

# STANDING COMMITTEE ON PUBLIC WORKS Inquiry into Energy Consumption in Residential Buildings

## Sustainable Energy Development Authority Submission

### Executive Summary

The NSW Government established the Sustainable Energy Development Authority (SEDA) in 1996 to deliver greenhouse gas reductions related to the production and use of energy in the state. With the support and strength of energy stakeholders in the state, the NSW Government has been acknowledged as leaders in sustainable energy development.

Specific to the new and existing home market, SEDA develops and delivers greenhouse gas abatement programs that are voluntarily adopted. A blend of policy, incentive, education and training tools are offered to Councils, industry and consumers to facilitate program uptake and outcomes. SEDA's strength is implementation, and has a proven track record in working with its strategic partners to achieve common goals.

The power of the voluntary approach is evidenced by Councils which approve 78% of the residential development applications in NSW have chosen to adopt SEDA's model Energy Smart Homes (ESH) Policy. Council programs, as well as SEDA's consumer awareness and product-related initiatives, are offered under the Energy Smart brand.

The NSW Government is meeting the community's expectation for government leadership in the provision of voluntary energy efficiency programs: to set protocols which ensure consistency and transparency; to provide advice that is independent of commercial interests; to assist in developing the market's capacity to deliver the program outcomes; and, ultimately, to support the community's acceptance of, and progression to, more stringent measures.

2003 is a transition year for SEDA's residential initiatives as the Energy Smart Homes Policy meets and exceeds its targeted uptake. The Department of Infrastructure, Planning and Natural Resources (DIPNR) is progressing state-wide regulation of energy efficiency through its BASIX sustainability index and the NSW Amendment to the Building Code of Australia.

Services to Councils will continue but SEDA will focus more on greenhouse gas savings from the 2.3 million existing homes through its new Energy Smart Home Rating Scheme. This Scheme is being modelled from SEDA's world-first scheme for commercial office buildings, and will leverage from SEDA's established business, industry and council networks. It will provide an opportunity to jointly promote SEDA's initiatives for the existing home market: Energy Smart Products, Green Power, Solar Power, and Live Energy Smart consumer awareness initiatives.

The Premier has announced that a NSW Greenhouse Office will be established reporting direct to the Premier as part of The Cabinet Office. SEDA's role in the context of this new Office and other Government agencies, is now under review.

## 1 Introduction

SEDA, on behalf of the NSW Government, is pleased to provide its information paper to the Inquiry into Energy Consumption in Residential Buildings.

This paper aims to provide for the Committee:

- an overview of SEDA's role in the provision of programs and services to the residential sector;
- an outline of past and present programs that improve consumer awareness and energy efficiency;
- the contribution of these programs to cost savings for consumers and greenhouse gas abatement outcomes overall; and
- insights into the barriers to residential energy efficiency and the trends driving residential energy use in NSW.

## 2 SEDA's Role in Residential Energy Efficiency

To date, SEDA has had a unique role in the abatement of greenhouse gas emissions in NSW households. It has focused on the development, marketing and delivery of policies, programs and services that are voluntarily adopted.

The Premier announced in February 2003 that a NSW Greenhouse Office will be established reporting direct to the Premier as part of The Cabinet Office. The NSW Greenhouse Office will position greenhouse issues at the centre of government and ensure that these matters receive the priority they deserve.

The Premier has highlighted his commitment to NSW continuing to lead Australia in new ways to reduce greenhouse gas emissions and that the first tasks of the new Office will include:

- Looking at how NSW companies can participate in new emissions trading arrangements;
- Developing new greenhouse and sustainability standards for government buildings;
- Tackling global warming by promoting sustainable agriculture and environmental waste management;
- Encouraging the further adoption of power sourced from renewables and low emissions technologies, and
- Reducing demand for power generation within government, the private sector and by the general community.

SEDA's role in the context of this new Office and other Government agencies, is now under active consideration by the government.

### a. Market Transformation

Common barriers to the uptake of energy efficient measures include consumer acceptance and awareness of the benefits, upfront cost, and product availability. Market

barriers are overcome through an appropriate blend of interventions such as consumer and industry education initiatives, standards, policy support and incentives.

This process is called market transformation. For example, 'early adopters' lead the market in mandating energy performance standards in new homes. Interventions then attract a broader segment of the market. Over time, a sufficient portion of the market adopts Energy Smart building practices that this is now viewed as standard practice. Regulation, at this point, is appropriate to mandate these standards as the new minimum requirements, and therefore eliminate worst practice. Efforts are then focussed on defining and achieving a new baseline for voluntary best practice. SEDA's Energy Smart Homes Program is a model of this process.

#### **b. Partnerships**

SEDA is a small agency with modest resources. Outcomes are achieved by targeting those areas with the greatest contribution to our GHG abatement goals, and where strategic partnerships with other NSW and Federal Government agencies, businesses, non-government organizations, councils and others can assist in attaining those goals. Through these channels, the reach to the consumers is broadened while also providing value to partners.

#### **c. Target Market**

The segment of the residential market most receptive to the environmental and cost savings messages tends to have both adults and children in the home, higher energy use, live in larger homes, be environmentally committed, well educated, and with moderate or higher income. Energy efficiency, solar and Green Power program participants tend to exhibit some or all of these traits. The solar program has a substantial additional market of homes where grid connection is technically not feasible or economically impossible for the occupant.

Participants tend to exhibit greater educational and financial commitment to a voluntary initiative than a regulated initiative. For example, Green Power requires not only a commitment to understand the benefits of renewable energy generation and to go through the process of signing up, but can also represent a significant financial commitment.

The market segment defined above comprises approximately 25% of the residential market. The challenge is to expand the energy efficiency knowledge, relevance and action beyond the target market. In the new home market this is done largely through policy and regulatory mechanisms, but in the existing home market where regulation is less prevalent, it relies heavily on more awareness and incentive programs that drive behaviour change and purchasing decisions.

### **3. Strategies in New Residential Dwellings**

There are some 45,000 new dwellings approved in NSW each year with an increasing portion of these being multi-unit dwellings<sup>1</sup>. New homes, by virtue of their longevity

and the relative cost-effectiveness of installing energy saving measures at construction stage, represent a key audience of NSW Government programs.

#### **a. Energy Smart Homes Program**

Local government plays a key role in both a policy-making and leadership capacity in improving the energy efficiency of new homes. Since 1997, the Energy Smart Homes (ESH) Program has been the Government's key initiative in the new home market, providing policy, training, and education support for industry, business and residents.

A central component of the ESH Program is its ESH Policy. This model policy has fostered consistency in residential development control plans across NSW councils in the absence of state regulation.

The policy includes:

- Minimum 3.5 star NatHERS rating of thermal performance;
- Greenhouse friendly (gas, solar, heat pump) hot water system; and
- Minimum 3.5 star rating for electric clothes dryers in multi-unit dwellings.

In addition, a Solar Access for Lots Guide for industry and local councils has been revised by Solarch, and has been trialled on actual development applications. The new Guide was launched in September 2003 and will assist industry and councils in maximising the amount of solar access on lots in residential Greenfield subdivisions.

A typical new project home in 1997 rated 2 stars or less. Six years later, the minimum 3.5 star requirement in the ESH Policy has been adopted by Councils approving 78% of the residential development applications in NSW. SEDA does not regulate building development, rather it assists councils in embedding these Energy Smart requirements within councils' policies and processes.

##### *(i) Nationwide House Energy Rating Scheme (NatHERS)*

The NatHERS energy rating tool is the basis of deriving consistent minimum energy performance requirements for residential building designs across NSW. The software, which assesses the potential thermal performance of a home, was developed by the CSIRO and funded by national and state governments. The Australian Greenhouse Office (AGO) is now the National NatHERS Administrator, appointed by the Energy Efficiency and Greenhouse Working Group, which is under the umbrella of the Ministerial Council on Energy.

