



Centre for Energy and  
Environmental Markets

**CEEM Submission to the Consultation Paper:  
South Australian Residential Energy Efficiency  
Scheme, February 2008**

Dr Robert Passey

Dr Iain MacGill

Dr Muriel Watt

**April 2008**

## About CEEM

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 Australian School of Business, the Faculty of Engineering, 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, the integration of stochastic renewable energy technologies into the electricity network, and the broader policy context in which all these markets operate.

## About this submission

The South Australian Government has recently released a Consultation Paper seeking input from interested parties on the development of a market-based Residential Energy Efficiency Scheme (REES) to reduce energy use and greenhouse gas emissions across the economy and the community.

This submission draws upon a wide range of CEEM work on energy efficiency dating over the last decade. In particular, we present relevant findings from a recent CEEM report commissioned by the NSW Department of Environment and Climate Change, “*A Review of Market Based Schemes to Drive Energy Efficiency*” (Passey *et al.*, 2008). The Executive Summary of this report is attached and the full report is available on request. This report presents a review of energy efficiency certificate trading schemes, non-tradeable energy sales target schemes and tradeable energy sales target schemes, as well as more general guidance on energy efficiency policy development. It uses a framework to assess the various design elements of these schemes, especially with respect to their impact on effectiveness, efficiency and equity. These design elements are illustrated with reference to Australian and international schemes that target energy efficiency. Potential interactions with possible emissions trading schemes in Australia are also discussed.

This submission starts with some general comments on energy efficiency and mechanisms to drive uptake, then uses the REES’s first four stated design principles - effectiveness, efficiency, simplicity and equity - to highlight some of key shortcomings in the present proposal. It then addresses some of the specific issues raised in the consultation paper before briefly describing an alternative market-based mechanism that may be used to drive energy efficiency – Energy Sales Targets.

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

More details of the Centre can be found at the CEEM website – [www.ceem.unsw.edu.au](http://www.ceem.unsw.edu.au).

The corresponding author for this paper is:

Dr Robert Passey  
[r.passey@unsw.edu.au](mailto:r.passey@unsw.edu.au)

[www.ceem.unsw.edu.au](http://www.ceem.unsw.edu.au)

## Contents

<b>1</b>	<b>GENERAL COMMENTS .....</b>	<b>4</b>
1.1	A COORDINATED, COHERENT ENERGY POLICY FRAMEWORK IS REQUIRED TO DRIVE ENERGY EFFICIENCY .....	4
1.2	ENERGY EFFICIENCY AND THE AUSTRALIAN NATIONAL ELECTRICITY MARKET .....	4
1.3	EXPERIENCE WITH BASELINE AND CREDIT SCHEMES IN AUSTRALIA .....	5
1.4	PRIMARY CONCERNS WITH THE CONSULTATION PAPER .....	5
<b>2</b>	<b>SCHEME DESIGN PRINCIPLES.....</b>	<b>6</b>
2.1	EFFECTIVENESS .....	6
2.2	EFFICIENCY & SIMPLICITY .....	7
2.3	EQUITY .....	8
<b>3</b>	<b>FEEDBACK RELATED TO SPECIFIC ISSUES .....</b>	<b>8</b>
3.1.1	<i>Coverage</i> .....	8
3.1.2	<i>Thresholds</i> .....	8
3.1.3	<i>Targets</i> .....	8
3.1.4	<i>Incentive for innovation</i> .....	9
3.1.5	<i>Priority groups</i> .....	9
3.1.6	<i>Banking and borrowing</i> .....	9
3.1.7	<i>Penalties</i> .....	9
3.1.8	<i>Financing compliance</i> .....	9
3.1.9	<i>Tradeability</i> .....	10
3.1.10	<i>Administration and governance</i> .....	10
<b>4</b>	<b>ENERGY SALES TARGETS .....</b>	<b>11</b>
<b>5</b>	<b>CONCLUSIONS .....</b>	<b>13</b>
<b>6</b>	<b>REFERENCES .....</b>	<b>14</b>

