Centre for Energy and Environmental Markets

CEEM Submission to the CoAG Working Group on Climate Change and Water

Revised Renewable Energy Target (RET) Scheme Design

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Dr Iain MacGill

Dr Robert Passey

UNSW THE UNIVERSITY OF NEW SOUTH WALES SYDNEY • AUSTRALIA

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Preamble

The UNSW Centre for Energy and Environmental Markets (CEEM) undertakes interdisciplinary research in the design, analysis and performance monitoring of energy and environmental markets and their associated policy frameworks. CEEM brings together UNSW researchers from the Faculties of Business, Engineering, Science, Arts and Social Sciences and Law, working alongside a growing number of Australian and International partners. Its research areas include the design of spot, ancillary and forward electricity markets, market-based environmental regulation and the broader policy context in which all these markets operate.

The Government recently released its exposure draft legislation and regulations to implement an expanded national Renewable Energy Target (RET) reflecting the design being considered by the CoAG Working Group on Climate Change and Water. Most recently, a number of revisions to this scheme design were agreed at the COAG meeting held in Hobart on 30 April 2009. CEEM welcomes the opportunity to contribute to this policy process.

This discussion paper includes some minor updates to our original submission on the exposure draft legislation that incorporate the outcomes of the COAG meeting in April. It starts with some general comments on the importance of this policy initiative and key challenges for its development process. It then discusses the specific design options proposed in the exposure draft and recent COAG meeting.

Our submission draws on a range of work by researchers associated with the Centre, including submissions to the original MRET development and review processes, an analysis of options for State-based renewables obligations in Australia, a submission to the Victorian Government's Issues paper for development of their scheme and, very significantly, our submission to the original expanded national RET discussion paper. It also draws upon more general work exploring the role of renewable energy deployment mechanisms in a coherent policy response to climate change, and the particular challenges of market-based environmental instruments. These papers and more details of the Centre can be found at the CEEM website – www.ceem.unsw.edu.au.

This is an area of ongoing work for CEEM and we are actively seeking feedback and comments on this submission, and on related work. The corresponding author for this paper is:

Dr Iain MacGill i.macgill@unsw.edu.au

www.ceem.unsw.edu.au

Executive Summary

The Federal Government is to be congratulated on its intention to greatly expand the existing Mandatory Renewable Energy Target (MRET) to drive renewable energy deployment in Australia. The former Government's decision not to expand the scheme (except as a late election commitment) left a major policy gap in driving the uptake of technically proven renewables including wind, biomass, solar and hydro power.

Furthermore, the proposed CPRS legislation does not provide great confidence in the ability of the Federal Government to deliver an effective emissions trading scheme, in the short to medium term at least. In this context, policy 'insurance' such as that provided by an expanded national RET, has a critical role to play. This failure on CPRS governance also highlights the critical task of getting the RET scheme design right, and extending its targets beyond a 20% renewable electricity contribution in 2020.

The proposed expanded national RET for Australia now includes a far more significant target to be implemented within an increasingly stressed electricity industry infrastructure, including transmission, and a rapidly evolving industry structure with less government ownership and growingly powerful vertically integrated 'gentailers'. The risks of poor outcomes with the proposed RET do not appear to have been fully appreciated in the draft legislation and associated policy discussions.

The failure of the draft exposure legislation to correct evident failings in the existing MRET such as the continued inclusion of solar hot water and 'old hydro' is particular problematic. And the CoAG decision that select large electricity intensive and trade exposed industries will not be required to contribute to the RET is alarming. As noted in the Tambling review of MRET, "any (such) exclusion would also undermine the basic principle of the scheme, that MRET liabilities accrue to electricity users, in proportion to the quantity of their usage."

The draft legislation has, indeed, not included some of the best design features of the Victorian renewable energy target which eRET will subsume including that scheme's exclusion of solar hot water and pre-existing projects from participation, and the use of a sunset period to restrict the time period over which projects can earn RECs. It has, however, adopted that scheme's most glaring design failure – the exclusion of some favoured large energy users from contributing their fair share to the scheme's costs. Governance appears to be going backwards and this suggests that the current design process is inadequate for the task. More generally, the evident governance failures in the CPRS design regarding so-called compensation appear to have established a dangerous precedent for future policy efforts.

