



**LANDCOM**

5 August 2003  
Our Reference: E&C\_337

Mr Ian Thackeray  
Committee Manager  
Standing Committee on Public Works  
Legislative Assembly  
NSW Parliament  
Parliament House  
Macquarie Street  
SYDNEY NSW 2000

Dear Mr Thackeray

**Call for Submissions - Inquiry into Energy Consumption in Residential Buildings**

Thank you for the opportunity to contribute to your inquiry into energy consumption in residential buildings (the Inquiry).

In recent years, Landcom has implemented a number of initiatives designed to promote various aspects of sustainable development within the residential, retail and commercial building sectors. Energy efficient urban development was specifically addressed by a targeted research project that was commissioned in 2002 in partnership with the NSW Sustainable Energy Development Authority (SEDA).

The attached submission to the Inquiry outlines Landcom's initiatives in promoting energy efficient urban developments and discusses some of the barriers that were identified from the latest research project and industry consultation.

Landcom's response to the Inquiry and relevant supporting documents were emailed to your nominated officer, Ms Carolynne James, on Friday 1 August 2003.

Should you wish to discuss Landcom's submission, please contact Ms Armineh Mardirossian on 9841 8627 or email [amardiro@landcom.nsw.gov.au](mailto:amardiro@landcom.nsw.gov.au).

Yours sincerely

Sean O'Toole  
**Managing Director**

**SUBMISSION TO STANDING COMMITTEE ON PUBLIC WORKS  
FOR  
INQUIRY INTO ENERGY CONSUMPTION IN RESIDENTIAL BUILDINGS**

**Landcom's Role**

Landcom is a State Owned Corporation and one of its key roles is to support government urban planning policies and lead the development industry by example.

Landcom's vision is to deliver quality urban developments and demonstrate best practice in social, environmental and economic sustainability.

Since the adoption of Landcom's Ecologically Sustainable Development (ESD) Strategy in 1996, Landcom has been working towards incorporating environmental and social sustainability in its developments. In 1998, Landcom became an "Energy Smart Homes Policy" partner with NSW Sustainable Energy Development Authority (SEDA) and has worked in close partnership with SEDA ever since in pursuing energy efficiency initiatives.

**Energy Consumption Patterns and Implications on Infrastructure**

With major urban growth planned for Sydney's northwest, southwest, central coast and the north coast, an increasing energy consumption pattern combined with overburdened infrastructure is obvious. In addition, the pressure on energy infrastructure in existing urban areas that are subject to considerable redevelopment increases with increasing densities.

It is obvious to Landcom that both new developments (greenfields developments) and redevelopments need to incorporate significant demand management strategies. By contrast, the right mix of initiatives in formulating the most effective solution was not so obvious.

While extensive work has been done by the SEDA in promoting the "Energy Smart Homes Policy", it is clear that additional measures are required. Energy efficient design alone is not sufficient to deliver energy savings.

The average house size in new developments increases, bigger houses result in more energy use, due to larger spaces that need to be cooled in summer and heated in winter. Other major energy users in the residential sector are appliances, water heating and air conditioning. The dramatic increase in household appliance usage in Australia means that electrical appliances comprise 52% of total greenhouse emissions, and are predicted to increase further. Water heating comprises 28% of total greenhouse emissions.

To better understand the implications of increasing energy use and the appropriate solutions for energy and greenhouse management for urban development, Landcom commissioned a research project in consultation with SEDA.

**Research Work Commissioned by Landcom**

In 2002, Landcom commissioned a research project entitled "Energy Smart Urban Solutions" (the Research) in order to better understand the potential for demand-side management (ie. energy efficiency) and supply-side management (ie. renewable energy/distributed energy generation) opportunities applicable for urban development.

The objectives of the Research were:

- Identify and investigate available and practical sustainable energy technologies (SETs) for Landcom's developments using Prince Henry Hospital redevelopment and Edmondson Park projects as case studies (see case studies attached).

- Investigate opportunities and costs for implementing each SET option.
- Identify and investigate the associated constraints for each SET option that hinder their implementation.
- Formulate strategies for addressing the constraints associated with implementing the priority options.
- Develop Landcom's Energy Smart Policy.

The findings of the Research led to the development and adoption of Landcom's policy on "Energy Smart Communities".

### **Landcom's Policy on Energy Smart Communities**

Landcom has recently adopted a policy for creating energy smart communities (the Policy). The Policy addresses energy efficiency and conservation issues as well as the potential for renewable energy generation. A copy of the Policy is attached for your reference.

