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Options for State-based Renewables Obligations

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Targets or technology

- Growing momentum for technology development rather than targets
 - “Probably I'm changing my thinking about this,” ... “The truth is, no country is going to cut its growth or consumption substantially in light of a long-term environmental problem,” It's time to be “brutally honest”: there will probably never be a successor treaty to Kyoto, because the Americans, Chinese and Indians will never sign up. Besides, you don't need a cap after all - you just need to develop some new technologies.”
Tony Blair
- Implications for renewables
 - Certainly ‘new technologies’ but what is development path – what role for technology targets?
- Renewables support - “*targets for technology*”



State Governments

- Govt policy priorities set largely by mandate
 - In Australian States – Police, Hospitals + Schools, *Infrastructure, built environment, state development (in competition with other states...)*
 - “NSW is open for business” **NSW Premier**
- Govt action on policies – can tax, spend or regulate
 - In Australian States
 - limited taxation opportunities: *however SOCS (eg. retailers) are option*
 - spending largely capped by federal govt distributions
 - mix of regulatory powers: *strong on planning + infrastructure, changing on energy markets*
 -Rather different from US States
- What is politically easiest
 - Small \$ => tax reductions if available option, spending (no stakeholder opposition)
 - Large \$ => regulation far more powerful + some good opportunities



