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# The changing NEM context for Climate policy

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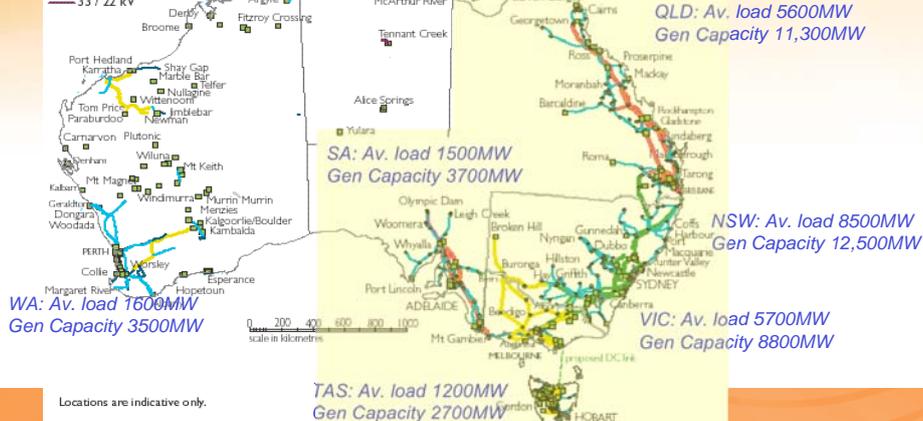


# The NEM: Australia's largest Environmental (externalities) market

Transmission lines and generators

- 500 kV
- 330 kV
- 275 kV
- 220 kV
- 132 / 110 kV
- 66 kV
- 33 / 22 kV
- DC LINE
- Power Station
- Substation

## The Australian National Electricity Market





## National Electricity Law: *Overall objective for the National Electricity Market (NEM)*

- *NEL Section 7:*
  - *The national electricity market objective is to promote efficient investment in, and efficient use of, electricity services for the long term interests of consumers of electricity with respect to price, quality, reliability and security of supply of electricity and the reliability, safety and security of the national electricity system*
- **Lack of environmental and wider sustainability objectives is a design choice**
- *If societal desire that NEM contribute to achieving sustainability objectives then governments have to implement policies that will drive such changes...*
- *...and the NEM needs to facilitate technical, institutional and behavioural change towards such changes*

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## Relevant Federal Govt. policy development

- **Emission Trading System** commencing 2010
  - Detailed but incomplete design proposal Dec. 2008
- **Mandatory Renewables Target** of at least 20% by 2020
  - Detailed but incomplete design proposal Dec. 2008
- Demonstration & commercialisation funding
  - \$500M Renewable Energy Fund
  - \$500M National Clean Coal Fund ... and counting
  - **Only possible longer-term relevance**
- A diverse, incomplete & incoherent set of existing & promised Energy Efficiency policies and measures
  - **COAG commitment to National Energy Efficiency Strategy by mid 2009**
- Ongoing NEM restructuring
- *numerous diverse State Government policy efforts*

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## NEM Context – growing demand & peak demand

- NEM to date a period of uninterrupted economic growth
- Possible impacts of the global economic crisis?

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## Considerable investment in new generation ... with more gas coming

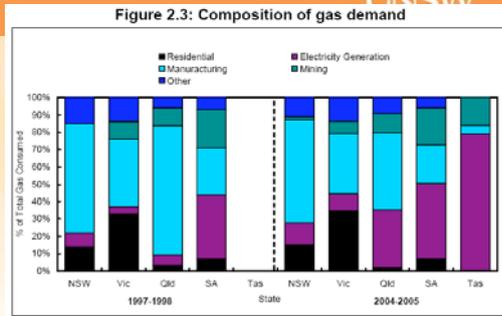
**Table 1.3 Major committed generation investment in the National Electricity Market, 2008**