NatHERS provides a 'rating' for new homes, on a scale of 0 to 5 stars, with a rating of 0 representing poor performance, while a rating of 5 is excellent. A NatHERS rating draws on both development (overshadowing, dwelling shape) and construction (insulation, glazing type, wall colour) aspects.

SEDA established the House Energy Rating Management Body (HMB) in 1997 to equitably administer the scheme in NSW. The HMB administers and accredits NatHERS Assessors, and is currently operated by Solarch, UNSW.

The HMB Steering Committee, which oversees the operation of HMB, is chaired by SEDA and represented by all major building industry associations in NSW:

- Master Builders Association (MBA)
- Building Designers Association (BDA)
- Royal Australian Institute of Architects (RAIA)
- Housing Industry Association (HIA)
- Accredited NatHERS Assessor Representative
- Local Government Association and Shires Association
- Department of Infrastructure, Planning and Natural Resources (DIPNR)

The Steering Committee has been transitioning the HMB to a more independent status in 2003. The establishment of a new organisation has been agreed to, and the incorporation process is currently underway.

There are currently 270 Accredited Assessors in NSW whose role is to provide accurate and informed house energy ratings from residential plans and specifications (or design drawings) and may suggest changes to a design to improve its energy rating. A NatHERS certificate is attached to development applications and this is an attractive benefit to Councils as their resources are not required to ascertain ESH Policy compliance.

Continuous improvements to House Energy Ratings have been made to meet the needs of industry:

- Development of deemed-to-satisfy criteria to assess thermal performance of Alterations and Additions;
- Broadening the membership of the HMB Steering Committee;
- Resolution and removal of the small house bias in the NatHERS software; and
- Creation of the HMB Expert Panel to assess energy efficient designs that cannot be rated by the NatHERS software (for example, stack effect chimneys, trombe walls, other difficult-to-model architectural features).

Development is underway to:

- Develop a software validation protocol that will provide a basis for assessment of the performance of house energy rating software tools (NatHERS, FirstRate, BERS, etc). Currently being developed by the Australian Building Codes Board, the Protocol will be referenced in the NSW Amendment of the BCA.
- Issue a new version of NatHERS (which will be named AccuRate) which will resolve technical issues as well as include a new user interface.

NSW Government policy support and implementation experience with Councils and industry, as well as the relationships and capabilities this engagement has fostered, are key to smoothly progressing further energy efficiency outcomes in NSW such as DIPNR's BASIX (see section 3(b)).

#### *(ii) Education Initiatives*

Industry and Councils are a key audience for Energy Smart design and building training. Training is provided for policy, environment and customer service staff within Councils, the building industry, and the community on the ESH Policy specifically, and

Energy Smart principles generally. Workshops on photo-voltaics, streetlighting, Energy Performance Contracting and the Building Code were hosted by SEDA in the last year.

Three Energy Smart Weeks have been held in Orange, Coffs Harbour and Broken Hill in 2003. A successful model of integrating the training and promotional needs for all audiences and engaging Councils in the development and hosting of the energy awareness events has been developed.

### *(iii) Partnerships*

Active engagement with industry and Councils has contributed to the ESH Program uptake:

- NatHERS Technical Advisory Committee membership, together with other NSW representatives from the RAIA, BDA and DIP&NR, and other state agencies including SEAV, SEDO, and EnergySA.
- Chairing the HMB
- Industry Associations (see 3.a.i)
- Urban Development Institute of Australia
- Local Government Association and Shires Association
- Coordination through Council Support Managers, contracted by SEDA to assist councils implement energy efficiency policies or measures, for ongoing service provision to councils.
- DIPNR regarding the NSW amendment to the Building Code of Australia, the development of BASIX, and the Solar Access for Lots Guide.

Some ESH Policy activity will subside as BASIX and the BCA are introduced. Many initiatives such as the Solar Access for Lots Guide, greenhouse friendly hot water, and ESH Policy activities outside of Metro Sydney will continue as they are not immediately affected by BASIX or the BCA.

### *(iv) Program Outcomes*

There is currently no state policy in place for energy efficiency provisions for all residential development. Through the partnerships with Councils, the outcomes from ESH Program are significant<sup>2</sup>:

- 59 councils covering 78% of NSW residential development applications have adopted the Energy Smart Homes Policy, and 51 Councils representing 63% of residential development applications have adopted greenhouse friendly water heating requirements.
- Building envelope and hot water savings total 1.5 – 2 Tonnes CO<sub>2</sub> per year for a single family dwelling, or an average of \$100 - 150 per home per year. Additional savings are accrued through efficient appliances (eg lighting, showerheads, whitegoods).
- 63,000 new dwellings have been built in NSW under the Energy Smart provisions, and those built between 1998 and 2002 are achieving collective savings of 98,600 tonnes of CO<sub>2</sub> per annum.
- Setting an overall standard in building design which has been accepted across most of the major local government areas in NSW.

- Energy Smart Councils have adopted Energy Smart principles as a core part of their planning and building inspection culture.
- Compliance to Councils' development control plans by single dwellings is reported by Councils to be over 95%, and 100% for multi-unit dwellings.
- Support and education programs have been an essential part of the smooth implementation of the Policy.

Program expenditure was \$225,000 in 2002/03 and a less amount is projected in 2003/04.

#### **b. Building Sustainability Index**

BASIX is currently under development by The Department of Infrastructure, Planning and Natural Resources.

BASIX is a web-based planning tool for Councils and proponents of residential dwellings to assess the potential performance of their development against an agreed set of sustainability indices. It will encourage developers to focus on the areas that can reasonably be addressed at the building construction stage such as energy and water efficient fittings and appliances, building materials and landscaping.

From 1 July 2004, it will be mandatory for all residential developments in the Sydney metropolitan area to meet the BASIX targets set for the Water and Energy indices.

For Water, developments approved from July 2004 (Sydney metropolitan area) are required to achieve a BASIX rating of 40 for water conservation. Achieving this rating will mean that you have potentially reduced your potable water consumption by 40%.

For Energy, developments approved from July 2004 (Sydney metropolitan area) are required to achieve a BASIX rating of 25 for energy conservation. Achieving this rating will mean that you have potentially reduced greenhouse gases by 25%.

This target will be increased in July 2006 to 40 for energy conservation, projected to achieve a 40% reduction in greenhouse gases. Developments will effectively meet this target if they include an efficient hot water system and a well designed house to make the most of natural cooling, heating and lighting.

The expected water and energy performance of planned dwellings is compared against the current baseline for existing homes.

Public exhibition is planned for February 2004 in advance of BASIX roll out in metropolitan Sydney July 2004, and in non-metropolitan areas from July 2005.

BASIX has the potential to build from the foundation of industry and Council skills and knowledge established through the Energy Smart Homes Program. Once the transition from the Energy Smart Homes Policy to BASIX is complete, BASIX will become the single residential planning tool for NSW Councils.

It is noted that a separate submission on BASIX has been provided to the Standing Committee by DIPNR.

### **c. Energy Smart Hot Water Discount**

The Energy Smart Hot Water Discount has been provided as a key incentive for Councils to adopt the ESH Policy. The point-of-sale discount of \$500 to \$700 off solar and heat pump hot water systems was jointly funded by SEDA and participating water heater manufacturers. The discount was available to residential development applicants in Energy Smart Council areas.

Electric storage water heating is solely responsible for the greatest portion of GHG emissions in NSW homes. With two-thirds of the state's hot water systems being electric storage, encouraging greenhouse-friendly alternatives at construction stage is imperative.