## 1 General comments

### *1.1 A coordinated, coherent energy policy framework is required to drive energy efficiency*

Improved energy efficiency almost certainly represents our most cost-effective and rapidly deployable option of a significant scale for reducing greenhouse emissions. Experience here in Australia and Internationally over the last three decades, however, highlights the need for comprehensive, coherent policy support. Many of the benefits of energy efficiency are currently market externalities and there are widespread failures in end-user decision making for reasons including poorly informed and often unmotivated key decision makers, and institutional barriers to action. Further, there is a wide range of energy services, diverse equipment and infrastructure, and many and varied decision-makers involved, whose actions must often be coordinated to achieve energy efficiency improvements.

It is now apparent that effectively addressing the risk of dangerous climate change will require significant emission reductions in Australia and other developed countries before 2020. Unfortunately, energy-related policy ambitions and implementation processes don't yet appear to have recognised this changed context. Furthermore, while there is a growing number of energy efficiency policy commitments and measures under development by both Federal and State governments in Australia, there appears to be little coherence and coordination. This risks gaps (missed opportunities) and also adverse interactions between measures that reduce their effectiveness, efficiency and equity outcomes.

A comprehensive and coherent policy framework will require a range of policy approaches - support mechanisms such as the provision of information; control or regulatory mechanisms including minimum performance standards and license conditions; and financially-based mechanisms that change the energy 'price' seen by decision-makers for different energy options. Such measures must target decision-makers including, of course, end-users in the residential, commercial and industry sectors, yet also the energy industry, including suppliers and infrastructure providers as well as equipment manufacturers and the building industry. Furthermore, such efforts have to be coordinated with wider policy making that may have potentially significant impacts; for example, ongoing restructuring of Australia's electricity industry.

### *1.2 Energy efficiency and the Australian National Electricity Market*

There is some limited Australian and considerable international experience in the use of quantified energy efficiency 'targets' within the electricity industry. Targets imposed on regulated monopolies as seen in some US programs, generally have significant and transparent government oversight. The existence of competitive retail energy market arrangements can complicate such 'target' approaches. Genuine competition amongst retailers may drive innovation and efficiency in achieving the target. Unfortunately, present retail markets within the Australian National Electricity Market (NEM) are dysfunctional in this regard, and so may see low transparency and efficiency.

Retail competition seems to be more about selling more electricity to profitable customers than helping customers obtain desired energy services (Outhred et al, 2006). Energy Service Companies (ESCO) are the missing players in the NEM, and policies that require retailers to facilitate energy efficiency should improve their capabilities and those of project partners to deliver such services.

Note that typical measures of retail competition used in the Australian context including churn are not particularly helpful measures of meaningful retail competition in this regard. The AEMC (2008, p. 7) finding that an important reason there is effective competition in Victoria is “Because the provision of energy is viewed as a homogenous, low engagement service... “ highlights this misunderstanding. Many energy end-users are not undertaking even highly cost-effective and simple energy efficiency actions and this clearly indicates present competition is not delivering efficient ‘energy service’ outcomes; the stated objective of the NEM.

This is the context within which the South Australian Residential Energy Efficiency Scheme (REES) needs to be considered.

### ***1.3 Experience in Australia with driving energy efficiency using baseline and credit schemes***

The most significant experience in Australia to date with retailer obligations that include potential energy efficiency activities is the NSW Greenhouse Gas Reduction Scheme (GGAS). This baseline and credit (B&C) scheme commenced operation in 2003 and involves retailer emissions abatement targets that can be met by a range of activities including energy efficiency projects. Its performance to date is cause for concern with the REES proposal. Assessments including (Passey *et al.*, 2005; MacGill *et al.*, 2005, Passey *et al.*, 2007) have concluded that GGAS has exhibited low effectiveness (greenhouse emissions have not been reduced by anywhere near as much as is claimed), low efficiency (the modest emission reductions achieved have come at considerable cost) and concerning equity outcomes. While it has certainly driven some innovative and highly worthwhile energy efficiency activities, it has also demonstrated problems including arrangements for energy efficient lighting and shower heads. It should serve as a cautionary tale for the potential challenges and pitfalls of such types of policy approaches.

