

In an effort to reduce residential energy consumption Federal and State based programs have in recent years significantly targeted the improvement of building fabric and appliance efficiency, with allied education campaigns and some economic incentives. And indeed building fabric and appliance standards have improved over this period.

However rather than showing significant reductions in energy consumption due to these increased efficiencies, consumption levels (and associated greenhouse gas emissions) have instead increased, and are forecast to continue in this direction.

It is the belief of this group that these increasing trends can be attributed to an increase in the number of households (especially smaller dwelling units), an increase in the average dwelling floor area per capita, an increased appliance ownership, higher standards of living and amenity, and a continuing lack of adoption of the full range of efficiency measures and incentives.

If energy consumption levels of the residential sector are to be actually reduced serious attention and commitment must be made to address issues beyond purely efficiency issues, in the following areas

1. New Buildings:

- The Building Code of Australia (BCA) amendment, proposed to be adopted in NSW in 2004, is important policy which builds upon on the minimum building fabric performance standards embodied in the SEDA Energy Smart Homes Policy. However the BCA primarily eliminates *worst practice* and that is all. Minimum efficiency performance standards (whether DCA DTS, or HER verification methods) **must** become more stringent in their requirements. An example of this is the Victorian move to impose a 5 star minimum standard within their State amendment of the BCA.
- Policy programmes should also be developed which encourage a "better than minimum practice" approach to building design.
- Further Research and Development must be carried out to improve the modelling assumptions of the HER softwares currently in use.
- Ongoing problems in the current Home Energy Rating methods must be remedied. Specifically, the so called 'equity measure' of determining ratings on the basis of energy use per built area (Mj/m^2) must be modified. The use of such a measure has the effect of penalising the design of small dwellings, and curtailing the stringency of mandated building fabric performance with respect to very large dwellings. While it would be mischievous to suggest that Energy Rating has actually contributed to the observed growth of dwelling sizes, it would be fair to say that by avoiding the application of absolute energy use as a rating measure, current mandated rating systems have failed to impact on potential greenhouse gas generation in an appropriate manner.

2. Existing Buildings:

- Improving the fabric performance and appliance efficiency of the existing housing stock (by far the larger proportion of dwellings) offers considerable scope for energy consumption reduction.
- Current technology offers a multitude of cost effective retrofitting alternatives. Programs which promote or regulate their adoption within the exiting housing sector should be developed. Policies such as the mandatory declared rating of

existing dwellings at point of sale/renting in the ACT have also shown potential to improve the standards of existing housing stock.

3. Education and Awareness:

- Continued education programs, raising public awareness to encourage energy conservation through technology uptake and energy conservative behaviour should continue to be a high priority .

Over the last 4 years the Solarch Group at UNSW has managed the House Energy Rating Management Body on behalf of SEDA, and has helped to educate both the local Government and HMB Assessor communities about the adoption of Energy Efficiency in houses as a measure for reducing energy consumption.

In doing so in excess of 200 SME's have been developed with a particular expertise in residential Energy Efficiency, thereby creating both economic and environmental benefits. Such ventures should be further expanded.

In addition it might be noted that considerable Research and Development projects have been undertaken by the academic community which have not been adequately drawn into policy development.