



Inquiry into the National Market Driven Energy Efficiency Target Bill 2007 [2008]

**Submission by Origin Energy in response to the Senate
Economics Committee Inquiry into the National Market Driven
Energy Efficiency Target Bill 2007 [2008]**

18 April 2008

Summary of key points

Origin agrees that more needs to be done to drive energy efficiency improvement, and that complementary measures to emissions trading will be needed. This is a well accepted conclusion that has been reached by the NETT, the PM's Task Group and most recently by the Garnaut Review.

We consider Senator Allison's Bill to have made a timely contribution to the policy debate, but do not feel that this is an appropriate way to develop such a complex piece of policy. This is particularly true in the current policy environment, where there are numerous processes underway that need to be considered. In particular, this includes the design of a national emissions trading scheme.

We believe that what is urgently needed is a national energy efficiency strategy that fits within the overarching climate change context, rather than more ad hoc measures and isolated proposals. The strategy would be:

- Based on clear policy objectives;
- Developed at the national level;
- Developed in a way that considers the broader regulatory context;
- Fit for purpose; and
- Able to consolidate existing measures where appropriate.

In relation to energy efficiency target schemes, there are a number of complex issues that would need to be considered before we could support a specific proposal. However, at this point in time Origin's view is that:

- An energy efficiency target scheme should be considered as one of the options under a comprehensive national energy efficiency strategy, but it should not be the preferred option simply by default;
- A single, tradeable national energy efficiency target scheme would be far more preferable than a collection of incompatible state-based schemes; and
- An energy efficiency target scheme should be designed to complement emissions trading in a way that doesn't undermine the efficiency or effectiveness of either scheme.

On the issue of complementing emissions trading, this is likely to present a complex set of challenges in itself. In particular, there is likely to be a trade-off between reducing the costs of meeting an emissions reduction goal on the one hand, and ensuring that the incentive to invest in lower emissions technologies is not undermined on the other.

Origin would like to see options for addressing these issues considered at the outset, as part of an overall climate change policy response, rather than developing measures in isolation.

Background on Origin

Origin Energy welcomes the opportunity to provide input to the Senate Economics Committee's consideration of the National Market Driven Energy Efficiency Target (NMDEET) Bill tabled by Senator Allison in 2007.

Origin is Australia's leading fuel-integrated energy generator-retailer. Our operations include the production of natural gas, generation of electricity from gas-fired power stations, retail of gas, electricity and carbon offset products, and investment in emerging renewable energy technologies such as geothermal "hot fractured rocks", and our Sliver solar photovoltaic (PV) technology. We are also currently developing Australia's largest combined-cycle gas-fired power station near the Darling Downs in Queensland and have recently announced an investment in sites suitable for the development of up to 500 MW of wind energy in NSW.

Origin has over two million electricity customers and one million natural gas customers. We are proud of being the leading GreenPower provider and have been at the forefront of delivering sustainable energy solutions to the market for many years. Aside from GreenPower, our sustainable product offerings include the opportunity to offset emissions via our Carbon Reduction Scheme (CRS) and our greenhouse-friendly GreenEarth Gas products.

Introductory comments

It is now largely accepted by the international scientific community that global greenhouse gas emissions will need to be reduced by around 60-80% by mid century. While there is a need for global cooperation, it is likely that developed countries including Australia will have to lead the way if this is to be achieved in the critical timeframe. The necessary reductions are likely to come from many varied sources. However, energy efficiency is recognised as being particularly attractive because it provides the potential opportunity for significant low, zero or even negative cost reductions and should be accessible right now.

In the stationary energy sector, supply side abatement should by definition be more expensive per tonne of abatement when the private cost savings of energy efficiency are taken into account. There are still upfront capital costs and transaction costs involved in undertaking energy efficiency improvements, but over time the initial investment tends to pay itself off as a result of reduced energy consumption. Many energy efficiency opportunities entail relatively short payback periods (two or three years or even less).