With regard to specific design choices within the draft legislation or agreed at the COAG meeting on 30 April 2009:

The change to the scheme trajectory so that it is maintained from 2020 to 2030 is a significant improvement on that originally proposed. Nevertheless, other design choices including the end date of 2030 and no time limit for projects still risk a boom and bust investment cycle, and potentially highly volatile REC prices. Neither is conducive to effective and efficient investment and industry development.

Solar Hot Water heaters do not generate electricity and their inclusion will greatly add to scheme complexity while reducing its impact on driving renewable electricity generation. Solar hot water is an extremely valuable renewable energy option for Australia. However, it and other renewable thermal energy sources would be better served by separate policy support.

The proposed scheme design will permit projects that were undertaken in the context of only the original MRET (that is, pre 2007) to continue to earn RECs beyond that scheme's 2020 end date. This will reduce the new investment driven by the expanded RET and creates the potential for significant windfall profits to such projects.

The problems that have arisen from the decision to include old hydro in the original MRET include reduced investment in new renewable generation and windfall profits to some favoured scheme participants. The proposed scheme design fails to correct these flaws and will reduce scheme effectiveness, efficiency and equity. More generally, this design choice suggests a potential inability of governments to make even the most self-evident and straightforward corrections to the design of market-based environmental mechanisms.

The considerable flaws in the current CPRS design are particularly concerning in this regard. It can not be assumed that future governments will be capable of correcting what are already self-evident problems in the proposed scheme over time, let alone design flaws that only emerge after the CPRS is in operation.

The proposed multiplier for small PV systems in the first years of the scheme is no substitute for a well thought out, coherent and comprehensive policy framework for supporting this important renewable energy technology. Feed-in tariffs would appear to provide a far better basis for promoting industry development and facilitating PV's role in addressing our energy and climate challenges.

The critical role of renewable deployment policies

The Federal Government is to be congratulated on its intention to greatly expand the existing Mandatory Renewable Energy Target (MRET) to drive renewable energy deployment in Australia. The former Government's decision not to expand the scheme (except as a late election commitment) left a major policy gap in driving the uptake of technically proven renewables including wind, biomass, solar and hydro power.

Such deployment measures play a critical role in renewable energy technology innovation between R&D and demonstration of promising but still emerging technologies, through to potential widespread commercial uptake. Elsewhere in the world, market 'pull' measures to drive renewables uptake are now being widely deployed as a key element of climate and energy policy frameworks.

Appropriate policies can achieve short-term emissions reductions, build a renewable energy industry and expand the institutional capacity of the wider energy industry in managing the transition to more sustainable energy systems. All three outcomes will be essential in achieving the longer-term major emissions reductions seemingly required to avoid dangerous climate change.

The role of renewable energy deployment policies here in Australia is currently being questioned by some[1] given the Government's commitment to introduce national emissions trading through the Carbon Pollution Reduction Scheme. It may be argued that an ETS will theoretically find and implement the lowest cost abatement options across the economy. Hence, other policies favouring particular options within covered sectors can only increase the costs of meeting the target while not delivering any additional emissions reductions.

Others including The Garnaut Review and the Federal Government in its Green and White Papers on the CPRS would appear to classify such renewable energy policies as having a complementary, likely transitional, role due to market failures in emissions trading in delivering technical innovation in longer-term abatement options.

While the latter view captures some key challenges of technical innovation, both perspectives miss the key role that renewable deployment policies can play in the present policy context – relatively affordable, rapid and assured emissions reductions that also support the longer-term transition to decarbonised energy systems.

Emissions trading is, at present, best described as an experimental policy approach. It has received enormous attention, offers considerable promise but has achieved little success to date. Existing greenhouse emissions trading schemes are limited both in number – the NSW GGAS, the Kyoto Clean Development Mechanism (CDM) and the EU ETS – and in experience in terms of years in operation. All have had questionable effectiveness, efficiency and equity outcomes to date.[2] The most significant scheme in scale by far, the EU ETS, has been a near debacle in its first three year phase delivering few if any emissions reductions while generating extremely large windfall profits for major emitters – a truly perverse climate policy outcome.

