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The Centre for Energy and Environmental Markets

The UNSW Centre for Energy and Environmental Markets (CEEM) provides Australian leadership in 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 Faculty of Commerce and Economics, the Faculty of Engineering, the Australian Graduate School of Management, the Institute of Environmental Studies, and the Faculty of Arts and Social Sciences, working alongside a growing number of 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.

Preamble

A number of electricity industries worldwide have voluntary schemes to allow electricity consumers to purchase 'green power' from renewable energy sources. This generally involves a price 'premium' to cover the additional costs of such renewables over conventional generation.

Because electricity industry networks 'mix' all generation, this green power can't physically be delivered to these environmentally-minded consumers. All that an electricity retailer can actually do in this regard is enter into contracts with 'green' generators that produce enough 'green' electricity to cover the volume purchased by customers under the retailer's Green Power schemes.

External auditing may increase consumer confidence in such arrangements, creating a potential regulatory role for government. The Green Power Accreditation Program was initiated in NSW by the Sustainable Energy Development Authority (SEDA) in April 1997. The National Green Power Accreditation Program and Steering Group were launched in 2000. The stated purpose of the program is "to promote the installation of new green electricity generators by increasing consumer demand and confidence in Green Power products".

The Steering Group has released an Options Paper as part of a strategic review of the Green Power scheme, now in its fifth year of operation. This submission from the UNSW Centre for Energy and Environmental Markets initially focuses on the strategic challenges facing Green Power in Australia, then addresses the specific options and associated questions raised in the Options Paper. Our submission draws on a range of work by researchers now associated with the Centre, including a Review of Australian Green Power Schemes in 2002, and wider work on renewable energy policy. More details of the Centre can be found at the CEEM website – www.ceem.unsw.edu.au.

Strategic challenges facing Green Power in Australia

Renewable energy has a vital role to play in our efforts to avoid dangerous climate change. A range of well-proven and affordable renewable technologies with low associated greenhouse emissions is available. Many countries have ambitious renewable energy targets and associated policies for achieving these – for example, the EU requires member nations to increase the amount of electricity generated from renewable sources from 13.9% in 1997 to 22.1% in 2010 (EU, 2001), in the United States eighteen states have mandated a range of renewable energy obligations (PC, 2004), and China has recently passed the Renewable Energy Law that requires 10% of electricity to be from renewable energy by 2020 (PDO, 2005). Policy frameworks to achieve these targets revolve around regulation and government financial incentives.

Australia is a notable exception. It has no formal government target for renewables beyond the Federal Mandatory Renewable Energy Target (MRET) of 9500GWh of post-1996 renewable generation each year from 2010 to 2020. This target is unlikely to increase the proportion of renewable generation in Australia's overall electricity supply mix by 2020 given present growth in demand, which is being met by fossil-fuel supply. Furthermore, investment in new renewable energy projects is already coming to an end with almost enough currently in place to meet the target (BCSE, 2004).

Voluntary Green Power is one option that enables consumers to provide direct support to the renewable energy industry, increase its contribution to Australia's electricity supply, improve its competitiveness and hence position us for least-cost emissions reductions in the longer term. It has other possible roles in educating energy consumers about both the environmental impacts of conventional fossil-fuel electricity generation, and the existence of clean and affordable alternatives. This can create tensions for Green Power scheme administrators deciding whether to assess scheme performance with regard to customer numbers, the premium they pay or the amount of new renewable generation actually driven by the scheme. However, it is clear that the main measure of success has to be investment in new renewable energy projects that would not have happened without the money provided by these environmentally motivated energy consumers.

The fundamental problem for voluntary Green Power schemes is that they ask individual energy consumers to fund a public good while receiving no direct benefit other than some recognition of their efforts. The clear disconnect between the stated willingness of many energy consumers to pay a premium for renewable energy and the far smaller proportion who actually take up Green Power schemes is sometimes taken to mean that people aren't honest about their willingness to pay more. In all likelihood, it actually reflects the understanding of the public that renewables are a public good, and should therefore be supported by the community as a whole, rather than by concerned individuals while the rest of society free-rides off their efforts.