Landcom has made a commitment to the following targets:

- Achieve a minimum of 40% reduction in total carbon dioxide (CO<sub>2</sub>) emissions, by 2008 reporting year, in all developments compared to the base case of 3.5★ National House Energy Rating Scheme (NatHERS) and gas water heating (see Appendix 1 of the Policy for details of base case).
- On major development projects (eg. exceeding 500 dwellings or including a commercial/retail or town centre), a reduction of greater than 40% will be expected including consideration of renewable/sustainable energy supply component (on or off-site).

Energy efficiency and conservation criteria include:

- Solar access and subdivision layout
- Building envelope energy efficiency (ie. NatHERS)
- Shower roses and taps
- Water heating
- Space cooling
- Space heating
- Lighting
- Appliances
- Cooking
- Clothes drying

Potential options and technology for sustainable or renewable energy generation include:

- Cogeneration
- Photovoltaic cells
- On-site Wind power generation
- Sewage gas
- Off-site renewable energy generation (eg. Wind turbines and bioenergy linked to the development)

### **Delivery Mechanisms for Landcom**

Landcom does not build residential or commercial buildings in its own right. However, Landcom has the means to influence the built form through its partnerships with the private sector developers and builders. Landcom intends to use its influence to deliver the objectives of its "Energy Smart Communities Policy".

The success of this method of delivering energy conservation in the residential building sector is well demonstrated by Newbury in Stanhope Gardens through Landcom's partnership with Mirvac Homes. Similarly, several other examples of this delivery mechanism through partnerships are being employed for major projects currently in planning phase such as Rouse Hill Regional Centre (RHRC), Greenway Park Stage 3, Second Ponds Creek and Prince Henry Hospital Redevelopment.

### **Barriers for Development Industry in Delivering Energy Smart Developments**

The Energy Smart Urban Solutions research project also included consultation with stakeholders to assist with identification of barriers in delivering energy smart communities. Some of the key barriers identified are:

#### Who pays for energy efficient initiatives in residential developments?

Typically, the developer funds all the capital for the development, which is then recovered from the sale of the properties. Payback times calculated based on savings on energy bills cannot justify the cost to the developer. The savings, benefit the homebuyer not the developer and there is not sufficient market research data to suggest that a developer can price a green product higher than what is generally available in any given market.

At the same time, not many developers are promoting the sustainable features of their product even when there are real features to promote.

#### Lack of real incentives to encourage demand management initiatives

There are no real market incentives to encourage developers to adopt good demand management initiatives. There is a need to develop incentives that are commensurate to the savings that can be achieved by avoiding augmentation of existing capital works or over design of new capital works. The same applies for incorporation of renewable or sustainable energy (distributed energy generation) in residential developments.

#### Lack of market research data

There is not sufficient data available to help developers in making decisions on various energy efficiency initiatives. For example:

- Are ceiling fans acceptable to the market as an alternative to full-house air conditioning or as a complementary measure?
- What increases in body corporate fees for green buildings would be acceptable to the market?
- Is the market interested in sustainable development?
- What are the thresholds in "willingness to pay"?
- Would the homebuyers go with fully ducted air conditioning if they had to pay higher electricity rates for operating their air conditioning?
- Would the market accept remote switching of air conditioning? (That is the retailer can shed load from the network at peak time by remotely switching the air conditioning off for short periods of time).

#### Inconsistency in requirements across local government areas

Adhoc and inconsistent measures across council areas in adopting and enforcing SEDA's "Energy Smart Homes Policy". The adoption of a minimum NatHERS (National House Energy Rating Scheme) has been mostly voluntary. A minimum bar needs to be set. The adoption of a mandatory rating and a uniform rating tool across all local councils is needed to address the current inconsistencies. The rating tool BASIX being developed by Department of Infrastructure Planning and Natural Resources (DIPNR) could be the answer.

#### Lack of pricing incentives

Differential pricing policies could help considerably with the uptake of more efficient air conditioning strategies. Differential pricing may include pricing strategies such as higher peak prices/penalties for users who exceed the average expected seasonal energy usage levels. This type of strategy could provide disincentive for excessive use of air conditioning units.

#### Lack of mandatory point-of-sale energy rating requirements

There are very few point-of-sale mandatory energy efficiency criteria for appliances and air conditioning. The extent of developers' influence on provision of energy efficient appliances is typically limited to Clothes dryers (in multi-unit developments) and dishwashers in premium products. The refrigerator is outside the developers' influence but it is one of the major electricity users. Some incentives or provision of interest free loans by the retailer may encourage buyers to choose 5★ refrigerators (Energy Australia may have had a similar incentive for solar hot water systems).

#### Public perception and market acceptability

Local councils and many developers believe that wind turbines in urban areas are not acceptable to the public. However, there is no market research data to prove this claim. Wind power generation is a well-developed technology and wind turbines are the most cost effective renewable energy source (see Landcom's case studies for Prince Henry Hospital and Edmondson Park). There is a need for community education as well as market research to enable informed decision making.