14th July 2009

Mr Rob Hansen
Research Director
Environment and Resources Committee
Parliament House
BRISBANE 4000

Dear Sir,

Re: Inquiry into Energy Efficiency Improvements

Attached please find our submission to your Committee's inquiry into energy efficiency improvements.

Timber Queensland Ltd is a not for profit company that is Queensland's representative peak industry body for the full value chain of the timber industry with membership including forest growers, manufacturers, fabricators, distributors and end users and specifiers of timber.

We note the terms of your inquiry and we offer a number of comments and suggestions across a broad range of these terms that we believe could lead to improvements in the objectives of energy efficiency, including:-

- Manufacturing and
- Residential and Commercial Construction
- Plantation resource

We look forward to your Committee's consideration of this submission. Pease do not hesitate to contact TQ's Manager – Timber Application and Use, Colin MacKenzie, Ph 3358 7903, or the undersigned if you require further information.

Yours Faithfully

Rod McInnes
CHIEF EXECUTIVE

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TIMBER QUEENSLAND

SUBMISSION TO

ENVIRONMENT AND RESOURCE COMMITTEE
- QUEENSLAND PARLIAMENT -

ON

ENERGY EFFICIENCY IMPROVEMENTS

1.0 INTRODUCTION

It is recognised and accepted that the primary driver for achieving greater energy efficiency is the need and objective to lower greenhouse gas emissions and in particular CO_2 and that this can be achieved by many means.

This submission provides some options and suggestions for consideration that the timber industry believe will assist achieving this objective. These include:-

- Adoption of a more holistic approach to achieving sustainable construction, including energy efficiency, that embraces the principles of Life Cycle Assessment (LCA) including the embodied energy of materials and construction.
- Provision of long term security of raw resource to encourage investment in more energy efficient plant and equipment and also to encourage greater bio-energy generation
- An increased plantation resource base that will contribute to the sequestration of carbon from the atmosphere, deliver wood products that will further secure carbon in long term storage, as well as provide a source of bio-energy.

2.0 COMMERCIAL AND DOMESTIC CONSTRUCTION

Over the past decade or so, significant advances and improvements have been achieved and made by State (including Queensland) and Federal Governments in mandating energy efficiency measures via the Building Code of Australia (BCA). Under a recent COAG agreement, the Queensland Government has also committed to introduce '6 star' energy efficiency measures via the BCA in 2010.

Whilst these measures to date have generally received wide building industry support, including from the timber industry, the continued introduction of ever increasing 'star rating' requirements is now seriously being questioned. These non-linear increases only address building 'running' energy levels but at significant cost increases, impacting particularly on first home buyers.

There has been no real measure or research of the incremental energy efficiency (EE) (star rating) gains that has been achieved by increasing the EE requirements of building envelopes, and indeed, there is a growing counter intuitive feeling about any possible gains that are being achieved by these BCA regulatory measures, as they actively encourage use of building design and material use that is contrary to the historically proven Queensland lifestyle and architectural vernacular.

Regulations that encourage 'locked-up' indoor living in heavy mass, on ground houses, that usually require significant cut and filling of building sites in the Queensland climate must be seriously questioned.

The following extract from a 2005 press release on the Queensland Sustainable Homes Program reinforces the need to reconsider how we place emphasis on achieving EE and sustainability in construction, and more importantly, the primary objectives of the building legislation which is to reduce greenhouse gas emissions.

> "BACK TO THE FUTURE WITH SUSTAINABLE HOME DESIGN
>
> The homes will be built to incorporate the State Government's Smart Housing design criteria to be socially, environmentally and economically sustainable. Many local projects across Queensland are now progressing well and moving into their design phase. But in a case of "back to the future", Sustainable Homes Program Director, Wayne Petrie, revealed the concept and features of a sustainable home are not new.
>
> "Only last year we discovered Queensland legislation dating back to 1916 offering suggestions to workers on how to build sustainable homes," Wayne said. The Queensland Workers' Dwellings State Advances Act of 1916 states:-
>
> "…To assist applicants by providing a maximum of comfort and convenience in their homes consistent with their financial circumstances, the following suggestions are offered:
> - When about to set out the plan of your home, carefully consider the site in its relation to the dwelling proposed to be erected;
> - If possible place the sleeping verandah on the eastern side of the building and thus gain the benefit of the morning sun;
> - Avoid a common practice of wrongly planning the position of the bathroom and thus blocking the cool evening breeze from your sleeping verandah;

- Plan the kitchen away from the western side of the building if at all possible; and
- Arrange the position of the front and back steps (back steps particularly) so as to ensure the least possible number of steps. …"

In the days before air conditioners, this 1916 Act encapsulates environmental and social aspects of sustainable design by identifying ways to incorporate the practical application of passive design principles into the home to increase its comfort and liveability, more appropriate to Queensland's climate."

