Regulated and Merchant Transmission Investment – Lessons From Australia

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Key Points of Presentation

- Understanding the Australian context
- Merchant links in Australia
- Specific lessons from interaction of merchant links and regulated transmission
- Future direction

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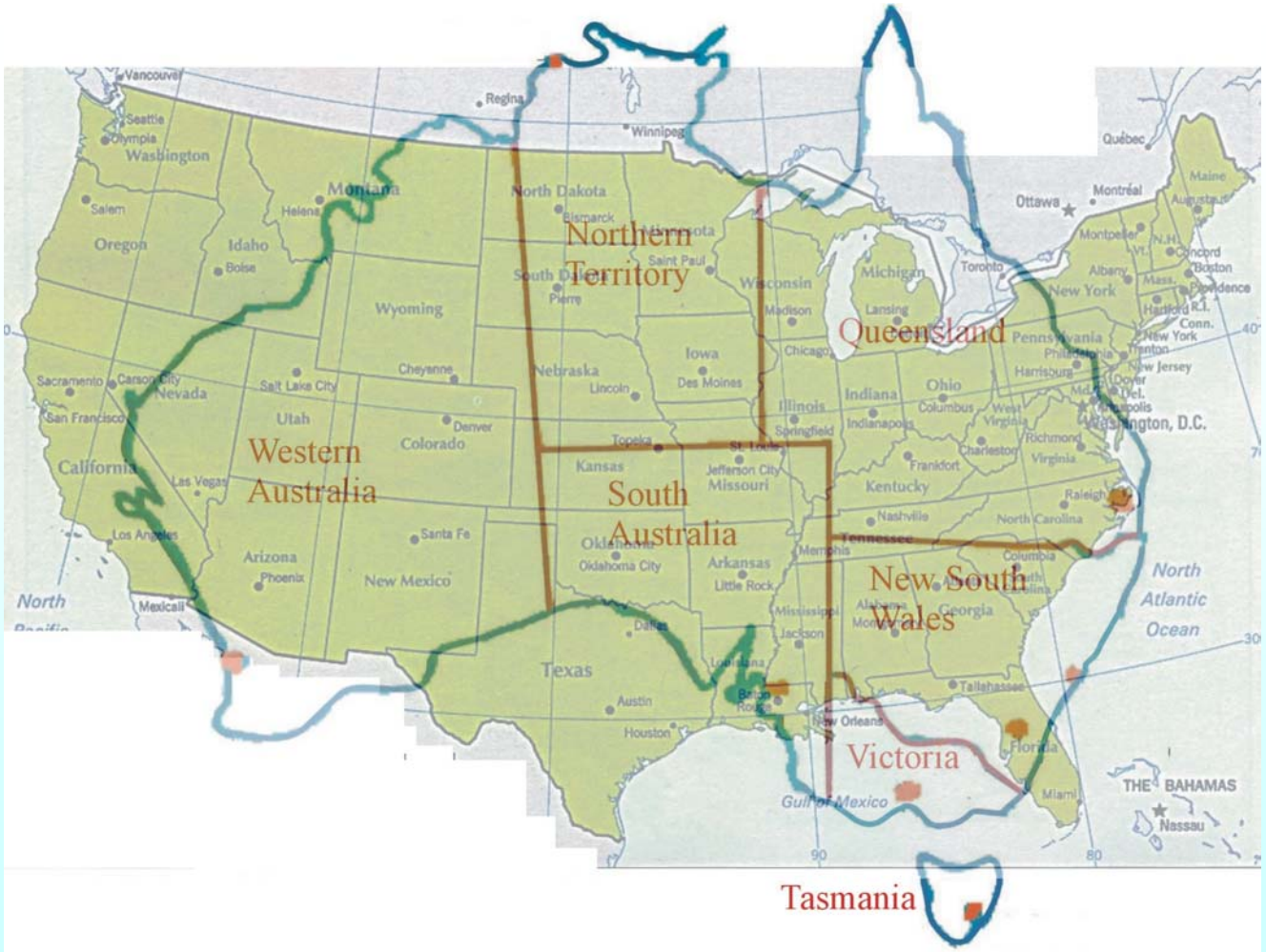
The Australian Context

- Scale and market power
- Gas and coal competition
- Market design

Australian Context – a big country!