In Energy Smart Council areas with access to reticulated gas, gas storage systems are the preferred system for new construction because of their low purchase and operating cost, and they meet the requirements of the ESH Policy. Gas storage systems are a greenhouse-friendly alternative to electric storage but, because they are similarly priced to electric, have never been entitled to a discount. However, in the north and central coast of NSW and other regional areas where there is no, or limited, access to reticulated gas, there was high demand for the discount to offset the higher cost of complying solar and heat pump systems.

Over 8400 discounts had been granted and GHG abatement of 17,000 Tonnes of CO<sub>2</sub> per year is being achieved. The discount, together with Renewable Energy Certificates available through the Commonwealth, reduces the payback of solar and heat pump systems to around 5 years which consumers require.

Program expenditure was \$607,000 in 2002/03.

### **d. Energy Smart Home Industry Partnerships**

In 1999 the Energy Smart Home Industry Partnerships was launched. This was a voluntary commitment by key builders and associations to build to Energy Smart guidelines, in advance of the broader uptake of the ESH Policy by Councils.

While this program has formally not continued, much of the industry association management has continued under the banner of the ESH Program in so much as the relationships are central to the attainment of the ESH Program's goals. SEDA is frequently asked by developers to provide technical assistance to guide the selection of environmentally sustainable design options, and marketing assistance to reward best practise. With limited funds it has primarily promoted best practice through Councils, while other organizations such as Landcom, the HIA, and potentially DIPNR and BASIX engage with developers.

Sponsorship of key industry associations is undertaken each year, in particular several annual residential energy efficiency awards. This recognizes the good work undertaken by industry and reinforces and promotes the benefits of adopting Energy Smart principles.



Specific to Landcom, SEDA contributed in 2002 to Landcom's Energy Smart Urban Solutions project in which energy supply and efficiency options were modelled for two proposed developments. Landcom has since developed its own Energy Smart Communities Policy which builds upon the foundation of the ESH Policy and mandates more stringent measures such as 4 ½ star NatHERS and gas boosted solar water heaters. As these measures become mandatory for Landcom's development partners, Energy Smart principles will become further embedded within the building industry in NSW.

#### **4 Strategies in Existing Residential Dwellings**

In NSW there are some 2.3 million dwellings responsible for 20 million Tonnes per annum of GHG emissions, or 30% of the NSW total. Actual energy consumption figures reported by both the NSW Ministry of Energy and Utilities<sup>3</sup> and ABS<sup>4</sup>, plus modelled figures undertaken for SEDA<sup>5</sup>, indicate emissions associated with an all electric home are 7 to 10 Tonnes of CO<sub>2</sub>, and electric and gas homes are 5 to 6 Tonnes CO<sub>2</sub>. These are averages: some homes are reported to be 2 to 3 times this amount.

Data relating to the energy consumption by end-use within the home is generally derived through modelling. Modelled findings typically indicate that GHG emissions for an all-electric home are in the range of 40% for hot water, 20% for heating and cooling, and the balance to appliances and lighting<sup>5</sup>. (These are 1998 figures and do not reflect the growing contribution from air conditioning). The fuel source for hot water greatly influences the total emissions because electric storage hot water systems represents 4 to 5 Tonnes CO<sub>2</sub> per year, whereas gas storage is some 1.5 Tonnes and may represent only 15 to 20% of a home's GHG emissions<sup>6</sup>.

SEDA's efforts that target existing dwellings include broad consumer education and awareness initiatives as well as specific technology-oriented programs.

##### **a. Energy Smart Home Rating Scheme**

SEDA is developing an Energy Smart Home Rating Scheme to answer the question of "how is my home performing?" and to feed such learnings back into the design process. Residential rating tools and check lists have focused on the design of prospective homes and, in the case of NatHERS and ACTHERS (a rating is mandatory in the ACT at the time when a home is sold) and others, only relate to the building envelope.

The Energy Smart Home Rating targets existing homes and compares a household's actual greenhouse gas emissions to the NSW average and delivers a star rating accordingly. It is performance-based and reflects actual consumer behaviour as evidenced by the billed energy use and occupancy patterns, rather than a projected use derived from design inputs.

Homes that rate poorly are likely to seek out the basis of their poor performance, and such support will be provided by the Scheme in the way of a diagnostic tool on the web site or a personalized home energy audit. Incentives for Energy Smart Products (see Section 4b) that can improve a home's rating will be promoted and made available to the consumer. Those consumers with high performing homes will be similarly rewarded for their performance through a unique suite of incentives.

The Scheme is modelled from the Australian Building Greenhouse Rating Scheme for commercial office buildings and has a similar two-tiered structure to enable both a do-it-yourself rating and an official rating provided by accredited service providers.

It is expected the Scheme will:

- reduce greenhouse gas emissions from the existing homes market in NSW through behaviour change and ultimately market transformation;
- deliver cost savings to consumers;
- provide a capital gains value for high star performers as a higher rating will imply a higher quality home<sup>7</sup>;
- provide economic benefits to industry through the product and service opportunities that arise; and
- become a standard benchmark for greenhouse performance and provide a baseline for further policy, program and service delivery mechanisms in the residential sector.

*(i) Partnerships*

As with the ESH Program, the Government's role is to be the catalyst that provides the credibility and impetus for this Scheme to be adopted. Market research has indicated that Government management of the scheme is critical for consumers to be assured of unbiased and reliable analysis and recommendations.

A stakeholder group comprised of Council, corporate, non-government, academic and consumer representatives is providing advice not only on the rating tool, but on the marketing, corporate partner, product partner, and service delivery strategies critical to the Scheme's success.

SEDA is working with the Commonwealth's Department of Environment and Heritage (DEH) to collaborate on the energy algorithms that are being developed for DEH's NABERS sustainability indices for existing homes. SEDA is also working with the Victorian EPA to adapt their Greenhouse Calculator for the Scheme.

The design, delivery and usability of the Scheme will be trialled in early 2004 and roll-out and refinement will be ongoing through 2004. Expenditures in 2002/03 were \$121,000 and are budgeted at \$460,000 in 2003/04.

The following table summarizes the role and focus of various policy instruments and rating tools in the residential market:

	Dwelling Type		Subject				Application		Jurisdiction
	Class 1 buildings	Multi-unit	Sustainability indices beyond energy	Total energy	Hot water	Building Envelope	Design for new homes	Performance of existing	
<b>POLICY INSTRUMENTS</b>									
SEDA Energy Smart Homes Policy	✓	✓			✓	✓	✓		NSW
Building Sustainability Index: BASIX <sup>2</sup>	✓	✓	✓	✓			✓		NSW
<b>RATING TOOLS</b>									
NatHERS <sup>1</sup>	✓	✓				✓	✓		National
FirstRate	✓					✓	✓		VIC
ACT House Energy Rating Scheme: ActHERS	✓					✓	✓		ACT
Building Energy Rating Scheme	✓					✓	✓		QLD
SEDA Energy Smart Home Rating Scheme <sup>2</sup>	✓	(✓)		✓				✓	NSW
National Australian Built Environment Rating Scheme: NABERS <sup>4</sup>	✓	✓	✓	✓				✓	National

Table Notes:

Class 1 buildings: Detached, town house, row house, terrace house, villas.

1 Under Revision, to be relaunched as Accu-rate.

2 Under Development.

3 ( ) indicates future focus.

4 Under Development. SEDA and NABERS' Department of Environment and Heritage are in discussion regarding collaboration on the energy index.

## b. Energy Smart Products

Energy Smart Products is the umbrella program for all product-related initiatives.

