

FAX



ACN 098 336 979 ABN 58 098 336 979
PO Box 546 Belconnen ACT 2616
Unit H, 58-69 Lathlain Street
Belconnen ACT 2617
AUSTRALIA
Phone: 61-2-6257 7066
Fax: 61-2-6257 7063
Email: paul@xgl.com.au
www.xgl.com.au

Date _____

Number of pages incl. cover sheet _____

To: **Productivity Energy Efficiency Enquiry**

From: **Dr Paul Bannister**
Managing Director

Phone _____

Fax _____

File Ref: _____

RE: Comments on Draft Report

REMARKS:

Urgent For your review Reply ASAP Please comment

Dear Sirs

It was pleasing to see that the Commission took heed of a number of key points from my submission. I would generally comment however that the overall conclusions of the report are poorly framed and not particularly informative to the policy debate. In particular I would dispute the following issues:

Costs of Energy Efficiency

It is suggested that the costs of energy efficiency may be greater than commonly suggested. I feel this assertion rather relies on the blurring of what is a cost and what is a barrier. From my commercial work in the commercial and institutional buildings field, I can state unambiguously that there is a vast reserve of highly cost effective measures available at very attractive paybacks and often quite limited costs.

The argument supported by the Draft Report would appear to be that somehow the costs of these measures are wildly underestimated. However, having implemented such measures, I can say that this assertion would be baseless. The key issue is that of barriers. The Draft Report identifies most of the normal barriers accurately. Where the confusion arises is that, currently, the available approaches for overcoming the barriers often cost money – in many cases what might be viewed as speculative money – in identification and then committing to measures which may be not well understood in-house. In this manner information and education barriers turn into costs. However the conclusion to be drawn is not that the pricing of the measures is wrong – it is the existence of the barriers which prevents implementation. In a market with better knowledge and information, the barriers would have a lesser cost and thus more implementation would occur.

Australia is a Different Environment

The Draft Report makes two assertions that Australia is not necessarily comparable to other parts of the world. While this statement is a truism, two specific points are raised apparently as arguments that

CONFIDENTIALITY: The information in this message and accompanying documents is confidential to the sender and the recipient named. If you are not the intended recipient you should be aware that disclosure of the information is prohibited. If you have received the fax in error please notify the sender immediately to arrange return of the original.

Australia's uniqueness justifies lesser attention to energy efficiency than overseas. These are discussed below

- **Costs of Energy.** The pricing signals for energy in Australia are indeed generally low. However, as discussed above, numerous opportunities already exist for cost effective savings with returns greater than 50%. As a result, arguments that low prices justify the current level of inefficiency are not justified. However, it is arguable and indeed demonstrable that what might make sense overseas does not make sense in Australia.
- **Warm Winters.** Much of Australia certainly has very mild winters by international standards. However, much of the country has rather warm summers by international standards, which creates a significant driver for energy use as has been demonstrated by the increase in use of air-conditioning (and consequent public costs in terms of electricity network provision and/or failure). Thus Australia's weather is an argument for differentiation but not for inaction.

Minimum Energy Performance Standards (MEPS)

The Draft Report argues that MEPS are contrary to the idea that such standards are supported by economic behaviour. This argument would be valid in the absence of the key barriers that the Draft Report itself identifies. However, in the presence of such barriers, it is a flawed argument. For instance, a developer might buy a cheap low efficiency motor, pocket the capital savings and leave the subsequent owners with a liability of ongoing higher expenses. MEPS are a highly effective vehicle for managing this problem. Indeed, MEPS are generally guaranteed to produce a reduction in energy. A more efficient motor will always use less energy than a less efficient motor, irrespective of how rational or otherwise the operation of the motor is. This indicates that there are strong arguments from a public good perspective to support the MEPS. Furthermore, the existence of MEPS means that when purchases are made for private use, the information barrier (lack of knowledge as to the comparative benefits) is also overcome.

The Building Code: Performance versus Deemed to Satisfy

The Commission specifically draws on some of my submission to question the validity of the proposed approaches taken by the Building Code of Australia, and recommends that proposed energy efficiency standards for commercial buildings are put on hold pending further research as to their potential effectiveness. This argument is also extended to question the energy efficiency requirements for residential buildings.

Residential Buildings

The diversity in use patterns for residential building means that correlation of actual performance against building design is highly problematic. This is not necessarily an indicator that the measures have not worked, but it is certainly a good indicator that there are many other factors at play. Work I have done on creating a residential energy performance rating for homes has indicated the existence of a strong behavioural component in the achievement of low energy outcomes. However, houses are relatively simple objects and one only has to live in an uninsulated house in Canberra over winter to realise that there is a direct relationship between key BCA-like measures such as insulation and heating costs. Thus for the same internal conditions, the BCA style measure will produce an outcome.

Of course, occupants always have the ability to choose discomfort against energy use. However, this creates potential health problems both at the cold inter and the warm summer ends of the spectrum. I am not aware of any studies attempting to quantify the costs to the economy of lost productivity caused by illness or lethargy caused by freezing in winter or roasting in summer, but anecdotally these would appear to be significant.