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But a Small Population - Market Power in Energy a Big Issue

Population:

US – 280 million

Australia – 19.5 million

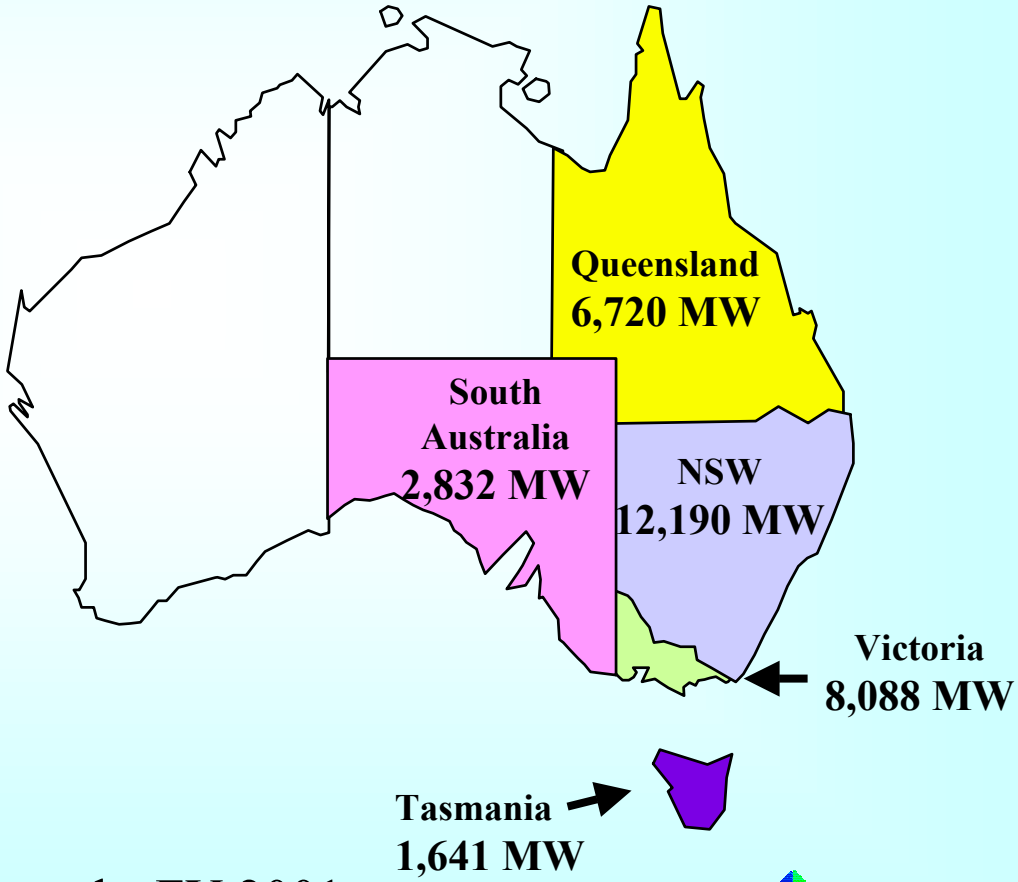
(14.4 X)

Electricity Use:

US – 3,450 billion KWh

Australia – 178 billion KWh

(19.4X)



