Executive Summary

NSW faces an electricity infrastructure investment of more than $8 billion in the next 10 years to keep up with its energy needs. It is expected that energy consumption will increase as the population and economy grows, but per capita energy consumption is also rising in NSW. It appears that irrespective of technology and efficiency improvements in energy infrastructure and products, individuals are using more energy on average in their homes.

The capital works investment in electricity is substantial and the rising average energy consumption per household a concern. The Legislative Assembly Standing Committee on Public Works agreed that management of energy issues relating to residential consumers requires attention.

While the Committee's primary focus is on the increased energy consumption effect on capital works expenditure, environmental impacts of energy production is an associated concern. The response to electricity demand must be sustainable. Management of electricity use, either through energy conservation, or through the substitution of fossil fuel energy by renewable energy, is essential to reduce greenhouse gas emissions.

The Government's response to increased energy consumption cannot be the augmentation of current electricity infrastructure alone. The cost of new energy infrastructure will be passed on to consumers and the community at large. It is imperative that complementary systems are explored which are energy efficient, environmentally sustainable, and capable of curbing individual demand.

The Committee believes that a successful strategy to manage residential energy consumption must amalgamate the following elements: energy sources, planning regulations, building standards and design, product design and consumer education.

The key drivers of increased energy consumption that were identified in the inquiry are:

- population growth (which impacts on total consumption);
- poor design of residential areas and individual homes which exacerbates heat problems and increases reliance on air conditioning;
- increased uptake of energy appliances in households to improve amenity;
- energy use patterns of appliances, in particular "standby power" features of appliances; and
- relative affordability of conventional energy compared with renewable energy.

The Committee has considered the various programs and reforms currently being pursued by Government and industry to influence the energy consumption. The Committee believes that stronger measures in the residential sector are needed to impose behavioural change and abate rising consumption.

The Committees focus is on two main fronts :

- improving the "front end" influence over energy efficiency in new homes; and
- creating stronger financial incentives for consumers in existing homes to improve energy efficiency.

New Homes (Recommendations 1 - 11)

Around 40,000 new residences are built in NSW each year. Of the approximately 2.3 million homes, this new building represents only 2 per cent of total housing stock. However, new stock must deliver better outcomes and the Government and councils can impact on the energy efficiency elements in residential developments, multi unit dwellings and individual homes.

By using planning and building regulations, the Government and councils can make significant improvements to the initial energy efficiency of new homes. New energy technologies and products can be applied to developments and in individual residences, which can further improve energy efficiency. Scope for establishment of renewable energy systems is most viable in new residential areas.

Various submissions received by the Committee outline ways to improve the planning system to deliver energy efficiency in new homes. A key issue was improving planning controls to accommodate the adoption of new types of energy generation (*Recommendation 1*) and to consciously package new or greenfield developments which encourage Councils and developers to implement integrated energy efficiency of private and public spaces (*Recommendation 2*).

Fundamental to the effectiveness of planning controls is balancing the benefits of consistent rules across the state with the flexibility to respond to diversity in particular areas. The Committee heard arguments that current flexibility in the planning system, as it applies to energy efficiency standards, needs to be limited and a mandatory minimum standard should be introduced across the State that provides consistency to industry (*Recommendation 3*).

Further, the Committee believes that rewards could be built into the planning system to encourage Councils, developers and individuals to go beyond the minimum standard. The Committee recommends that incentives be integrated into the planning and approvals processes that reward 'best practice' energy efficient design (*Recommendation 4*).

The Committee examined various energy standards, energy regulations and energy rating tools available to assist governments to improve energy efficiency in homes. During the course of the Committee's inquiry, the NSW Government announced the introduction of a new tool called BASIX, unique to NSW, which will measure energy efficiency in homes along with measuring other sustainability factors such as water usage, local ecology and waste management.

The BASIX program will set higher energy efficiency standards than currently applied in NSW or in other States. It applies at the development application stage of new residences. It is also a more integrated standard cross-referencing other environmental concerns that surround residential development.

Whilst key industry groups expressed to the Committee their support for BASIX, industry also raised concerns about the implementation phase and integration of BASIX with other jurisdictions' requirements under the Building Code of Australia. The Committee believes that these concerns can be addressed through a monitoring and evaluation program of the BASIX program (*Recommendation 5*).

A further proposal brought to the Committee's attention was a system applying in the Australian Capital Territory (ACT), which links energy standards to the sale of homes. In the ACT, new homes are required to meet certain energy standards. The ACT scheme requires that vendors notify and display at point of sale the energy standard of their new homes. The scheme also requires existing homes to have an assessment of their energy standard for disclosure at point of sale.