DEVELOPER	POWER STATION	TECHNOLOGY	CAPACITY (MW)	PLANNED COMMISSIONING DATE
<b>NEW SOUTH WALES</b>				
Delta Electricity	Colongra	OCGT	668	2009–10
Origin Energy	Uranquity	OCGT	640	2008–09
TRUenergy	Tallawarra	CCGT	400	2008
<b>QUEENSLAND</b>				
Origin Energy	Darling Downs	CCGT	630	2010
ERM Power/Arrow Energy	Braemar 2	OCGT	474	2009
Rio Tinto	Yarwun Alumina Refinery	Gas	145	2010–11
Queensland Gas Company	Condamine	CCGT	135	2009
<b>VICTORIA</b>				
Origin Energy	Mortlake	OCGT	550	2010–11
AGL Energy	Bogong	Hydro	140	2009
<b>SOUTH AUSTRALIA</b>				
Origin Energy	Quarantine	OCGT	120	2008–09
<b>TASMANIA</b>				
Tasmanian Government	Tamar Valley	CCGT	191	2009

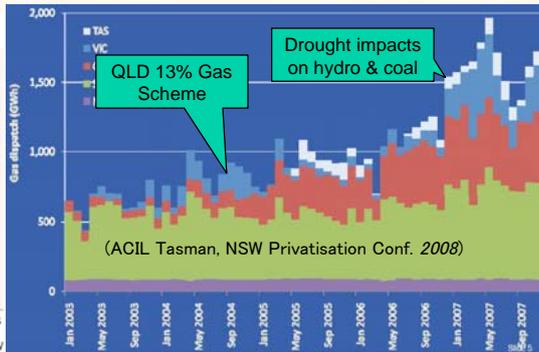
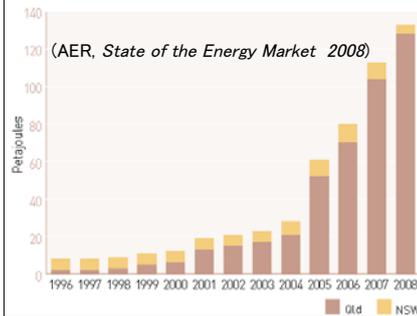


### Increasingly significant role for gas generation

- ..however comparatively immature gas markets
- New gas generation raising challenges – partic. OCGT
- CSG increasingly significant
- Some policy impact - QLD