Maximum Demands: FY 2001

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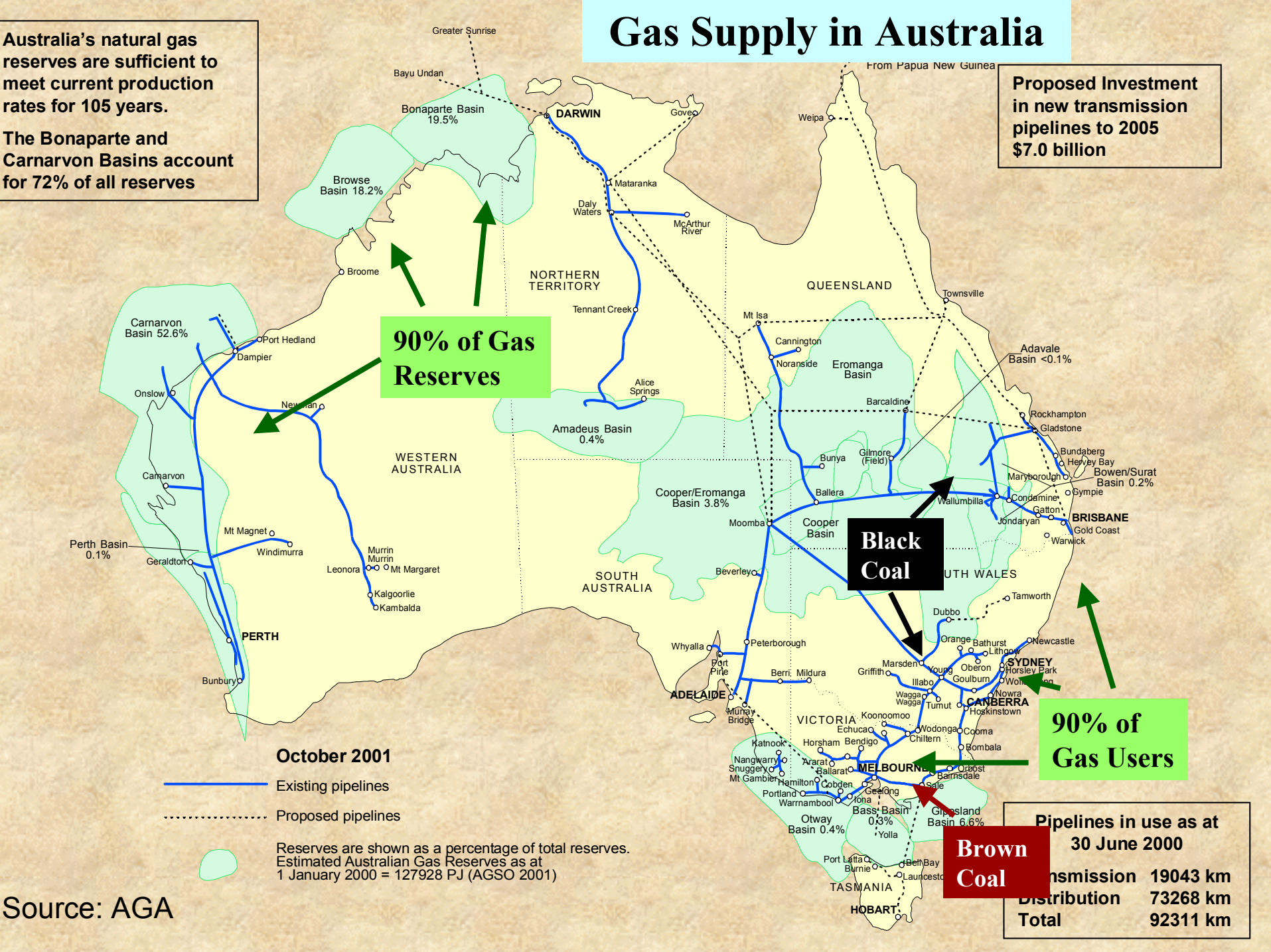
Gas Supply in Australia

Australia's natural gas reserves are sufficient to meet current production rates for 105 years.