Estimates of the technical, economic and market potential of energy efficiency vary and depend on a range of assumptions. A recent study completed by McKinsey and Company for example concluded that nearly

60Mt of low or negative cost abatement could be delivered via energy efficiency in the building sector alone by 2030¹. While the response to this study was mixed, with some suggestions that the economic costs were significantly understated, it has made a useful contribution to the debate and has received considerable attention from policy makers. There are many factors that make accurate estimation of the energy efficiency potential contentious, including the so-called rebound effect and difficulties in predicting human behaviour in general². On balance, however, it is widely acknowledged that energy efficiency could potentially play a significant role if effective policy measures are implemented. As noted by the Minister for Resources and Energy, Martin Ferguson, ABARE has predicted that energy efficiency measures could contribute up to 55 per cent of Australia's emission reduction targets by 2050³.

In Australia, energy efficiency improvements provide excellent “value for money” in terms of greenhouse gas savings. Due to our 85% reliance on coal for electricity generation, energy efficiency improvements in Australia provide a higher amount of abatement per unit of energy saved, compared with countries such as New Zealand where the supply mix is mostly low or zero emissions renewable energy. This is why there is a sense of urgency in capturing the energy efficiency opportunities through removing market, regulatory and other non-financial barriers. If these barriers persist, over time, supply-side measures such as the Mandatory Renewable Energy Target (MRET) and the incoming National Emissions Trading Scheme (NETS) will gradually reduce the greenhouse gas intensity of the supply mix. This is certainly a necessary part of an effective greenhouse response, but will also reduce the amount of abatement achieved per unit of energy saved on the demand side, eroding the cost-effectiveness of energy efficiency as an abatement option over time.

While measures such as NETS and MRET should over time drive a demand side response as energy prices increase, demand for energy is generally considered to be quite inelastic in the short term - at least outside of the energy intensive sector. Energy typically accounts for around 3% in the residential sector for example. For this simple reason, even with full information about the price increases and the relatively short payback periods involved in improving their energy efficiency, many customers may simply choose not to take action. In addition, it is well-acknowledged in the economic literature that there are numerous market failures associated with energy efficiency and that these are often complex and difficult to overcome⁴.

Some of the common non-price barriers to energy efficiency include:

¹ *An Australian Cost Curve for Greenhouse Gas Reduction*, McKinsey and Company (2008)

² The rebound effect refers to the idea that when people save money as a result of energy efficiency improvements they sometimes use this money to buy more things that use energy.

³ Martin Ferguson, *Energy State of the Nation* address 18 March 2008

⁴ See for example the Stern Review, Part IV, Chapter 17: Beyond Carbon Markets and Technology http://www.hm-treasury.gov.uk/media/5/1/Part_IV_Introduction_group.pdf

- **Split incentives** (eg. the owner of a building is responsible for its design or upgrade, while the tenant pays the energy bills).
- **Imperfect information** (eg. the factory owner is not aware of the payback periods associated with efficiency upgrades).
- **Lumpy capital replacement cycles** (people and firms generally don't replace equipment, machinery and buildings until their useful life is coming to an end as there is an economic cost in doing so).
- **Competing incentives** (eg. a hotel could choose to upgrade its lighting systems to save energy or it could invest the same money to refurbish its lobby and attract new customers).
- **Behavioural inertia** (tradition, laziness, lack of senior management buy-in and so on all get in the way of taking sensible action on energy efficiency).

Policy makers have employed a variety of energy efficiency measures to attempt to overcome these barriers. For simplicity, the different types of measures can broadly be categorised as falling into the following categories:

- **Direct regulation** (eg. the national Minimum Energy Performance Standards (MEPS) for appliances and the phasing out of electric hot water systems currently being proposed by various state governments).
- **Funding/incentives** (eg. the national PV rebate program and rebates for purchasing solar hot water systems, competitive funding programs such as the NSW Climate Change Fund and other financial incentives such as the low interest "green loans" announced by the Labor Government prior to the federal election).
- **Information/facilitation** (eg. education/awareness campaigns such as the Victorian Government's "Black Balloons" advertisements, government accreditation of tradespeople ("green plumbers") and energy labelling programs such as the appliance star-rating system).
- **Target/certificate schemes** (eg. the Victorian Energy Efficiency Target (VEET) scheme currently being developed, and the NMDEET model proposed by Senator Allison). There are similar schemes operating in France, Italy and the UK.