It is now time for Governments, including Queensland's to take a more proactive lead role to encourage and realise a more holistic approach to energy efficiency and greenhouse gas reduction in the construction industry.

The Queensland Government's recent review of sustainable housing and energy efficiency measures identified support for these more holistic approaches which to date have realised changes to state legislation and the BCA that recognise and encourage the benefits of incorporating outdoor living areas in housing. This in turn reduces the reliance and need for conditioned internal spaces and therefore reduces energy demand – "Back to the Future".

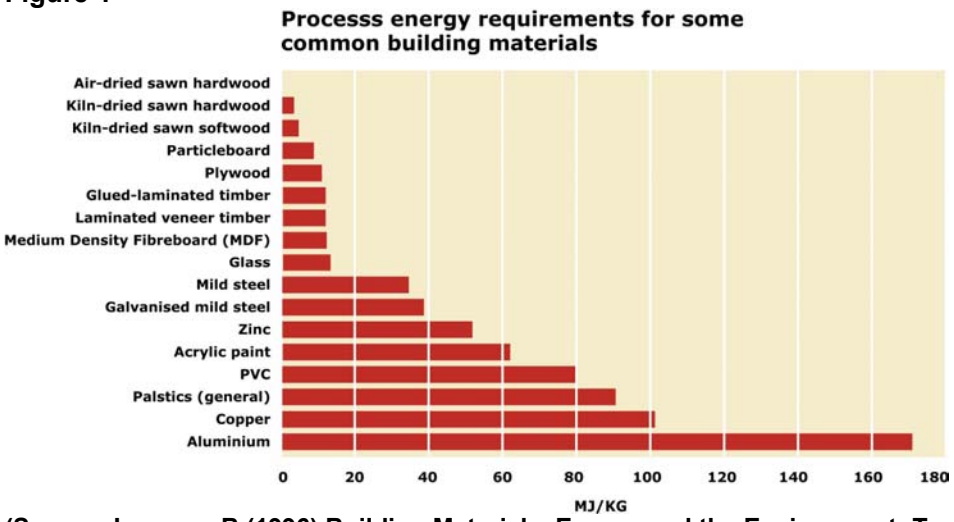
Importantly though, the review did not recognise serious deficiencies in the energy rating software that is used to evaluate energy efficiency. Of critical importance is the need to undertake fundamental research into the occupant use models underpinning the AccuRate system. These are currently heavily biased towards cold climate living and occupancy use, and assume that a house is maintained within a tight temperature range using artificial means. Building use and occupancy behaviour in the milder tropical and subtropical climate zones in Queensland is known to differ from the southern behaviour.

Cooling is the major issue in these climates, and appropriately insulated lightweight construction combined with good airflow provides for rapid cooling of the building envelope and subsequent internal temperatures. The AccuRate system does not adequately recognise these benefits, and in fact promotes high thermal mass building envelopes that hold heat, and even reduced window size to improve the efficiency of artificial cooling. Clearly these outcomes are contrary to the natural use of buildings in Queensland.

In their review of the sustainable housing measures, the Government also identified that the use of sustainable materials ('star rating' for sustainable materials) in construction also has a role to play.

Figure 1 below highlights the process energy required to produce a range of typical building materials which is just one aspect of the inputs to a materials sustainability credentials.

Figure 1



(Source: Lawson, B (1996) Building Materials, Energy and the Environment: Towards Ecological Sustainable Development, RAIA, Canberra)

As can also be seen from Table 1 below, even in a cold climate, the embodied energy of building materials can represent a significant proportion of the total energy demand over the life of a building, particularly for residential construction. For warm temperate climates, such as we enjoy in Queensland, the embodied energy component would represent an even higher percentage of total energy over the life of the building.