The Bonaparte and Carnarvon Basins account for 72% of all reserves

Proposed Investment in new transmission pipelines to 2005 $7.0 billion



October 2001

Existing pipelines

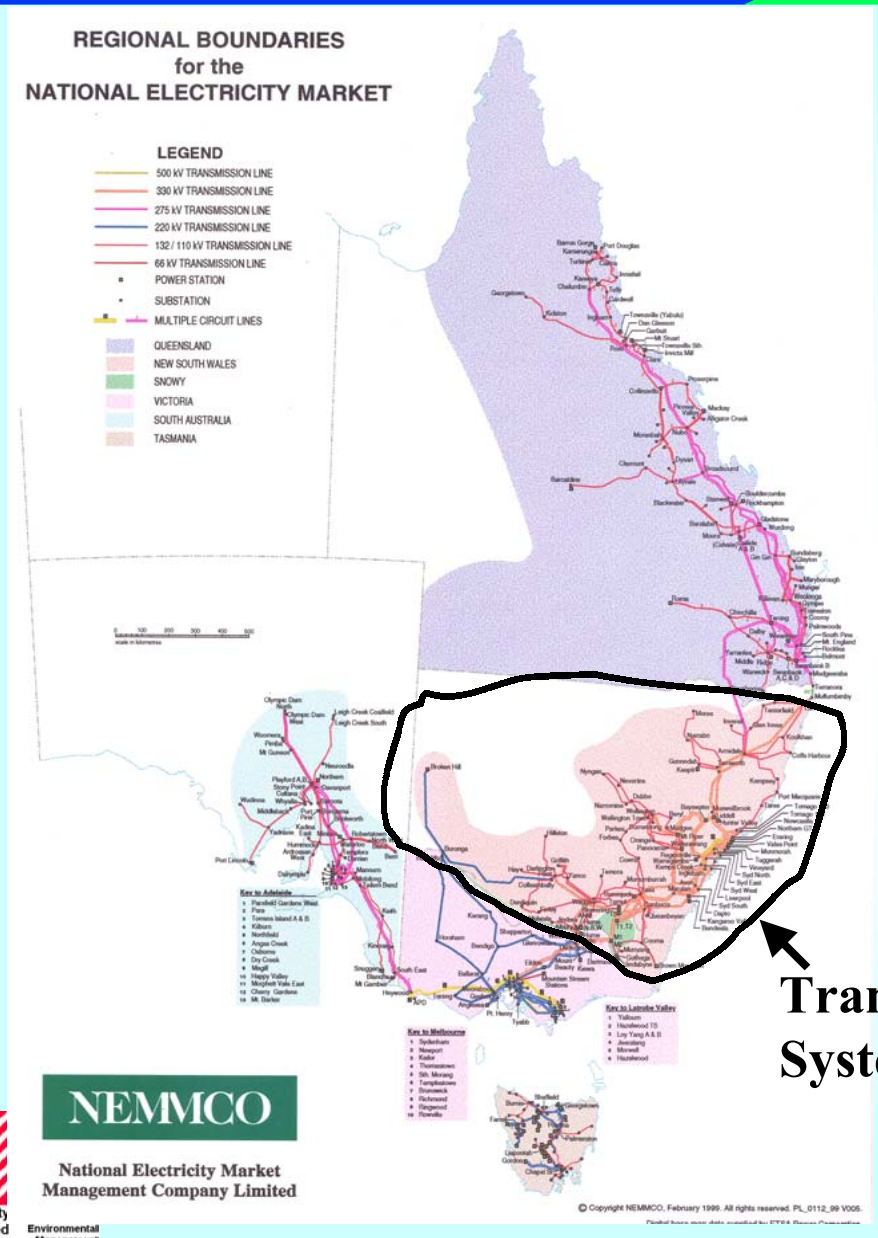
Proposed pipelines

Reserves are shown as a percentage of total reserves.
Estimated Australian Gas Reserves as at
1 January 2000 = 127928 PJ (AGSO 2001)

Pipelines in use as at 30 June 2000

Transmission	19043 km
Distribution	73268 km
Total	92311 km

Source: AGA



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Australian Transmission System

- Longest a.c. system in the world (approx. 3,000 miles)
- Stability: big influence on constraints
- Losses cannot be ignored
- 25% load per mile compared with the USA

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Some Differences Between NE US and Australian Electricity Markets

- National 'Transco' a relatively small step
  - National Electricity Market Management Company has a number of ISO functions
  - Stand alone transmission companies only
  - Only 4 regulated NEM transmission owners
  - Medium sized company by international scale
- 'Energy only' market - $10,000/MWh price cap
- Approximate nodal pricing only
- Significant role of stability in setting constraints
- Transmission and 'ISO' boundary less developed

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Some Key Policy Issues (1)

- State vs National Accountability – Federation
- Improving competition in energy supply
- Market power of electricity generators – particularly in small regions
- Price volatility:
  - the cost of risk
  - liquidity of interregional hedging markets
- Relatively weak transmission interconnection
- ISO (not for profit) performance drivers

Some Key Policy Issues (2)

- Architecture for National Transmission Organisation
  - Pricing Framework
  - Planning
  - ISO vs Transco
  - Regulation and merchant investment
  - Access rights
  - Accountability for reliability
- Governance arrangements – public policy vs participant interests
- Competitive neutrality – public vs private ownership

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Current Framework for Transmission Investment

- Some distinction between reliability and congestion investment
- Public planning statements:
  - State based for reliability
  - National 'Statement of Opportunities' for interregional
- Investor can choose regulated or merchant path
- Merchant gets congestion residues between nodes
- Regulated links that pass regulatory test receive income from regulated transmission charges
- Regulatory test is an open and thorough cost benefit framework

