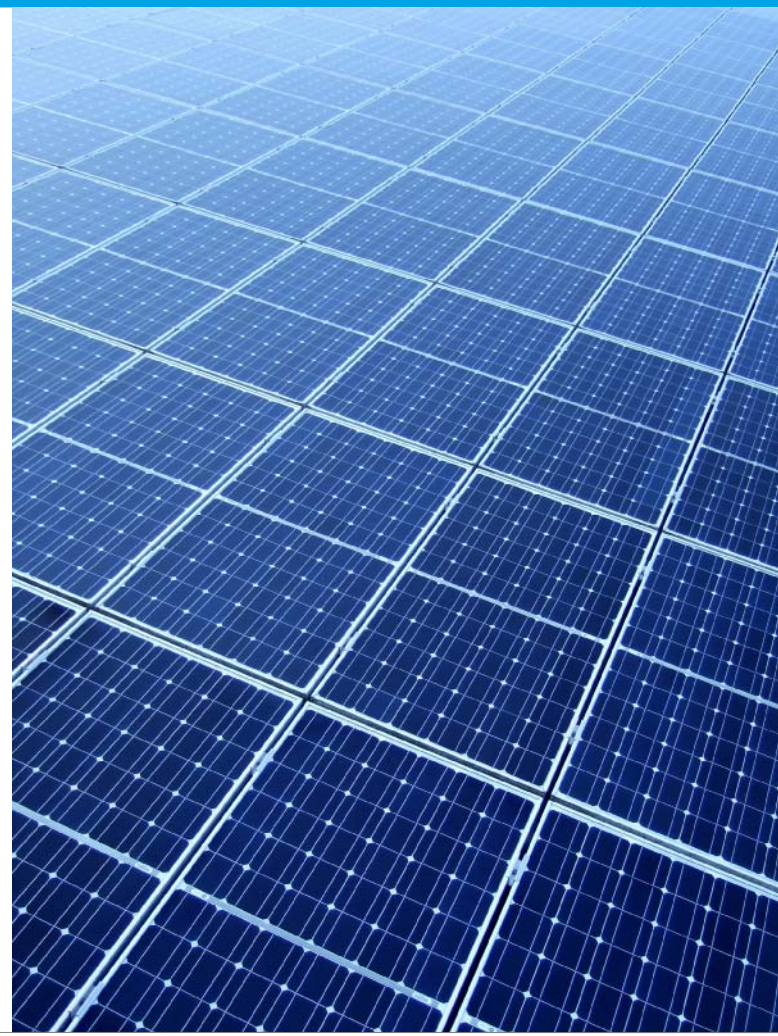
ABOUT THE REVIEW

- Review of energy markets in light of climate change policies
  - Final Report to MCE by 30 September 2009
- Review questions:
  - Can energy markets maintain efficient and reliable supply in responding to the policies?
  - If not, how should the market frameworks be changed to facilitate the necessary adjustments?
- Review is not assessing merits of CPRS and expanded RET policies

LIKELY IMPACTS OF CPRS & EXPANDED RET

CPRS

- Major changes to economics and location of generation
- Substantial changes to generation fuel mix over time
- Changed network flows and investment requirements
- Significant energy price increases (and greater price volatility)



LIKELY IMPACTS OF CPRS & EXPANDED RET

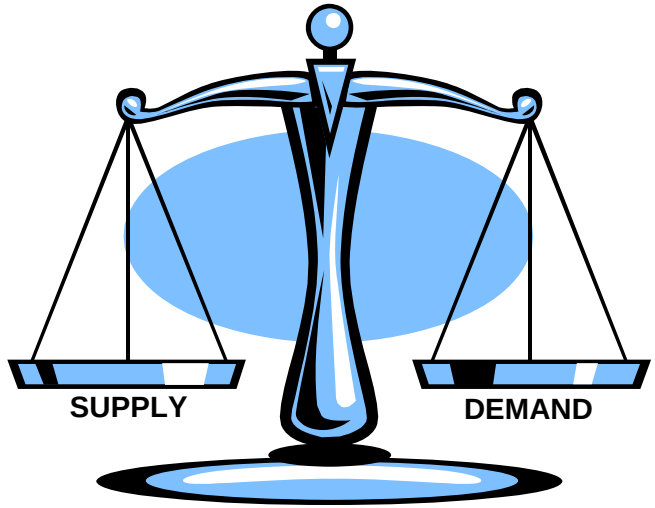
Expanded RET

- Stimulate investment in renewable generation
- ‘Banking’ of certificates creates incentive for early investment
- Significant wind (and other renewable) generation in remote areas
- Implications of intermittent output for supply reliability

