



Submission:

National Energy Savings Initiative

Inquiry

February 2012

by the
Sustainable Energy Association of Australia

www.seaus.com.au

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1 Executive Summary

The Sustainable Energy Association of Australia (SEA) strongly supports the development and introduction of the National Energy Savings Initiative (NESI) as a mechanism to improve productivity and reduce inefficient energy use and resource consumption in Australia. Along with complementary measures, the NESI can operate as a broad based mechanism to support the introduction of energy efficiency in an expanding energy market.

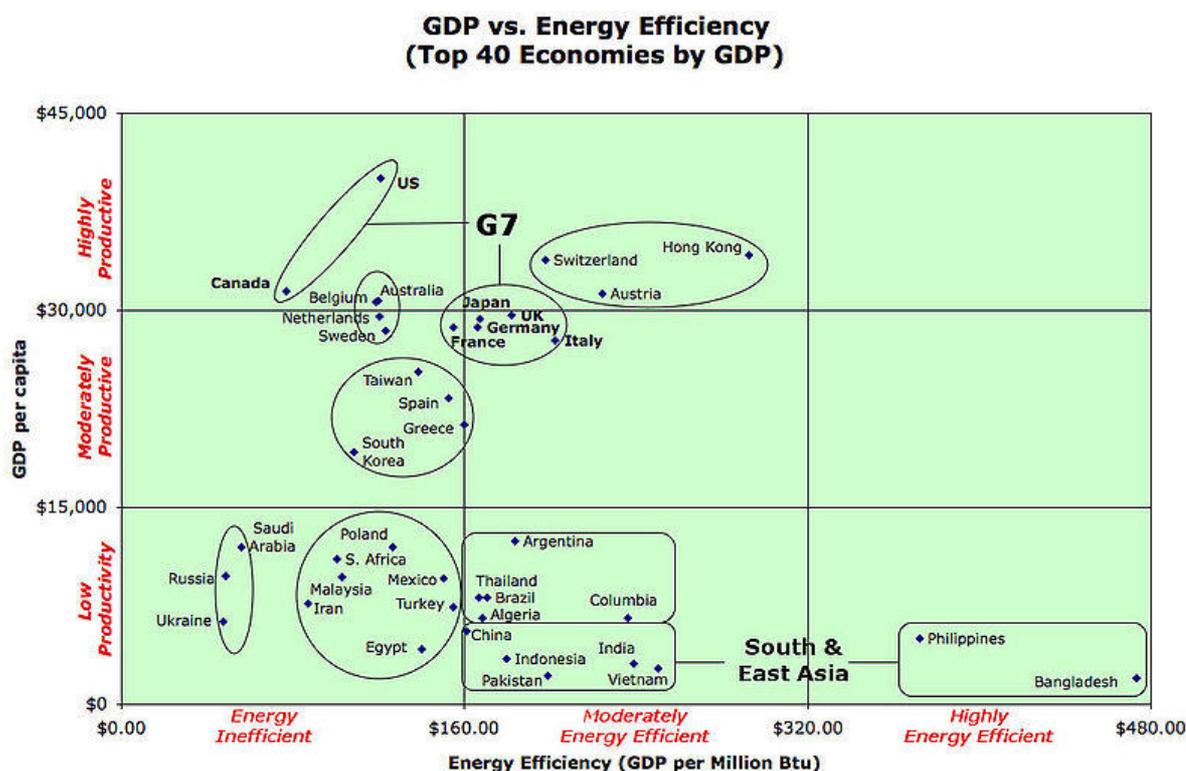
Recognising that a growing population and growing economy will continue to put pressure on energy use to grow, the rate of increase of Australia's total energy consumption can be slowed or potentially reversed through smart and effective programs addressing the efficiency. The minimization of barriers and an appropriately designed program will assist in improving Australia's energy productivity, considering our existing very high rate of per capita energy consumption.

This submission contains SEA's views and comments on the questions posed by the NESI Issues paper.

