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Dear Sir/Madam,

**Mandatory Disclosure of Residential Building Energy, Greenhouse and Water Performance
Consultation Regulatory Impact Statement**

For Public Disclosure

CSR Limited is a building products company with an interest in aluminium through its shareholding in the New South Wales - based Tomago aluminium smelter. CSR now employs about 4,000 people across its operations in Australia and New Zealand. Some of our widely recognised building products brands are PGH™ Bricks, Monier™ and Wunderlich™ roofing tiles, Gyprock™ plasterboard, Bradford™ insulation, Edmonds™ Ventilation Systems and Viridian™ glass.

CSR has developed a portfolio of products (such as insulation, ventilation and glass) which assist in improving the energy efficiency of residential and commercial buildings.

More recently, the Company has established an innovation group to research and commercialise opportunities to improve energy efficiency in the built environment. The innovation team is actively engaged with leading universities and the CSIRO developing improved energy efficiency solutions for housing. To this end we are building the CSR House to demonstrate improved energy efficiency, affordability and increased speed of construction. Spin offs for this may well be available for energy efficiency retrofits. The challenge is to build an 8 star house at no extra cost. Construction is underway at a site in Sydney with an expected completion date on October/November.

CSR has a strong interest in energy efficiency in the built environment and has developed several policy positions which align with elements of the National Strategy for Energy Efficiency.

1. CSR Policy Positions

CSR has consistently advocated the following policies in relation to energy efficiency:

- Ongoing progress to raise the thermal efficiency of the building fabric progressively from 6 star to 7 star, to 8 star ratings as appropriate to the broad climate region.
- Introduce a national energy savings incentive scheme – a national form of VEET for instance
- Meaningful mandatory disclosure of the energy efficiency of a residence/office on sale or lease.

- A National Energy Efficiency Authority to coordinate policy and standards.

This is consistent with the findings in the PM's Task Group on Energy Efficiency and the National Strategy for Energy Efficiency agreed by COAG. The COAG agreement was to have an assessment of energy efficiency in place by May 2011. The Consultation RIS has broadened the scope and delayed the process until 2012. Momentum needs to be maintained if this target is to be met.

CSR supports measures which are permanent, pervasive and passive i.e. do not need occupant involvement. International experience strongly supports action on passive building fabric energy efficiency retrofit incentives as the major policy initiative of governments with mandatory disclosure seen as one of the most efficient tools to deliver practical results.

CSR strongly supports the mandatory disclosure of residential energy, although we are less concerned about disclosure of greenhouse gas (which gets picked up in energy cost from the perspective of an occupier). Too often energy efficiency and carbon are confused in policy. Carbon issues should be dealt with through efficient carbon reduction policy such as the Clean Energy Future Scheme, and most of the other "complementary" carbon schemes should be discontinued. Energy efficiency should be dealt with within its own context. There is a benefit to carbon reduction from energy efficiency measures, but the sole purpose of energy efficiency is not carbon reduction. CSR is opposed to the trade off in energy efficiency for the purpose of renewable energy as occurs in some jurisdictions. They are clearly two separate issues – one is about clean energy generation, the other is about reducing the amount of energy consumed, including reduced peak load and grid infrastructure investment.

The Company does not have a position to offer on water savings – it is not a policy area we have examined other than in our own internal operating environment.

2. CSR Product Offerings

Our particular interest and offerings are in the areas of:

a) Insulation.

Recent research by the Insulation Council of Australia and New Zealand (ICANZ)¹ suggests that there are about 1 million residences in Australia without insulation, representing 15% of all accommodation. Many of these residences are rented. Insulation can in certain climates raise the star rating of an uninsulated house by 2.2 stars. Opportunities also exist for ceiling top up, cavity wall, sub floor and pipe insulation.

b) Ventilation

Opportunities to improve energy efficiency exist by the improved venting of houses. Work through CSR's Edmonds™ ventilation business suggests savings can be made by roof space temperature control to vent roof space, so reducing the use of air conditioning.