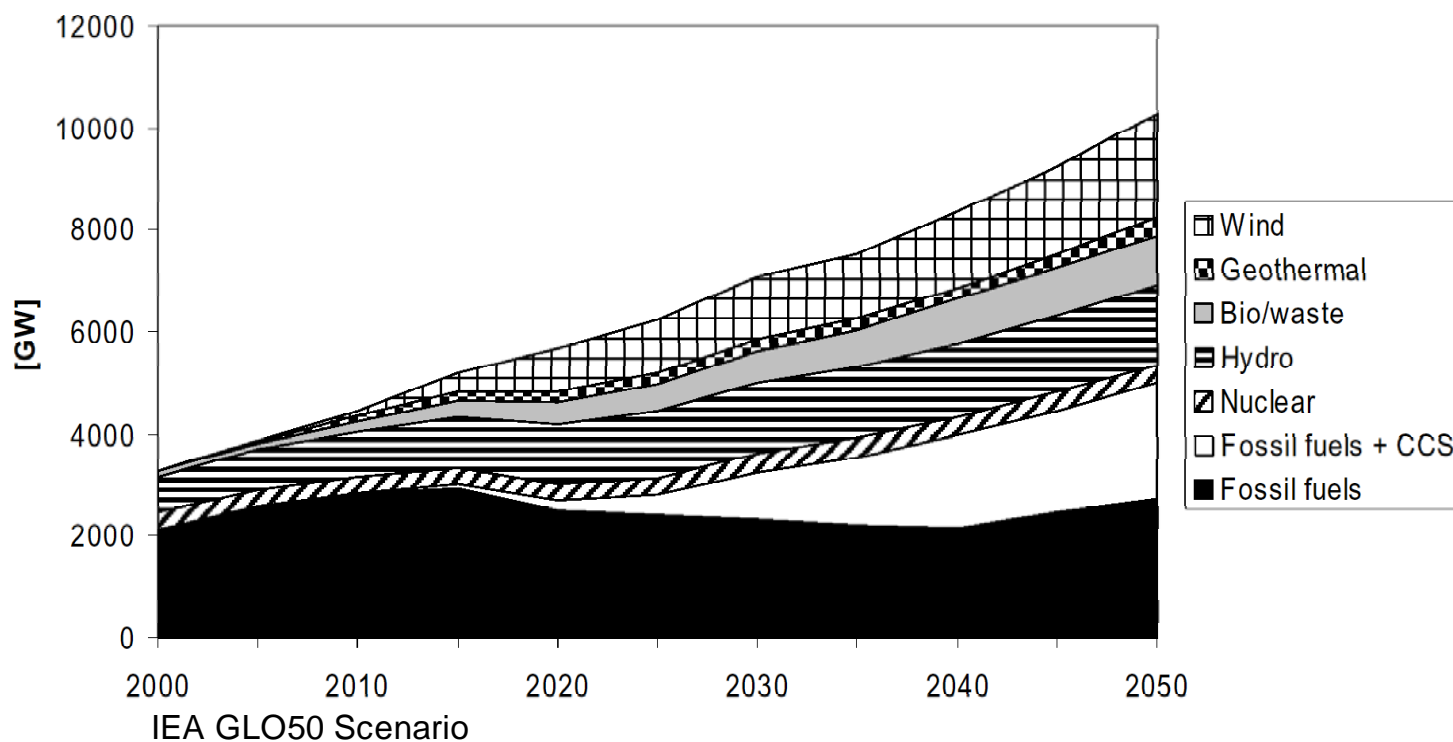
A coherent renewables framework

- Renewable policy mix requires internal coherence
 - Individual techs likely to require different support but many uncertainties making policy tuning difficult
 - Important advantages to more general mechanisms, + market based mechanisms that can adjust prices wrt surprises, interactions etc
 - ...and do we have faith in policy makers picking winners?
- ...and coherence with wider climate policy in increasingly crowded + competitive 'policy space'
 - “The UK Renewables Obligation, introduced by the Department of Trade and Industry in April 2002, will cost consumers GBP1-bil (\$1.828-bil) each year by 2010, rising to GBP1.5-bil each year by 2015, It is currently at least four times more expensive than the other means of reducing carbon dioxide currently used in the UK” **House of Commons**
 - **...and it won't actually reduce emissions b/c of UK ETS**
 - Do low carbon prices from poor ETS support renewables policy or work against it?



Background

- Australia's emissions projected to be 23% higher than 1990 levels by 2020
- Stationary energy emissions - almost half total, projected to increase by 70%
- Electricity generation makes up 71% of stationary energy
- Need portfolio - energy efficiency, low-emission FF, renewables, cogen





Renewables targets

- 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, political acceptability



Additional design issues

- Size of target
- Relative (%) or absolute (GWh) target
- Timeframe of operation
- Time limit for generators to participate
- Exclusion of generator types
- 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 absolute (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

Timeframe of operation

- Current 2020 end date is problematic for 15 year payback
- MRET Review recommended extension to 2035
- GP-scheme most amenable to extension beyond 2020



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, time limit still encourages new plant
- Limit banking, otherwise effectively extends plant life

Exclusion of generator types

- Could exclude large hydro, SWH, bioenergy types
- MRET-based scheme: up to Jurisdictional Regulators
- GP-based scheme: many excluded, SWH? (RECs but not GPRs)



Size of penalty, indexation?

- Size Current penalty \$40/MWh (\$57 after tax), not indexed
- 4% annual inflation halves penalty in 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
 - Requires access to level of shortfalls, MRET Review Panel recommended this information be publicly available