One of the major problems with this type of B&C approach is that most energy efficiency can't be directly measured. A common definition is that energy efficiency represents a reduction in the energy required to provide a particular energy service. The problem is that services are themselves difficult to define, and that you can only assess a reduction against a ‘baseline’ of what would have happened otherwise – which is inherently counterfactual. Therefore any quantified energy efficiency target is inherently an abstraction. And some energy efficiency targets are far more abstract than others. Note the moral hazards for policy makers – a program with a ‘loose’ definition of energy efficiency that includes many activities that would have happened anyway can often claim major, if largely meaningless, energy efficiency improvements.

The NSW GGAS scheme has also highlighted the importance of appropriate governance arrangements for such complex and abstracted policy approaches. It is very important to establish robust arrangements that separate design from administration from review and assessment. Transparency is also a key governance issue in permitting independent review of the performance of the scheme.

### ***1.4 Primary concerns with the Consultation Paper***

Our primary concerns with the Consultation Paper are therefore that none of the questions seeking feedback relate to the core issues of scheme design:

- The proposal as described has not given sufficient attention to the changing policy context within which the scheme will operate, nor to its implications for appropriate policy ambition, and the scheme's potential interactions with other existing, committed or prospective policy measures. This is a considerable challenge for ‘target’ approaches because the outcomes of such other policies can make modest targets essentially irrelevant in driving change.

- The choice of quantified energy efficiency targets for retailers has potential advantages but such approaches require considerable abstraction and the use of highly problematic 'baseline and credit' assessments. The consultation paper doesn't make the case as to why this approach is the best available, or how these problems will be addressed.
- There is also no serious consideration of wider policy issues including ongoing electricity industry restructuring within the NEM. In particular, the dysfunctional nature of current retail markets in the NEM is not addressed despite this being the primary driver of retailer efforts - efforts which REES is attempting to modify.
- The evident failings of the NSW GGAS scheme are highly relevant to the proposed REES yet aren't addressed in the proposal.
- The proposed governance arrangements do not seem to offer appropriate separation of powers and the proposed transparency of assessment of the scheme's performance is not clear.

In the rest of this submission we first consider the REES proposal's first four stated design principles: effectiveness, efficiency, simplicity and equity. We then provide brief responses to some of the specific issues raised in the Consultation Paper. Finally we briefly describe a possible alternative market-based approach – Energy Sales Targets - that may offer greater effectiveness, efficiency and equity outcomes than the REES proposal.

## 2 Scheme design principles

### 2.1 Effectiveness

**Design principle:** The REES should contribute “quantifiable reductions in household energy consumption and greenhouse gas emissions” (REES, 2008, p10).

B&C schemes such as GGAS and the proposed REES suffer from a number of systemic problems (Passey et al, 2008) that make it near impossible to accurately quantify their contribution to reductions in energy use and GHG emissions.

- i) Each credit corresponds to an *absence* of emissions or energy use,<sup>1</sup> which cannot be measured but must be estimated with respect to a projection of what would have happened in the scheme's absence. This is inherently counterfactual and cannot be independently verified.
- ii) It is very difficult to ensure and measure additionality - at the project level (has the activity reduced energy use as much as claimed, and if it has, would this have happened anyway because of BAU or policy drivers), and at the wider level (has this activity resulted in other activities increasing energy use).
- iii) Depending on the nature of the baselines, energy efficiency credits may be created as energy use increases. For example, if the baseline is set per unit of production, credits (which are then used to claim a reduction in energy use) can be created as production and therefore energy use increases.
- iv) Projects may be able to create credits when they go below their baselines but not 'pay them back' when they go above them - the ratcheting effect.
- v) The rebound effect may reduce the effectiveness of the scheme. This effect can include extra cashflow from energy savings being spent on either activities that

<sup>1</sup> From this point onwards we will refer only to energy since the REES is an energy efficiency scheme, however, 'greenhouse emissions' may be equally relevant.



increase energy use by that individual/organisation, or on goods and services which increase energy use elsewhere. It can also include situations where energy efficiency measures increase the level of energy service rather than reduce energy use (eg. where added insulation increases thermal comfort rather than reducing energy use – a desirable outcome with respect to comfort but not with respect to reducing emissions).