2 Overview of energy efficiency issues

Australia is a high energy user compared to its GDP and the consumption of excess energy has a negative effect on Australia's energy based productivity. The development of an energy efficiency program that will create incentive and policy positions supporting the reduction of energy use as well as improving overall productivity and reducing resource consumption will have a long term positive benefit to the Australian economy.

A comparison of international productivity based on energy consumption versus overall GDP, as shown in the figure below, reveals, while Australia is highly productive, our energy consumption is very high due to cheap energy and the low cost of energy provides a disincentive to being more energy efficient. While this has been traditionally due to State based price caps in the past, the move to cost reflective tariffs in all states in the future will have some impact on this but the overall effect will likely to be small without additional measures.



Source: Wikipedia <http://en.wikipedia.org/wiki/File:Gdp-energy-efficiency.jpg>

The NESI issues paper uses energy intensity as a proxy for efficiency and while this is commonly done, we need to recognise that energy intensity as a measure:

- Does not account for structural changes in GDP such as continuing shifts from high intensity manufacturing to low intensity service sector businesses, especially to the financial sector;
- Conflates liquid fuel sourced energy (petrol, diesel, gas) with stationary energy, both of which have significantly different uses between and across industry;
- Does not address non-price factors in energy and productivity;

- Can vary significantly year on year as GDP can vary significantly for a year on-year basis;
- Actual intensity at an economy level is only calculated on a post – fact basis and therefore actual improvements in energy intensity at a macro scale can only be determined long after the fact; and
- Has absolute limits on energy supplies which effectively enforce a cap on the amount of energy available for growth.

However, it is the best proxy measure for efficiency where there is no current mechanism for the collection of efficiency data. In the longer term, data gathered under the NESI as well as programs such as NGERS and EEO should develop tools to benchmark Australian businesses energy intensity and efficiency in order to develop a greater understanding of the operation of the markets as well as a better proxy measure if possible.

SEA supports the introduction of the NESI as a mechanism to assist in overcoming the financial and non-financial barriers to the uptake of energy efficiency measures. However, complementary policy measures need to be put in place so that there is an integrated supporting framework of other policies that support the broad uptake of energy efficiency efforts

3 Purpose and principles

3.1 Benefits of a national energy efficiency scheme

A National Energy Efficiency Scheme would provide benefits of State or Locality based schemes through:

- Consistent regulations for providers of energy efficiency goods and services to meets requirements across boundaries;
- Reduce transaction and administration costs for these companies through a consistent set of rules;
- Ability for business not located within a State with an energy efficiency program access to a program which would provide additional benefits to that State;
- Reduce overall administrative costs across all government entities responsible for management of the program as functions and infrastructure would not be duplicated;
-

SEA supports a single scheme to be adopted across all states using a model that does not allow for too much variation between those states.

Examples of State based harmonisation such as that cited for the Feed in Tariff (FiT) agreement at COAG resulted in a situation where each state managed demand and there was no harmony in the schemes. For example, some states had a net FiT, others gross, rates varied significantly; some were legislated schemes and others merely administrative. This has created issues for many businesses and differential levels of uptake and costs across states that had a negative long-term impact of the uptake of Solar PV (the main beneficiary of the schemes), through creation of boom and bust cycles with the market.

While, the costs of the introduction of a national energy efficiency scheme would be spread across a number of different stakeholders, some of these costs would create additional benefits for society and the economy that could not be captured by any single entity and therefore need to be borne by government. Examples of the costs for the introduction of a nationally based energy efficiency scheme include:

- Costs of the change or legislation, administration structures and responsibilities between both executive and Administrative arms of Government as well as ensuring adequate resourcing for implementation monitoring and compliance;
- Switching costs and, in some cases, establishment costs to be borne by liable parties in developing and implementing systems to manage obligations and the acquittal of those obligations;
- Costs imposed by liable parties upon their customers which are likely to be reflected in end user energy bills; and
- Costs imposed on energy consumers which would see them incur capital expenditure on energy efficiency assessment, improvement and monitoring (which would be expected to be offset by energy savings accrued over time).