A typical house has 27 air changes per hour at 50 pa. This can be reduced to 7 using sealing and appropriate ventilation/cooling models and still meet code requirements for fresh air. An assessment model must be flexible to accommodate the installation and development of such ventilation devices.

c) Glass

Double glazing is relatively new in residential construction spurred on by the adoption of 6 star home standards under the Building Code of Australia. Double glazed windows have not come down the cost curve sufficiently and are still perceived as a specialty item. In California for instance, double glazing is the standard and it costs more for a single glazed window. Europe is

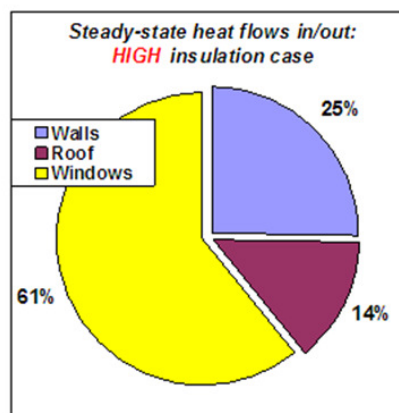
¹ Energy Efficient Strategies, 2011 (unfinished) *The Value of Ceiling Insulation, Impacts of Retrofitting Ceiling Insulation to Residential Dwellings in Australia*, ICANZ

moving towards triple glazing. In response, CSR subsidiary, Viridian™, has launched a new range of affordable energy efficient coated glass called SmartGlass™. This offers a more cost efficient way to improve the energy efficiency of windows and offers potential for an energy efficient glazing retrofit. Four grades of low emissivity glass have been developed to suit the three main climate zones - ie heating climate, mixed climate and cooling climate. Simply substituting this glass for clear provides a 0.5 star upgrade in cold climates, 0.8 in mixed climates and 1.1 in hot climates.

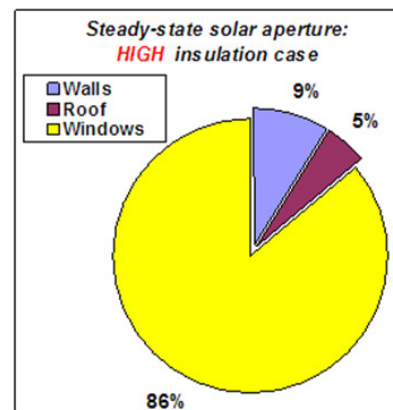
However for assessment purposes it will be important that a windows labelling scheme be introduced so that assessors can properly incorporate the window and glazing heat flows in their calculations. A visual inspection is insufficient to provide a correct assessment. Windows are the second most important element in a house after insulation in terms of heat loss.

Conduction & Radiation

Ordinary windows leak heat...



Ordinary windows admit a lot of radiant heat...



Source: Sustainable Windows Alliance Technical Analysis

Overall there are many benefits from a residential rating scheme. It provides information to households on the potential cost to maintain comfort levels in a house. Energy efficiency and comfort is not something that has been uppermost in the minds of most buyers and prospective tenants. Furthermore if occupiers have confidence in the program and the benefits from it, they will be encouraged to upgrade and retrofit those residences that fall below the line. Finally it provides incentive to industry to innovate for more cost effective energy efficiency retrofit devices, knowing that many of the market failures have been addressed.

3. Comments Specific to the Consultation RIS.

a. Chapter 2 - The Nature and Extent of the Problem

While CSR Bradford™ has a photovoltaic offering, CSR does not support the trade off in lower thermal efficiencies of houses for the installation of PV panels. This is prevalent in Queensland which further reduces star ratings for the installation of a deck. This makes a rigorous assessment of thermal efficiency important because in those jurisdictions it is not possible to conclude that a house built after a certain star rating was adopted e.g. 6 star, is actually a 6 star house. We concur that the presence of “totem” features may cause a miscue for tenants and buyers. P9.

The ACT scheme is an interesting example of what can be achieved and there are many lessons learned. It might be useful to know how many upgrade leads occurred as a result of knowing the

assessment and how many owners actually took action as a result of having this information. P10. Market research conducted by the Clean Energy Council² demonstrates the lack of awareness of information by consumers as to what they can do to improve energy efficiency. There are also shortcomings in service delivery and fulfilment for the installation of devices such as draught proofing and the high cost of tightness testing.