The REES Consultation Paper gives only cursory attention to some additionality effects, offers little detail on how they would be dealt with in the REES design, and does not discuss any of the other effects identified above. For example, on page 16 the Consultation Paper states that “The REES will also need to take account of normal market trends, practices and cultural values.” No detail is provided on how this would occur, and it seems unlikely that this can be achieved with any degree of accuracy, especially if measures that are considered to result in behaviour change receive credits.

The Consultation Paper suggests deeming for a list of pre-approved measures – such as replacement of electric water heaters with solar. This is certainly a proven approach for reducing transaction costs, and can support worthwhile small-scale activities that might otherwise be overlooked. However, deeming is also invariably highly abstracted and so extremely difficult to calculate. For example, end-user behaviour can have a significant impact on actual energy savings with deemed energy efficiency equipment. This includes (i) how the equipment is used – the savings of an off-peak electric-boosted solar water heater are significantly reduced if hot water use occurs mainly in the evening; and (ii) whether the equipment is even put into use – for example, low-flow shower heads distributed to end-users at shopping centres. Deemed equipment can also interact in unexpected ways – for example, the impact of solar hot water systems in reducing energy consumption can be significantly less when the house also has low-flow shower heads.

It is worth noting that in this type of scheme with quantified energy efficiency targets, many of the activities most likely to occur are the most cost-effective and straightforward to undertake, and hence likely to have occurred anyway. Thus, this type of approach inherently encourages activities with low additionality.

One possible approach to address some of these problems relating to a lack of physical additionality, ratcheting and rebound is to have energy efficiency targets linked to a physical outcome such as measured energy use. If the previous year’s energy efficiency activities resulted in energy use being decreased by less than expected, then the required target for the following year could be increased proportionately.

The approach taken in the UK EEC to increase additionality is to estimate the impacts of the lack of additionality and apply derating factors to particular types of projects – however these are difficult to calculate, subject to constant revision and near impossible to assess, especially for any rebound effect on the wider economy.

The rebound effect highlights the importance of any scheme integrated within a coherent energy and climate policy framework, so that any ‘saved’ money spent elsewhere in the economy is also going towards activities or products that reduce energy use and greenhouse emissions.

## ***2.2 Efficiency & Simplicity***

**Design principle:** The REES should reduce “energy use and greenhouse gas emissions in cost-effective ways” and “minimise administration and compliance costs” (REES, 2008, p10).

Unfortunately, it is not possible to assess a scheme’s efficiency if its effectiveness is not known. As discussed above, the effectiveness of B&C schemes such as the REES proposal is very difficult to assess, and may well be low. Given some level of fixed transaction costs and effort, low effectiveness inherently means low efficiency.

B&C schemes are inherently complex, which increases their transaction costs. This is because creation of credits is project-based and so generally requires the activities eligible to create credits to be defined, as well as audited, monitored and verified by either or both the project proponent and government. Deeming reduces this administrative workload but also requires longer term projections both of what the project will deliver and what would have happened if the project hadn't gone ahead. It also makes accurate assessment of the scheme's effectiveness much more difficult. In the present REES proposal, retailers are required to submit Implementation Plans as well as progress reports, increasing transaction costs for both retailers and government. Assessing proposals for energy efficiency measures to be included on the government's 'Approved measures list' will also increase administration costs.

### 2.3 Equity

**Design principle:** The REES should ensure "benefits are available to all households" (REES, 2008, p10).

This is a very narrow definition of equity with regards to a scheme designed to drive energy efficiency. A more appropriate definition could be that "costs and benefits should be distributed appropriately with regards to parties working towards greater energy efficiency yet also with respect to vulnerable energy consumers". This is more likely to capture the economy-wide impacts of the REES, including whether there are windfall profits for proponents of projects with low additionality. One of the key adverse outcomes of the NSW GGAS has been windfall profits to some scheme participants who have earned significant credit and hence income for claimed abatement that is demonstrably not additional.