From this experience, SEA would recommend a single integrated scheme. Harmonisation of State and National schemes for energy efficiency would require the modification and repealing of existing legislation or regulations at a state level as well as implementation of Federal legislation for the scheme. SEA suggests that this might be managed by the office of

the Clean Energy Regulator (OCER) along with the Australia's Renewable Energy Target (RET).

3.2 Purpose of NESI

The Issues paper puts forward three separate possible drivers for the scheme:

1. Reduction of overall energy demand;
2. Reduction of peak loads on networks; and
3. Greenhouse gas (GHG) reduction.

It is SEA's position that energy efficiency is a measure of productivity of a business and the overall economy that includes both primary energy (fossil fuels such as coal and gas, renewable energy petroleum) and final energy use (including electricity, gas and petroleum products).

The NESI scheme should ***focus on the reduction of overall primary use and final energy demand*** through efficiency programs, with a secondary goal of reducing costs to the economy through the reduction of peak load generation impacts on energy prices.

The goal of GHG reduction is addressed the introduction of a price on Carbon under the Government's Clean Energy Future Program, and supported by existing complementary measures through the RET. As such, to add the issue of GHG reduction (which would occur as part of an overall demand reduction) is to add an unnecessary additional priority to a future scheme. In addition to this, due to the high carbon intensity of the majority of Australian stationary energy use, the reduction of GHG emissions should logically follow on from the reduction in overall stationary demand in line with the local energy source and its emissions profile. One additional point in not using GHG emissions as a guide to energy efficiency targets is that some companies may utilise zero emissions energy sources (Green Power type products or other offsets) and effectively have zero emissions, yet their electricity and other energy consumption is still reflected in overall demand and peak load effect; both of which have an impact on the overall cost of energy to the consumers.

3.2.1 Demand and peak load considerations

As noted above, the reduction of overall energy consumption by end users (demand) must be the key outcome for any energy efficiency program. In doing so, one must recognise that while efficiency may increase, in terms of energy intensity, overall demand and use will grow in line with both population and economic growth. Increasing energy efficiency should decouple the linear growth of energy demand from economic and population growth at a macro-level. Reduction of the overall energy consumption (demand) must be lower than the rates of both economic and population growth.

In considering the issues raised in Chapter 7 of the Issues Paper regarding the management of peak demand, SEA sees that this is a necessary component of an energy efficiency obligations program. Unconstrained growth of peak demand electricity is a significant driver for energy costs.

Based on (SOURCE), the issue of the network peak demand management can have a significant impact on the long term capital commitments of transmission and distribution businesses as well as improving the overall capital utilisation of these assets. Improved capital utilisation combined with the deferral of additional expenditure is the likely best outcome from the management of network peaks.

Unfortunately, the peak pricing issue as a risk management issue for retailers is unlikely to deliver the same level of long term price limitations that will be seen from better network utilisation and deferred capital expenditure. This is due to the limited times at which power prices exceed the AEMC \$5,000 / MWh reporting limit. While each of these does have a price impact of \$0.01-0.02 c/kWh per year for consumer energy prices, the cost of network augmentation far exceeds this impact. As such, managing the cost peak is less important than managing the network load peak.

SEA proposes that the NESI scheme for peak demand should be a subset of the broader NESI program with a separate sub target for the reduction of peak MW. Such a sub-scheme would have specific target in terms of locations that would benefit most from peak reduction.

3.3 Potential conflicts with other programs.

Aside from the existing state schemes in NSW, Vic and SA, all governments have some types of energy efficiency schemes in place, primarily those for low income households, as well as supporting solar hot water heating (discussed below).

All of these schemes should be compared for compatibility with any new proposed programs and State based schemes should be adapted to prevent 'double dipping' to obtain multiple credits for the same piece of equipment or appliance.

Other programs where there may be a crossover in benefits or obligations arising from energy efficiency initiatives under which companies' energy use or efficiency measures can attract either additional cost or subsidised capital costs. Examples of these, both existing and future programs include:

- Clean Energy Future – carbon emissions liability;
- Energy Efficiency Opportunities (EEO) Program;
- Carbon Offsets and the Carbon Farming Initiative;
- Clean Energy Investment Program; and
- Clean Energy Food and Foundries Program.

