Centre for Energy and Environmental Markets

UNSW THE UNIVERSITY OF NEW SOUTH WALES SYDNEY • AUSTRALIA



Options for State-based Renewables Obligations

Rob Passey, Iain MacGill, Muriel Watt

ANZSES Annual Conference 28th Nov 2005

Renewable obligation in Oz

- Oz RE projections - 10.5% (1997) to 10.9% (2010) and 8.7% (2020)
- Support required along the technology development pathway: Research, Development, Demonstration & Commercialisation
- Variety of types of market pull support: ROs, feed-in tariffs, capital grants etc

- MRET Review Panel
  - very large amount of investment prior to 2007
  - current target is insufficient to develop a domestic industry
  - recommended 20,000GWh by 2020, extend scheme to 2035

- EU Directive - 13.9% (1997) to 22.1% (2010)
- EU Parliament - adopted 33% by 2020
- US - 21 states have RE standards, most through RPS's
  - California - 20% by 2010 (was 2017) - 33% by 2020 proposal
  - Texas - 2,000MW (2009), 5,880MW, 5% (2015), 10,000MW (2025)
  - Colorado - from 2% to 10% by 2015

Support for renewables targets in Australia

- Commonwealth - leave MRET unchanged, some support for PV
- States supported increases in MRET Review
  - SA, 4.5% above 1997 % level by 2010
  - Vic, increase to 19,000 GWh by 2010 (approx 5% target)
  - WA, ACT, Qld, 2% above 1997 % level by 2010
  - Tas, 4% above 1997 % level by 2010
- and have internal aspirational targets
  - SA, from 4% to 15% of total by 2014 (all?)
  - Vic, from 4% to 10% by 2010 (1/5)
  - WA, from 1% to 6% by 2010 for South West Interconnected System (2/3)
- MCE and NSW, Victorian, Western Australian, South Australian and Tasmanian governments all expressed interest in state-based support for RE

Possible State-based RO scheme designs

- Based on MRET
  - Reduced complexity and establishment costs
  - RECs identified by technology, location and date
    - Exclude large hydro, SWH etc
    - State-specific
  - Current problems generally relate to settings that could be fixed by State scheme
    - size and nature of target
    - types of generation
    - baselines
    - boom/bust cycles
  - Expires in 2020, a problem unless
    - Commonwealth has extended MRET and increased target
    - A State government takes over MRET and incorporates it into the State scheme
    - Commonwealth has extended administrative arrangements, so State scheme can still operate through it.

Possible State-based RO scheme designs (cont.)

- Based on MRET (cont.)
- Retailer licence conditions could set requirements:
  - Type A
    - Surrender X additional RECs for every REC into designated ORER account
    - ORER paid on contractual basis by States
    - Precedent set by Green Power scheme
  - Type B
    - Commonwealth may not allow ORER to establish additional accounts
    - Surrender X additional RECs for every REC to Jurisdictional Regulator
    - Depending on Rec 29, hold/extinguish
  - Type C
    - Levy could be used to fund JR purchase of RECs (hold/extinguish)
    - Precedent set by NSW Energy Savings Fund levy on DNSPs

Possible State-based RO scheme designs (cont.)

- Based on Green Power-accredited generators
- Retailer licence conditions could set requirement:
  - enter into contractual obligations that include a certain amount of electricity from generators accredited under the GP scheme (or as described)
  - not Green Power as GP uses RECs for auditing
  - could use some form of tradeable certificate, not necessary
- GP is a State government scheme, increased political acceptability?

Additional design issues

- Size of target
- Relative (%) or absolute (GWh) target
- Time limit for generators to participate
- Size of penalty, indexation
- Restriction to a particular state

Size of target

- 1997, 16,000 GWh from RE. 205,000 GWh total projected for 2010, additional 9,500 GWh required to increase from 10.5% to 12.5%.
- Current 2010 projection is 234,500 GWh, 25,500 GWh 10.9% RE
- Choice influenced by community expectations, short term cost and local industry development and employment