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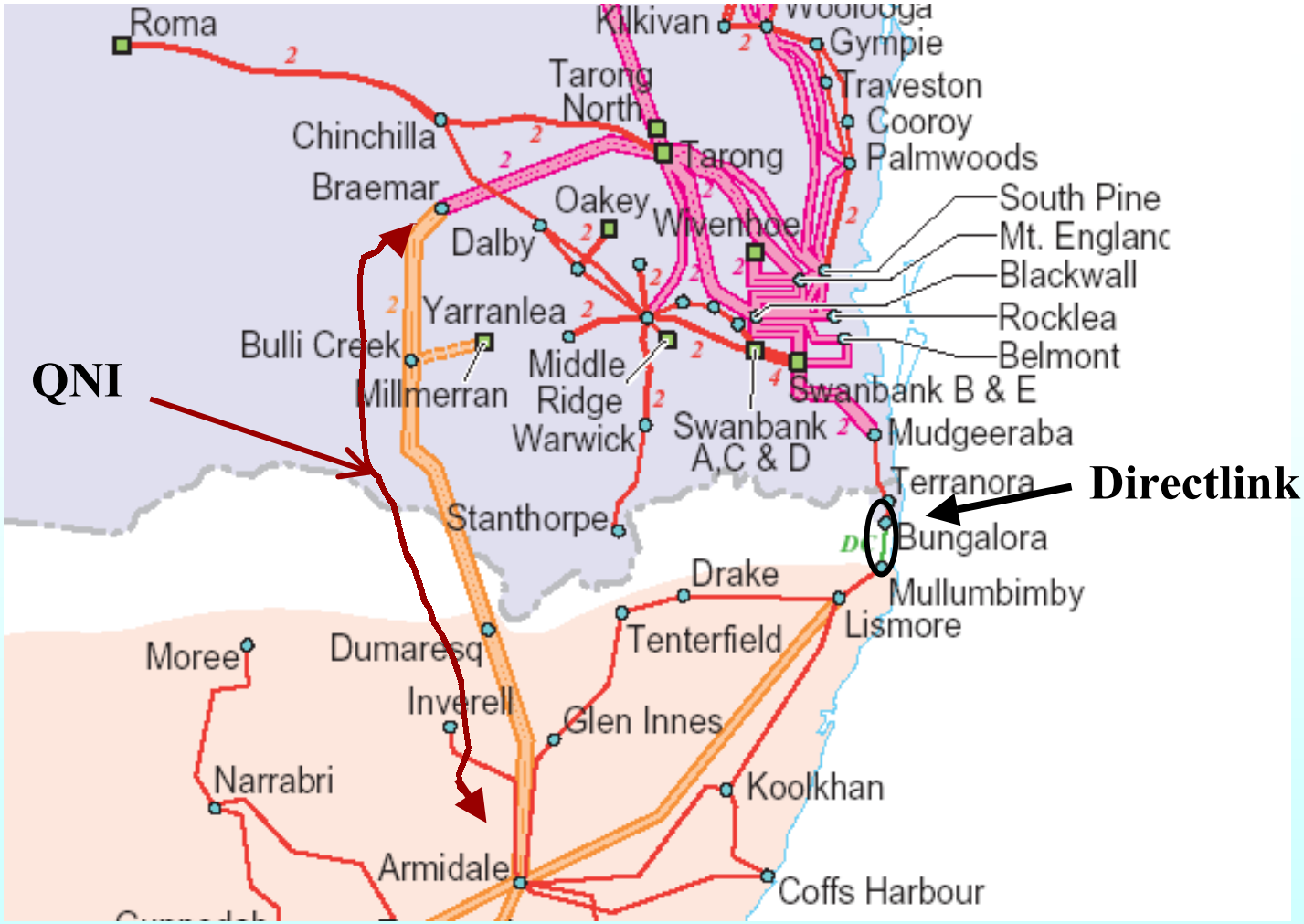
Australian Merchant Links Unique

- No explicit benefit assessment for each project cf FERC approval in US
- Checks on market power relatively weak
  - Competition law only
  - 35% requirement
  - No open auction of rights
  - No explicit limits on the involvement of affiliates
  - No explicit limits on commercial arrangements with generators
- Can withhold capacity – no 'use it or lose it'
- Hybrids – a new experiment in Australia?