## 3 Feedback related to specific issues

### 3.1.1 Coverage

It is certainly worthwhile for government policy to drive EE in the residential sector. The Consultation Paper (p12) states that inclusion of small and medium sized businesses in the REES would increase administrative complexity and may require site-specific analysis. However, it is likely there are a number of standardised measures that would be suitable for such businesses, for example, more efficient lighting, office equipment and HVAC systems.

### 3.1.2 Thresholds

Because of the relatively high transaction costs of this type of scheme, a threshold is appropriate. Alternatively, as occurs for the UK EEC, liable parties could trade their targets with each other (not their emissions reduction credits). This would involve a simple transaction between two retailers where one paid the other to take on it's target. This should have minimal transaction costs and should mean that no, or a very low, threshold was required.

More generally, policy efforts to drive the transition of retailers towards becoming more like ESCOs should look for options to support new market entrants in undertaking such a role – an outcome that would improve competition in providing energy services.

### 3.1.3 Targets

A scheme's targets are inextricably linked to the units of the scheme's baseline. For example, the scheme baseline may be set at a *fixed* level of energy use (an *energy* target



such as GWh/yr) that may be based on an historical level of energy use or on a projected level of energy use, or as a *relative* level of energy use (which is an *energy efficiency* target such as GWh/GDP/year). Thus, although both types of targets can be met while energy use continues to increase, this is more likely to occur for a relative target. The Consultation Paper does not specify whether the REES target will be a fixed target based on either historical or projected energy use, or a relative target.

### ***3.1.4 Incentive for innovation***

Designer markets such as proposed for the REES do indeed provide an incentive for innovation, however it is important to recognise that this innovation is targeted at compliance with the scheme's rules. This makes scheme design critical because poor design means that such innovation will not necessarily to reduce energy use or GHG emissions.

### ***3.1.5 Priority groups***

Low-income households certainly require support to help manage the cost impacts on energy supply associated with significant action on climate change<sup>2</sup> Energy efficiency is a very worthwhile way of providing such support. Of course this approach doesn't help all low income consumers, only those that receive the deals offered by retailers, and so the standard safety nets should remain. It is also important to balance the effort at reducing energy use in low income households with efforts directed at other income brackets that may have significantly higher energy use. Thus, a combination of targeted energy reductions to low income households and direct financial assistance through existing channels (to those households that may not have received energy efficiency measures) may be required.

### ***3.1.6 Banking and borrowing***

As suggested in the Consultation Paper, banking should be allowed, borrowing shouldn't be allowed and a 10% shortfall seems reasonable. Limiting the lifetime of credits will help reduce the impact of non-additional projects that will otherwise continue to create large amounts of undeserved credits. In this case, limiting their life to less than 6 years, for example 3 years, would be more effective.

### ***3.1.7 Penalties***

Financial motivation must be applied to liable parties in the form of a penalty set at an appropriate level to ensure compliance. A mechanism to give liable parties some leeway in meeting their targets may be appropriate (although less necessary for targets that occur every few years), for example, allowing a 10% shortfall as above, or, as occurs for the Italian scheme, allowing a period of grace to make up any shortfall. A 'make good provision' should be applied, that requires liable parties to make up shortfalls from previous years in addition to paying a penalty. Non-compliance should also be publicly reported.

Additional incentives can be provided through rewards for exceeding targets. For example, in Ireland, suppliers receive a financial reward for exceeding their proportion of the aspirational target. Similar approaches are used in both California and Vermont.

### ***3.1.8 Financing compliance***

Implementation of energy efficiency measures will incur upfront costs for liable parties. International schemes are financed through a levy per unit of electricity. In most cases the level of the levy is determined by government as a broad based charge (Ireland, Italy, Connecticut, California & Vermont) but in some cases is determined by the liable party (UK, France), and sometimes as a charge based on energy efficiency projects submitted to

<sup>2</sup> Note that this refers to total bill costs, not per-unit kWh prices.

government in action plans (Flanders). In Flanders, network operators (who are not the liable parties) are allowed to increase tariffs to cover all costs, including lost revenue because of reduced transmission.