### (i) Education Initiatives

In addition to the council events referenced previously, SEDA reaches consumers directly through several initiatives including:

- the Sydney Home Show where some 15,000 consumers visited the Energy Smart display to view (and enter to win) products donated by Energy Smart Product Partners, learn Energy Smart tips, and take away Energy Smart information.
- Cowra and Central Coast Home Shows
- 3 regional seminars
- The Gardening Australia Live show, jointly with the UNSW EcoLiving Centre and the Alternative Technology Association;
- Regional Energy Smart Weeks where school visits, mall displays, council, industry and community seminars are coordinated by SEDA.

- Sponsorship of the AGO's Sustainable Housing Seminars in NSW
- Energy Smart Zone greenhouse game for Years 5 and 6, and school visits in Coffs Harbour and Orange.
- Solar in Schools gives NSW schools their own solar power system and resources to teach about energy and the environment.
- "Do Something Cool for Your Home" awareness campaign and insulation promotion with Penrith Council in December 2003, and Parramatta in January through March 2004. Joint opportunities are being reviewed with Integral Energy.

SEDA supported a total of 96 industry, council and community events in 2002/03 alone.

The Energy Smart Information Center (ESIC) is staffed by energy experts who assist consumers and industry with renewable and energy efficiency queries. ESIC answered over 5800 calls last year, an increase of 12% from the previous year, on a wide range of topics. Over 80% of clients specifically request information on residential energy efficiency; with building design, NatHERS, insulation, cooling and heating, water heating and solar power enquiries as high rating topics. The [energysmart.com.au](http://energysmart.com.au) website had almost 30,000 hits in 2002/03 and will continue to grow as services such as our on-line hot water calculator and home rating tools draw new users.

Recent market research<sup>8</sup> has indicated 83% of respondents stated the Live Energy Smart messages are important, with more than half of these respondents stating it as very important. Consumers value the credibility and reliability that is associated with the Government provision of energy efficiency information.

#### *(ii) Partnerships*

There are 11 Energy Smart Product Partners which manufacture greenhouse friendly hot water systems, compact fluorescent lamps (CFLs), whitegoods, AAA-rated showerheads and insulation products. Each Partner contributes a \$5,000 royalty fee annually, which licences them to use the Energy Smart product logo on approved products, and these funds are pooled to increase the leverage of Energy Smart promotions. In addition, joint promotions, such as a regional NSW initiative with Retravision and Whirlpool, and others planned this year provide additional market reach.

From the perspective of appliance and home electronics standards, SEDA and the NSW Ministry of Energy and Utilities are represented on the National Appliance and Equipment Energy Efficiency Committee. NAEEEEC is chaired by the AGO and is responsible for implementing energy efficiency programs for appliances and equipment, including minimum energy performance standards and energy labelling.

Specific initiatives relating to Energy Smart Products are listed below.

#### *(iii) Reach for the Stars Program*

SEDA, in conjunction with the Sustainable Energy Authority Victoria (SEAV) and the AGO, ran the Reach for the Stars Appliance Efficiency Program from February 2000 through to June 2002. The program included energy efficiency training for retail staff,

point-of-sale whitegoods promotions, and consumer brochures on the energy ratings of various types of appliances.

SEDA expanded the use of the program materials to EECA, New Zealand, the Sustainable Energy Development Office WA, and Energy SA. Activities across SA and WA are continuing, whereas SEDA now includes the education and awareness aspects under the Energy Smart product umbrella rather than the national initiative.

81% of consumers indicated that the energy rating label, energy efficiency, and environmental friendliness were important when considering a purchase<sup>9</sup>. However, energy labels, in themselves, are typically insufficient to cause substantial change in consumer purchasing practices<sup>10</sup>. While less than ½ of appliance retailer respondents indicated awareness of Reach for the Stars Training kits, 84% commented that the training was useful<sup>11</sup>.

#### *(iv) Energy Star*

ENERGY STAR is an international standard for energy-efficient electrical equipment. SEDA manages the Energy Star Home Electronics Program in Australia, on behalf of the AGO. Energy Star compliant home electronics, such as TVs, VCRs, DVDs and audio products, have low standby power consumption.

Under the program, home electronics manufacturers sign a voluntary agreement, or Memorandum of Understanding, to undertake several activities under the Program. Joining the program entitles them to use the Energy Star label on complying products. SEDA works with manufacturers to promote the use of Energy Star compliant products.

The National Standby Strategy, launched by the AGO in 2002, covers a range of products, including home electronics. The Standby Strategy will incorporate the Energy Star Program.

SEDA will complete its partnership agreement work for Energy Star in 2003/04 and will be transferring responsibility back to the AGO.

#### *(v) Community Housing Energy Program*

The Government has conducted a number of direct-install projects aimed at reducing household energy use and reducing electricity bills and greenhouse gas emissions attributed to household electricity consumption.

The first of the direct-install programs was the Community Housing Energy Program (CHEP) launched in 1997. The program was offered through cost sharing arrangements with the NSW Department of Housing, Sydney Water and community housing groups.

The program involved fitting community housing with some or all of the following: AAA rated water and energy saving showerheads; flow regulators in kitchen and bathroom sinks; toilet water-saving device; ceiling insulation in the living area; weather sealing around doors; and compact fluorescent lamps (CFLs).

Over \$2 million was spent for almost 8000 retrofits. The estimated energy savings were 957,500 MWh/yr, lifetime dollar savings of \$9,575,000 and greenhouse gas saving of 91,650 LT CO<sub>2</sub>e.

*(vi) Energy Smart Installers Program: Leichhardt and North Sydney*

A second program, the Energy Smart Installers program, was developed in 2000/01 and built on the learnings from the CHEP program. It offered a discounted package to households in targeted council areas. The package included: an AAA-rated showerhead; toilet water-saving device; two tap aerators; and two CFLs.

Sydney Water provided funding to subsidise the retrofit package and installation. The Energy Smart Installer project was run in Leichhardt and North Sydney councils. A total of 805 packages and 1156 CFLs were installed amounting to an estimated energy savings of 886 MWh/yr, lifetime dollar savings to the households of \$885,920 and greenhouse gas savings of 8,369 LT CO<sub>2</sub>e.

*(vii) Energy Smart Installers Program: REFIT in the Lower Hunter*

The most recent direct-install project was the REFIT pilot project conducted in the Lower Hunter area from November 2001 to December 2002. The Community Home Energy Efficiency Partnership (comprised of the NSW Council of Social Services, Department of Community Services, Department of Fair Trading, Sydney Water, The Smith Family and SEDA) developed the program.

Energy Australia provided funding for the purchase and installation of the products, Hunter Water contributed to the marketing, and Newcastle City Council was contracted by SEDA to undertake the project management.

The primary aim of the REFIT pilot was to provide a free direct install service to low-income householders in the private rental market to help them reduce household electricity and water use and save money on their energy and water bills.

92% of respondents stated the project had encouraged them to continue to use energy and water efficient devices. Another positive aspect of the project was that 64% of respondents stated that they had experienced cost savings on their water and energy bills since receiving the direct-install service<sup>12</sup>.

The REFIT pilot project completed 1124 retrofits, which amounted to an estimated energy savings of 1113 MWh/yr, lifetime dollar savings of \$1,333,020 and lifetime greenhouse gas savings of 11,128 Tonnes CO<sub>2</sub>e.

*(viii) New Product Opportunities*

The existing NSW retrofit market is very small due to the high costs associated with providing a technology package and a one-stop-shop approach towards audits and installations.

The introduction of the NSW Greenhouse Gas Abatement Scheme will provide a mechanism to increase the uptake of AAA-rated showerheads and CFLs by assigning NSW Greenhouse Gas Abatement Certificates (NGACs) for the installation of these technologies.