A measure as proposed in this Consultation RIS starts the process of education of consumers.

b. Chapter 4 - Options to achieve government objective

CSR Limited supports an option that lies between option 1 and 2. Selection of the option is critical to the success of the scheme and must be based on the following principles:

- Must be perceived to be of value to most parties
- Assessment tool must have integrity, whereby various parties, including academics, assessors, real estate agents and consumers have confidence in the tool.
- The assessment process must not be onerous on the occupier
- Qualification of assessors must be rigorous.
- Assessment must be open to all who qualify.
- A strict audit process must be in place.
- Assessors will be going into people's homes, so qualification must recognise this.
- Complaints system to be established.
- National framework is desirable with the associated machinery.

Option 1 is too rigorous and will be too demanding of occupiers/landlords' time.

Option 2 probably does not have enough rigour. However the energy consumed in maintaining comfort is largely dependent on the external building fabric. Therefore the house plan can be greatly simplified. A floor plan is not required, although agents usually produce one as part of the marketing campaign. Notwithstanding, the cost assumed in the paper for a full assessment looks excessive based on personal experience for a full option 1 type assessment for a complex dwelling. My own residence was assessed by Energy Renovations Pty Ltd, trading as Energy Makeovers. It is difficult to conclude from this NatHERS assessment that the fees assumed for Option1 are realistic in the assessment market place.

A key lesson from the EU scheme relevant to the Australian deliberations can be found in a study by the German Government of the European Commission's *Energy Performance of Buildings Directive*, (BMBVS 2010)³. It concluded there was often a compromise between the scientific precision in assessing a building's thermal efficiency and the pragmatism required to make the program effective. In Australia we have seen various public claims about energy assessment. No one method is perfect or absolute in a complex structure as a building. This must be given recognition and as the German study found it is counter-productive for experts to publicly argue and to over claim in this regard. Such debate will destroy the public's confidence in the scheme.

Based on CSR's investigations into the UK scheme, our staff are of the view that the early lack of confidence in the British scheme rested on the inadequacy of the assessment process. It can be very difficult to recover such loss of confidence with the community.

Options that are less than these levels of integrity are likely to turn into a tick the box exercise or may be something that the owner simply sees as a nuisance with no benefit. It is unlikely that many owners would be capable of completing a self assessment either at an option 3 or 4 level and are unlikely to perceive any benefit. A scheme developed at this level would be perceived as unnecessary red tape and would detract from the overall objective of the scheme. It would be surprising if Government would run rigorous enforcement across home owners and the scheme would fall into disrepute or perhaps simply no repute. CSR would not support it. Self assessment

² Clean Energy Council, 2011, *Energy Efficiency – A Study of Community Attitudes*. Key slide pack for media

³ BMVBS (2010), *Monitoring and Evaluation of Energy Certification in Practice with Focus on Central European States*, BMVBS-Online Publikation 03/2010

is open to fraud and it is best to involve professionals and industry associations to ensure maximum effectiveness of policy implementation.

Option 5 is proposed as a voluntary uptake measure. CSR does not support a voluntary measure as it is unlikely to achieve the desired outcomes of the policy. However there is one element of option 5 which will be valuable to build community support for the scheme. This relates to the education program. Recent research conducted by the Clean Energy Council² has found overwhelmingly that 95% of people are most concerned about the cost of energy over and above any other living costs. Furthermore about 90% indicate they are prepared to take further action to be more energy efficient without compromising their lifestyle. However they don't know what more they can do. This suggests fertile ground for community support for a program or policy as proposed in the Consultation RIS. However it will be important that all parties are supportive and that arguments about scientific perfection of assessment schemes don't surface and destroy public confidence. CSR recommends that Government consult with the Clean Energy Council on their research findings when designing details of the disclosure report and a stakeholder education campaign.

Similarly CSR does not support an opt out clause. The drive for listings and sales will mean most will opt out, unless the energy efficiency of a property was a strong selling feature. This would put the measure in the category of "preaching to the converted".

The assessment process, P23 is sound as it addresses many of the shortcomings today. It provides sound data and importantly, options for the owner to improve performance. It begins a greater involvement by the community in conversations about energy efficiency in much the same way people talk about vehicle fuel efficiency and cars.