Table 1 Percentage and Corresponding GWh Targets in 2010

Approx % MRET Target [a]	Total percentage	GWh MRET	GWh total (includes 1997 existing)
No MRET	6.8%	0	16,000
Current MRET 2010	10.9%	9,500	25,500
2%	12.5%	13,300	29,300
5%	15%	19,200	35,200
10%	20%	30,900	46,900
Current MRET 2020	8.7%	9,500	25,500 [b]
10% in 2020	20%	42,600	58,600
20% in 2020	30%	71,900	87,900

a: in terms of a percentage increase over the 1997 percentage
b: assumes 16,000 GWh in 1997 is maintained through to 2020

Relative (%) or fixed (GWh) target

- Fixed target
  - Could underestimate future demand and result in a lower percentage
  - Could overestimate demand (energy efficiency measures, oil price impacts)
  - Greater investment certainty
- Relative target
  - Allows for changes in demand
  - Would need to be set as absolute target each year
  - Uncertainty offset by shortfall flexibility, assigned generation declarations

Time limit for generators to participate

- Large hydro predicted to provide 27% of RECs to 2020
- MRET Review recommended new baseline after 15 years
- This would still allow fluctuation around new baseline, RECs created but not paid back
- Better to have absolute time limit
- Although old hydro soaked up by old scheme, and not relevant for GP-generators, time limit still encourages new plant
- Limit banking, otherwise effectively extends plant life

Size of penalty, indexation?

- Size Current penalty $40/MWh ($57 after tax), not indexed
- 4% annual inflation halves penalty over 15 years
- State scheme
  - Indexing penalty alone isn't enough, as would just pay penalty for MRET
  - Could require an additional REC (or an additional MWh from GP generator) if penalty is paid
  - Include caveat that penalty could be paid for State scheme if is less than marginal cost of RE required to meet both schemes
  - Requires access to level of liable parties' shortfalls, MRET Review Panel recommended this information be publicly available

Restriction to a particular state

- Result in
  - increased short term cost
  - greater employment
  - greater local industry development
- Possibly restricted by
  - Availability of RE resources
  - Ability of network to accept stochastic plant
- Legal issues
  - Can't duplicate Commonwealth scheme
  - Possible contravention of Constitutional requirement there be no barriers to free trade
    - NGAS: DSA and biosequestration must be in NSW
    - Qld 13% gas scheme: interstate generators can participate but only to the extent they contribute to meeting Qld load

Comparison of MRET and GP-based approaches

- MRET-based
  - Uses existing mechanisms
  - Reduced complexity and establishment costs
- GP-based
  - No 2020 end point
  - If entirely through contracts - absence of trading on spot market reduces cost volatility and uncertainty
  - Price discovery could still occur through existing MRET?
  - Avoids creation of two types of RECs
  - More politically acceptable as is entirely State-based?

MLET: Mandatory Low Emission Target

- Emissions intensity
- Certain amount of electricity with an average of 0.2tonnes/MWh
- Not technology specific
- Could be made up with mix of technologies
- Would support renewables and gas-fired now and other technologies (CCS) if and when they become available

Also need ….

- Integrated policy framework
- Access to distribution network
- Integration of stochastic generators into NEM
- Appropriate planning guidelines
- Community acceptance