Although NGACs will provide incentives to install AAA-rated shower heads and CFLs, education and awareness programs will continue to inform the general population of these incentives to aggregate NGACs, to reduce project costs and to assist with registration to the Benchmarks scheme.

### **c. Green Power**

Green Power was developed in 1997 in response to both a demand from consumers for electricity for renewable energy and from industry to assist in its development. It was established in the absence of any regulated industry driver. The Green Power Program accredits participating retailers and renewable energy generators to ensure compliance with its strict environmental and auditing criteria.

Almost 14,000 residential customers choose to offset their electricity related greenhouse gas emissions through the purchase of energy from the sun, water, wind and biomass. These increased sales to residential (and business) customers has driven significant investment (\$170m) in new renewable energy projects in NSW.

Green Power customer numbers increased rapidly in the first 4 years of the program, from zero to over 20,000. Demand increased proportionately with NSW sales peaking in 2001 at 234 GWh, and remaining constant since. Residential sales represent 50-60% of Green Power sales in NSW. Cross marketing through the Energy Smart Home Rating Scheme and regulatory requirements may be mechanisms to contribute to further growth.

Over the 6-year life of the program, around 1800 GWh of renewable generation have been sold - the equivalent of taking over 1.8 million cars off the road for 12 months. More than 130 new renewable generators have been accredited under the program.

SEDA works in close collaboration with agencies from all other State jurisdictions (except Tasmania and NT) that form the National Green Power Accreditation Steering Group. In addition, it also works with electricity retailers, renewable energy generators and interest groups in the operation and development of the program.

### **d. Solar Power in Homes**

The Government encourages the use of solar power on residential buildings by providing rebates to consumers who choose solar power to meet some or all of their energy needs.

Solar Program customers generated some 600 MWh of energy from their photovoltaic systems in 2002/03. Of interest, the Program shows that the energy consumption of off-grid households increases after the purchase of a solar power system, but does not reach typical on-grid household levels. Evidence suggests, however, that energy consumption in on-grid households decreases significantly after the purchase of grid-connected solar power.

Consumers in NSW are assisted by the:

- provision of independent advice;
- maintenance of a central database of equipment suppliers;
- checking for appropriate training of equipment suppliers and installers; and
- provision of case studies and FAQs for first-time buyers.

Solar Month is a calendar of events to help the community understand how to apply solar power technology to their lives. Events in 2003 included community information nights, local government information sessions, open house tours, and trade exhibitions. Also, Australia's only survey of solar power consumers is undertaken and published annually.

#### **e. Demand Management Opportunities**

NSW is facing a major expansion in electricity network capital expenditure of around \$1 billion per annum and electricity prices are expected to increase. The expenditure is needed to replace aging infrastructure and meet rising peak power demand, predominantly driven by summer air conditioning load.

SEDA is pursuing opportunities with developers and energy networks to target demand reduction initiatives in capacity constrained areas, as its programs have the potential to contribute to reducing peak demand growth. This demand management role draws upon existing implementation experience for current and potentially new initiatives to deliver peak demand reductions.

### **5 Additional Information Specific to the Committee's Terms of Reference:**

#### **a. Changes in annual energy consumption patterns of electricity, gas and solar.**

Published findings from others indicate steady increases in household electricity and gas use. Evaluated results from SEDA's programs document energy savings, cost savings, and abatement outcomes from both improved energy efficiency and the displacement through renewable sources. While evaluations indicate that education and awareness initiatives affect product purchases and behaviour, energy savings outcomes of these are not calculated.

#### **b. Factors contributing to any increase in energy use**

Barriers to increased energy efficiency by residential customers include:

- Energy not being a significant issue for most consumers.
  - Domestic fuel and power costs average some 2% of weekly household expenditure<sup>13</sup>. This is a low base from which to attract consumer attention, but also from which to transform that attention into an informed purchase or behaviour decision.
  - Energy efficiency ranks behind price and features as an appliance selection criteria, despite awareness of energy rating labels being over 90%<sup>14</sup>.
- Consumers tend to not be prepared to trade comfort for saving energy<sup>15</sup>.
- Consumers typically demand a payback of 5 years or less.



Some of the many factors contributing to an increase in energy use include:

- Decreasing number of occupants per home<sup>16</sup>.
- The size of new approved houses in NSW has increased over 65% from 1985 to 2002, and 20% since the ESH Program was introduced in 1997<sup>17</sup>.
- The prevalence of home offices and potential for increased home occupancy rates and appliance intensity.
- More consumer goods and appliances are being used in the home<sup>18</sup>. There is strong growth in dishwashers, air conditioners, home electronics, halogen lights and spas.
- Standby power associated with consumer goods and appliances is currently around 10% of residential emissions and growing. The AGO is addressing this through its Standby Power Strategy, 2002-2012.
- Consumers' behavioural choices. Beyond the technical nature of house design and appliance selection is the key driver of consumer behaviour. One recent study indicates that only 55% of household energy consumption can be explained by definable variables such as number of occupants, household income, solar aspect, hot water system, appliance choice etc. It is expected that occupant behaviour is a major influence on the remaining 45% of household energy consumption<sup>19</sup>. This conclusion is consistent with results of a Danish study<sup>20</sup> whereby some 43% of home electricity consumption had to be accounted for through other behavioural and arbitrary factors.

This is corroborated by ABS findings<sup>21</sup>. 'While there is widespread penetration of some energy saving measures, for example insulation, fluorescent lights and use of cold water in washing, there was also an increase in the number and usage of energy using household appliances. There has been a significant increase in the number of households with air conditioners from 35% of dwellings in 1994 to 49% in 2002'.

So, while the sales weighted energy consumption for appliances covered by the AGO energy labelling program is decreasing<sup>18</sup>, and while outcomes from the Government's and other organizations' initiatives are realized, residential energy use continues to grow.

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## Précis

**This submission is made by the HIA, BDA NSW, MBA, NSW Urban Taskforce, HMB and Solarch in response to concerns over the current development of the NSW variation to the Energy Efficiency Amendment 14 to the Building Code of Australia.**

The NSW variation, scheduled for adoption in May 2004, has been developed through extensive consultation with industry and local government and had been finalised pending approval by the DIPNR executive.

**It has, in effect, been vetoed by DIPNR, without forewarning or consultation.** DIPNR's proposal is that the NSW variation to the BCA should abandon nearly all the national provisions and that a new state planning regulation, BASIX, should control issues related to energy performance. This is unacceptable. We support the concept and objectives of BASIX but are concerned about the process of its development and implementation and its impact on the BCA.

**DIPNR has been unable or unwilling to provide any detail** as to the actual control measures included in BASIX but intends to implement it in June next year. It has not engaged in appropriate consultation with industry or local government.

**DIPNR's proposal is unnecessary and unworkable.** The schedule proposed for the implementation of BASIX does not allow adequate time for its development and validation or the necessary training and adjustment required by industry and Councils. There are countless technical and administrative issues yet to be resolved.

**Industry is concerned that BASIX will add further burden to the Development Application assessment process which is already struggling to cope.**

**The Sustainability Unit's proposal undermines existing policies rather than building on them.** Nearly 500 building professionals have, over the last five years, invested thousands of dollars and much time and effort, in gaining accreditation required by the government's policy of the day. BASIX may make their qualifications irrelevant, destroying many established Energy Rating businesses. The recommended BCA provisions provide a smooth transition from current Energy Smart Homes DCP and, in the immediate future, would deliver simpler administration and a better state-wide performance outcome than is proposed for the introduction of BASIX.