It is still unclear whether this failure resulted from a lack of understanding by policy makers due to the novel nature and inherent complexity of this mechanism or, instead, represents a

[1] See, for example Productivity Commission (2008).

[2] For a review of the NSW GGAS see, for example, Passey et al (2008). The performance of the EU ETS is discussed in a number of papers available on the CEEM website – www.ceem.unsw.edu.au. See, for example, Betz et al (2006); Neuhoff et al. (2006); Betz and Sato (2006); Schleich et al (2007); MacGill et al (2008) and MacGill (2007).

failure of governance in ensuring an appropriate scheme design. If a governance failure, does it reflect a particular set of unfortunate circumstances specific to the nature of the European Union's policy development processes. Or is it, instead, an inherent weakness of such mechanisms because of their high levels of complexity and the ease with which a scheme's underlying integrity can be traded away in favour of particular key stakeholders.

Until this question is resolved, renewable deployment policies should be seen as a means to implement robust and proven emission reduction technologies in a way that also provides policy insurance against the possible shortcomings of an ETS or equivalent economy-wide pricing measure such as a carbon tax. In the case of the EU, the renewable energy deployment policies of some member states have been remarkably effective in reducing emissions and driving renewable industry development and energy sector transformation – a result in stark contrast to the performance of their ETS to date.[3]

This policy 'insurance' perspective is relevant to all of the design questions raised in the discussion paper, as well as in other areas of energy and climate policy development including those intended to drive improved energy efficiency. Support for such policies should be based on more than evident market failures in energy-related decision-making as argued by the Garnaut Review amongst others. Many of these measures also represent proven and robust insurance and should be supported for the same reasons.

The current CPRS legislation does not provide great confidence in the ability of the Federal Government to deliver an effective emissions trading scheme, in the short to medium term at least.[4] In this context, policy 'insurance' such as that provided by an expanded national RET, has a critical role to play. It also highlights the critical task of getting the RET scheme design right, and extending its targets beyond a 20% renewable electricity contribution in 2020.

The risks and opportunities of the RET tradeable certificate approach

The Australian Mandatory Renewable Energy Target (MRET) was one of the world's first national Tradeable Green Certificate (TGC) schemes, and therefore a highly innovative policy measure. Such schemes have been adopted by a number of other countries and have considerable theoretical advantages over other approaches including feed-in tariffs and capital subsidies. They offer technology-neutral support to a wide range of potential renewable energy sources, create competitive pressures to reduce costs, are compatible with restructured electricity industries and may support high levels of renewable energy integration by ensuring project developers and operators are exposed to energy market price signals.[5]

MRET appears to have performed reasonably well to date in effectively achieving its target at low policy support costs by international standards. However, it has only had to achieve a very modest target, operated within an energy market context that is now changing rapidly and did demonstrate some significant failings, as discussed below.[6]

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[3] See, for example, European Commission (2008)

[4] See, for example, MacGill and Betz (2008).

[5] The scheme creates a separate cash flow for renewable energy generation through the certificate market. Project developers and operators derive revenue from both these certificates yet also the value of their energy generation. In the Australian context, electricity market prices facilitate the location and technical design of renewable energy projects in order to maximise their energy market value. By comparison, feed-in tariffs generally shield project developers from the impacts of their particular project on overall energy market operation through a fixed price

[6] See, for example, Passey and MacGill (2006)

Note that such Quota or Tradeable Green Certificate (TGC) Schemes are widely considered to have been a failure in Europe in comparison with feed-in tariffs. There, TGC schemes have demonstrated low effectiveness in achieving significant deployment of key technologies such as wind power, while simultaneously achieving low efficiency because the publicly funded policy support costs are considerably higher than estimated project costs.