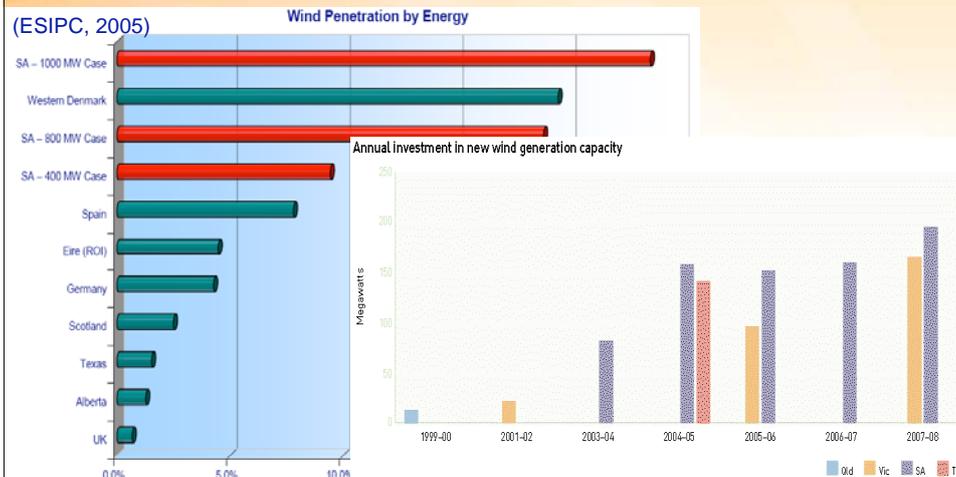


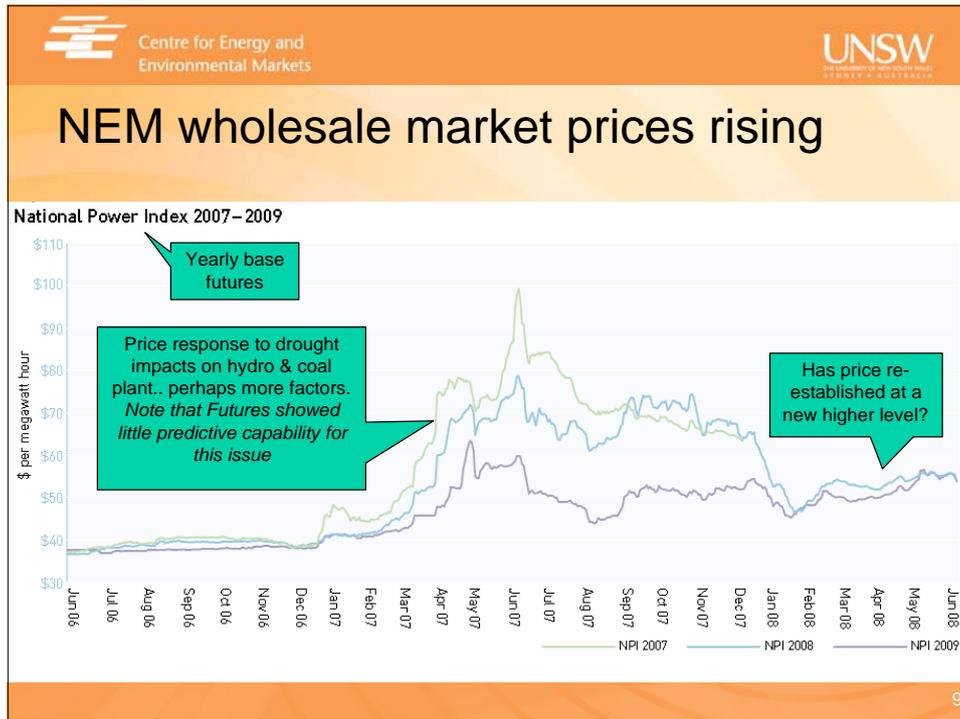
Coal seam gas production

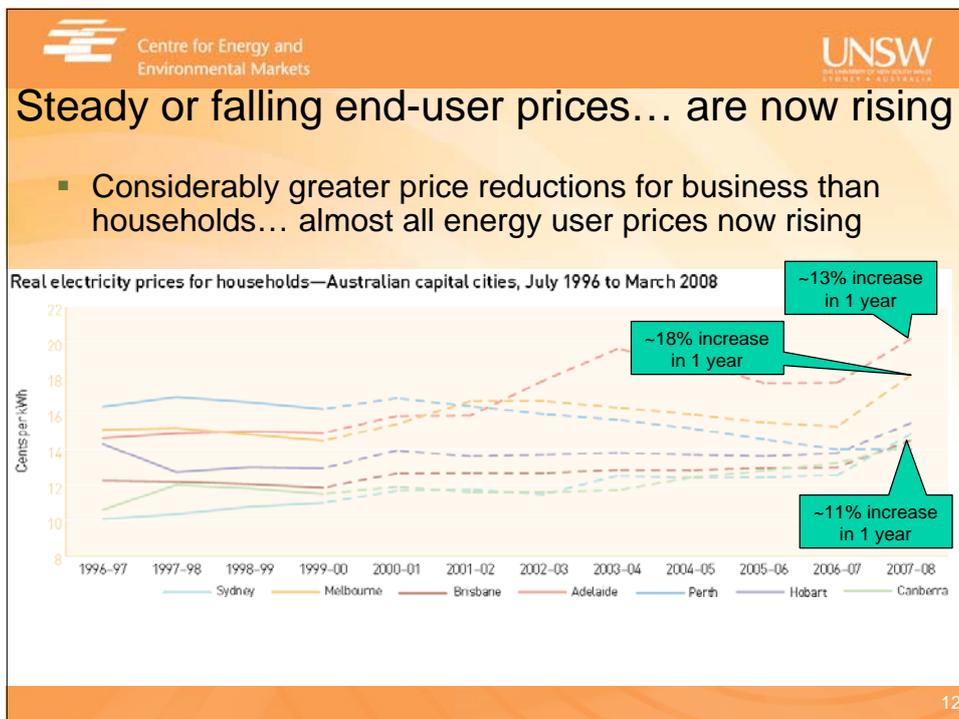