**We support the development of national sustainability regulations through the BCA** and will assist in the incorporation of the BASIX model into the BCA. Dissatisfaction with the slowness of development of the BCA must not lead to abandoning the BCA. We will work with Government to improve the BCA to make it more responsive to new expectations.

**There is no need to abandon the recommended BCA provisions – they are** complementary to **BASIX** – providing standards for *minimum accepted performance* that could be evaluated by BASIX, which could then provide flexible paths for achieving *better performance*.

**If necessary, the performance outcomes of the BCA could be readily improved in order to achieve a targeted 25% reduction in greenhouse gas emissions.** Industry has achieved this target for several years, through regulation of building thermal performance and water heating by the current Energy Smart Homes DCP. Practical, proven strategies could be incorporated in the BCA provisions:

- increasing the building thermal performance benchmark from 3.5 to 4 stars
- establishing heating and cooling performance requirements as well as annual
- demonstration of improved peak load performance
- including requirements for low greenhouse water heaters and AAA shower roses.

**We** understand the role of regulation to eliminate worst practice in sustainability. We understand the need to incorporate sustainability measures in the design and construction of land estates and all dwellings and consider the BASIX tool as having the potential to perform both a regulatory role and to guide industry best practice.

**BASIX should be tested and refined through a voluntary program on a manageable scale before its adoption as a national or state assessment tool.**

We consider that adoption of the recommended BCA provisions would deliver the required performance outcomes across the state within an appropriate timeframe and without the risks associated with unresolved issues inherent in BASIX.

We request an *urgent* meeting of the BRAC, Energy Efficiency Sub-committee and senior DIPNR officers to resolve the BCA amendment and end the current instability and uncertainty .

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(per)

Robert Fuller  
Chief Executive Officer  
Newcastle Master Builders Association

Max Mosher  
Steering Committee  
House Energy Rating Management Body

## Introduction

This submission to the Department of Infrastructure, Planning and Natural Resources (DIPNR) is made jointly by:

- the Building Designers Association NSW
- the Housing Industry Association
- the Master Builders Association NSW & Newcastle
- the NSW Urban Taskforce
- the House Energy Rating Management Body
- Solarch

This submission outlines significant concerns with the current BCA/BASIX outcomes, and presents positive options for achieving improved energy efficiency in residential dwellings through policies that are proven to be effective and are able to be implemented within current constraints of time and resources.

## Background

The Minister's Building Regulation Advisory Council (BRAC) and Energy Efficiency Subcommittee (EES) have, over the last 18 months, conducted an extensive review of proposed Energy Efficiency amendments to the BCA and has finalised proposed NSW variations. These variations were awaiting final endorsement of the BRAC before being put to the DIPNR executive for its consideration. The deadline for inclusion of the NSW variation in Amendment 14 of the BCA was this month, November 2003. Amendment 14 will be implemented in May 2004.

The DIPNR Sustainability Unit has been concurrently developing BASIX, an assessment tool intended to be accompanied by a SEPP regulating energy and water use in new residential construction. It is intended to be implemented in the Sydney metropolitan area in June 2004 and the remainder of the state in June 2005.

The objectives set for the BRAC and EES in developing the NSW BCA variation, by DIPNR, were:

- achieving effective, workable regulations
- harmonisation / substitution for current local government Energy Efficiency DCP
- maintaining consistency where possible with the national Building Code of Australia

Harmonisation with BASIX was included in these objectives, but no detailed information on BASIX was made available to participants.

The current recommended NSW BCA variation adopted the national provisions for building envelope thermal performance and insulation of hot water piping and air-conditioning ducts with the exception of:

- inclusion of a distinct NSW north coast climate zone
- simplified variations to the glazing requirements
- minor modifications to insulation requirements
- clarification of application to renovations, additions and relocated buildings
- the performance benchmark for determining compliance via the Verification Method was set at 3.5 stars, due to the delay in delivery of improved assessment software.

The BCA proposal would have achieved a consolidation of benefits currently delivered through the Energy Smart DCP with the extension of these requirements to the whole State. It would have been preferable to have not required this State variation – consistency with the national BCA should be maintained wherever possible. The BCA amendment was seen as

the consolidation of current DCPs and the creation of a valid, state-wide and national platform upon which to build improved regulation of environmental performance over the coming period. The Australian Building Code Board (ABCB) has just initiated its first review of the BCA Energy Efficiency measures as part of the established review and reform process.

It was assumed that BASIX would address a broader range of issues than the BCA would cover and that BASIX might seek higher performance benchmarks than the BCA. It was envisaged that the BCA would establish minimum standards of performance and that BASIX would provide flexible options for achieving better practice.

The last meeting of the EES ( 28 October 03 ) was presented, for the first time, with a proposal from officials developing BASIX , that the proposed NSW variation to Amendment 14 of the BCA be radically changed in order for it to be compatible with BASIX. Their proposal was that the **BCA Energy Efficiency regulations not be applicable to NSW, other than the requirements for insulation and sealing.**

All EES participants expressed their concerns. No decision on this proposal was requested and no path for its resolution was defined. An untenable situation has been created where the application of the Energy Efficiency provisions of the BCA in NSW is completely unresolved, with only a few weeks to meet the deadline for inclusion in the BCA Amendment 14.

Policy and indeed, development, outcomes are now uncertain – there is, as yet, no proposal as to the regulatory requirements that BASIX will include. The current uncertainty means it is now impossible for industry and councils to begin preparing for the changes to building regulation as had been planned.

Failure by the Sustainability Unit to communicate and co-ordinate with the BRAC displayed a disregard for the consultative process and for the considerable time and effort that has been applied by members of the BRAC and EES 18 months of hard work by the BRAC and EES may now be made irrelevant.

This situation could have been avoided by better communication and management. Harmonisation with BASIX was repeatedly placed on the agenda for consideration by the BRAC and EES, but the BASIX developers provided no information as to what the BASIX requirements would be.

## Concerns

There are significant concerns with the proposal made by the BASIX developers, relating to:

- improvement in sustainability outcomes for new homes;
- simplification of compliance requirements and improvement in approval processing; and,
- delivery by July 2004.

## Sustainability outcomes

The BASIX developers have provided **no detail as to the actual impact on building design and construction.** It is understood that the method for assessing building thermal performance by BASIX has only just been commenced and it is meant to be finalised by February.

A stated objective is that BASIX will deliver a 25% reduction in greenhouse gas emissions (GGE) from new homes, compared to existing housing stock. The current Energy Smart Homes DCP, which regulates approximately 78% of new residential building in NSW, already delivers this 25% reduction through the requirements for improved thermal performance of the building envelope (6%) and low GGE water heaters (20%). Many builders have already

adopted more stringent requirements as a point of market differentiation. It has not been articulated how BASIX will improve on this performance.

The BRAC and EES envisaged that the current 25% GGE reduction would be maintained and extended through:

- application of the requirement for improved building thermal performance throughout the whole State via the BCA and
- continuation of the requirement for low GGE water heaters through current DCP or by BASIX.

By 2006, BASIX proposes to require a 40% reduction in GGE. This will present a number of challenges and the mechanisms for achieving this target should be detailed and developed in consultation with industry.

We need to better understand how the savings projected for BASIX are to be achieved. A necessary prerequisite for accepting BASIX would be that the BRAC and EES be provided with this detail, as well as validated assessment of the cost impact, performance outcomes, and a commitment to monitor in-situ trials.

The differential approach that will result as a consequence of some Councils applying BASIX and others not will effectively deliver an "increase" in GGE.

BASIX will initially only apply to the Sydney metropolitan area. The BASIX developers' assumption is that Councils outside Sydney that currently implement the Energy Smart Homes DCP will continue to do so. The reality is, however, that many, if not all of these Councils **will be forced to abandon the Energy Smart Homes DCP** and would only enforce provisions of the BCA which, according to the BASIX scheme, would only be minimal requirements for insulation, sealing and services.