Lessons from Australia (1)

- Directlink and QNI
- Highlighted the risks for merchant provider – partial control of integrated capacity very risky
- End game undefined (eg VIC – SA merchant owner seeking to control all new capacity)

QNI and Directlink – Network Context



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QNI and Directlink Compared

QNI

- Regulated/overhead/AC
- Committed first
- 346 miles long
- Base capacity: 700MW
- Total cost $AUD350 million
- $AUD1,450/MW-mile
- Benefits $AUD125 million pa

Directlink

- Merchant/underground/DC
- First in operation
- 40 miles long
- Max capacity: 180MW
- Total Cost: $AUD135 million
- $AUD18,600/MW-mile
- Local reliability benefits unsettled
- “FTR”revenue $AUD4.9 million (fiscal 2001)

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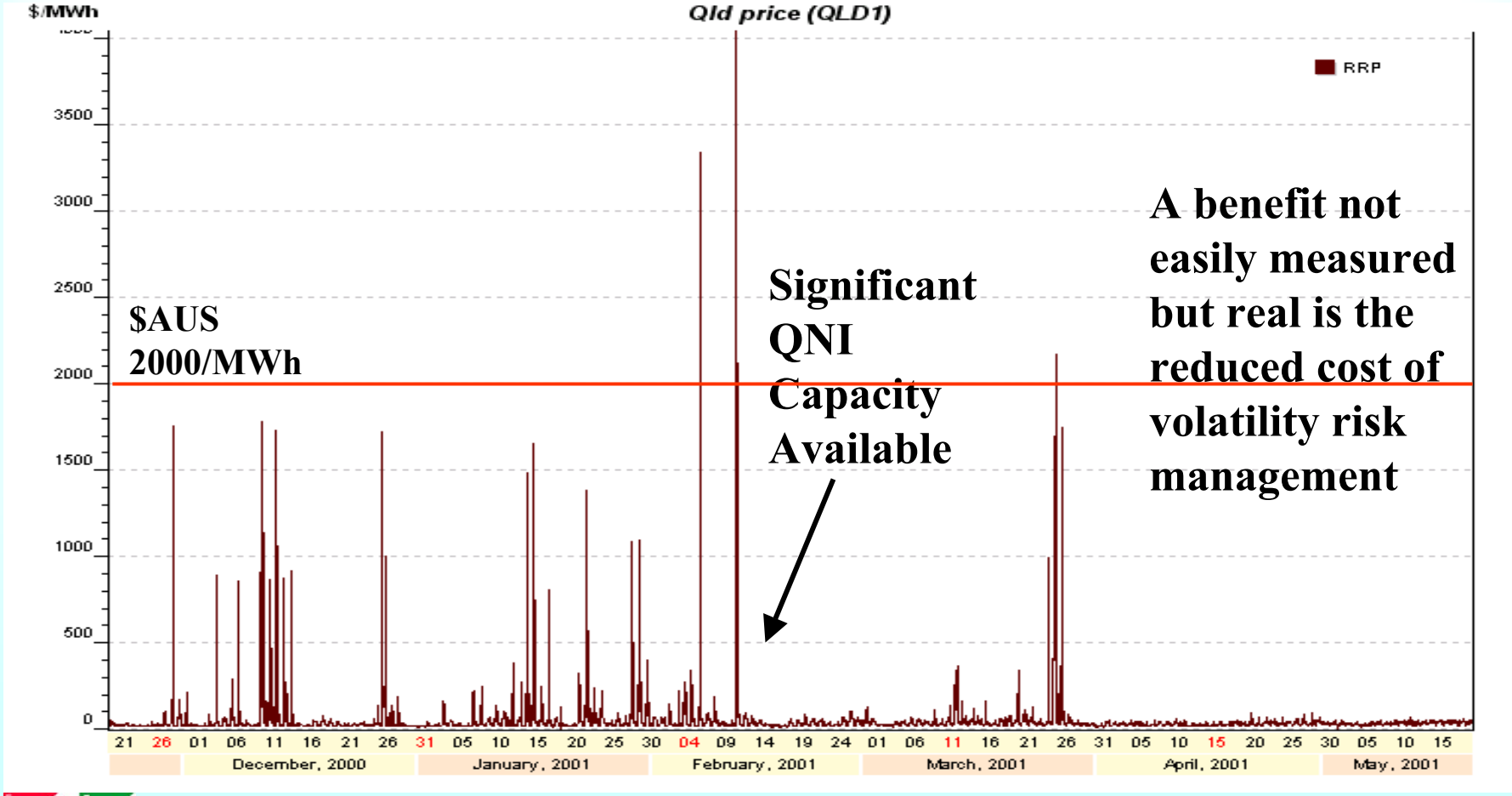
Queensland Pool Prices