Managing Energy Market Transformation Preliminary Review Findings

ELECTRICITY WHOLESALE MARKET ARRANGEMENTS

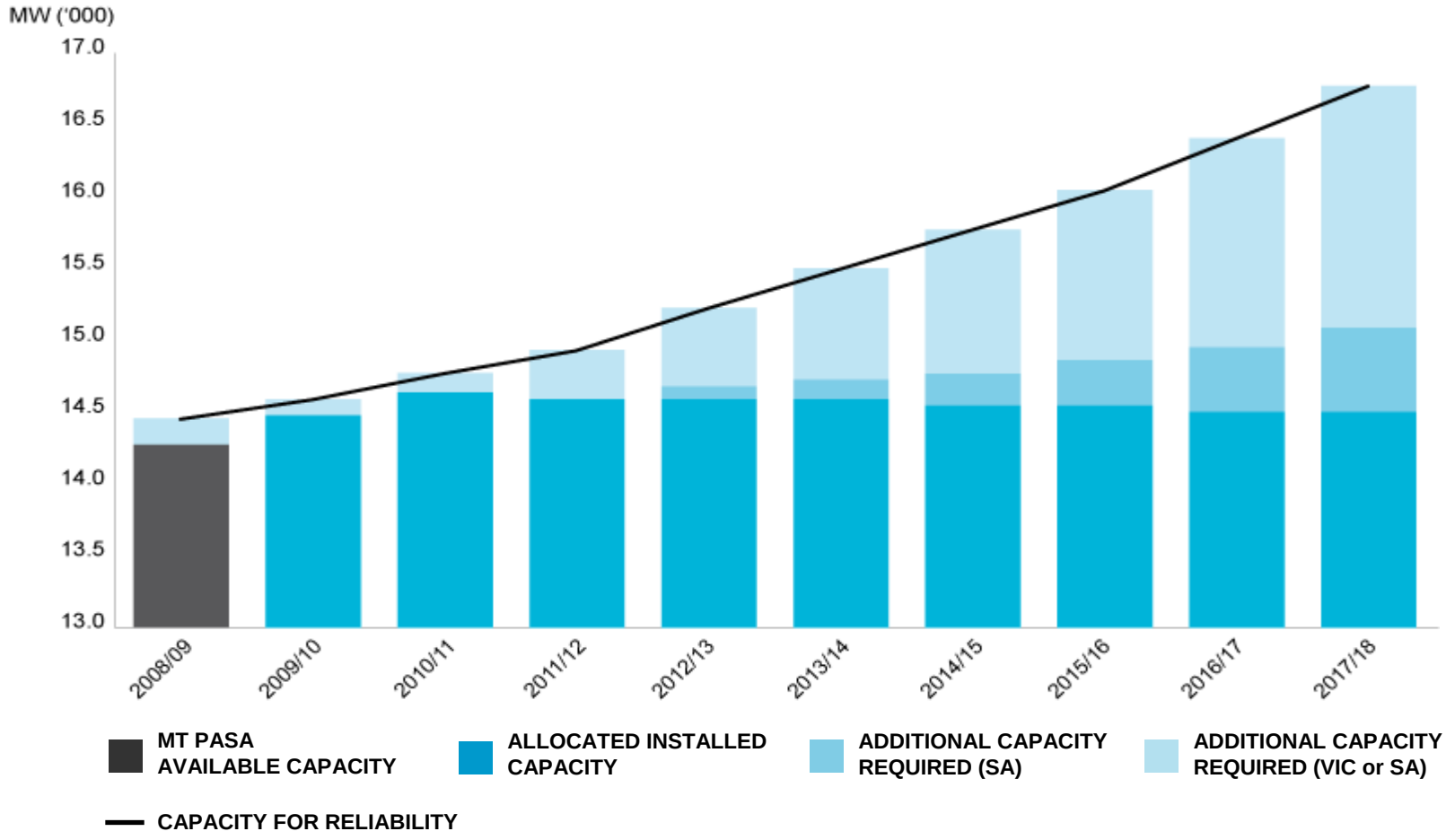
- "Energy only" spot market establishes regional prices every 30 mins
  - Generators paid for energy, not capacity
  - But financial contracts signal value of energy (swaps) and capacity (caps)
- Spot market price cap ($12,500 MWh on 1 July 2010) can be varied periodically
- Reliability settings and safety net interventions