The most important policies for renewables are therefore mandatory or government-supported programs such as renewables obligations, feed-in tariffs and capital grants. Voluntary Green Power schemes play a useful but by no means major role. Australian Green Power sales represent less than 1% of total electricity generation. Experience in the United States and Europe, with some notable exceptions, is similar (Bird, 2004).

Nevertheless, there is certainly a useful role for Green Power schemes that offer concerned individuals the opportunity to directly support renewable energy sources apart from purchase of specific products, such as photovoltaic panels or solar water heaters.

In this regard the major challenge for Green Power schemes is that this green power can't physically be delivered specifically to its customers. Instead, schemes must establish a credible auditing system that counts and certifies premium priced green electricity sales against different types of renewable generation. Worldwide, most electricity industries already have some renewable component in their overall generation mix, generally large-scale hydro. Many electricity industries also have a range of policy mechanisms mandating some amount of new renewables such as MRET, ROCs and RPS, and/or offering significant publicly funded financial incentives such as feed-in tariffs, capital grants and tax credits.

The presence of existing and mandatory new renewable generation also means that non-accredited green power is available to sell. Such schemes can offer customers 100% renewable electricity at very low or even no premium to standard rates. While this may offer some competitive advantage to retailers seeking to expand their market share, there is no financial driver for new renewable energy investment. It can be hard for customers to understand the difference between accredited and non-accredited Green Power, and there may be retailers who encourage such confusion. Customers motivated by the desire to directly support increased use of renewables are unlikely to wish to pay a premium to merely have existing, mandatory or publicly supported renewable generation 'allocated' to them. Thus, the credibility of Green Power is greatly compromised by such schemes.

There are other reasons why electricity retailers may not be the best intermediaries between environmentally motivated individuals and the renewable energy industry. Retailer revenues are directly linked to market share and electricity consumption of their customers. Supporting the desire of some of their customers to purchase renewable energy may have lower priority than competing for new customers - perhaps with non-accredited green power offerings. They may be forced by their competitors into offering non-accredited green power so that they have a full set of comparable products. As an alternative, Green Power schemes could expand market share by encouraging agents who aren't electricity retailers to buy 'new' renewable energy on behalf of individuals.

Some strategic options for the National Green Power Accreditation Program are therefore:

- Explore ways to expand Green Power's role in community support for renewables that doesn't leave it to environmentally concerned individuals alone – there are possible options for State Governments who wish to act on the demonstrated willingness of the public to support renewables. For example, requiring retailers to source a certain percentage of electricity from Green Power-accredited generators.
- Act more determinedly against non-accredited green power. In particular, the situation where retailers have both accredited and non-accredited offerings creates confusion and moral hazards. One possible solution would be to only accredit products of retailers who make a commitment not to offer non-accredited products.
- Offer more support to independent Green Power schemes run by agents who are not electricity retailers.

Unfortunately, the present Options Paper restricts itself to a far more limited set of questions. We address these in the next section but would reemphasise the need for a more strategic review of options for Green Power in Australia.

Comments on the specific issues raised in the Options paper

The following points summarise the recommendations in this submission. Each option presented in the Options Paper is then addressed.

- The minimum percentage of 'new' renewable energy should be increased to 100% in both blended and pure products. As well as promoting new renewable energy generation, this would remove the need for Concession arrangement 1.
- Non-accredited Green Power should not be referred to as renewable energy when part of a blended Green Power product. This is because it is from either existing plant (the purchase of which does not result in the construction of new renewable energy plant nor reduce emissions below what they would otherwise be), or does not meet the Green Power sustainability guidelines and so should not be associated with a Green Power product. This approach would help with clarity and differentiation from alternatives, and so minimise customer confusion and increase scheme credibility. It would also remove the need to audit the backfill component.