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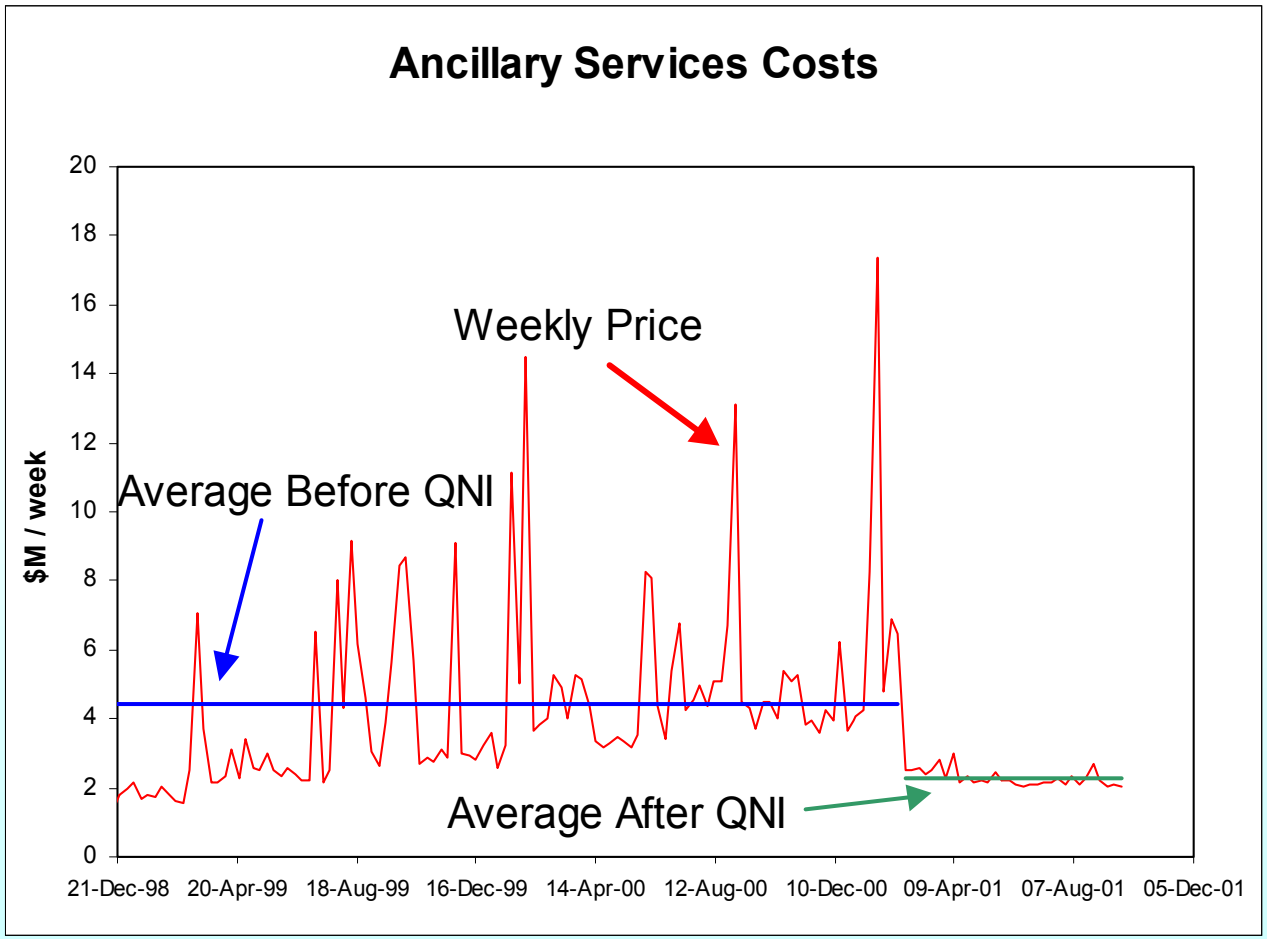
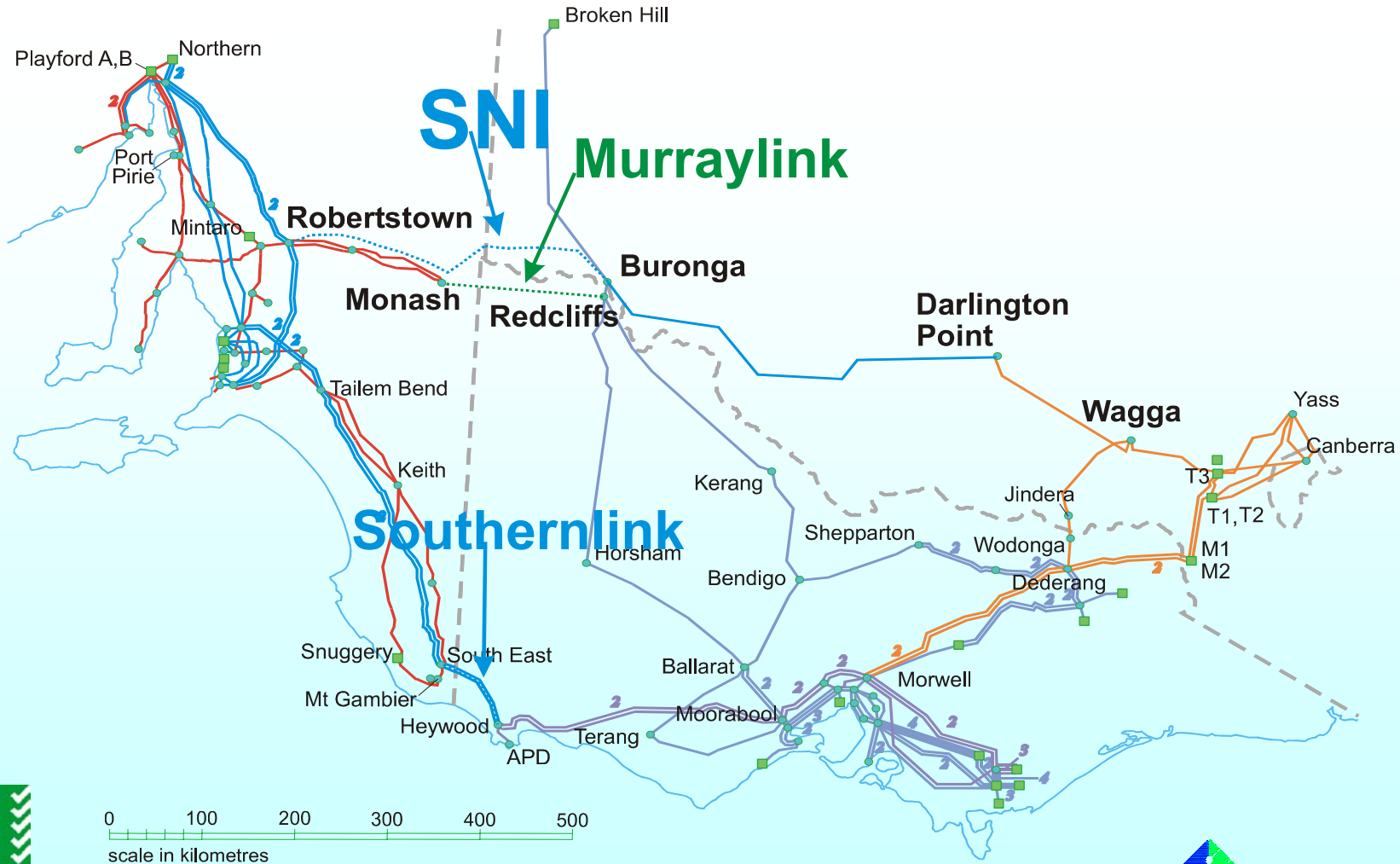
Ancillary Service Impacts



End Game Problem – SA Experience



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Lessons from Australia (2)

- Stakeholders will intervene with effect:
  - Governments: to ensure adequate reliability and acceptable price levels
  - Generators to protect market position
  - Gas suppliers to protect market growth
- Economies of scope & merchant framework:
  - Merchant proponent takes commercial position
  - Not necessarily consistent with overall system economics
  - Interaction between reliability and congestion complex

Lessons from Australia (3)

- Transmission market poorly analysed:
  - Transmission service needs poorly defined: assets vs capability, sensible service performance indicators
  - Common good characteristics: net economic value added should be performance driver
  - ISO constraint judgements: substitute for transmission investment!
  - Market failure mechanisms: poorly analysed
  - Economies of scope: not fully appreciated by many
  - Elasticity of demand: ignored in price signals effort

Future for Merchant Investment in Australia

- Uncertain in the short term
- Need holistic approach to transmission architecture first
- Architecture must suit policy context:
  - Eg energy market competition imperative
- Risky for network investors to pre-empt this
- US style links:
  - more chance of success
  - address market power issues better
- Desire to harness market forces is inevitable driver

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