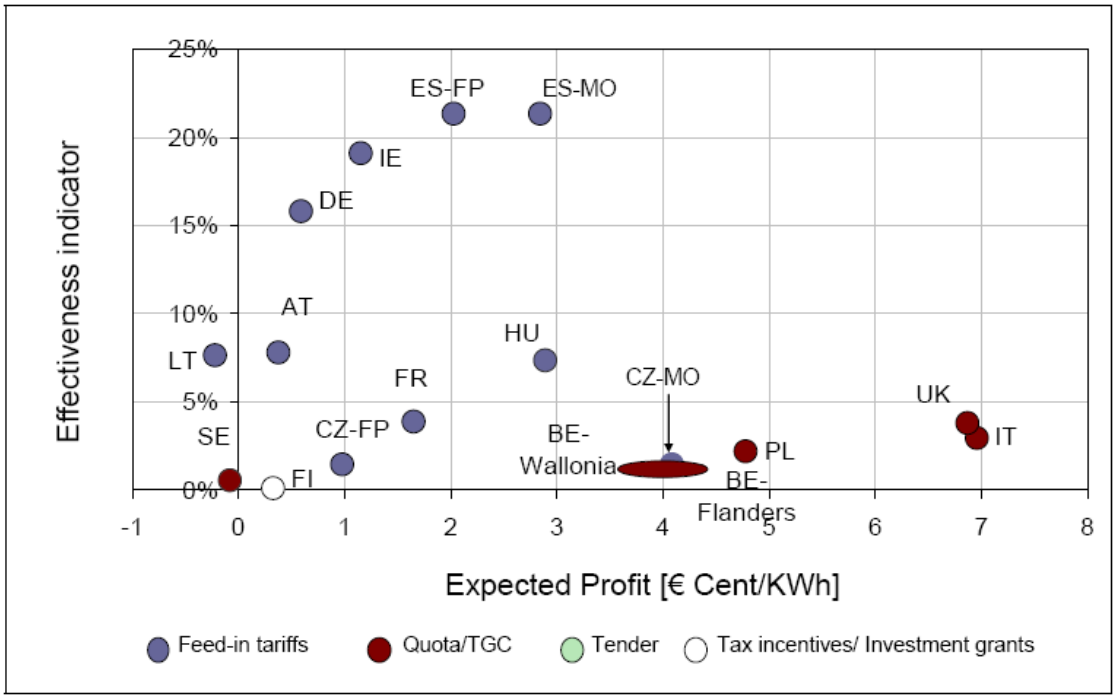

Figure 1. Historically observed effectiveness (in driving deployment) against expected project profits (costs of policy support minus expected costs of generation) for different policies supporting on-shore wind in Europe.[7]

Suggested reasons for this poor performance include the novelty of the schemes, but also developer demands for a higher internal rate of return (IRR) given the greater investor insecurity than seen with other approaches, a 'single' price for different situations and technologies that leads to windfall profits and the susceptibility of the scheme design process to be captured by incumbents who lobby for regulations that they know they can satisfy but that small non-incumbent competitors will not be able to manage.[8]

The poor performance to date of TGC schemes in Europe may reflect the specific design choices of the UK, Italian and Swedish Schemes. Regardless, it highlights the potential risks of such approaches.

The proposed expanded national RET for Australia now includes a far more significant target to be implemented within an increasingly stressed electricity industry infrastructure, including transmission, and a rapidly evolving industry structure with less government ownership and growingly powerful vertically integrated 'gentailers'. The risks of poor outcomes with the proposed RET do not appear to have been fully appreciated in the proposed design.

[7] European Commission (2008), p. 10.
[8] See, for example, Lauber V. (2008).

The governance challenge for an expanded RET

Market-based approaches such as Tradeable Green Certificates are sometimes argued to be simpler than regulatory or direct fiscal approaches because governments just have to set the target, and then let the markets work out how best to achieve these objectives. The reality is very different. Markets for tradeable certificates are 'designer' markets – they arise from policy, and design choices can markedly affect their effectiveness, efficiency and equity impacts.

Complexity: Important issues can be lost in all the potential complexities of scheme design. For example, the original MRET design process appears to have given too little attention to some questions of market information – participants such as large hydro were initially able to conceal their amount of renewable generation eligible to earn Renewable Energy Certificates (RECs), thus providing a source of potential market power.

