Residential Building Mandatory Disclosure Proposed Measure

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Comments on the Consultation RIS on Residential Building Mandatory Disclosure:

These comments were presented to the 86th Australian Coral Reef Society (ACRS) Conference, Sunday 28th August as a follow-on to my paper published in Science. **Peterson EL**, Beger M, Richards ZT (2008). Thinking Outside the Reef. Science, Vol 319, p1759.

> In response to Hoegh-Guldberg et al."Coral reefs under rapid climate change and ocean acidification", recommends direct action to improve energy efficiency of the built environment, benchmarked against historical practices.

ACRS President, Professor John Pandolphi, listened to my presentation two weeks ago and declared "The content seems perfectly appropriate to me, as long as it is addressed to the Australian coral reef community such." I subsequently transmitted my comments on Mandatory Disclosure via the Australian Coral List.

- The extent of the 'problem' in residential building energy, greenhouse and water performance.

Researchers warn ocean acidification will compromise carbonate accretion, accelerating functional collapse of coral reef ecosystems worldwide if atmospheric CO_2 rises above 500 ppm. Certainly it is important to highlight this threat to coral reefs, but the literature does not offer satisfactory strategies to mitigate the demise of coral reefs. While direct actions such as "no-take-zones" are well established, and recent efforts to manage catchment runoff are advancing, there is no government regulation of CO_2 pollution in Australia. Rather than buying greenwash, mandatory disclosure of household and workplace energy and water is an effective tool to support ecosystem resilience - if developers, resource managers and the public can have transparent benchmarks to assess ecologically sustainable development opportunities. To this end mandatory disclosure of energy and water performance should be required by law, to cause Australians to personally benchmark energy efficiencies and water utility in their homes and workplaces. This will enable individuals and institutions to make informed decisions that will reduce cost of living and working, while improving quality of life. In terms of community responsibility, it is recognized the most practical means to achieve carbon neutrality involve buildings and forestry, worth of 22% and 14% respectively of the desired global CO_2 control.

Water and energy use in buildings offers the largest share of cost-effective opportunities for CO_2 mitigation, with ESD strategies such as daylighting, cool roofs and insulation. The promotion of urban and riparian forestry gives an added benefit to Australian coasts by buffering the seaward run-off of nutrients and sediments, and the greening of the built environment with features such as living walls and trees that naturally enhance comfort and energy efficiency of buildings. Business-as-usual 'paradigm blindness' must be overcome by benchmarking to expose new methods, ideas and tools to track performance. Auditing and target-setting of CO_2 emissions can be measured with water, gas, and electricity meters. Carbon sinks can be established by tracking the growth of trees, and appropriately using wood in building renovation projects.

Offering premises for sale or rent should require the seller to document utility costs.

Energy and water benchmarking should be undertaken by anyone with an interest in ecosystems at risk, so this therefore includes the entire nation. In order to save Australia from extreme climate change, stakeholders must make management of CO_2 as part of their core business, mindful that control is impossible without monitoring and assessment. Professionals and institutions need to disseminate ESD principles to the wider community by adding insulation to existing buildings and planting trees in flood plains, for example, to augment other coastal management actions.

Buildings account for 30-40% of global energy use. Energy conservation applied to the built environment offers 29% global share of economic mitigation from projected business-as-usual GHG emissions 2020 "… using existing, mature technologies for energy efficiency that already exist widely and that have been successfully used." - IPCC assessment report 4 Working Group 3 (2008).

Market barriers, such as split incentives, and information failures impede investment in energy efficiency by households and business. "A carbon price alone will not realise all the opportunities to improve energy efficiency across the Australian economy" - National Strategy on Energy Efficiency Memorandum of Understanding (COAG 2009).

According to Van Vuuren DP, Edmonds J, Thomson A, Riahi K, Kainuma M, Matsui T, Hurtt GC, Lamarque J-F, Meinshausen M, Smith S, Granier C, Rose SK, Hibbard KA (2010) "Representative Concentration Pathways: An overview." published in the journal Climatic Change in preparation for IPCC 2012 Assessment Report 5, the only legitimate option for human survival is to regulate radiative forcing to peak at 3 W/m² this century and decline to 2.6 W/m² circa year 2100 with atmospheric carbon dioxide levels not more than 490 ppm. The recommended survival strategy incidentally provides for sustained "green" economic growth throughout the century, based on lower energy intensity and global carbon neutrality by 2075.