Given the drive for what CSR would consider an Option "1.5" it may be appropriate for rental dwellings to have a certificate life beyond the term of the lease. Should a landlord update a property a new assessment could be conducted by request, but otherwise an updating should occur on the first re-leasing after 5 years for instance.

c. Chapter 5 - Impact Analysis

Costs P40.

CSR argues that the householder time maybe overstated. In the event of an assessment as part of a lease or sale process, it is more than likely that the assessment will be organised by a real estate agent. Thus there may not be a need for householders to be present and in the case of a tenanted property, it is more likely to be vacant when up for assessment. The real estate industry typically works outside normal 9 to 5 arrangements and it could be that assessors working in with real estate agents are prepared to be more flexible in their working hour arrangements.

Peak Load P 42. It is not clear how the lower costs of reduced peak load have been considered in the benefits. It may have been factored into lower power prices or not taken into account at all. ICANZ have recently completed some research which suggests insulating the remaining non insulated houses can reduce peak load infrastructure investment by \$137m by 2020.¹ Peak load analysis for SmartGlass and other Edmonds devices has not been developed.

d. Chapter 6 – Findings for Discussion

Table 6.3 only covers double glazing and window tinting. It overlooks the new model of coated energy efficient glass using a low emissivity glazing panel selected for the appropriate climate zone. It may be cheaper to upgrade the glass rather than use heavy curtains and a poor glazing choice. Many owners opt for privacy blinds which have very little impact on thermal efficiency – once the heat is transmitted through glass, whether radiant or conducted, it remains (or escapes as the case may be) from the house.

CSR would be pleased to provide detailed advice on the energy savings and expenditure for its range of coated glass for inclusion in the final RIS. This could be included in table B4.

While the statistics show no retrofitting of double glazing, the industry is aware that this is occurring. The VEET scheme has provision for this, but no-one has become accredited to create certificates for a number of reasons. The latest 2011 BIS Shrapnel report "Home Improvement Market in Australia 2010" Vol 8 provides some interesting data on window replacements. Overall there were 250,000 window replacement projects in Australia in 2010. The mean number of windows per job was three. Of the drivers for replacement, energy savings ranked fourth after appearance, availability and those that were unaware of any choice. It could be surmised from this information that possibly 3% of windows were double glazed. That could mean about 20,000 windows were replaced with double glazed units.

Mandatory disclosure may also benefit borrowers. Some banks have been prepared to advance green loans to those who have borrowed against a more energy efficient house. Presumably banks expect expenditures to be lower on energy and therefore a mortgagee may have more disposable funds for loan repayments. This may be an advantage to home buyers.

e. Appendix C – Cost-benefit analysis assumptions

Table C19

Coated glass such as Viridian's SmartGlass™ costs between \$100 and \$150/m² which is less than the cost of heavy curtains and much cheaper than the double glaze retrofit, to which this table refers. As knowledge increases by both owners and glaziers, it is likely this will become an attractive glass option for window retrofits or simply glazing replacement.

Viridian now has verified data based on houses in Sydney and Perth. It confirms the upgraded star ratings predicted for SmartGlass™. This can be made available to the DCCEE implementation team.


f. Appendix D – Assessment cost model

P140 – it is not clear why under the BCA regime that a full assessment of a new house is required. Admittedly it doesn't provide data on water efficiency, but this is minor compared with energy use. A new house which conforms to the BCA should not require new evidence, except perhaps in Queensland with its discount factors. New houses should be exempt. For those jurisdictions which adopt full compliance with the 6 star rating, such as South Australia and Victoria, mandatory disclosure should not be required. New houses should conform to other legislative measures for water efficient devices, MEPS for appliances, so assessment would not achieve any benefit but would be a dead weight cost.

Market research by Viridian suggests that home owners, perhaps with the exception of first home owners, are looking to fulfil their dream in buying or building a house. They seek large windows to "bring the outside in". If their choice provides a good environmental outcome they see that as a bonus. People don't think about comfort and yet that becomes an important issue during occupancy. Research also showed that when they were made aware of the factors that affected comfort (which also coincidentally align with good energy efficiency) they became highly interested in those measures. This scheme will introduce a set of measures for thermal comfort and will enable the benefits of a building to be better communicated. It is an important piece of the education process for owners/occupiers as to what makes a residence good to live in beyond location.

Thank you for the opportunity to comment.

Yours sincerely,



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