- The percentage of accredited Green Power in a blended product could (and should) simply be clearly labelled using a single logo that differentiates products with a percentage figure. Requiring 'new' renewable energy to be 100% and not allowing reference to the backfill component would mean that such a logo would accurately and completely describe the Green Power product, eg.



- SHW RECs should be excluded from Green Power products, both because they may reduce the amount of renewable energy generated, and because they could damage the credibility of the Green Power scheme.
- Retailers should disclose directly to existing and potential customers both the percentage of different types of renewable energy (eg. wind, hydro etc.) and the plant from which it is sourced. This could be through marketing material and on electricity bills, and should be based on their most recent Green Power audit.
- Concession 1 should be removed. Concessions 2 and 3 seem reasonable. Concession 4 is on a case-by-case basis and so may be subject to moral hazard. All concession arrangements should be fully transparent and details publicly available.

1.1 Introducing a minimum percentage requirement of accredited Green Power in blended products

A minimum percentage requirement for blended products is not really necessary as long as it is clear what customers are getting. As proposed in Section 1.6, if the percentage Green Power is incorporated into the logo and is clearly visible, and if, as proposed in Section 1.3, the type of backfill is not referred to, whether it is renewable energy or not, the customer will know they are purchasing x% Green Power and so their electricity is x% "better" (ie. 25% new renewable capacity and 25% reduced emissions). In this case all products would simply have a single logo that clearly differentiates products with a percentage figure (see Section 1.6).

1.2 Increase the required proportion of 'new' Green Power generation in blended products from 80% to 100%

This is clearly a good idea, but should apply to both blended and unblended products. There is now no shortage of RECs from projects that are likely to meet the Green Power accreditation guidelines. According to the 2004 quarterly Green Power reports, 481,798 MWh of Green Power was sold, and at 124,398 GWh, the first quarterly report for 2005 is consistent with the 2005 total being about 500,000 MWh. According to the fourth Quarterly report for 2004, 842,014.7 MWh of 'new' Green Power was purchased during 2004, more than enough to cover all sales assuming that all required 100% 'new' generation. The 842,014.7 MWh 'new' is only 70.82% of the total 1,189,024 MWh Green Power purchased, leaving 347,009.6 MWh purchased from 'existing' generation.

Increasing the 'new' requirement from 80% to 100% could have a marginal price impact on some Green Power products (a number are 100% 'new' already). A transition to 100% 'new' would not need to allow retailers time to offload any 'existing' generation they have already purchased as this could be used to meet MRET liabilities (unless retailers had already made forward purchases to cover all their MRET liabilities, although this is unlikely).

Requiring 100% 'new' renewable energy would also remove the need for Concession arrangement 1.

As identified by the MRET Review Panel, there is a need to place a time limit on plant that can be considered 'new'. They proposed 15 years as being sufficient to pay off capital investment while encouraging new generation. This proposal was rejected by the Commonwealth Government. There is no reason this 15 year limit should not be applied to plant accredited under Green Power, and in fact the sooner this is done the better so it can be incorporated into assessment of financial viability for proposed plant. This could be especially relevant if Green Power is used by the States to effectively increase MRET.

1.3 *Develop guidelines for the sources of backfill for blended products and disclosure of these sources*

Most, if not all, renewable energy that cannot be accredited for Green Power is either from 'existing' plant (prior to 1997) or does not meet the Green Power sustainability criteria. The main intentions of the Green Power scheme are to promote development of new renewable energy plant and so reduce emissions below what they would otherwise be, especially over the longer term, in a least cost manner. Use of renewable energy from existing plant does neither, and so should not be used as a selling point.