BALANCE MAINTAINED THROUGH COMPETITIVE WHOLESALE MARKET

GENERATION ADEQUACY ISSUES

Tightening demand and supply conditions – Victoria and South Australia



Source: AEMO, NEM Statement of Opportunities 2008

WHOLESALE MARKET STRENGTHS & CHALLENGES

Strengths

- Spot and contract prices signal timing of new generation investment
- Flexible adjustments of market price cap maintain efficient signals

Challenges

- Inherited tight supply/demand balance in some regions
- Policy uncertainty and GFC impacts on short-term investment
- Short-term costs/risks in adjusting to carbon inclusive economics

TRANSFORMING GENERATION

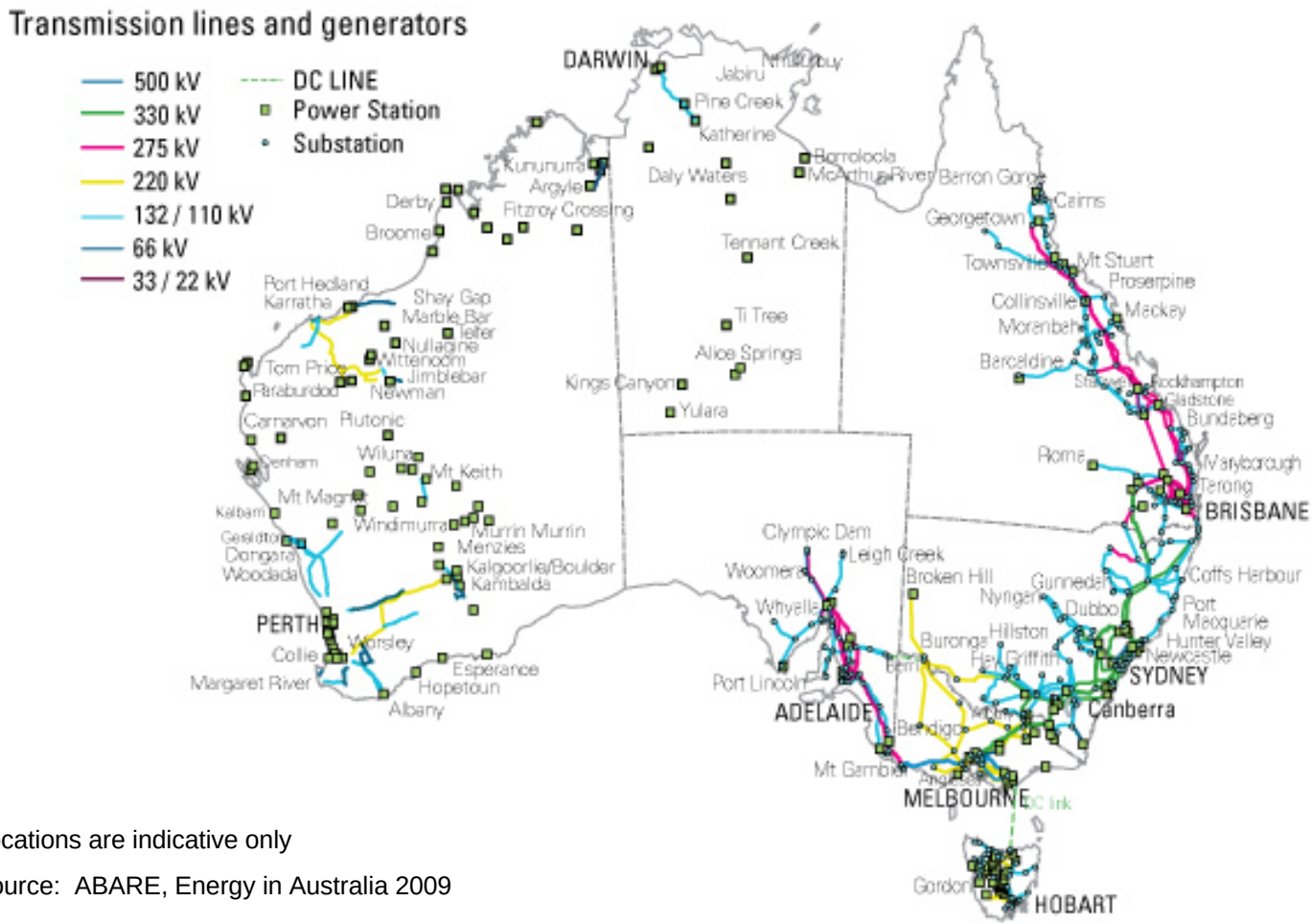
Draft findings

- Existing frameworks resilient in the longer term:
  - Price signals for timely investment in generation can maintain supply/demand balance
  - Convergence of electricity and gas markets can be managed
  - AEMO can manage system security with increased intermittent generation
- AEMO tools for managing short term reliability need to be improved:
  - Short-notice RERT proposal for responses close to dispatch
  - Prior contracting of remunerated load shedding options
  - More accurate reporting of demand-side response capability