Where a company has a financial liability or alternatively receives direct funding support, energy efficiency activities and their related costs should not be allowable as savings under the NESI scheme.

Further detail on these schemes and their potential to impact the eligibility of potential participants to generate energy savings certificates is discussed in Section 4 of this submission.

3.3.1 The role of energy displacement technology: RET vs. NESI

On the matter of conflicts, SEA would suggest the removal of solar hot water (SHW) systems and heat pump hot water (HPHW) systems from the RET and for them to be included in the NESI scheme. The reasoning for this is that SHW and HPHW do not generate dispatchable electricity, rather they displace electricity consumption. Furthermore, in allowing these technologies credits under the RET without similarly allowing direct use geothermal energy, either in the form of ground source heat pumps or deeper geothermal wells, this creates a technology bias and technology bias (picking winners) is poor policy. SEA is aware that this issue has been raised at many different levels of government but to date no action has been taken to address this disparity in preferential treatment of some technologies.

3.4 Program lifespan

SEA supports a long-term approach to energy efficiency incentives with a program that has longevity and a firm and sound approach to allow businesses to operate within an environment of policy certainty. In order to do so:

1. The program should be legislated;
2. Any sunset clause in the legislation should have a specified review before the scheme ends;
3. The program should operate for a period of not less than 10 years;
4. Operative provisions should be subject to potential change over the legislated period as circumstances change;
5. Oversight of the program should be through an independent regulator such as the OCER.

The recommended lifespan for the operation of the program should be for a minimum of 10 years.

4 Eligibility

4.1 Target Sector coverage of the NESI

The creation of certificates under NESI should be available for activities in residential, commercial and industrial energy efficiency opportunities. This will maximize the potential impact across as broad a cross-section of the Australian economy and society as possible. Maximizing the number of opportunities for energy efficiency will see the easiest and least expensive options taken up first by those who are willing to act.

The broadest possible base for the ability to create certificates will ensure that:

- The maximum number of energy efficiency opportunities are available;
- That all lowest cost opportunities for energy efficiency are exploited;
- Maximizing certificate availability minimises certificate costs and thereby costs to all participants; and
- The scheme has an overall greater benefit to the economy through the reduction of costs from growing energy demand.

In addition to businesses, the NESI scheme should also include Local, State and Federal government bodies to be eligible to generate certificates. There are significant opportunities for these organisations to become more energy efficient and thereby provide broader benefits to a low carbon and clean energy future. Furthermore, the ability to utilize the scheme will allow the various levels of government to both fund and commit to improving services while reducing the cost of doing so.

4.1.1 Peak load inclusion

As noted above, peak demand management is a critical part of the energy market cost drivers as well as a driver of how future network planning is undertaken based on expected peak load growth. As such, it is important to include this sector within the overall NESI scheme, however separate rules for how peak load management operates will need to be developed as a compliment to the main NESI scheme.

4.1.2 Exclusions from eligibility

Under NESI, there should be exclusions for activities that have accessed other support schemes (except where these are grandfathered see Section 5.6) or where they have other liability based obligations under other schemes. This is to ensure that:

1. “Double dipping” to access multiple areas of financial support for a single activity are not allowed; and
2. Where obligations arise under other schemes such as a price on carbon or the EEO, NESI is not used as a source of funds to offset these liabilities as liabilities would reduce due to better energy efficiency and an incentive should not be used to pay for an obligation.

4.1.3 The inclusion of energy generation assets

Many thermal (fossil fuel) generation systems will be excluded from the NESI scheme as they will have obligations under the price on carbon. This obligation should motivate them to consider how generation efficiency might be improved through the use of technological improvements. Additional incentives to make such improvements should not be included as part of NESI

Generators who are not obligated under the carbon tax (renewable energy such as solar and wind) should also be excluded from obligations under the NESI scheme as many would be unable to improve generation efficiency as generation efficiency is effectively limited by physical constraints (limits of the technology) as well as the reliance on variable resources.