Policy interactions: Tradeable certificate instruments have some useful characteristics for managing policy interactions as the market for certificates can automatically adjust as other policies are put in place. For example, the introduction of a national ETS will increase electricity prices and new renewable projects receiving such electricity prices will require lower prices for their RECs in order to achieve adequate returns on investment. This impact will likely ripple through the REC market over time if it is sufficiently competitive.

Still, interactions can have unexpected impacts that adversely impact on schemes' meeting their stated policy objectives, and MRET design therefore needs to be undertaken in the context of a coherent policy framework. For example, there are obvious problems with including Solar Hot Water in the scheme given that it doesn't generate electricity directly and calculations of its 'effective' demand reduction are highly abstract. Solar Hot Water is certainly deserving of policy support – the question is what form of support is most appropriate.

Risk management: Climate and energy policy is inescapably a risk management exercise. Some of these risks can be reduced or transferred between parties; others will always fall on society, and hence their governments.

Tradeable certificate schemes certainly transfer some risks onto the market participants – both those who are liable parties as well as those who voluntarily participate as project developers. For example, unlike feed-in tariffs, governments do not guarantee fixed publicly funded support for some number of years.

Certificate schemes therefore increase the demands of market participants for some other measures of investment certainty. Governments need to take care here – most private sector decision-making occurs in an environment of risk, and government policies are only partly responsible for this. Furthermore, there is often some asymmetry in such demands for investment certainty - policy changes that create windfall profits for existing renewable projects are unlikely to see project developers offering to hand these profits back to government. Finally, markets need some risk and uncertainty in order to function properly – it drives innovation and careful decision making.

Commitments to creating investor certainty can limit a government's freedom to change a measure's design or introduce other policies at a later date. This is a freedom that governments will require in order to effectively respond to climate change over time.

The original MRET policy process has highlighted potential problems in trying to correct design errors. MRET's baseline problems with old hydro did not take long to emerge once MRET had commenced, yet the Tambling MRET review was unwilling or unable to act on the problem except by recommending a sunset clause that would make pre-2005 generation ineligible to earn RECs after 2020.

The policy design process: Of perhaps greatest concern with Tradeable Green Certificate schemes is the potential for influential stakeholders to manipulate initial design choices to their own advantage. Market participants are always seeking competitive advantage and this can drive innovation that reduces the costs of achieving policy objectives. However, they will also seek advantage during the scheme design process.

For example, the decision to allow pre-1997 generators to earn RECs has had the consequence that such plants are projected to contribute a significant proportion of required RECs to 2020. Some of these plants will not have had to make any additional investment beyond Business-As-Usual to create their RECs. The outcome is reduced investment in genuinely new renewable energy and hence reduced industry development, as well as windfall profits to some participants.

The issue of baselines for old hydro was raised in the original 1998 MRET Issues Paper prepared by the Renewables Target Working Group. They noted that the stated intent of the measure was to encourage new renewables additional to existing renewable generation but that it was important not to discriminate against increased output from existing renewables. In the final report of the working group, they were unable to form consensus on this issue.[9] Instead, they offered three possible approaches that might be adopted – i) do not include any renewable energy projects in commercial operation prior to 1997, ii) provide a regulator with the discretion to decide the proportion of an existing renewable generator's output which would be eligible to earn RECs or iii) make existing generators eligible for RECs for part of their production above a specific target equal to x per cent of their baseline energy output averaged over an appropriate time frame with 'x' determined through the political process. The Commonwealth and Western Australia supported option i, Queensland option ii, and Tasmania option iii. Somehow, the policy process ended up choosing option iii, with the consequences for the scheme noted above.

As seen above, the policy process for introducing tradeable certificate measures is a fraught one. A transparent process that explains why particular design choices were made and assigns accountability for these decisions will be valuable. The process will need to be robust against unreasonable demands from powerful stakeholders, and retain the freedom to change as circumstances demand.