I note also that this is an area where significant barriers apply. In a relatively aggressive building market, lowest cost/highest running costs design holds appeal irrespective of the rational financial

benefits that might be offered by a better building. However, households are typically capital constrained, resulting in poor adoption of otherwise rational initiatives.

Overall therefore I would argue against literal extension of my arguments about design measures versus performance in the residential sector. This is basically because the complex technological factors that intervene between theory and practice in commercial buildings largely do not exist in residential buildings. The existence of behavioural factors has the capacity to reduce benefits (which were at least to some extent addressed in the analyses performance for the BCA residential energy measures), but not to obliterate them.

Specific comment was made in the press by the commissioner regarding the usefulness or otherwise of the ACT Home Energy Rating System (ACTHERS). With regards this I would make the following observations:

1. ACTHERS only deals with issues of building envelope performance (i.e. insulation, glazing etc). There is little doubt in my experience that a high ACTHERS rating equates to a house that is more comfortable year round and that costs less to heat or cool to any given level of comfort.
2. ACTHERS doesn't deal with total operating costs and in particular doesn't deal with things like hot water heating, which can be significant energy costs by themselves. This weakens the message of the rating.
3. My experience is that the most common problem with the rating is that of ignorance of many in the real estate industry. I have been told numerous times by real estate agents that it "means nothing". As real estate agents have a rather strong – but scarcely impartial - influence on the market it is unsurprising that there is not resounding support. There is a shortage of counter-information highlighting what the rating actually means in terms of impact on costs and comfort.
4. Overall, I feel that conclusions drawn in this respect lack empirical support. There has been some analysis work done investigating the impact of the scheme on the market, and I would suggest that this is reviewed by the Commission.

Commercial Buildings

As discussed in my original submission, the relationship between design measures and actual efficiency in commercial buildings is weak, bordering on non-existent. Does this mean that minimum (design) standards are not valid?

The answer to this I feel is far more ambiguous than for the residential sector. The differentiating factor is the technological complexity of the systems involved. The factors of commissioning, construction, operability and maintainability discussed in my original submission all relate primarily to technologically complex areas. However, there are a couple of points that can be demonstrated relatively easily:

- A MEPS style approach to individual components and systems has a direct benefit because a more efficient item will always use less energy than a less efficient item undertaking the same duty, all things being equal. This covers items like energy efficiency of motors, chillers, and lighting power density.
- The study I did for the BCA strongly implied that at low levels of design quality (i.e. at or below the level aimed at by the proposed BCA measures), there was an intermingling of theoretical and actual performance results. This suggests that for poor designs, the poor quality of design has an overriding impact on performance relative to the commissioning-type issues that cause better designed buildings to fail to meet expectations. This would support the validity of basic prescriptive measures as minimum standards.

Where I do become concerned however is when complex, system operational benefits (which are highly volatile with respect to the commissioning related issues) are allowed to be traded against less volatile benefits such as basic component efficiency.

It needs to be kept in mind that the BCA is merely a minimum standard. It is the role of performance based programs like ABGR – which are technologically non-prescriptive and significantly market driven – to define the leading edge. What I am concerned is missing perhaps is a feedback loop so that the knowledge of what actually delivers performance benefits can be institutionalised both in educative materials but also potentially in regulatory materials.

Overall therefore I would argue that the minimum standards proposed under the BCA for commercial buildings appear broadly justifiable, subject to my reservations expressed above. However I feel that the logical forward approach is not to go into a further holding pattern of inaction, but to institute reasonable minimum standards and the initiate further work to focus on ensuring deliver of stronger performance benefits in the future.

Reviewing Other Programs

I would express my strong concern at the nature and conduct of the development NFREE process, which I believe has led to a number of poor decisions, and I would generally support a fairly thorough review of its approaches (some of which are quite good, but some of which are very poor).

With regards the review of other programs, I note that there have been numerous such reviews undertaken in the past and it would generally have improved the position in the Draft Report if these reviews had been accessed and considered. In particular, I note that in general the programs with the greatest levels of success have focussed on facilitating voluntary action. The need for facilitation – either by direct person-to-person support or through market mechanisms – illustrates the overwhelming importance of finding ways to overcome market barriers. I cannot over emphasise the importance of motivation and information to the market to create action.

Closing Comment

There is a public policy objective to reduce greenhouse gas emissions. Inaction is not an option. While the Draft Report has raised a number of objections, the basic assertion – that the lack of uptake in energy efficiency is evidence that it is flawed as an approach – is not supported by evidence. The Draft Report acknowledges the existence of a number of barriers, but then largely ignores these in the overall assessment.

I am strongly of the opinion that the Draft Report needs to give far greater consideration to the issue of the resolution of barriers so that it can contribute positively to the formulation of rational policy initiatives.

Regards

EXERGY AUSTRALIA PTY LTD

Dr Paul Bannister
Managing Director