4.2 Parties obligated under the NESI

Obligated parties under the NESI would have the need to acquire a set number of certificates in order to fulfill their obligations in any particular year. The rules for determining obligated parties for energy demand reduction would be set by the regulator. SEA sees that the parties who are obligated to reduce energy demand include:

- Retailers of electricity and gas for residential ,business and commercial use;
- Generators who supply wholesale business customers for their own use (not retailers) and are not renewable energy generators or obligated under the carbon price;
- Wholesale fuel suppliers for commercial transport;
- Large self-generators who are not excluded from the scheme as noted in Section 4.1.2 above;
- Network transmission and distribution owners / operators who are obligated under a peak load reduction scheme as part of NESI.

4.3 Fuel type eligibility

The NESI should cover all fuel types for both stationary and transportation energy as both sectors are critical to the competitiveness of the Australian economy in both the long and the short term. All fuel sources should be eligible for inclusion in the NESI, including but not limited to:

- Electricity (regardless of source);
- Natural gas; and
- Transport fuels (Mineral diesel, petrol, ethanol, CNG, biodiesel etc.).

The risk of not including transport is that there are significant savings in energy costs as well as the potential savings for the overall economy (balance of payments) from consuming less imported oil or oil products. Furthermore, more energy efficient transport reduces costs to consumers, particularly those who require the supply of essential foods, perishables etc. through long distance transport.

In including this, one needs to recognise that each source is measured differently, although it is often a simple mathematical calculation to convert the energy value of one source conveniently to another.

Obviously the broader coverage of the scheme, the greater the cost of the scheme would be, however, one should look at the additionally of effect of the scheme in terms of reduction of energy consumption and its impact on costs (savings arising from delaying the entry of new generation capacity, deferred network augmentation etc.)

Furthermore, in a highly integrated economy, focusing on only one or two possible energy types, has the potential to create behaviour patterns where only stationary energy sources are considered as part of the overall energy mix and worthy of encouraging economic behaviour.

However, considering transportation in the mix, certain limits should be set in place to ensure that commercial transport is included and is eligible to claim credit for the reduction in its energy demand.

4.4 Eligible activities

All activities that are directed towards the reduction of energy consumption should be allowable where it can be demonstrated that energy consumption from grid-based energy (with the exception of installed self-generation such as from PV systems) is either avoided or displaced (e.g. SHWS, GSHP etc.).

These activities can be either measured directly based on a certified energy audit and subsequent monitoring or through the use of a deeming scheme for smaller (e.g. residential or SME) appliances which would grant a set amount of credits based on the replacement of older less efficient appliances.

4.4.1 Additional impact

The NESI Issues paper noted that there is a need for 'additionality' in order to generate credits or certificates under the Energy efficiency scheme. The difficulty of additionality is that one must initially determine what activities and changes would not be otherwise done, based on the financial effects; this would primarily affect businesses rather than the residential sector.

SEA suggests that an independent energy audit should be undertaken to ascertain the potential payback on energy efficiency investments and ascertain those that do not meet a set rate of return. Projects above the benchmark rate of return would not be able to access credits, as the payback would already justify the investments. Projects above at or below the benchmark rate would be eligible.

The determination of the benchmark rate of return would need to be through consultation with business stakeholders and energy efficiency professionals.

4.4.2 Deemed savings

The deeming scheme would require verification of the potential savings of systems or appliances which are able to reduce or displace other energy sources and create savings for the end user, who are then rewarded for this through the issue of certificates.

Deemed energy savings, which would be aimed at primarily the residential and small business sector would include such appliances as:

- Lighting

- White goods;
- Electronic devices (TV, computer, set top boxes etc.);
- Air conditioning.

These would be the easiest to target and the replacement of the old system with the new one would require some sort of verification such as the removal and disposal of the old device and its subsequent recycling under a product stewardship program.