Submissions to the Committee argued that an equivalent scheme in NSW would provide many benefits. The key value of the scheme is that disclosure at point of sale that informs the buyer of energy efficiency performance of the home, allows energy efficiency to become purchase consideration. This is seen as a far more effective way to raise the issue with homeowners than relying on general public awareness campaigns. The Committee recommends that a similar disclosure scheme be considered for new homes in NSW, which could be derived from the information generated through the soon to be introduced BASIX program (*Recommendation 6*).

The Committee also examined how building design, materials, appliances and the surrounding environment impact on energy consumption in homes. The Committee heard that local councils could play a greater role in influencing energy efficiency by improving surrounding amenity through: imposing more effective landscaping controls on residences and adjacent council land to suppress suburban "heat traps", supporting community programs to reduce greenhouse gas pollution; and maintaining adequate balance between solar access and external spaces (*Recommendation 7*).

In terms of specific products, the Committee also looked at hot water and air conditioning systems, which are usually installed at construction of new homes. These products are key energy users in the home. Hot water systems account for around 30 per cent of total energy used in the home. Air conditioners represent the key source of peak energy demand that is driving the need to provide new energy infrastructure.

The Committee feels that strong signals need to be sent to the community about these products' impact on energy consumption. Solar hot water technology is an affordable and viable substitute that can significantly reduce energy consumption in homes. The Committee recommends that mandatory measures be set that will lead to solar hot water systems becoming the first preference in all residential buildings (*Recommendation 8*).

For air conditioners, the Committee envisages a two pronged approach to address their impact on energy consumption and greenhouse gas emissions. Planning provisions should raise the bar for air conditioners installed in multi unit residences (*Recommendation 9*) and air conditioner purchase should be linked to the purchase of green power, which provides compensating low greenhouse gas emissions (*Recommendation 10)*.

During the course of the inquiry, the Committee heard about many new technical options at a generation, transmission, distribution and household level that can improve energy efficiency for residential homes, and ultimately lessen the demand for traditional energy provision. Some of these options include renewable energy, such as solar and cogeneration, and new metering and load splitting systems.

The Committee was made aware of various initiatives and reforms aimed to enhance the development of these technical options. The Committee feels that more effort and attention needs to be given by the government and energy providers to these solutions immediately to address the pressing demands for new energy infrastructure (*Recommendation 11*).

Existing Homes (Recommendations 12 - 15)

While the Government has more immediate influence on new home development, the impact of small changes over the vast majority of existing homes should not be overlooked. Changing consumer behaviour through education, and increasing consumer's choice of energy efficient products are particularly important in reaching the 2.3 million established homes that are not designed to be energy efficient.

Therefore a final issue for the Committee was consideration of mechanisms to influence the energy use behaviour of consumers in existing homes. Overall submissions to the Committee argued that the lack of consumer awareness was the key stumbling block to changing behaviour. While there are various awareness campaigns supported by State, Federal and industry, the translation from those campaigns to changed behaviour was not seen as substantial. Energy efficiency is not a priority for many consumers. Energy bills represent only a small portion of total household spending.

The Committee is of the opinion that general consumer information is necessary and recommends that current programs for consumer education be supported (*Recommendation 12*). However, in preference to expansion of general consumer education, money might be better targeted at the provision of "point of purchase" product information. In particular submissions advocated for expansion of mandatory energy labelling of products and for penalties levied against energy inefficient products and/or incentives for better performing products. The Committee recommends the Government explore more options for influencing product purchases in homes (*Recommendation 13*).

Extending the "point of purchase" information concept, the Committee also recommends that disclosure of an existing home's energy efficiency information at time of sale be considered (*Recommendation 14*) as a subsequent proposal to the trial of a disclosure scheme on new homes (*Recommendation 6*).

A final area considered by the Committee was the application of retrofitting programs run collaboratively by the government and energy providers. These programs are focused on low income or disadvantaged groups to assist them to improve the energy efficiency of their homes and lower their energy expenses.

The Committee heard about successful pilot programs being run in particular areas where low income homes are energy audited and provided with discounted retrofitted products. The Committee has recommended that an expansion of these programs should be undertaken by

the Government to improve penetration of energy efficiency in areas that would not have other means to make changes (*Recommendation 15)*.

In this inquiry the Committee has taken a strategic approach to energy consumption issues. The recommendations in this report reflect this broad perspective rather than providing prescriptive or overly technical responses. The inquiry has revealed the community and industry views on where improvements can be made to current policy approaches. The area of energy consumption and its ramifications is a pressing concern and a variety of responses are required which this report highlights.