As Senator Allison's Bill has shown, there is growing interest in the use of market-based measures in the energy efficiency space. There is some experience with this approach under the NSW Government's Greenhouse Gas Abatement Scheme (GGAS), which allows for the creation of Demand Side Abatement (DSA) certificates from energy efficiency projects.

The aforementioned VEET scheme currently being developed by the Victorian Government will operate in a similar way to GGAS and is due to commence in January 2009. It will be the first example of a dedicated energy efficiency target scheme in Australia. The South Australian Government is also developing a similar scheme known as the Residential Energy Efficiency Scheme (REES), although at this stage the Government is not proposing that this scheme would be tradeable.

As both a liable party and a DSA provider Origin has been closely involved in the experience with the development and operation of such schemes to date, and considers itself to be well-placed to provide comment to assist the Committee's inquiry.

The need for a national energy efficiency strategy

Origin sees Senator Allison's proposal as being a timely contribution to the greenhouse policy debate, and we are pleased that the Senate Economics Committee has decided to consider this matter in some detail. As a general point, we are not comfortable with the proposed approach to developing such a complex policy mechanism (introducing a Bill as an amendment to the MRET Act). We feel that there is an urgent need to develop a better policy approach in this space, both from the point of view of more effective action on energy efficiency and from the perspective of providing greater regulatory clarity for investors and industry participants.

Energy efficiency policy is currently characterised by a mixture of the various measures described above, implemented at both a national level and on a state-by-state basis. There are examples of overlap and duplication (for example, the Commonwealth's Energy Efficiency Opportunities program is very similar to a program operated by the Victorian EPA), and inefficiencies resulting from inconsistent rules - for example, a retailer operating across NSW, Victoria and South Australia will from next year be responsible for complying with three different schemes that encourage energy efficiency activities, but none of them will be compatible).

In this context, there are a number of processes currently underway that have implications for the future direction of energy efficiency policy in Australia:

- The development of NETS - due to reach finalisation in the second half of this year (with a Green Paper expected in July).
- The Strategic Review of Climate Change Policies announced by the Minister for Climate Change and the Minister for Finance and Deregulation - due to report back by July 2008 (this will look at streamlining of climate change policy).
- The COAG sub-groups set up to examine energy efficiency and complementary measures to emissions trading (these processes will consider the need for additional measures to stimulate energy efficiency improvement beyond NETS).
- The National Framework on Energy Efficiency (the future of this process is somewhat unclear at present).
- The expansion, streamlining and consolidation of MRET - due for finalisation by the end of this year (this is relevant because Senator Allison's Bill would amend the MRET Act).

From the above, it is obviously very difficult to identify where carriage of energy efficiency currently fits within the national policy context. Origin is hopeful that the COAG process referred to above will provide this clarity in the near future.

Ideally, Origin would like to see COAG develop a national energy efficiency strategy as a matter of priority. This strategy should be:

- **Based on clear policy objectives.** Quantifiable targets should be based on an informed view of the gains that can be made and the likely costs involved. A starting point for such an analysis would be pulling together the various sectoral studies that have been done in the past and updating these where necessary.
- **Developed at the national level.** A national strategy would provide greater certainty to the various industry participants and would be likely to deliver greater results if it is backed by stronger funding, better resources etc. Ideally, it would be developed by the Australian Government but would also include the input of the states and a commitment to remove duplication and inconsistency wherever possible.
- **Developed in a way that considers the broader regulatory context.** In relation to the energy sector, the strategy should consider issues relating to both the retail sector and network sector in particular. Removal of retail price regulation will enable retailers to offer products which more closely align a customer's prices with the environmental costs associated with their energy use. Incentives on network businesses could ensure that they pursue demand side projects over supply side infrastructure wherever cost-effective to do so. The strategy should also consider regulations and policy settings that sit outside of the climate change space (for example, in the commercial building sector tax depreciation rates are a key factor that influence the rate at which building owners are likely to upgrade their assets).
- **"Fit for purpose".** Just as emissions trading is not a "silver bullet" for solving climate change, it is almost certain that there will not be a single policy mechanism that can overcome the various barriers to energy efficiency. It is likely that a range of measures will be needed, and these should be developed in a well-considered, targeted way wherever possible. It is also important to note that the measures can interact with each other. For example, if the government sets a regulatory requirement to phase-out existing electric hot water systems this would suggest a higher baseline for activities under an energy efficiency target scheme, which would impact on the costs associated with compliance).
- **Able to consolidate existing measures where appropriate.** This does not necessarily mean cancellation, but it is essential that everything be considered in light of the overarching strategy and if there is an opportunity for removing unnecessary measures, reducing duplication or improving harmonisation then this should be taken as this will lead to efficiency gains. Origin notes that the aforementioned Streamlining Review being conducted by Roger Wilkins is intended to achieve this.

Energy efficiency targets and schemes

Central to the concept of an energy efficiency target scheme is the target - this will largely drive the behaviour of scheme participants. In the case of Senator Allison's proposal, there does not appear to be any explanation of why the particular target was chosen, which points to a key challenge facing policy makers: deciding on the appropriate policy objective.

As stated above, Origin agrees that Australia needs a clear energy efficiency policy objective. However, we also think that this objective needs to be founded on the basis of a thorough understanding of what is achievable and formulated in the context of emerging carbon policy. We understand that prior to the November 2007 election the now Prime Minister announced that Labor would "*put Australia on track to being at the forefront of OECD energy efficiency improvement*". The exact meaning of this has not been defined, but it could provide a starting point for the development of a specific energy efficiency policy objective.

If there is to be a requirement on certain parties to comply with a legislated target and face a financial penalty for failing to comply, this adds a higher level of complexity to the issue of setting the policy objective. The target needs to be very carefully chosen on the basis of detailed information about the availability of improvement opportunities, their likely costs, and the barriers to capturing them. Otherwise, there is a risk that there will be insufficient supply to meet the target, with costs increasing to the point where it could be more attractive for participants to pay the penalty. This would mean that consumers will see an increase in the energy costs without the benefits of energy efficiency improvements.

Under the NMDEET proposal put forward by Senator Allison, as well as the VEET and REES models, the energy retailer is the liable party. There are various arguments for and against making the retailer liable. To date it appears retailers have been the liable party of choice under all of the existing market-based schemes in Australia (MRET, GGAS, the Qld 13% gas scheme and VRET). If this is to continue, policy makers should at least ensure that there is no impediment to being able to pass through the costs of compliance to end users (who are the ultimate beneficiaries of emissions reductions and energy efficiency improvements), and no distortion of competitiveness between retailers operating in different market segments and across states. More broadly, Origin is of the view that more work needs to be done to determine the most appropriate party for many of these schemes and initiatives.

Energy efficiency target schemes are also often referred to as "white certificates schemes"⁵. This is because the certificates that are created

⁵ "White certificates represent" an energy efficiency saving, while "green certificates" refer to the units traded under schemes such as MRET and "black" certificates refer to the permits traded under schemes such as NETS

represent energy savings or abatement that is “deemed” to have occurred at the time of creation. That is, the estimated savings of energy over a period of time are calculated relative to an assumed baseline, brought forward and aggregated at the time of undertaking the activity. This presents additional challenges for policy makers in designing the rules - how to account for changes in behaviour and changes in regulation, how to prove that an activity would not have occurred anyway and so on.

At this stage, Origin is not prepared to comment further on the detailed design of the model put forward by Senator Allison, since we believe that it is inappropriate to consider this outside of the current greenhouse policy context. However, we would like to offer the following conclusions on the role that such a scheme could play as part of a broader energy efficiency strategy. We also offer some comments in relation to the issue of how such a scheme would interact with NETS as we see this as being a key challenge facing policy makers.

An energy efficiency target scheme should be considered as one of the options under a comprehensive national energy efficiency strategy, but it should not be the preferred option simply by default.