Without the participation of Sydney Councils the Energy Smart Homes DCP will become unworkable:

- it will be impossible to maintain the current support and accreditation of House Energy Rating assessors required by the Energy Smart Homes DCP;
- the flexible, performance-based pathway to compliance, provided for by the Energy Smart Homes DCP, will conflict with the inflexible Deemed to Satisfy insulation, sealing and services BCA provisions proposed by the BASIX developers.

Clearly it is not appropriate to introduce BASIX in some sections of the state and not others. BASIX should be tested and refined through a voluntary program on a manageable scale then adopted as state regulation or indeed on a national basis

### **Compliance requirements and approval processing**

An objective of the BCA and BASIX, is to simplify compliance requirements and approvals processing. The current proposal promoted by the BASIX developers will add complexity and create some confusion.

### **Split regulation**

The BASIX developers proposed that sections of the BCA Energy Efficiency regulation be maintained and that others be deleted as they would be covered by BASIX. It was suggested that the BCA maintain Deemed to Satisfy (DTS) requirements for building insulation and sealing as well as insulation of hot water pipes and AC ducts. The Verification Method would be deleted. BASIX would address all other aspects of services and building thermal performance.

It is inappropriate to split the regulations in this manner. The BCA DTS were proposed within the context of an alternate path to compliance being available via the Verification Method or Alternate Solutions. In many instances the DTS would be unacceptably restrictive. For



example, sub-floor insulation would be required in some climate zones. It is expensive and awkward – applicants would tend to adopt the Verification Method to develop a complying solution that avoided more expensive strategies in an effort to address affordability concerns. Adopting the BASIX developers proposal would lock applicants into complying with the DTS without consideration of whole-house performance or recourse to the Verification Method.

The major reason why New South Wales delayed adoption of the BCA amendments at the time of Amendment 12, was that it had been demonstrated to the BRAC EES that the proposed DTS requirements did not deliver equivalent energy or greenhouse gas performance to those achieved under the Energy Smart Homes Policy. The minimal DTS requirements being proposed by the BASIX developers, on their own, would have significantly less impact on energy efficiency.

Similarly, it would be unnecessarily complex for applicants and assessors to have to reference separate regulations in determining compliance with a single objective.

### **Uniform national policy**

National industry organisations clearly identified the need to develop a national framework for addressing sustainability. This, in part, influenced the decision to develop Energy Efficiency and Sustainability provisions for the BCA.

**The value of uniform national building code cannot be understated.** The precedent that would be set by the BASIX developers' proposal is of extreme concern. It implies abandonment of the BCA process by the NSW Government and may encourage other States and Territories to follow suit, taking the industry backwards twenty years to the days of Ordinance 70, the Victorian Building Regulations, the Queensland Building Code etc. This would have major affordability implications at a time when affordability is at historically low levels, especially in NSW.

Developing individual state policies leads to duplication and the waste of scarce Federal and State resources. Significant departure from the national provisions of the BCA causes considerable difficulties for national operators and builders and designers.

The industry has committed to work with Government in the development and implementation of national sustainability regulation through the BCA. BASIX is currently the most advanced model for such possible regulation. With appropriate development it may become the basis for development of national sustainability regulations.

BASIX should be rigorously tested and refined, on a manageable scale, through a joint NSW Government and industry program. Industry organisations will assist in selecting volunteers to implement BASIX, testing its application and outcomes in real world examples. Once proven and refined, industry will promote its adoption as a national regulation or, as a transition strategy, a NSW state variation to the BCA.

In the past there has been considerable frustration with the slow and cumbersome nature of the BCA. This is currently under review. Concerted effort by industry and State and Federal Governments can improve the BCA process, making it more responsive to community expectations. Abandoning the BCA will not help and will have long-term detrimental impacts.

### **Uniform state policy**

The objective of BASIX is to provide a uniform state policy. However, the proposed process for transition to BASIX would mean that, for a period, NSW would be regulated by three separate controls:

- Sydney metropolitan area would be regulated by BASIX as well as the minimum insulation, sealing and services provisions of the BCA;
- Some Local Government Areas outside Sydney may continue to implement existing Energy Smart Homes DCP as well as having to comply with BCA DTS provisions for insulation, sealing and services.

- Other LGA would be regulated only by the minimal insulation and sealing BCA requirements proposed by the BASIX developers.

Whilst this situation may only be for a limited period of a year or so, it would be totally untenable and will lead to an erosion of GGE outcomes for NSW at a time when improvement is needed. The current process of providing accredited House Energy Ratings, required by current DCP, would simply collapse without the participation of Sydney Metropolitan Councils. Regional councils, many with high growth, will either drop their Energy Smart Homes policies or fail to implement it effectively. This will lead to considerable confusion.

Builders and designers will have to contend with three sets of regulations, causing unnecessary complexity and market distortions.

The BASIX developers may have given some thought to the roll-out of training programs for implementing BASIX, but no consideration has been given to the communication strategy that would encompass the diversity of policy changes that may occur in regional areas.

As stated previously, the implementation of BASIX should be state-wide, once testing and refinement is completed.

### **Multiple regulations**

The BASIX developers have, on numerous occasions, assured industry representatives that BASIX would not become an additional layer of planning regulations – it would encompass all existing and future planning controls related to sustainability. The BASIX developers stated, unequivocally, that legislation would be introduced that would *prevent* Councils from developing planning controls that addressed issues covered by BASIX. These commitments given to industry organisations by the BASIX developers have been misleading.

As a SEPP, BASIX would override existing relevant provisions of DCPs. However Councils would still be able to implement additional DCP requirements for other issues not covered by the SEPP. Applicants may therefore have to meet alternate or more stringent requirements. For example, if BASIX does not require mandatory water tanks, a Council that already has a DCP requiring water tanks can simply choose to maintain it in addition to compliance with BASIX.

There is no clear delineation between sustainability regulations and civil engineering controls. BASIX may require certain water management strategies for environmental reasons, but local Councils may maintain conflicting requirements for on-site detention to mitigate local flooding.

These conflicts and duplications might be resolved, but through a complex and time consuming process.

Significant effort has been made by the BRAC and EES, in conjunction with SEDA and Councils, to ensure that existing Energy Smart Homes DCPs are replaced by the BCA. Councils have been kept informed through updates by SEDA. A forum for Councils was convened months ago and a communication strategy targeting transition from DCP to BCA was under development.

The BCA guarantees removal of multiple layers of regulation. Under the EP&A Act Councils cannot impose requirements that are additional to regulations within the BCA.

### **Development Application**

While BASIX is promoted as an easier path to DA approval, assessment of compliance with BASIX at DA stage would have significant impact on the assessment process, potentially increasing pressure on under-resourced Councils and causing extended delays in DA assessment. This problem could be exacerbated by launching BASIX without appropriate lead time to allow for training and re-organisation.

Regulation through the BCA takes advantage of the better resourced Construction Certificate assessment process.

### **Third party assessment**

An important spinoff from the Energy Smart Homes policy was the provision of independent, accredited assessors. These assessors provided Councils with a Certified House Energy Rating, enabling the verification of compliance with the DCP to be completed in minutes rather than hours. It provided Certifying Authorities with a mechanism for ensuring that the House Energy Rating was conducted by a suitably qualified person.

The BASIX developers have stated that they do not see a need for specifically trained and accredited persons to undertake BASIX assessments. This will increase the liability placed on Council Assessment officers as they will have to check the competence and accuracy of each assessment.