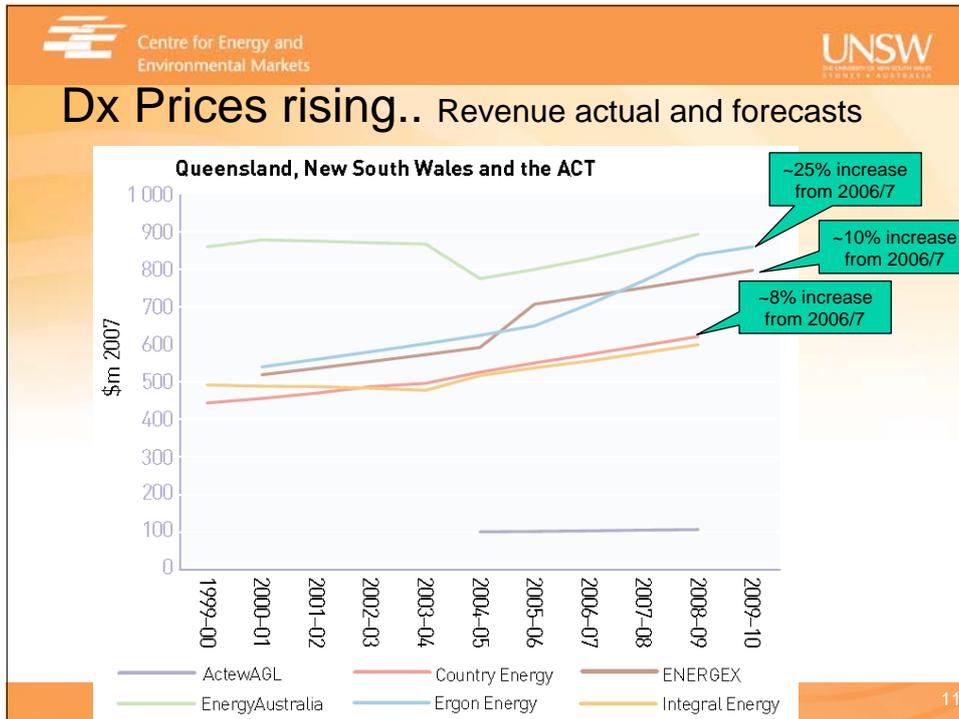


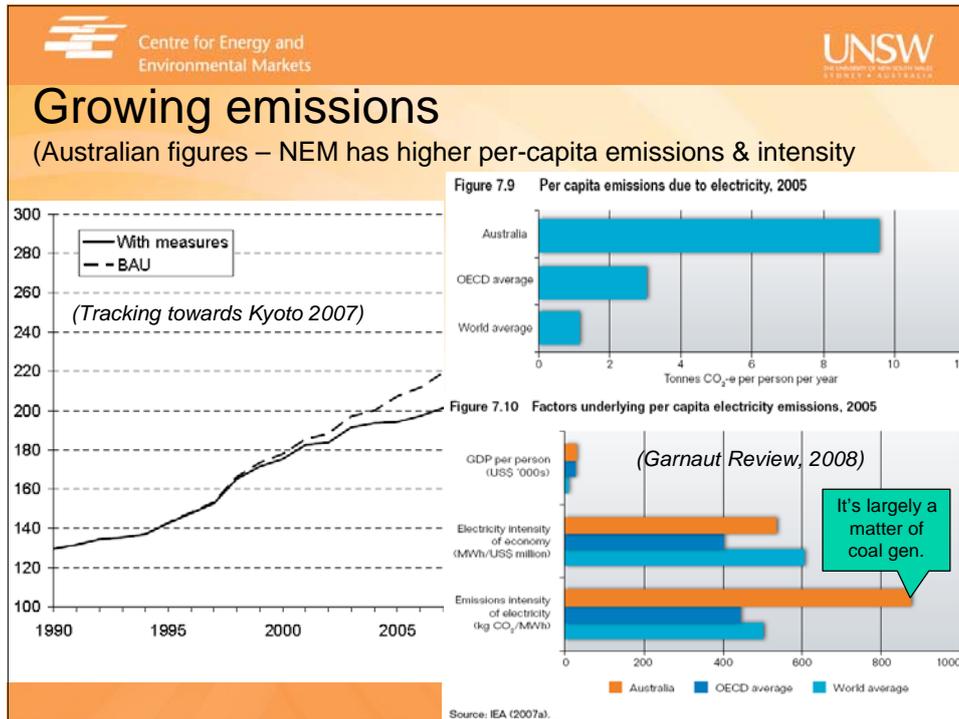
### Wind penetrations becoming regionally significant