Consumption measurement is prerequisite in our aspiration for resource efficiency. Carbon Tax (Australia) or Cap-and-trade (EU) only apply to the largest stack emitters such as coal fired power stations, smelters, and cement manufacturers. So the real challenge is to understand end-use, providing demand-side management with Mandatory Disclosure. "If you cannot measure it, you cannot improve it" – Kelvin.

- *The adequacy of the options assessed in the Consultation RIS in addressing the problem* — are there any other feasible policy options that should also be considered in the assessment?

The RIS completely neglected the simple and successful NABERs Scheme National Building Energy Ratings that are the accepted method of mandatory disclosure for commercial offices, and optional disclosure for hotels & retail shopping centres. NABERS performance is entirely based on actual metering of electric power, gas and water. It is very unfortunate that the Queensland Sustainability Declaration no longer includes the "Household Report Card" (January 2010), asking the seller to disclose the following simple facts that are very similar to the NABERs scheme:

- Number of people who typically live in the home
- Annual household electricity use in kWh
- Annual household water use in kL

Furthermore the RIS neglected to recognize that the Building Code of Australia Protocol of House Energy Rating NatHERS starbands are completely "tool agnostic". There is nothing to say that the Accurate Engine and derivatives such as BERS-Pro and FirstRate5 are needed to provide NatHERS ratings. NatHERS ratings are simply the total heat and cooling loads of the house, without any reference to the coefficient of performance of HVAC equipment. NatHERS ratings provide a benchmark of the building construction without lighting and plug-in loads. NatHERS ratings are not influenced by occupant behaviour, while NABERS ratings are a measure of the actual operational energy demand for the previous year. Both ratings are useful and ought to be disclosed if available. For new homes without one year of operational energy records – then the NatHERS rating is available from the Building Certification. For older homes, NABERS ratings should be required as a very low cost alternative to satisfy the urgent need for Mandatory Disclosure.

Privacy of power, gas, and water consumption is not sufficient excuse to avoid disclosure because the greater community's desperate need to reduce green house gas emissions to avoid globally catastrophic consequences. And would it not be a great result if the fear of an adverse NABERS rating effectively modified behaviour to encourage household conservation of energy and water? Speed cameras modify behaviour and save lives, and so mandatory disclosure will ensure that Australians can shop for homes that will be energy and water efficient inspite of extreme climate.

- *The assessment of costs and benefits of options:*

There are a couple of major problems with the RIS cost:benfit calculations.

First of all the RIS neglected benefits anyone other than householder (what about the reefs, ecosystems, and human settlements). The economic value of the tourism attracted to the Great Barrier Reef is reportedly worth several billon dollars per year.

Short term loss of tourism, and long term what will be the cost to society of having our Tsunami defence system dissolve in carbonic acid? Coral reefs protect coastlines and help prevent erosion. They act as natural breakwaters, absorbing the force of storm waves and reducing damage to the shore. With more than half of the world's population living within 60km of the sea, coastal erosion is an issue affecting billions of people. Studies have shown that on average, countries with coral reef industries derive more than half of their gross national product from them. By one estimate, coral reefs provide economic goods and ecosystem services worth about $375 billion each year (Coral Reef Alliance 2006).

Last year the federal government's report "Climate Change Risks to Coastal Buildings and Infrastructure" estimating 247,600 Australian buildings valued at $63 billion could be damaged or lost due to sea-level rises if energy efficiencies are not brought into force post haste.

Furthermore the RIS assumed maximum asset life for householders only 20 years. Should not a well designed house have resale value in the future? Passive thermal comfort should be more valuable in the future if there is a price on carbon. Future-proofing a home to be comfortable without dependence on energy and water imports should have an even greater market value in 20 years than is the present situation. I have been tracking electricity prices in Queensland over the past seven years, and these costs have been rising and accelerating with time.

- *Identified risks and uncertainties associated with each option.*

The risks of not acting urgently to disclose NatHERS ratings of new homes and NABERS ratings of existing homes far exceed the risks of progressing these two well-established Australian household rating schemes. The risks of disclosing of household energy and water consumption of rental tenancies and home for sale are far outweighed by the public-good of encouraging environmentally responsible property improvements that effectively result in low utility bills for the occupants.