NETWORK INVESTMENT & OPERATION

- Economic regulation of regional network monopolies
  - Price cap incentives for efficient Capex/Opex
  - “Common carriage” access to shared network
- Bilateral negotiation for network connection

CURRENT NETWORK CONFIGURATION

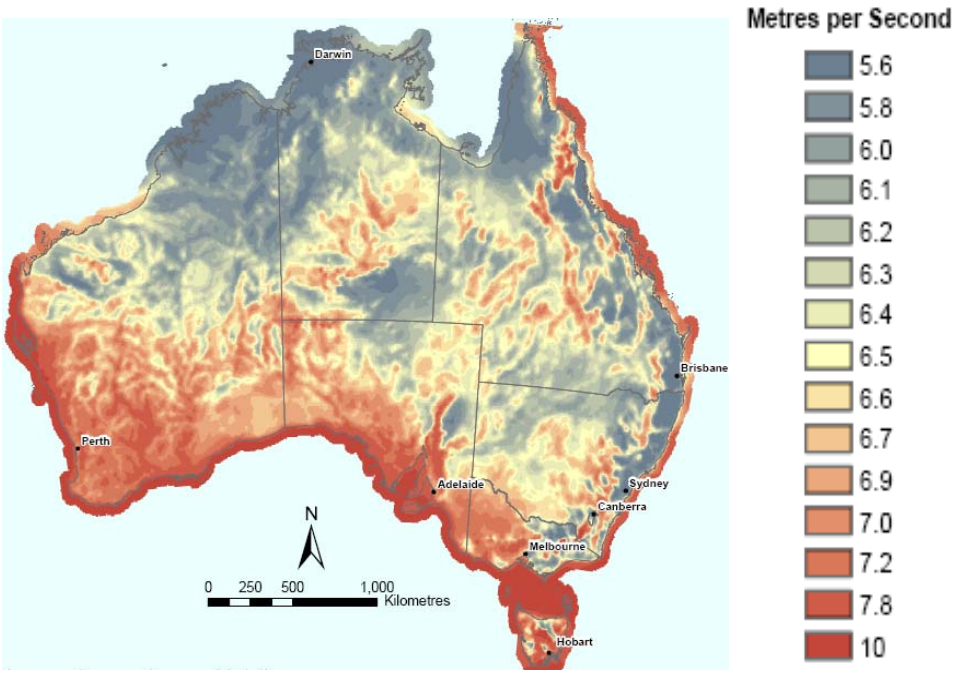


Locations are indicative only

Source: ABARE, Energy in Australia 2009

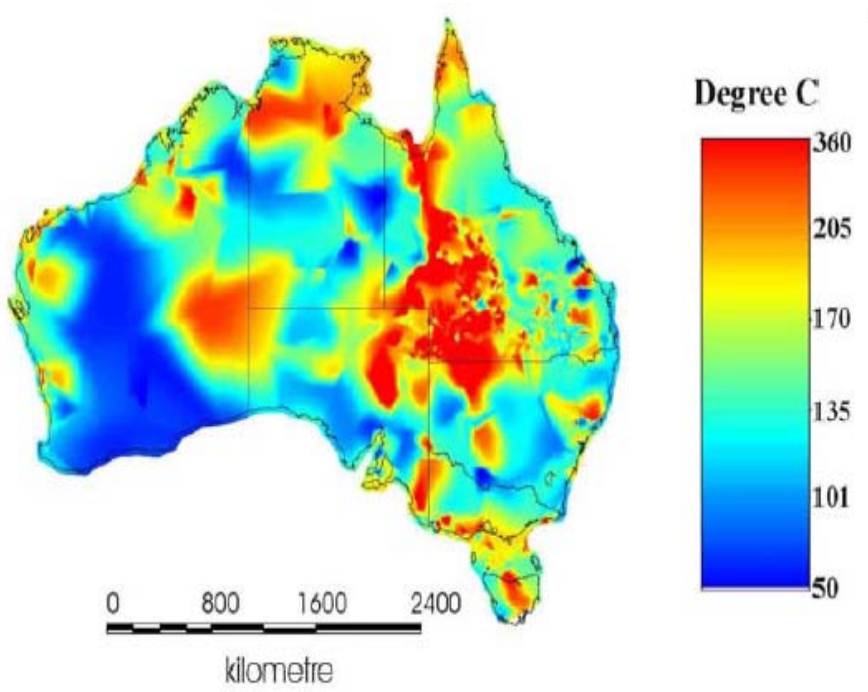
PROSPECTIVE LOCATION OF RENEWABLES

WIND RESOURCES
Mean Wind Speed



Source: www.environment.gov.au/renewable/atlas

GEOTHERMAL RESOURCES
Australia Heat Flow Map



Source: http://www.rise.org.au/info/Res/geothermal/index.html

NETWORK STRENGTHS & CHALLENGES

Strengths

- Effective regulation framework able to finance efficient network expansion:
  - Economic incentives for efficiency and reliability
  - Long term investment based on economic criteria
  - AEMO national planning role supports regional planning process

Challenges

- Efficient timing and sizing of investment to connect remote renewables
- Improved management of increasing congestion on the shared network
- Importing regions should contribute to the network costs of increasing cross-border power flows

TRANSFORMING NETWORKS

Draft findings

Remote generation connection

- New network led process for planning, financing and pricing efficiently sized connections
  - Network planners identify locations and specify connection assets
  - Generators connect at standard costs and prices
  - Customers underwrite future connection capacity

TRANSFORMING NETWORKS

Efficient use of, and investment in, networks