- SA wind penetration already high by international standards
- Some potential challenges in facilitating wind integration









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## Where from ... and next for NEM?

- NEM appears to have performed reasonably well to date in securely & reasonably efficiently supplying growing demand & peak demand, integrating modest wind & managing limited energy constraints
- However, prices rising due to range of (non-climate policy) drivers and emissions have climbed significantly
- Current NEM restructuring efforts relevant to challenges including climate policies
  - Gas markets
  - Integration of intermittent generation
  - Demand-side participation
  - Retail Markets
  - Advanced Metering Infrastructure
  - Network investment
- *Is NEM well placed to support transition to a low-emission industry largely driven by CPRS with some complementary policy measures addressing market failures? If limitations how can they be addressed?*

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## Possible policy impacts on NEM

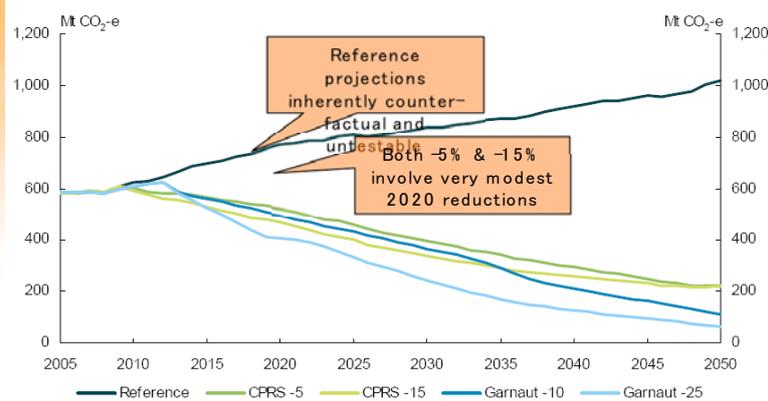
- Possible that CPRS will drive very little significant change in NEM to 2020
  - Proposed weak reduction targets, especially 5%
  - Proposed CPRS design with borrowing, price cap, unlimited use of international CDM credits, forestry opt-in, ongoing subsidies to large EITE, limited targeted assistance to drive electricity consumption reductions
  - Uncertain impacts of global economic crisis
- eRET may well prove to be a far more significant policy test of NEM

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## National targets: Australian Treasury modelling