5 Design elements

5.1 Obligations and crediting compliance

The use of what is commonly called a ‘white certificate’ for energy efficiency, coupled with an obligation on energy providers (retail, generation or distribution) or large self-generators is the best mechanism for both managing the liabilities of obligated parties as well as *creating opportunities for businesses to supply goods and services to fulfill the obligated party’s needs.*

Many businesses are already familiar with current obligation-based compliance and reporting (both certificated and not) such as the RET, NGERs and EEO programs. As such a certificate based system would be preferable as it also allows for the easier function of creation and trading of the certificates, overseen by an independent regulator.

5.1.1 Baseline-and-credit vs. cap-and-trade

SEA supports the adoption of the baseline and credit model as part of the structure of the NESI scheme. In terms of an overall scheme, the baseline for the system should be reflected in the overall increasing demand for energy in Australia reflected in both population and economic growth. The baseline is created with the recognition of energy consumption that has been excluded from the scheme from ineligible entities.

Targets set by the baseline-and-credit scheme would be set by the program regulator in conjunction with energy market regulators such as the Economic Regulation Authority (WA), Independent Pricing and Review Tribunal (NSW) and so forth. Only through the involvement of these regulator bodies can appropriate targets be set based on the regulator’s knowledge of the market to develop an overall trajectory for the baseline target against which savings can be made.

5.2 Obligations and penalties

The relevant targets for obligated parties would need to be set by the regulators (as noted above) and a shortfall penalty amount introduced for those businesses that are unable to meet their energy reduction obligations. The amount of this penalty should reflect the upper limit price for effective energy efficiency savings and should be adjusted periodically based on the relative costs of energy and the price of technology that might allow the savings to occur.

The issue of peak load reduction would require a special case of measurement of peak load growth that would provide incentives for reduction in peak loads. The penalties for failing to meet peak load reduction criteria would be difficult to determine but need to be included and set by the regulator with a regular review period.

5.3 Trading, banking and borrowing certificates

5.3.1 Tradability of certificates

SEA supports the development of a scheme under the NESI where the certificates are tradable instruments with a market based value. However, we recognise that there are

limitations to these sorts of schemes where there are only a small number of liable parties that are obligated to purchase these certificates. A small or limited market size for the obligated parties means that prices are generally dictated by the purchasers at the lowest cost initially, however, costs rise over time as the simplest and cheapest options deplete due to initial uptake and more expensive options are then required to meet obligations.

5.3.2 Banking and borrowing of certificates.

SEA supports the concept of the 'banking' of energy efficiency certificates that may be either self-generated or purchased on the open market to be able to be used to meet future obligations under the NESI scheme.

However, SEA does not support the 'borrowing' of certificates in one year to comply with the obligation. This would not encourage liable parties to trade on an open market for certificates to comply with future obligations. Through the refusal to allow borrowing, it places barriers within the markets for earlier action as well as acting as a disincentive to obligated parties to develop schemes to fund energy efficiency while minimising their own liability for failing to secure enough certificates to comply with their obligations.

5.4 Problems encountered in similar tradable certificate schemes

One risk is that if both residential and industrial certificates are combined, then the price can be depressed by a large influx of smaller energy efficiency projects which are inexpensive to implement as was seen with the RET, which required the RET certificates to be split into two classes to allow the value to be derived for larger scale projects. Adding a fixed price for small certificates and a clearing house model, without an obligation for purchase by retailers for these certificates can produce significant problems in the market.

This issue is identical to the current one facing the Small-scale Technology Certificates (STC) under the RET which are in the STC Clearing house. Only energy retailers are obligated to buy STCs and due to a large production of them being created in 2011 with no obligation to purchase, the current clearing house hold over 6.9 million certificates at a value of \$40 each, while the market trades well below this; \$30 at the time of writing. This means the value to the industry is effectively 'locked up' and unavailable to the economy. It is \$276 million of value that is effectively doing nothing, and the oldest certificates in the Clearing House are aged greater than 12 months, obviously raising a cash flow issue with those holding the certificates. This is a situation that needs to be avoided with any NESI certificate scheme.

5.5 Off grid generation eligibility

Off-grid generation often relies on expensive generation through the use of diesel generation, with little benefits for the management of 'peaking' generation as loads are more likely to be at a consistent load.