Table 1

Life Cycle Energy for Common Housing Types (50 yrs)					
Energy component	**BV on Slab**	**BV on timber floor**	**WB on timber floor**	**WB on slab**	**Earth wall on slab (Heavy Mass Const)**
Construction of house	529	435	362	460	349
Building maintenance	120	120	141	141	118
Embodied energy used	**649**	**555**	**503**	**601**	**467**
Operational energy	1411	1475	1645	1579	2493
Total life cycle energy (Gj)	**2060**	**2030**	**2150**	**2180**	**2960**

(Source: Victorian Building Commission)

Full Life Cycle Analysis (LCA) of building construction provides the means to measure and rate the real environmental, energy and greenhouse gas impacts of buildings. LCA is currently the only sound technical and scientific way forward for industry and Government that will enable all sectors of the building industry to compete fairly and on a rational and level playing field.

To this end, the national AusLCI project which is now well advanced for the building and construction sector (non-material or vested interest based) and which is being driven by the Building Products Innovation Council, is widely supported by the broad building products manufacturing industry. This initiative is seen as the way forward to raise sustainability of construction to the next level by not just considering operational energy but embracing all the issues associated with sustainability that are not addressed by the current constrained regulatory boundary conditions.

Building regulations should not inadvertently encourage non-sustainable practices in construction as is currently apparent. They should embrace and encourage practices that are holistic and flexible in nature and that provide multiple alternative pathways to achieve sustainability and energy efficiency objectives.

Initiatives that could be implemented to assist with overcoming these issues and barriers include:-

- Development of an appropriate, defined set of more holistic Queensland focussed '6 star' provisions that account for not just operational energy but embrace lifestyle, climate and design flexibility and address site constraints and encourage the use of sustainable materials.
- Support the modification of the 'AccuRate' thermal modelling software to address occupant use and cooling needs in Queensland, and to include an embodied CO_2 rating module to reward use of low carbon footprint materials.
- Provide ongoing longer term support for the AusLCI project leading to uptake and adoption of LCA in the building industry.

3.0 MANUFACTURING

There are significant opportunities that could be encouraged within the timber manufacturing sector (sawmilling, panel manufacture etc) including electricity generation and co-generation using bio-mass fuels and support for installation of or upgrading of machinery and equipment using more efficient technologies.

Bio-energy generation and co-generation

There are significant opportunities for biomass from the forest and timber industry to contribute to renewable energy in this state. Importantly biomass provides an opportunity to deliver base load power, with Rocky Point Power being an example of this in operation. Unused plantation residue, such as early thinnings, offer a ready source of biomass, as does sawmill residue and end of life timber. However, there are a number of impediments to the full utilisation of these resources.

Timber Queensland continues to highlight our concern about the Government's policy position which precludes the use of native hardwood sawmill residue for bioenergy, despite strong controls over forest practices, and the forests being covered by the landmark South East Queensland Forests Agreement (SEQFA).

Timber Queensland, as a signatory to the SEQFA, believes that this agreement is being misrepresented by the Government in their interpretation of Clause 2.7, which states "There will be no harvesting of non-sawlog material and residues other than for products currently produced." This clause clearly relates to the forest harvesting operations, and in no way refers to the use of residue generated in the manufacturing of the current range of products.

It is now time for the Government to recognise that the continued opposition to use of any genuine sawmill residue for power generation is untenable. We urge that this position be reviewed immediately.

Despite there being a number of existing biomass markets, many sources of wood fuels are relatively small and isolated which currently impedes participation in the renewable energy market. The timber industry would welcome specific support for establishing small unit power generation capacity based on these fuels. This support could come in the way of financial assistance for feasibility assessments and capital works, readily available advice on technology, appropriate feed-in rates and support for marketing of excess power into the national energy grid.

Further to this, the use of end of life waste wood for power generation should be encouraged, after opportunities for recycling have been exhausted. Timber Queensland supports mandatory reporting of all demolition sites and potential materials therein to give recyclers early opportunities to secure resource, encourage unwanted residue to be used for power generation, and ultimately reduce the flow of materials to landfill.

Initiatives that could be implemented to assist with overcoming these barriers include:-

- Remove the unwarranted restrictions on using sawmill residue for power generation
- Support the establishment of small scale bio-energy facilities through financial assistance for feasibility assessments and capital works, readily available advice on technology, appropriate feed-in rates and support for marketing of excess power into the national energy grid.