In this regard, the failure of proposed scheme design to correct evident failings in the existing MRET such as the continued inclusion of solar hot water and 'old hydro' is concerning. And the active policy discussion of whether large electricity intensive and trade exposed industries might not be required to contribute to the RET is alarming. As noted in the Tambling review of MRET, "any (such) exclusion would also undermine the basic principle of the scheme, that MRET liabilities accrue to electricity users, in proportion to the quantity of their usage."

The proposed scheme has not included some of the best design features of the Victorian scheme including it's exclusion of solar hot water and pre-existing projects from participation, and the use of a sunset period to restrict the time period over which projects can earn RECs. It has, however, adopted that scheme's most glaring design failure – the exclusion of some favoured large energy users from contributing their fair share to the scheme's costs. Governance appears to be going backwards and this suggests that the current design process is inadequate for the task. More generally, the evident governance failures in the CPRS design regarding so-called compensation appear to have established a dangerous precedent for future policy efforts.

[9] See RTWG (1998) and RTWG (1999).

Design Choices in the exposure draft legislation

Proposed target trajectory.

The new proposed trajectory of annual REC liabilities that maintains a 45,000GWh target from 2020 through to 2030 is a significant improvement on the earlier proposed trajectory but still appears to risk an early boom and bust investment cycle, and potentially highly volatile REC prices. Neither is conducive to effective and efficient investment and industry development. More generally, effective action on climate change will almost certainly require that renewable energy continues to play an increasing role in electricity supply beyond 20% in 2020.

If it is believed that the CPRS will be sufficient to drive such renewable energy deployment in the longer term, then larger longer-term targets for RET should not cause any additional burden – the price of RECs will fall as the costs of fossil-fuel generation options increase and renewable energy becomes increasingly competitive in it's own right. If, however, the Government is unable to deliver an effective CPRS then such enhanced longer-term RET targets would provide valuable policy 'insurance.

Treatment of solar water heaters.

Solar Hot Water heaters do not generate electricity and their inclusion in the current MRET was the outcome of poor governance in the original design process. The presence of these systems in the scheme has greatly added to its complexity while reducing its impact on driving renewable electricity generation. Its inclusion is in conflict with the stated goals of the legislation which are to increase renewable energy's contribution to electricity generation.

This is not to say that solar hot water should not receive policy support - it is an extremely valuable renewable energy option for Australia. However, it and other renewable thermal energy sources would be better served by separate policy support. Regulations and capital grants appear to be well suited to supporting these options and already exist, in a limited way, for solar hot water. Such policies can and should be strengthened and expanded to other non-electricity renewable energy equipment.

Unrestricted eligibility within RET for existing projects

The proposed scheme design will permit projects that were undertaken in the context of only the original MRET (that is, pre 2007) to continue to earn RECs beyond that scheme's 2020 end date. This will reduce the new investment driven by the expanded RET and creates the potential for significant windfall profits to such projects.

A set eligibility period appears to be the best way to manage these issues and help drive a desirable investment profile over the scheme's life. The fifteen year period of the Victorian scheme seems appropriate, and should be implemented.

Unrestricted eligibility of pre-1997 projects accredited within MRET

The problems that have arisen from the decision to include old hydro in the original MRET include reduced investment in new renewable generation and windfall profits to some favoured scheme participants. The exposure draft legislation does not propose to exclude such projects from the scheme post 2020 hence ensuring a further loss of scheme effectiveness, efficiency and equity. More generally, this design choice suggests a potential

inability of governments to make even the most self-evident and straightforward corrections to the design of market-based environmental mechanisms.

The considerable flaws in the current CPRS design are particularly concerning in this regard. It can not be assumed that future governments will be capable of correcting what are already self-evident problems in the proposed scheme over time, let alone design flaws that only emerge after the CPRS is in operation.

Transitional deeming arrangements for small solar PV installations

The proposed multiplier for small PV systems in the first years of the scheme is no substitute for a well thought out, coherent and comprehensive policy framework for supporting this important renewable energy technology. Feed-in tariffs would appear to provide a far better basis for promoting industry development and facilitating PV's role in addressing our energy and climate challenges.

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