However, while energy is often more expensive in micro or islanded grids / generation, when in communities and towns (rather than private mine sites etc.) these are often supported by Governments through some form of cross subsidization of energy pricing or a community service obligation (CSO). Developing greater energy efficiency in regional or remote areas that are not connected to the NEM or the SWIS will reduce the requirement for generation of electricity. This in turn reduces the subsidies that then need to be paid by

governments for this electricity creating a benefit for the broader community through a decrease in the need for Government revenue to support the CSO.

In the case of privately owned off-grid generation such as on mine sites or remote farms / stations that are not connected to the grid and not owned by a generator / retailer utility, then energy efficiency may create private benefits directly but pass little on to energy consumers overall. It is our recommendation that off-grid energy use that is supplied by public utilities, or private utilities which supply to the public, should be eligible to be given certificates for energy efficiency measures due to the public benefit involved, however, private generation which does not supply the public or a broader community should not be eligible.

5.6 Integration and grandfathering of existing schemes

SEA supports the grandfathering of certificates or credits issued under the existing State based schemes to be integrated into the new national scheme. The value of banked and held certificates would be converted / exchanged based on the type of certificate and what it measures e.g. kg CO₂e can easily be converted to other measures of energy based on the conversion figured given in the National Greenhouse Accounting methodology.

Conversion of certificates between the schemes would be overseen by the regulatory who would take the old certificates, cancel them and issue new certificates from the NESI scheme.

5.7 Metrics of energy savings

In considering the measurement of energy savings we believe that for overall energy demand reduction GJ is the most appropriate measure. As an energy measurement, GJ is easily convertible between electricity use in kWh or MWh as well as being compatible with different fuel type be they liquids such as petrol, diesel, or natural gas. The use then of GJ would then be applied to a productivity measure of the business and the overall efficiency gains calculated based on that outcome.

The measurement of GJ also more appropriately reflects the overall energy consumption across a variety of business sectors but would not include any measurement of peak load demand reduction, which would require a separate special case for network operators to use. Rather than measurement in GJ (total energy) the peak power savings requirement would be set in MW of peak demand.

5.8 Measurement of energy savings

In all cases of the NESI scheme, the issue of measurement and verification would be required to ensure that energy savings are made. Essentially, two cases for measurement and verification would potentially operate; one for residential and the other for businesses.

In the case of residential energy efficiency where deemed savings from appliance replacement or substitution would be included, the process would be:

1. Home energy audit with recommendations;
2. Change / substitution of inefficiency systems for more efficient, which may include the issuing of deemed credits on some appliances; and

3. Review and signoff by an auditor that the changes have been made and issue of any final certificates / credits.

For businesses who may be unable to access deemed certificate credits, then a similar process would be required by certificates would need to be created annually or at any other period seen as appropriate to meets the needs of the scheme.

6 Sustainable Energy Association of Australia (SEA)

The peak body for sustainable energy

SEA promotes the development and adoption of sustainable energy technologies and services that minimise the use of energy through sustainable energy practices and maximise the use of energy from sustainable sources.

SEA 2030 VISION

'On behalf of the people of Australia, the Association will vigorously promote the development and adoption of sustainable energy so that by the year 2030 more than 30% of Australia's energy use in and across all states and territories is displaced by sustainable energy practices so that energy demand is more than 30% below that measured in the year 2000, and that more than 30% of energy use is derived from sustainable sources.'

About SEA

SEA is the peak body for all enterprises from all industries supporting sustainable energy in Australia.

SEA is an industry chamber supporting market-based solutions to grow sustainable energy. As a business chamber, membership is open to all enterprises wanting to support action on climate change through the deployment of sustainable energy solutions throughout the value chain, and inclusive of both suppliers and customers.

SEA has members from all sectors of industry and commerce and all parts of the value chain inclusive of businesses working in the built environment, transport, infrastructure, energy efficiency, green tech and renewable energy sectors.

The role of governments is to build frameworks of governance that establish clear market signals for change and growth, and allow Australia's innovative businesses to respond and deliver market-based solutions.

A key role of SEA is to offer policy options to governments building those frameworks.

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