Plant and Equipment

As highlighted in the discussion paper, investment in more energy efficient machinery is constrained by the long pay back periods on investment, security of resource supplies, and access to capital.

With such a significant proportion of the raw resource that flows to and is value added by the timber industry coming under State Government control, it is critical that long term supply agreements be set in place to enable industry to have long term resource security. This long term security would give industry the confidence to invest in new or upgraded more energy efficient plant and equipment and bio-energy generation.

Initiatives that could be implemented to assist with overcoming these issues and barriers include:-

- Secure long-term wood supply agreements for all sectors of the timber processing industry
- Grant funding to support purchase of more efficient plant and machinery

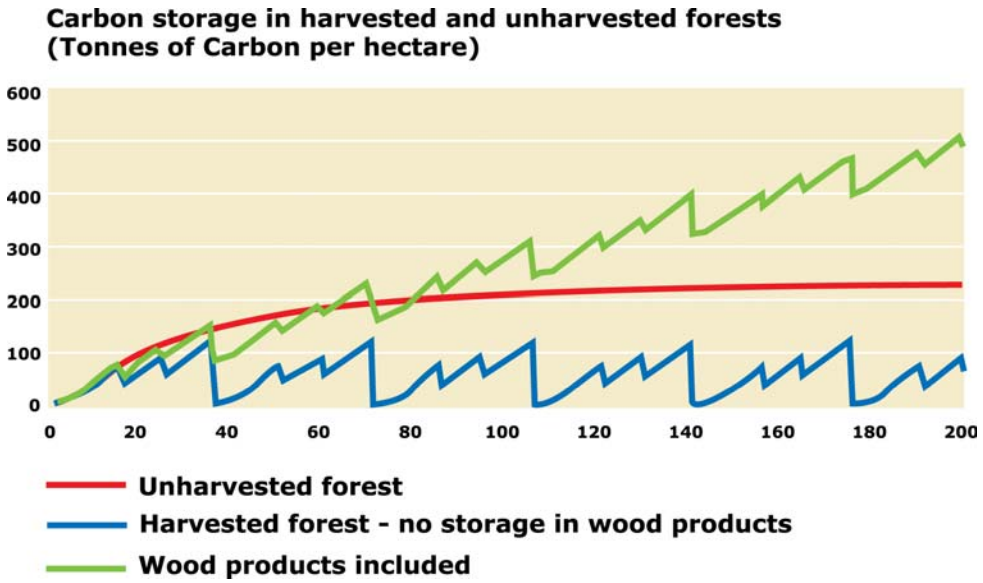
4.0 PLANTATION RESOURCE

In our submission to the ClimateSmart 2050 Strategy, Timber Queensland indicated our strong support for the development of a Queensland Plantation Strategy to promote forestry development for a range of economic and environmental purposes, including carbon sequestration.

Timber Queensland has identified the need for a further 100,000 ha of new sawlog plantations in Queensland to meet future demand with locally grown timber, the worlds most carbon friendly building product. A plantation estate of this size would permanently offset around 20 Mt CO2-e in the plantation itself, and the carbon stored in wood

products generated from those plantations would further store a significant amount of carbon (see figure 2).

Figure 2



(Source: Department of Agriculture Fisheries and Forests – Bureau of Rural Sciences)

Irrespective of whether the carbon stored in these plantations are traded under the Commonwealth's Carbon Pollution Reduction Scheme (CPRS), most of this carbon store could be counted towards Kyoto (subject to eligibility of the land) and all could contribute to the national carbon accounts reported under the United Nations Framework Convention on Climate Change (UNFCCC).

The development of a Queensland Plantation Strategy is required to guide government regulation of the plantation industry and to facilitate investment. This represents a relatively simple and low cost means of delivering significant carbon abatement opportunities for Queensland, while providing a useful stimulus for economic activity.

An initiative that requires urgent support is the development of a Queensland Plantation Strategy that demonstrates the Queensland Government's commitment to supporting plantation establishment in this state. The Strategy needs to:

- ensure a level playing field for plantations in comparison to other competing land uses,
- deliver consistent treatment of plantations across the State, and
- underpin good environmental practices through a code of practice.

Timber Queensland Ltd
14th July 2009