There are currently 250 Accredited House Energy Rating Assessors. Over the last five years approximately 500 industry professionals have invested considerable time and thousands of dollars in gaining the accreditation required by Government policy of the day.

The proposal to remove the Verification Method from the BCA and not require accredited assessment for BASIX, will make this accreditation instantly irrelevant. At no stage has there been any consultation with Accredited Assessors or any forewarning of the intention to make their accreditation irrelevant.

### **Delivery Schedule**

A core concern is timing. The intended schedule for BASIX is:

- completion of the tool in late February
- public exhibition in March
- implementation in June.

BASIX will address a range of issues that previously had no regulation developed. It is understood that the development of the tools for assessing thermal performance was only commenced a week or two ago – this is a concern given the proposed February completion date.

### **Validation**

It is also vital for any new regulatory assessment tool that it be thoroughly validated and benchmarked (by a range of parties) to ensure accuracy in its assessment, and ranking of dwellings. This would require the assessment of a large number of dwellings of varying types and configurations.

BASIX must be trialled to prove its practicality and effectiveness. It is likely that a number of bugs and problems will have to be resolved. This should be done before it is made a mandatory regulation.

### **Training**

Public exhibition of BASIX will not be completed until March 2004. Assuming there is no need to amend BASIX as a result of issues raised during its testing, validation and public exhibition, very little time is allocated for training required by industry and Councils prior to implementation in June.

### **Preparation**

The final requirements of BASIX will not be determined until after March 2004. DAs submitted in June will have to comply. Preparation of DAs that must be finalised by June 2004 are likely to be well underway already, yet planners have no access to the requirements that will be imposed by BASIX.

Industry requires significant lead time for the implementation of new regulations so that plans can be adjusted and new building practices and products determined.

## Deadlines

A decision on the NSW implementation of the BCA must be made within the coming weeks. Adopting the BASIX developers' proposal for the BCA would be giving de facto consent to the launch of BASIX in June 2004:

- without safeguards or fall-back positions in case this deadline can not be met; and,
- without prior assessment of the actual regulations that BASIX will implement so as to determine their environmental outcomes, cost and impact on the DA assessment process.

## A Positive Alternative

### BCA / BASIX compatibility

There is no barrier to proceeding with the current proposed NSW variation to the BCA as developed by the BRAC and EES. It has been developed through extensive consultation and has achieved broad support by industry bodies and local government.

The BCA provisions could simply be referenced by BASIX as the *minimum acceptable practice* for building thermal performance and services. BASIX could then offer various paths to achieving *improved* greenhouse gas outcomes, such as efficient appliances and lighting, energy source, etc. This was the original premise under which the BCA amendment was developed by the BRAC and EES.

If, for some reason, BASIX wanted to offer a pathway to compliance that did not involve compliance with the proposed BCA DTS or Verification Method, such compliance would be evidence that Alternate Solution that meets the BCA Performance Requirement. Therefore there would be no potential for the BCA to enforce requirements contradictory to compliance with BASIX.

### Improved Performance Outcomes

It has been stated that the current NSW variation to the BCA Energy Efficiency provisions, as developed by the BRAC and EES, do not achieve required greenhouse gas reductions or reduction in peak energy demand. Such targets had not previously been requested by DIPNR – the Regulatory Reform Unit or the Sustainability Unit. If the performance outcomes of the proposed NSW variation to the BCA, as developed by the BRAC and EES, are a barrier to its adoption, some additional variations could be adopted to ensure the 25% reduced GGE and lower peak load targets are met.

There is a simple alternative option that would:

- achieve the 25% GGE reduction target;
- simplify the assessment process;
- set reasonable timeframes allowing appropriate consultation and training;
- rely upon proven, effective strategies, and
- support and complement the development and implementation of BASIX.

## Services

### • Water heaters

The requirement for low greenhouse emission water heaters (gas, solar, heat pump) could be included in the NSW variation to the BCA Energy Efficiency provisions. Such requirements are already applicable for over 60% of new dwellings through the current

Energy Smart Homes DCP. The performance is proven. Cost benefit analysis is already well documented and problems with supply and installation have been resolved over the last few years of implementation of the DCP. There is good acceptance by industry and consumers. Current exemptions offered by the DCP could be maintained: dwellings with two or less bedrooms, overshadowing and heritage constraints. The formulation of such regulation is already resolved. Definition of complying water heaters is already provided by the DCP and the Federal Government's Office of Renewable Energy Certificates.

This simple amendment to the Services provisions of the BCA would facilitate reductions in household greenhouse emissions of over 20%, throughout the state, from May 2004.

- **Shower roses**

The BCA Amendment 14 could include a requirement for AAA rated shower roses. The rating of these low-flow roses is well supported by the Australian Water Association. They are the most cost-effective simple energy and water saving strategy available, delivering approximately 5% reduction in household energy consumption.

- **Thermal performance**

The proposed NSW variation to the BCA Energy Efficiency provisions adopts the 3.5 star performance benchmark of the current Energy Smart Homes DCP which are applied to over 78% of new dwellings in NSW. This continuation of "business as usual" is not acceptable.

It should be noted that all participants in the BRAC consultation process would have supported the adoption of a higher performance benchmark if Federal agencies had honoured the commitment to deliver the improved assessment software "Accurate" in the timeframe required.

The adoption of the 3.5 star performance benchmark was recommended as part of an undertaking to raise the minimum standard in a manageable timeframe, and with adequate industry support. The proposed BCA Amendment developed by the BRAC and EES contains explanatory clauses to this effect.

The BCA will impact on areas within the state that have hitherto had no regulation of building thermal performance, so the requirements of the BCA would be a significant step forward.

Some simple improvements could be made to improve the performance outcomes of the BCA.

- **4 star**

The BRAC and EES might consider adopting the 4 star performance requirement, though it is noted that this is not a preferable position.

- **Floor area**

The Stated Values used to determine compliance via the Verification Method could be amended to require greater stringency for large houses. The formula for determining these values, known as the "Floor Area Curves" was developed several years ago and could be readily assessed and adopted.

The new software, Accurate, has been developed with this adjustment built in.

- **Heating / cooling split**

The current proposed Verification Method would assess the thermal performance of the building envelope according to combined annual heating, cooling and latent cooling load. It is possible for a house to achieve the required annual performance at the detriment of either summer or winter performance.

The Stated Values used to determine compliance via the Verification Method could be amended to require a maximum predicted heating and cooling energy load appropriate to each climate zone to ensure homes perform well in both summer and winter as well as annually. The assessment software already outputs this information. Adopting this proposal would purely require determining appropriate performance benchmarks.

- **Peak loads**

The proposed BCA Energy Efficiency provisions do not specifically address peak loads. Doing so was considered to require more time and resources than were available.

However, it can be proven that buildings that meet the proposed BCA requirements significantly reduce peak loads. A building with low annual energy loads has a commensurate reduction in peak loads. This would be reinforced if the heating / cooling performance benchmarks are adopted.

This requires no changes to the proposed NSW variation. The analysis could be conducted by DIPNR staff with tools and data already available.

## **Performance, safety and certainty**

Adopting the above proposal would in no way impede or conflict with the development and implementation of BASIX. Indeed it would complement it. It would provide certainty of uniform State regulations being implemented without placing unreasonable time constraints on the resolution of outstanding matters related to BASIX.

The industry has been willing to assist with the development, promotion and implementation of BASIX. It is seen as a valuable regulatory tool. The current haste, inadequate attention to detail, lack of consultation, validation and education is eroding the support that BASIX could and should receive.

The current uncertainty is of extreme concern to industry and Councils. Alternative approaches should be urgently considered by DIPNR and presented to a combined meeting of the BRAC, EES and senior DIPNR officers at the earliest opportunity.