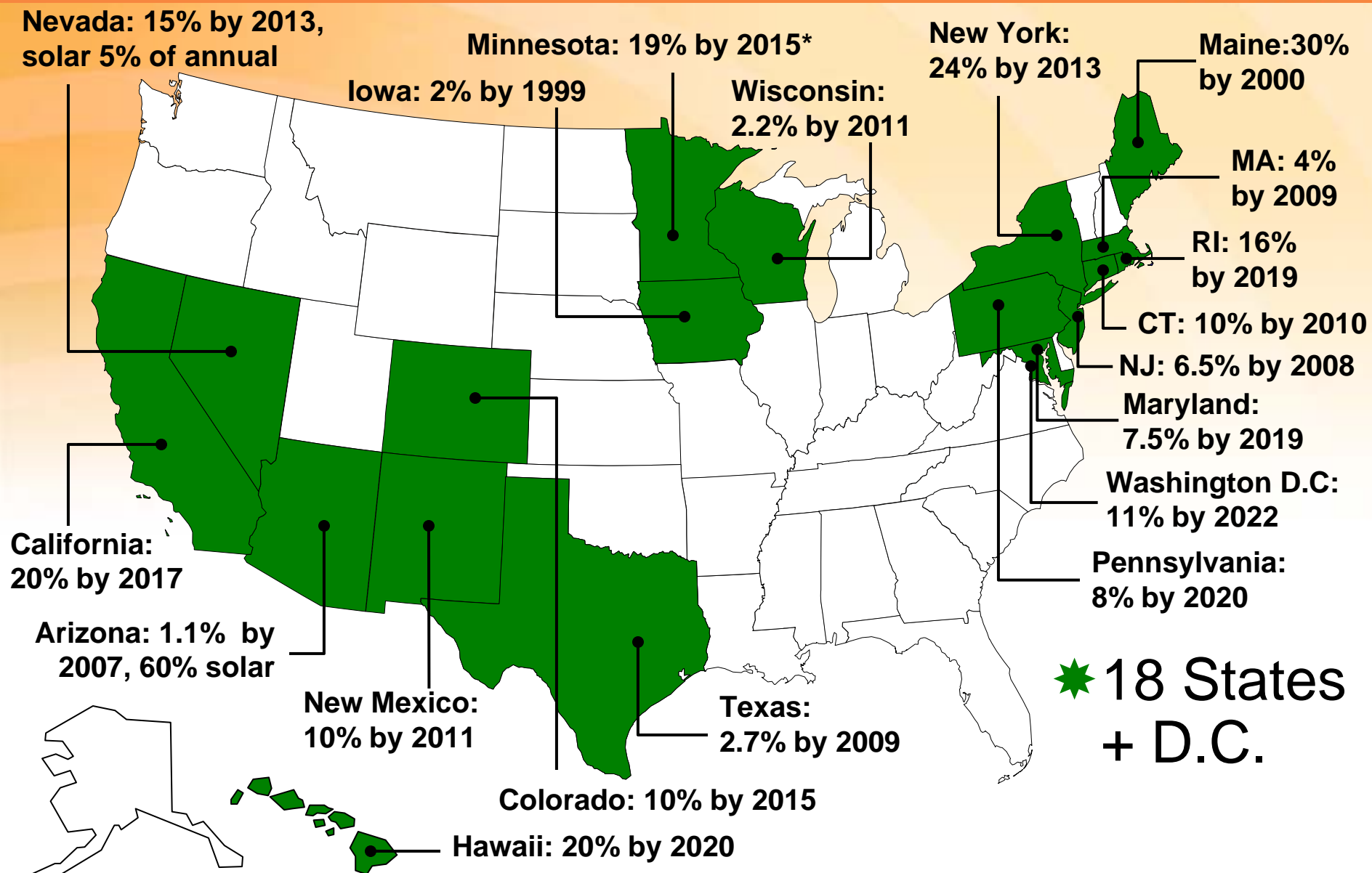
Restriction to a particular state

- 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
 - 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