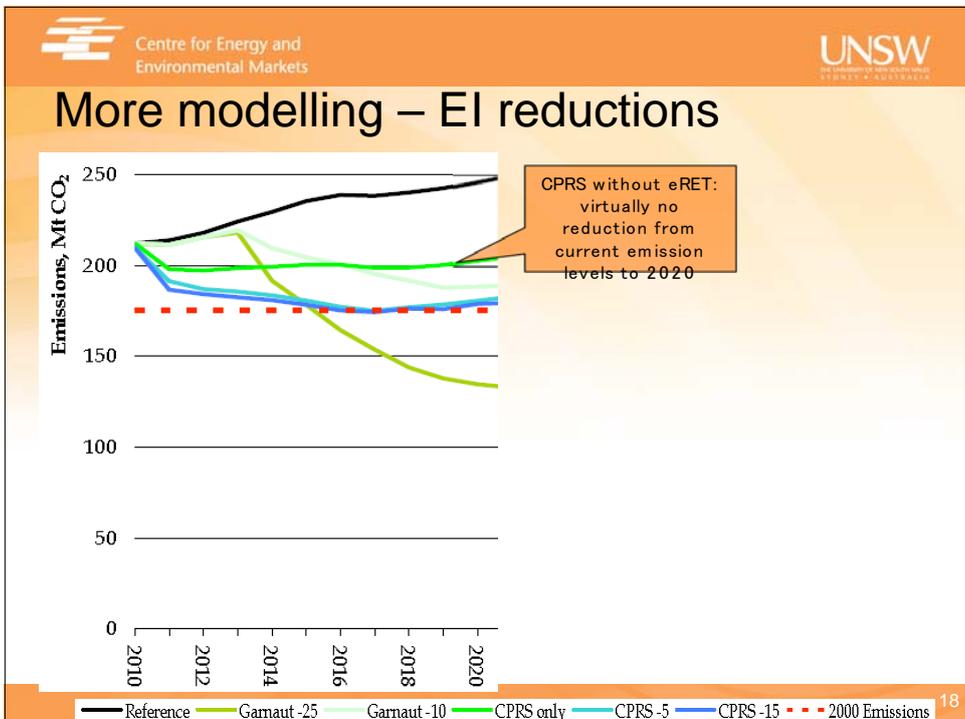
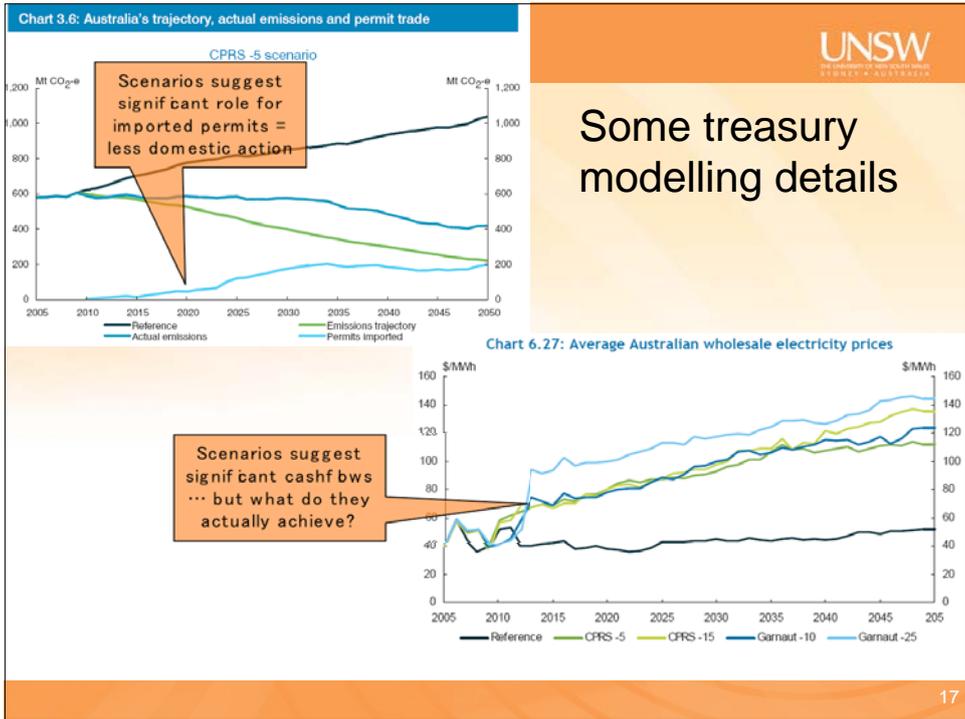
Chart 4.1: Australian emission allocations