Market-based schemes such as a national energy efficiency target could offer some very attractive features, but would also tend to present more complex challenges in terms of design and operation. For this reason policy makers should not jump to the conclusion that such a scheme will necessarily be the best approach. Some likely advantages and disadvantages include:

Advantages

- Sets a clear policy objective (the target);
- Sets clear obligations for achieving this objective (liable parties), which should lead to greater effectiveness than, say, voluntary measures such as funding;
- Allows the market greater flexibility in achieving the objective (provided there is trading allowed), which can **in theory** lead to greater efficiency than direct regulation (provided there are low transactions costs); and
- Doesn't require funding to be renewed through budgetary processes (can mean less risk of being discontinued as a result of budget cut-backs).

Disadvantages

- Complexity (requires detailed rules for project accreditation, certificate creation and verification, compliance, auditing and so on);
- Transaction costs (this complexity means that administrative and other costs associated with compliance and commodity risk will tend to be higher than more direct regulatory measures);

- Requires difficult design choices (setting of the target will always be somewhat arbitrary, as will decisions about baselines and “additionality” rules and penalty levels - all of these can have significant implications for the costs involved);
- May interfere or undermine an emission trading scheme (discussed further below) and
- Liquidity can be fairly poor if coverage is limited (for example if limited to just the residential sector this reduces the benefits of trading and hence efficiency).

A single, tradeable national energy efficiency target scheme would be far more preferable than a collection of incompatible state-based schemes.

As referred to above, a number of state governments are already developing their own energy efficiency target schemes and from 2009 there are likely to be three incompatible schemes: VEET, REES and the existing GGAS.

This reduces the opportunity to source low-cost options wherever they may exist. From a compliance point of view, this has the potential to increase the costs for participants considerably, which ultimately results in higher costs to consumers. A single, national scheme that replaces all of these would be more efficient, and would be likely to drive greater liquidity thus further reducing overall costs.

It has been said that a national scheme would be too complicated to develop because of the different circumstances across the various states such as climate, energy mix and so on. While these factors would mean that a given activity (say, insulating a home) could result in a different volume of abatement in different areas, Origin does not see this as a reason to have separate markets - as long as each certificate represents a common unit of measurement (eg. a tonne of abatement or a MWh of demand reduction), there is no reason why a single market would not work.

If COAG decided to proceed with such a scheme, the developers could draw on the experience of GGAS and the design work currently being undertaken for VEET, as well as international experience.

An energy efficiency target scheme should be designed to complement emissions trading in a way that doesn't undermine its efficiency or effectiveness.

If an energy efficiency target scheme is to be developed, it would ideally be designed in a way that avoids undermining the efficiency and effectiveness of NETS. This is likely to be difficult to achieve in practice and could entail some complex trade-offs.

The introduction of emissions trading is strongly supported by Origin as being the centrepiece of an effective and efficient climate change policy. From 2010, it is anticipated that in the order of 70% of Australia's emissions

will be covered by an emissions “cap” under NETS⁶. At the very least, the stationary energy sector will be covered, which is the relevant sector in the context of energy efficiency. Origin believes it is important to understand the likely interactions between energy efficiency measures and NETS and offers the following comments to aid the Committee’s considerations.

A number of studies in recent years have estimated the cost savings associated with energy efficiency measures introduced in addition to emissions trading (or carbon tax as the policy is typically modelled in these studies). These include the modelling undertaken for the National Emissions Trading Taskforce (NETT) in 2006 and similar modelling undertaken for the Climate Institute in 2007. As expected, the studies show that when energy efficiency improvement options (such as retrofitting buildings) are employed before relatively more expensive supply side options (such as building wind farms), the overall cost of meeting a *given* abatement task is lower.

To be clear, the energy efficiency measures do not result in *additional* abatement, but they offer the possibility of reducing the costs of achieving the *same* level of abatement that would be achieved by the emissions trading scheme/carbon tax. This has the effect of shifting the incidence of abatement from the supply side to the demand side (ie. from generators to consumers). Consumers pay more upfront for the emissions reductions, but benefit over time in the form of lower energy bills, which results in overall lower costs.