Allowing liable parties such as retailers to set their own levy would in theory be fair as long as it was set as a per kWh basis and so small energy users would not be unfairly affected. This assumes a competitive retail electricity market, where customers are free to move to another retailer if the levy is too high. This is quite an assumption in present retail markets within the NEM.

### **3.1.9 Tradeability**

The Consultation Paper makes no mention of the credits being tradeable and so we assume they will not be. We agree that trading of credits is not necessary.

In the UK EEC1 and EEC2 there was very little trading between suppliers (equivalent to retailers in Australia). This was thought to be because “Suppliers generally have access to similar types of measures, delivery routes, third party contractors, and regions. As a result, their costs are not likely to vary much, and there thus is relatively little benefit from horizontal trading” (NERA, 2006). The most common forms of trading were what was termed ‘vertical trading’ and ‘inter-temporal trading’. Vertical trading refers to the trading of credits between the providers of credits (organisations that provide energy efficiency services) and electricity suppliers, while inter-temporal trading refers to the banking of credits. In the UK EEC it was thought that the preference for inter-temporal trading reflected the desire to keep ancillary benefits in-house for use at a later date.

Stakeholders in the UK EEC scheme indicated that converting it to a scheme with full white certificate trading would generate few additional cost-effective measures. They found that “no stakeholder was able to identify a specific type or mechanism for energy savings that would be more likely to be developed under a Tradeable White Certificate arrangement than under direct contracting with suppliers” (NERA, 2006). As a result of the NERA report and after further stakeholder consultation, the UK Government decided against converting the UK EEC to an tradeable white certificate scheme. In the US, only one State (Connecticut) uses a trading mechanism, with most running quite aggressive energy efficiency programs without trading.

### **3.1.10 Administration and governance**

Market mechanisms used to drive energy efficiency are likely to be complex and so require ongoing design revisions. Revisions may also be required as circumstances change, for example as targets are updated, new sectors are incorporated or other policies are implemented. This means that not only must a scheme be designed so that it can be revised, but some form of ongoing revision process must be formally incorporated into the scheme design. Such schemes can be separated into design, operation and assessment components.

In this case, the scheme is designed at the Governance level, operated by an Administrator and assessed by the Regulator. The scheme may then be implemented through the following ongoing cycle: Scheme design – initial scheme operation – scheme assessment – revised scheme design and implementation – further operation – and so forth. In this process, separation of powers between the ‘designer’, ‘operator’ and ‘assessor’ is important to reduce conflicts of interest, especially where the assessor is publicly reporting on outcomes that are relevant to public welfare and are important to informing revision of the scheme design.

The REES is designed by DTEI and both the Administrator and the Regulator are ESCOSA. Thus there is a potential conflict of interest at the levels of administration and assessment. Our research of international schemes used to drive energy efficiency found very little

evidence of fully independent<sup>3</sup> assessment (Passey *et al.*, 2008). In addition, it appears their terms of reference (ToR) did not include all the issues referred to above that can affect a scheme's effectiveness, efficiency and equity.

This limited ToR may also apply to the REES. One of the responsibilities assigned to ESCOSA is to report "on the performance of the REES annually and at the end of each Stage". Is this limited to assessing compliance with the scheme rules, or to assessing the degree to which the scheme is actually reducing energy use and emissions, and to report on this publicly?

In both theory and practice the importance of high transparency and accountability in these types of schemes has been highlighted. One reason is the importance of public confidence in the integrity of such approaches given the potentially large cash flows being transferred between parties. Another reason is the importance of price discovery and efficient markets for creation of credits requiring that participants are well and equitably informed.

## 4 Energy Sales Targets

Energy Sales Targets (ESTs) are an alternative to energy efficiency targets that are worthy of consideration. They do not involve the use of credits or permits, but apply directly to a retailer's energy sales, where for example, they would have to reduce the energy sold per average customer by 2% per year. There does not appear to be a clear precedent for this type of scheme anywhere around the world, particularly in the context of an energy industry with competitive retail markets. The following briefly outlines some of the design elements most critical to the operation of an EST in the residential sector. These and other issues, including treatment of commercial and industrial sectors, are covered in considerably more detail in "*A Review of Market Based Schemes to Drive Energy Efficiency*" (Passey *et al.*, 2008). Even that report should be seen as a preliminary scoping of options that are deserving of more in-depth assessment.