If renewable energy from existing plant is used, purchase of a product that is '100% government approved renewable energy containing x% 'new' Green Power accredited energy', as suggested in point 1 of the Option Paper, has exactly the same impact on development of new renewable energy generation and abatement of greenhouse gases as purchase of a product that is '100% government approved coal-fired energy containing x% 'new' Green Power accredited energy'. This is because use of the renewable energy from existing plant simply means that someone else will use electricity from coal-fired plant, and vice versa.

Likewise, if renewable energy is not considered sustainable according to Green Power guidelines, it should not be associated with Green Power, especially if used as a selling point. Therefore, only the Green Power-accredited portion of a product should be promoted through a Green Power product as renewable energy.

Otherwise, customers may believe that by buying the non-accredited renewable energy they are making a difference when in fact they are not – something that could have serious consequences for the scheme's credibility.

Identifying only the accredited portion as renewable energy would help with simplicity, clarity and differentiation from alternatives, and so minimise customer confusion. It would also remove the need to audit the backfill component.

One problem with this approach could be that retailers may exclude Green Power from their product so they can then refer to any renewable energy it may include. Of course, in this case they could not use the Green Power logo.

1.4 Review of the current REC concession arrangements

There appear to be only three Concession arrangements in the Green Power Accreditation document, so here it is assumed that the Concession 4 referred to in the Options Paper corresponds to point 3.7.4 Special Concessions. Of these, Concessions 2 and 3 seem reasonable. Concession 4 is on a case-by-case basis so it is not possible to comment - however it is subject to moral hazard for whoever is entrusted to make the decision.

Since, as stated in the Options Paper, Concession 1 does not guarantee the absence of 'double dipping' of generation for both Green Power and MRET liabilities, it should be removed. As stated in Section 1.2, the simplest way to do this would be to make Concession 1 redundant by requiring all accredited Green Power to be 100% 'new' renewable energy.

In the interests of transparency, details of the Concessions applied to each retailer should be publicly available in the Quarterly and Annual Green Power reports, especially those under Concession arrangement 4. Currently this is not the case.

1.5 Review of the eligibility of Solar Water Heater RECs in meeting Green Power sales

If SWH RECs were excluded from Green Power they would presumably be used to meet MRET liabilities and so result in reduced renewable energy needed for MRET and an equal increase in renewable energy needed for Green Power. Thus the amount of renewable energy generation would remain the same, and so the impact on retailers and the solar water heater market of exclusion of SHWs from Green Power would be negligible.

However, if exclusion of SHW RECs from Green Power did result in increased renewable energy generation, for example if not all were used to meet MRET liabilities, then they should be excluded. The fact that SHW RECs made up a greater proportion of the RECs used to meet Green Power liabilities than the RECs used to meet MRET liabilities indicates this may be the case.¹

There is also the potential for inclusion of SHW RECs to reduce the Green Power scheme's credibility since SHW systems are mandated in some states (eg. through BASIX). If this is considered to be significant, then SHW RECs should be excluded.

1.6 Label the percentage of accredited Green Power included in blended products

This proposal would help customer understanding and therefore uptake of Green Power. The percentage should be incorporated as an integral part of the Green Power logo. eg.



¹ According to the Green Power Options paper SHW RECs made up 15% of Green Power RECs and 12% of MRET RECs.

Stars should not be used. Such symbolic systems are necessary only when there are a number of separate factors that need to be combined or when the units of comparison may be unfamiliar to the general public eg. kWhs.

This system should be applied to all existing and new products, and all Green Power products, including those with 100% new renewable energy, should clearly indicate the percentage.

As proposed in Section 1.3, only Green Power accredited renewable energy should be included in the product description.

1.7 Widen the disclosure of generation source for Green Power products

It is not unreasonable for the retailer to provide this sort of information (relative proportions from different types of renewable energy such as wind and bioenergy as a pie chart, and the percentage from specific plant) in material available to customers. For example, in the more detailed information provided to potential customers that express an interest in Green Power, and on customers' electricity bills. Retailers should provide what was in their most recent audit unless it is known to have changed significantly.

References

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