When this occurs in the context of a cap and trade scheme, such as NETS, the reduction in the demand for a unit of energy reduces the need for one permit to emit on the supply side. With the supply of permits available under NETS unchanged, this represents a reduction in the scarcity of permits which will result in a softening in the carbon price (all other things being equal). Policy makers need to be clear that while attractive from a cost reduction point of view, this will have the effect of reducing the incentive to invest in lower emissions technologies. Origin contends that there are some risks involved with this, particularly in the early years of NETS when the forward price of carbon will be somewhat uncertain. The potential ramifications of this need to be weighed up, as it is likely that we will urgently need to stimulate investment in such technologies if we are to achieve the significant reductions in emissions that appear to be required⁷.

It should also be noted that if the “white certificates” created on the demand side could be bought by a liable party under NETS (eg. a power station) and used towards compliance, this would result in an *increase* in the cap (since the “freed-up” permit would also be available for use). This is commonly referred to as “double counting” and is the main reason that

⁶ While not finalised as yet, the Government has indicated that the covered sectors are likely to be stationary energy, transport, industrial, fugitive and potentially waste.

⁷ It should also be noted that if the MRET scheme target was based on a percentage of energy consumed, rather than an absolute target, the energy efficiency target scheme would directly undermine the level of investment required to meet the target.

the NETT concluded that energy efficiency would not be an eligible source of offsets under NETS⁸. Origin strongly agrees with this conclusion.

Having said this, Origin suggests that policy makers could explore whether there are any possible ways of addressing this issue in the design of NETS without entirely ruling out the possibility of incorporating demand-side abatement. For example, one approach could be to set-aside a reserve of permits under the cap and earmark these for demand side projects. DSA providers could then access these permits instead of creating “white certificates” per se. This could deal with the double counting issue, because the cap would remain unchanged. There are a number of complex issues that would need to be considered, however, such as how many permits to set aside, how to ensure that permits are only rewarded for activities that are truly “additional”, what to do with the permits if less demand side abatement takes place than anticipated, what to do if more abatement takes place than expected, and so on.

An alternative approach might be to set the cap at the outset taking into account the likely contribution from demand side measures, and leave the two schemes entirely separate. This would be less complicated from the point of view of design, but policy makers would have to reduce the cap at each review period, taking into account the estimated volume of demand side abatement that will be delivered by the demand-side scheme for the following period. This would help ensure that the demand side reductions do not soften the incentive to reduce emissions on the supply side. As for the set-aside approach, there are likely to be some considerable challenges - how to accurately estimate demand side activity being an obvious one. Getting this estimate “wrong” could have significant implications for NETS permit prices because these will primarily be driven by the cap.

While Origin does not currently have a firm view on the workability of these approaches, we would prefer to see the options considered in full at the outset as part of the NETS design process, rather than measures being introduced on an ad hoc basis in isolation of NETS.

We also note that there are likely to be additional issues relating to the fact that Australia has now ratified the Kyoto Protocol. For example, if we were to incorporate demand-side abatement into NETS as a quasi-offset (quasi in the sense that setting aside permits is not the same as allowing offsets to be created in addition to the cap), this could raise concerns relating to the treatment of offsets as part of the Joint Implementation (JI) mechanism. JI rewards emissions reductions between industrialised countries, and provides for the creation of Emission Reduction Units (ERUs). An Australian offset regime should be consistent with the JI guidelines relating to issues such as baseline setting, monitoring, additionality, project documentation, crediting periods, validation and verification. Without having examined these issues in detail, Origin suspects that it may be quite difficult to develop an appropriate demand side abatement provision under NETS in a way that

⁸ NETT, *Possible design for a national emissions trading scheme: final framework report on scheme design* (2008)

satisfies these requirements. Meeting the Kyoto requirements will be important for ensuring international confidence in the integrity of Australia's emissions trading system and offsets regime, which is critical if we intend to take part in the international carbon market. Origin would urge the Australian Government to consider these issues further in this context.