Much of the effectiveness/efficiency problems with schemes such as GGAS and the proposed REES derive from the use of project baselines, and ESTs avoid the use of baselines at the scheme level completely.<sup>4</sup> EST schemes therefore also avoid the need to define the activities eligible to create certificates, and likewise, no deeming, auditing, monitoring or verification would be required by government – significantly reducing administration costs.

An EST should always have physical additionality because it uses a physical target. Lack of additionality because of other government schemes or because of 'market trends, practices and cultural values' would only be an issue if this occurs disproportionately for one or more retailers. Note that lack of these types of additionality in an EST should simply reduce the scheme's overall compliance costs – the physical target would still be met. An EST should also negate any rebound effect within the covered sectors. However, if only the residential sector is covered, any reduction in energy bills could free up money that could purchase extra goods and services that could increase energy use in the commercial and industrial sectors.

Retailers could adopt a variety of business models in response to an EST scheme. These could range from remaining as an energy retailer and contracting a third party to undertake EE measures, to changing its core business model to be more of an energy service

<sup>3</sup> A report by a paid consultant can not be said to be fully independent.

<sup>4</sup> If a retailer contracts third parties to meet its target, baselines may be used to measure the performance of that third party.

company (ESCO). Low-income households could be protected in the same way as proposed for the REES ie. with a combination of targeted energy reductions to low income households and direct financial assistance through existing channels.

### Target and scope

- The scheme target would probably be subdivided into different targets by sector and fuel type.
- Retailers' targets would be set as average per-customer targets (eg. MWh per customer). Thus, as the numbers of customers changed, the per customer target could be adjusted so that the scheme's overall target was maintained.
- Retailer's targets can't be set with respect to anything 'external' such as GDP.
- All retailers could have the same residential per customer target if the levy approach described below is used.
- The scheme should target both electricity and gas to reduce the incentive to move customers from one fuel to the other to reduce per customer energy use. Electricity and gas would likely require different targets - determined by the ease and cost of meeting targets, as well as that fuel's contribution to greenhouse emissions.

### Motivation

- A penalty price would be set at a level to ensure compliance.
- A 'make good provision' is automatically built in to the scheme because if a retailer fails to meet its target in one year, it still has to meet the following year's original target.
- Leeway in meeting annual targets could be achieved by allowing a 10% excess (rather than 'shortfall'), that would automatically have to be made up in the following year in order to meet that year's lower target.
- Retailers would automatically have the benefits of banking because exceeding their targets in one year should make their next year's targets easier to meet.

### Financing compliance

- Financing compliance for a EST scheme is not straightforward because a retailer's liability is tied to it's own customer base, rather than to an average liability across the scheme. Compliance costs could be borne by the customers that benefit from the EE hardware, by the retailer's entire customer base (or possibly just the appropriate sector) or by the South Australian (SA) customer base, again possibly by sector. It is likely that spreading the cost across the entire customer base through a SA-wide levy is most appropriate and this is discussed below.
- A SA-wide levy involves a three-step process. The first relates to payment by retailers of a levy to government to cover the cost of EE actions. The second relates to how the levy proceeds are redistributed to retailers. The third relates to how retailers recoup the costs of that levy.
- In the first step, all retailers pay a levy in proportion to their customer numbers at the end of each year. This approach should ensure that all retailers pay an equal per-customer amount towards reducing energy use. If the levy is applied in proportion to the customer's energy use, new entrant and existing retailers could simply offer low tariffs to poach customers that have low energy use.
- In the second step, the levy proceeds would then be redistributed to the retailers according to energy sales per average customer, and be used by them to reduce

their customer's energy use. Thus, retailers that have a higher average per customer energy use than other retailers will receive a greater proportion of the levy proceeds.