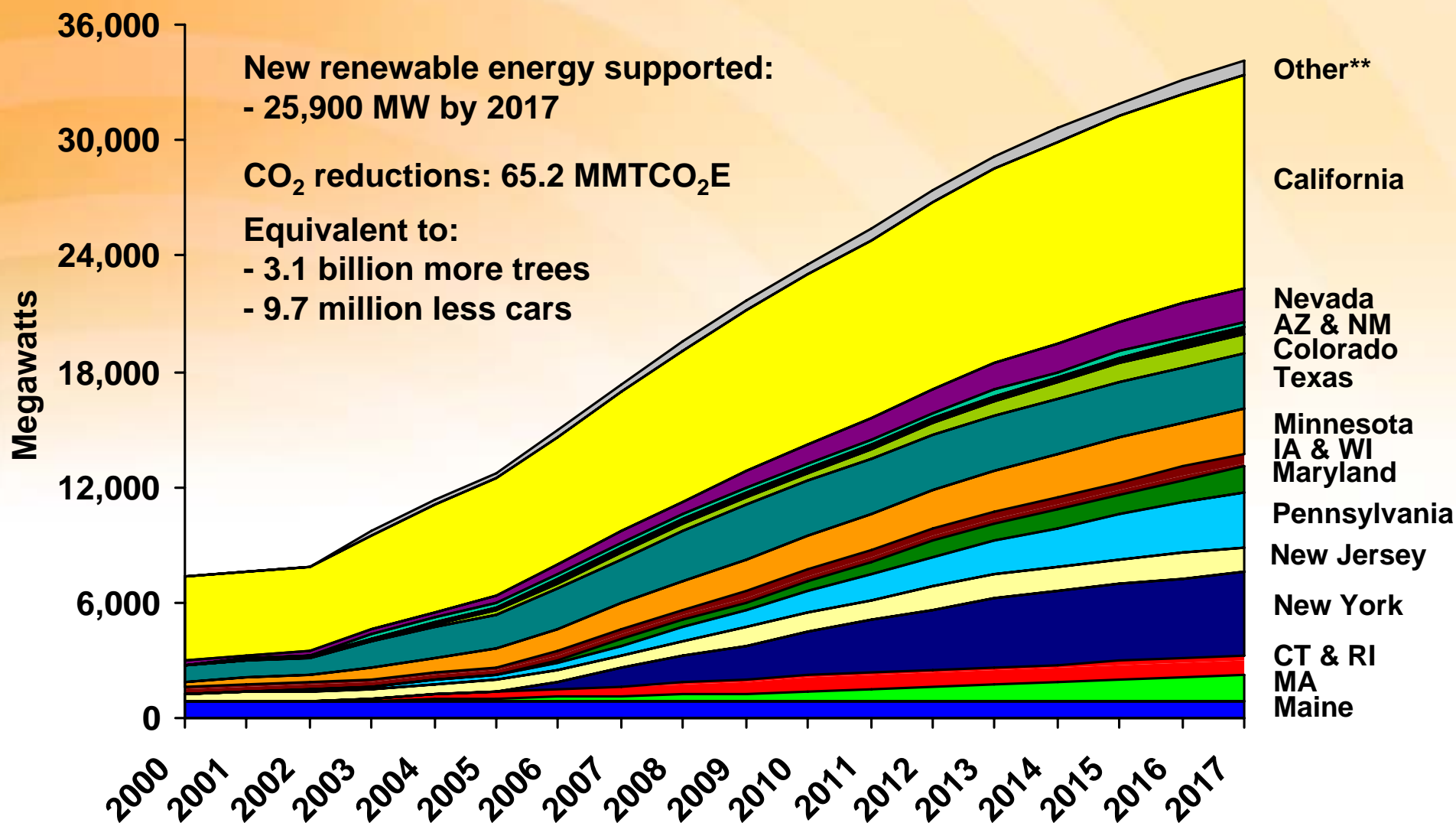


Comparison of MRET and GP-based approaches

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



*Includes requirements adopted in 1994 and 2003 for one utility, Xcel



*Projected development assuming states achieve annual RES targets.

**Includes Delaware, Hawaii, Illinois, Montana, Ohio, Oregon, and Washington D.C.



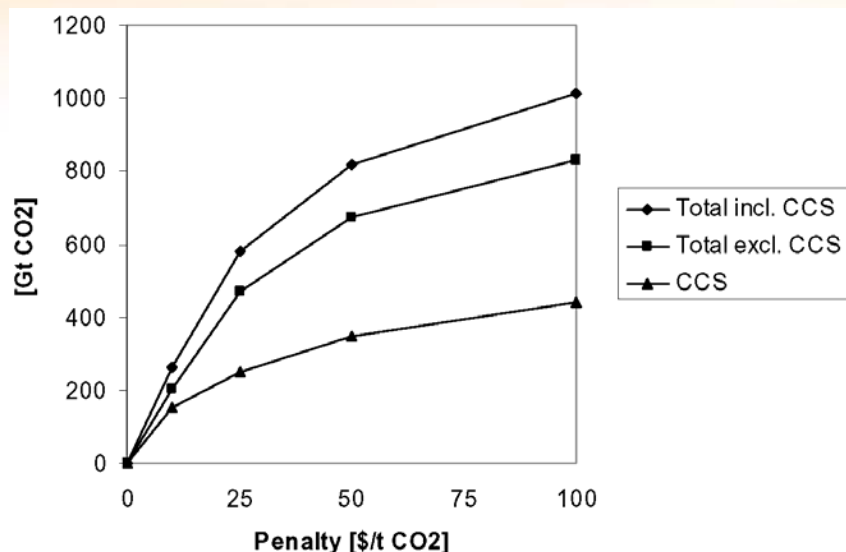
A word on costs

- 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

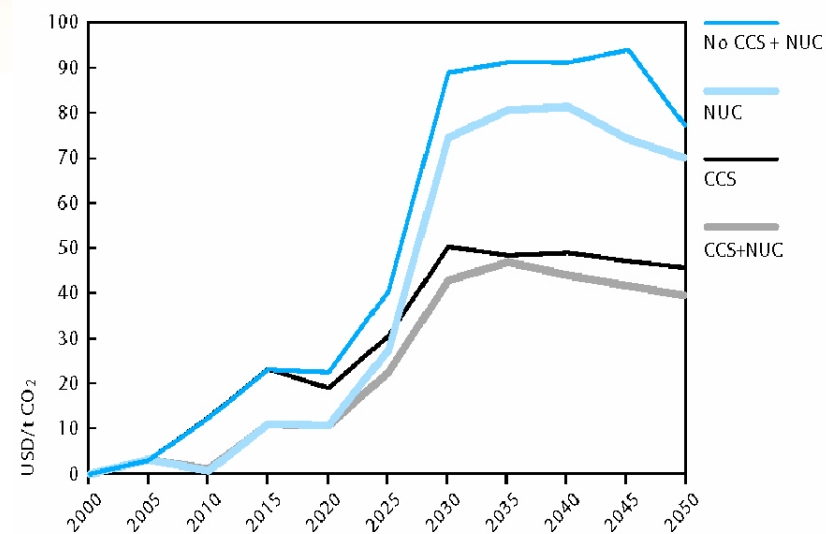
- Prime Minister, National Press Club, Tuesday 15th June 2004.
- “The Tambling recommendations were \$5.1 billion. The ALP recommendations are \$11 billion according to the extrapolations from the modelling in Tambling and those of the Australian Greens, ten per cent is \$23 billion.”
- Minister Kemp, 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”.