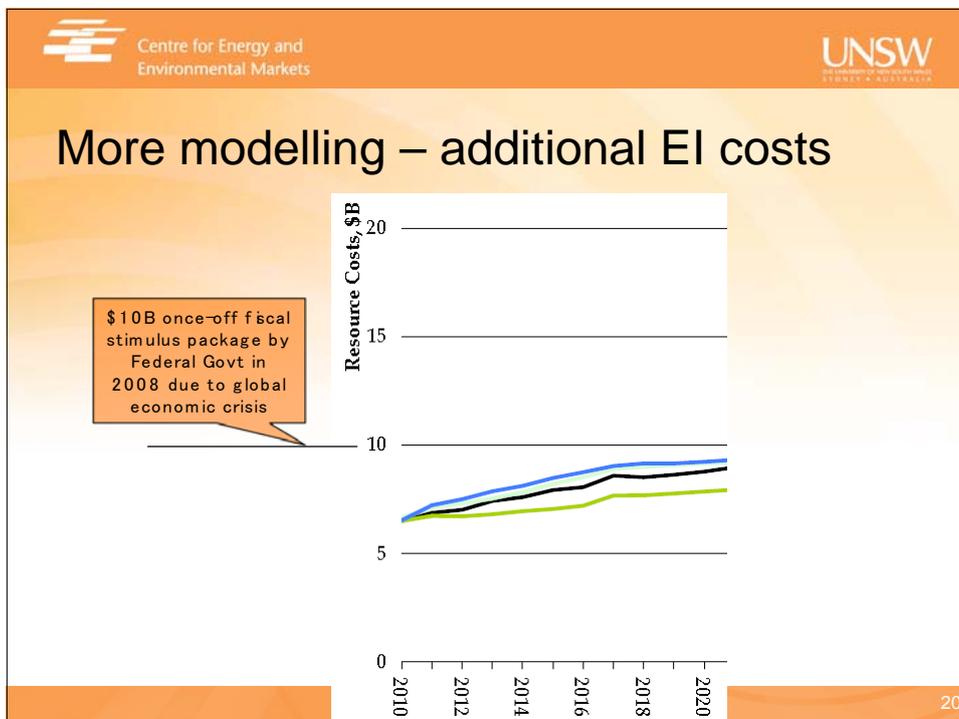
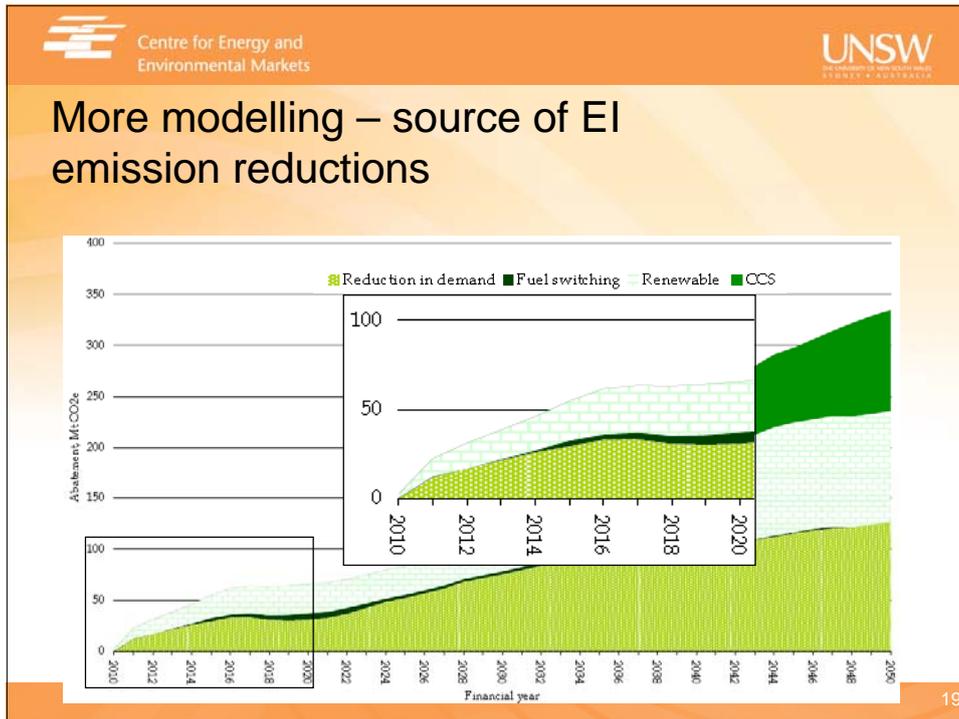