- In the third step, retailers would recoup the cost of the levy from their customers, most probably as a per kWh charge. Applying a per customer levy as the same fixed charge to each customer's bill would have significant equity implications, with smaller customers paying a disproportionately higher cost. Although there is an incentive for retailers to target low energy use customers because they then avoid having to undertake energy reduction measures (even though they are paid for by the levy), this should be offset by the fact that retailers with customers with a lower than average energy use would have to apply a higher per kWh levy charge to those customers, and vice versa.
- The levy should be set at a level to ensure the use of least-cost EE options, and could be reviewed each year. Setting the size of the levy is one of the most significant issues for an EST scheme. It could be determined with reference to the levies already used in Australian states and other countries, taking into account the claimed energy reductions, and could include a profit component.

## 5 Conclusions

1. Government support for energy efficiency is essential.
2. Target-based mechanisms should only be seen as one of a range of policies required to overcome the variety of barriers to uptake of EE.
3. It is concerning that none of the Questions seeking feedback in the Consultation Paper relate to the core of the scheme design, they all relate to essentially peripheral matters and assume a baseline and credit approach is the most appropriate.
4. Little attention has been given to the design details of the REES in the Consultation Paper, and the significant impact they can have on the scheme's outcomes.
5. Notwithstanding this lack of detail, the REES as proposed seems likely to have significant effectiveness, efficiency and equity limitations.
6. The REES is likely to have very high transaction costs for both project proponents and government – due to definition, auditing, monitoring and verification requirements, as well as submission of Implementation Plans and progress reports, and submission of projects for inclusion on the Approved measures list.
7. The Consultation Paper's definition of equity is very narrow and does not capture the economy-wide equity impacts.
8. There is very little separation of powers for the design, administration and assessment of the REES. As such, there are likely to be conflicts of interest. It is also unclear how the success of the REES will be measured and reported.
9. To increase the likelihood of additionality, the scheme could be linked to physical measurable outcomes. For example, if the previous year's credits resulted in energy use being decreased by less than expected, then the required number of credits for the following year could be increased proportionately.
10. Alternative schemes such as per customer energy sales targets should be investigated. Such schemes may be much more effective and efficient at reducing energy use and greenhouse emissions and have significantly lower administration costs.



## 6 References

AEMC (2008) *Review of the Effectiveness of Competition in Electricity and Gas Retail Markets in Victoria: Second Final Report*, February 2008

MacGill, I., Passey, R., Nolles, K. and Outhred, H. (2005) *The NSW Greenhouse Gas Abatement Scheme: An assessment of the scheme's performance to date, scenarios of its possible performance to 2012, and their policy implications*. Discussion Paper DP\_050408, Centre for Energy and Environmental Markets, University of NSW.

NERA (2006) *Energy Efficiency and Trading, Part I: Options for Increased Trading in the Energy Efficiency Commitment*, by NERA Economic Consulting for the Department for the Environment, Food and Rural Affairs, UK Government.

Outhred H. and I. MacGill (2006) "Electricity Industry Restructuring for Efficiency and Sustainability – Lessons from the Australian Experience" in *Proc. ACEEE Summer Meeting*, July.

Passey, R., MacGill, I. and Outhred, H. (2007) *The NSW Greenhouse Gas Abatement Scheme: An analysis of the NGAC Registry for the 2003, 2004 and 2005 Compliance Periods*. Centre for Energy and Environmental Markets, University of NSW.

Passey, R., MacGill, I. and Watt, M. (2008) *A Review of Market-based Schemes to Drive Energy Efficiency*, for the Department of Environment and Climate Change, New South Wales Government.

Passey, R., MacGill, I., Nolles, K. and Outhred, H. (2005) *The NSW Greenhouse Gas Abatement Scheme: An analysis of the NGAC Registry for the 2003 Compliance Period*. Discussion Paper DP\_050405, Centre for Energy and Environmental Markets, University of NSW.

REES (2008) *South Australian Energy Efficiency Scheme Consultation Paper, February 2008*, Department for Transport, Energy and Infrastructure, South Australian Government.