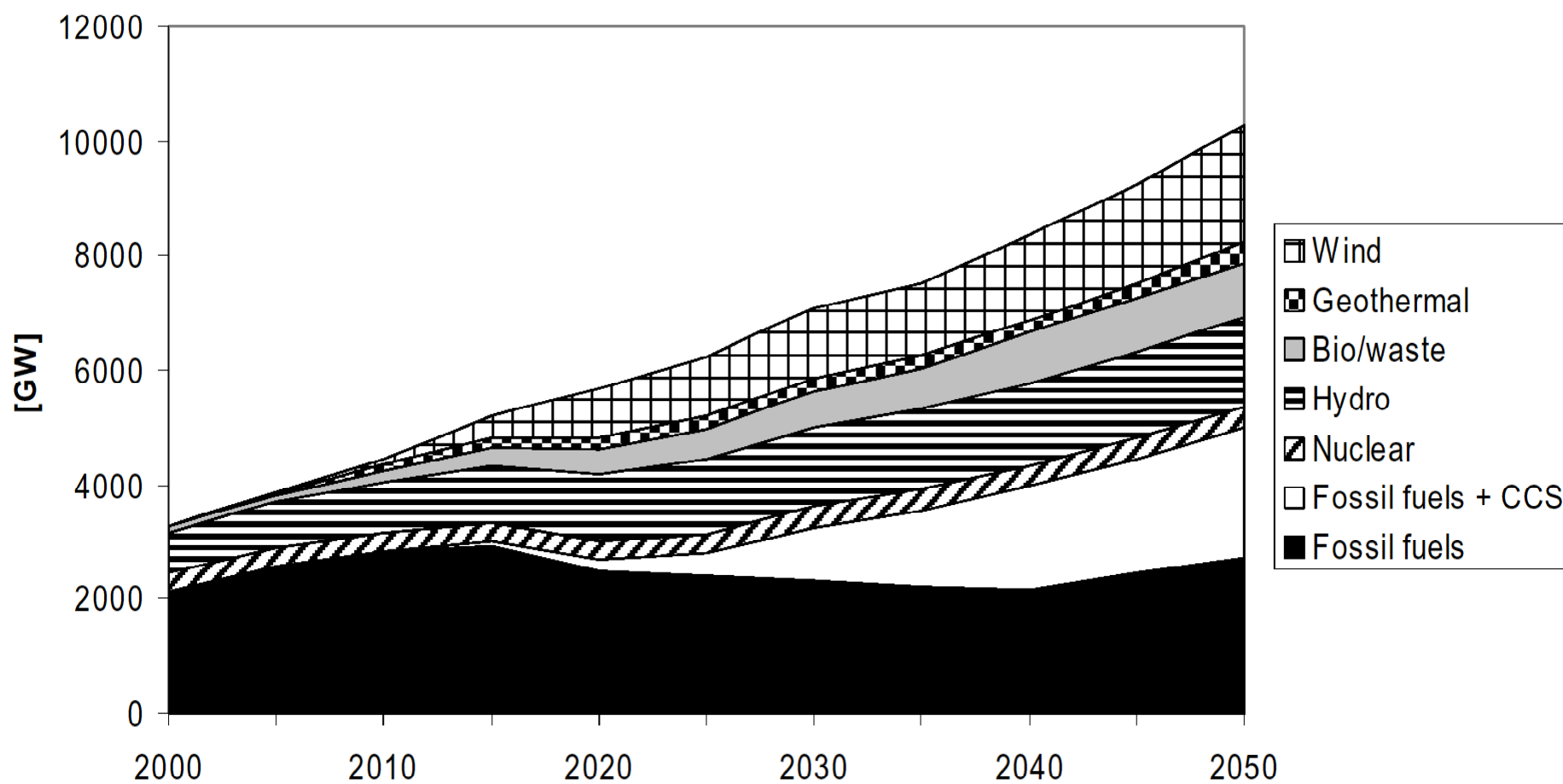
A word on costs(cont.)

- 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



Marginal CO₂ abatement cost





IEA GLO50 Scenario



A word on costs(cont.)

- Using renewables *decreases* costs OR
- *Not* using renewables increases costs
- An EIA study in the US found that a 20% RPS would reduce the cost to consumers of meeting four-pollutant reductions (NO_x, SO_x, CO₂, Hg) from power plants by \$4.5 billion in 2010 and \$31 billion in 2020 compared to meeting the emission reductions without a RPS.
- Lobby for modelling on the costs of excluding RE from abatement portfolio
- “Government says excluding RE costs \$2 billion by 2020”



Also need

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

- The full paper is on the CEEM website



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Thank you... and *questions*

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