	Reference	CPRS -5	CPRS -15	Garnaut -10	Garnaut -25
Stabilisation goal (ppm)	550	510	550	550	450
Emissions change 2000 in 2020/2050 (%)	-5/-60	-15/-60	-10/-80	-25/-90	

(Australian Treasury, *Australian Low Pollution Future*, 2008)

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## One view on interactions b/n ETS and MRET

Table 14.2 Interaction between the emissions trading scheme and the Mandatory Renewable Energy Target (Garnaut Final Report, 2008)

		MRET ramp-up rate	
		Gentle	Aggressive
Emissions trading scheme trajectory	Gentle	<ul style="list-style-type: none"> <li>• Low permit price</li> <li>• Moderate renewable energy certificate price</li> <li>• Moderate impact on retail electricity prices</li> <li>• Mitigation activity outside MRET unlikely</li> </ul>	<ul style="list-style-type: none"> <li>• MRET cannibalises emissions trading scheme</li> <li>• Very low (even zero) permit price</li> <li>• Emissions trading scheme becomes non-functional</li> <li>• High renewable energy certificate price</li> <li>• High impact on electricity prices</li> <li>• Little mitigation activity outside MRET</li> <li>• No incentive for investment in other low-emissions technologies</li> </ul>
	Aggressive	<ul style="list-style-type: none"> <li>• Permit price steadily increases over time</li> <li>• As wholesale electricity prices rise, renewable energy certificate prices decline, possibly to zero—implying early phase-out of the MRET</li> <li>• Moderate-to-high impact on retail electricity prices—depending on level of mitigation elsewhere in the economy</li> <li>• Investment in portfolio of renewable and other low-emissions technologies</li> </ul>	<ul style="list-style-type: none"> <li>• Permit and certificate price paths would be highly dependent on interaction of the two schemes</li> <li>• Prices could be range from high to very low</li> <li>• MRET most likely to cannibalise emissions trading scheme</li> <li>• High impact on retail electricity prices</li> <li>• Most investment likely to be in increasingly expensive renewable energy options</li> </ul>

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## Proposed eRET design

- Eligible sources
  - same criteria as current MRET scheme including solar hot water:
  - **Comment: SHW does not represent renewable electricity generation – weakens target**
- Project eligibility periods
  - No limit to timeframe within which projects may create RECs.
- Treatment of existing generators
  - All existing projects eligible under MRET scheme eligible to participate in expanded RET for life of scheme
  - **Comment: projects financed on basis of 2020 target now earn RECs for another 10 years including old hydro earning windfall profits from inappropriate baselines & ratcheting**
- Compliance mechanisms — shortfall charge
  - fixed (un-indexed) shortfall charge penalty for non-compliance set at level marginally above the projected peak REC price (similar to current MRET)
- Scheme duration and phase-out
  - Dual linear ramp-up of annual targets from 2010 rising to 45 000 gigawatt-hours in 2020. Target phased down from 2025 and terminating end 2030.
- REC multiplier for small generators (first 1.5kW of system capacity)
  - five RECs for every megawatt-hour of deemed renewable energy for systems installed from 1 July 2009 through 30 June 2012, to one REC for every megawatt-hour installed from 1 July 2015 onwards. **Comment: unlikely to be very significant under-achievement of 45000GWH but could reset target for consistency**
- Participation by EITE electricity consumers in paying for eRET being considered?

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# What's still missing for a coherent sustainable energy policy framework? .... a lot

<i>Adapted from (Grubb, 2006)</i>	<b>Voluntary, regulatory and systemic instruments</b>	<b>Economic instruments</b>	<b>Innovation instruments</b>
<b>Behaviour</b>			 RD&D funding
<b>Substitution</b>			 eRET
<b>Technical innovation</b>	 <i>Coherent Demand-side policies – regulation &amp; incentives</i>		



## Thank you... and questions

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