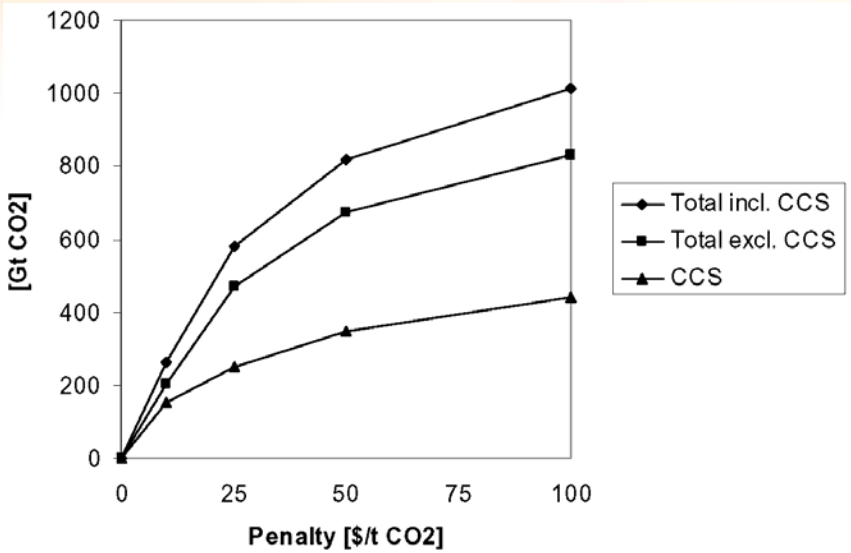
A word on costs ……

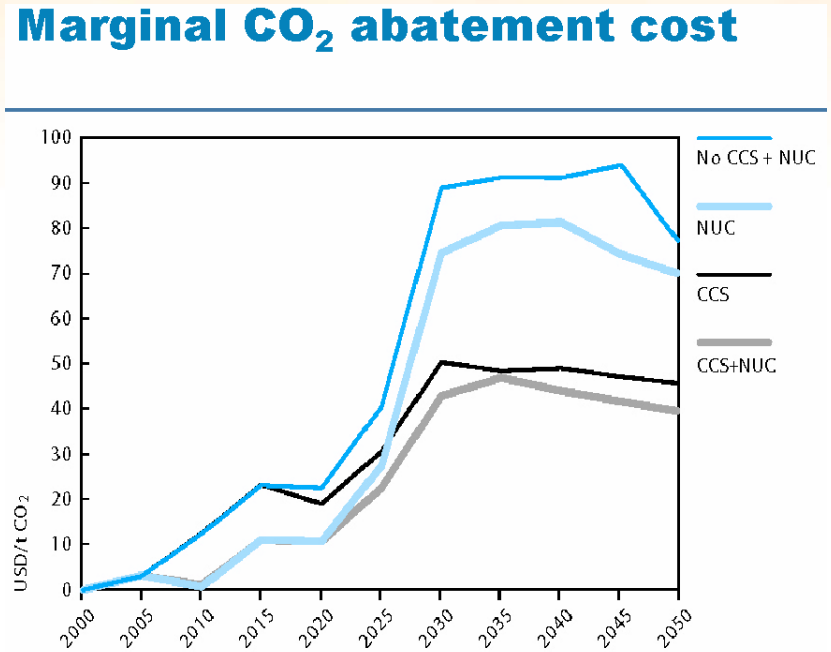
- MRET review compared renewables increase against no increase
- MMA - 20,000 GWh by 2020: 0.181 c/kWh higher, $300/quarter increase by 41.4 cents per week
- : cumulative impact $5.1 billion if shortfall charge indexed

- Prime Minister, National Press Club, Tuesday 15th June 2004.
- "The Tambling recommendations were $5.1 billion. The ALP recommendations are $11 billion according to the extrapolations from the modelling in Tambling and those of the Australian Greens, ten per cent is $23 billion."
- Minister Kemp, Tuesday 15th June 2004.
- "Labor's proposal to lift the MRET to five per cent would cost the economy some $11 billion—a cost that we do not have to pay.
- Ian Macfarlane, Tuesday 15th June 2004.
- "The Greens support an MRET [20% by 2020] that will cost Australian GDP about $23 billion in negative growth."
- Minister Kemp, 26th June 2004, Burnie Advocate.
- "… Senator Brown proposed an amendment that would raise the MRET to 10 p.c. by 2010 and 20 p.c. by 2020……. But Federal Environment Minister David Kemp said the Senator had 'reaffirmed his life membership of the political lunatic fringe' with his proposal. Brown's amendment, had it been passed, would have come at a cost of some $40 billion ….".

A word on costs ……(cont.)

- Assuming emissions need to be reduced, need a least-cost abatement portfolio that includes renewables
- Therefore focus on opportunity cost of not using renewables
- IEA GLO50 modelling: exclusion of CCS increased marginal abatement cost from US$40/tonne to $80/tonne





Centre for Energy and Environmental Markets

UNSW THE UNIVERSITY OF NEW SOUTH WALES SYDNEY • AUSTRALIA

Thank you… and *questions*

Many of our publications are available at:
www.ceem.unsw.edu.au