- Proposal for price signals to promote efficient operation and location decisions by generators
  - Significant framework changes requiring further consultation and analysis
- Introduction of inter-regional transmission charges reflecting cost of network use by consumers in neighbouring regions

ENERGY MARKETS & CONSUMERS

- Climate policies will cause large increases in energy costs and prices
- Cost of supply reflected to consumers through retail tariffs
- Regulated tariffs for small customers in most jurisdictions
- Some evidence of active use of demand-side response

RETAIL MARKET STRENGTHS & CHALLENGES

Strengths

- Market framework able to support effective retail competition
- Competition achieves prices that reflect efficient costs
- Market framework provides incentives for demand-side response
  - Limited transparency on volume and form
  - Ongoing AEMC review of potential barriers

Challenges

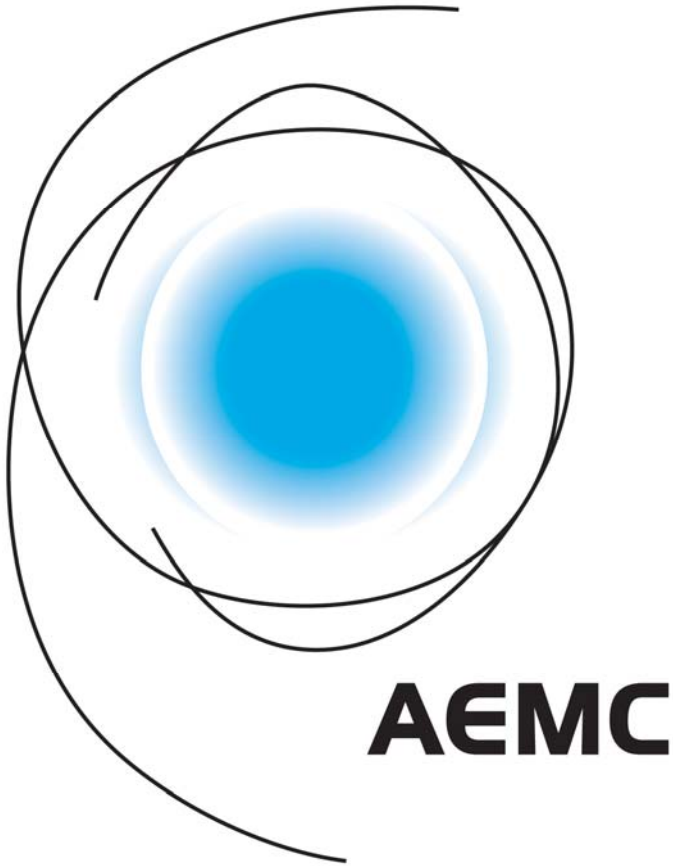
- Uncertain and volatile carbon/wholesale energy costs
- Existing price regulation may be inflexible to these changes
- Opportunities for encouraging greater demand-side response

TRANSFORMATION OF ENERGY CONSUMPTION

Draft findings

- More flexible price regulation to allow pass through of uncertain and volatile energy costs
- Guiding principles to achieve this:
  - Clarify price cap role as “safety net”
  - Provide for cost uncertainty/volatility in price caps
  - Option of price cap review every 6 months
  - Symmetrical application
- Finalise “retailer of last resort” arrangements as a matter of priority
- Pursue unrealised DSP opportunities

CONCLUDING REMARKS


AEMC