

Facing

Newsletter of Beacon Pathway

October 07



The next step: 100 NOW Homes®

With the successful design and construction of two NOW Homes® and the positive results from the first year of monitoring, Beacon is thinking big(ger): 100 NOW Homes® in four centres across New Zealand, all built to Beacon's High Standard of Sustainability and all monitored for performance.

Beacon recognises that, while new-build houses are a relatively small part of New Zealand's housing market, they lead the way for the renovation market, and are an opportunity to engage the various sectors of the construction industry from developers to architects to builders to tradespeople.

We're going to take all that we learnt from building the Waitakere and Rotorua NOW Homes® and develop a design brief and specifications for a generic NOW Home®. These will define what makes a NOW Home®, what features are non-negotiable, and criteria to determine what can be traded off against other savings. They will also contribute to a set of procedures which target and assist the stakeholders at each step in the development, design and use of a NOW Home®. With these, Beacon hopes to facilitate builders and developers to uptake NOW Homes® for mass build and to encourage local government to recognise and promote sustainable residential buildings.



Crucial to this major project is developing partnerships with developers and builders with an interest in sustainable building. The pilot programme of 100 homes will be undertaken in a range of locations, covering the major climate zones across New Zealand and monitored to test the effectiveness of the NOW Home® procedures in producing sustainable houses in a commercial context.



The monitoring will use "slimmed down" technology developed out of the complex and intensive monitoring of the Waitakere and Rotorua houses. Beacon believes that, for homeowners and occupiers to manage the performance of their homes as well as to demonstrate the performance of their home to councils or other home buyers, homeowners need a robust, simple method of monitoring performance that can be easily adopted in all New Zealand homes.

The timeframes for the project envisage the 100 NOW Homes® being built in mid 2008 with 20-30 homes built in each of Auckland, Wellington, Christchurch and a yet-to-be-determined smaller South Island centre.

If you have an interest in working with Beacon on this project, please contact:

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or

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Beacon Pathway is a collaborative research consortium of organisations with a considerable stake in the quality of the residential sector: Building Research, Scion, Waitakere City, Fletcher Building and New Zealand Steel

What is the value of improving New Zealand's housing?

Currently New Zealand's housing stock is generally poor quality, performs poorly and is a burden on the economy (direct burden to health service, police, emergency services, energy supply, water supply, sewage treatment and climate change; indirect burden to productivity and education). Beacon believes that improving the quality of the houses will bring benefits to New Zealand in reduced infrastructure costs, less environmental impact and health improvements. Beacon believes that the net economy-wide benefits can be quantified and beneficiaries identified.

The development of an economic value case of a high quality sustainable housing stock has been undertaken for Beacon by Infometrics, Ecosense and Martin Jenkins Associates. They are identifying the types of initiatives with the largest net impact on the sustainability of the housing stock, and the areas where policy initiatives are warranted.

A recent workshop, with attendees from Beacon, EECA, Ministry of Economic Development, Centre for Housing Research, Department of Building and Housing and Housing New Zealand Corporation, was held to identify gaps in the research and opportunities to fill them.

Once fully developed, Beacon aims to use the results to inform and influence central, regional and local government of the value of transforming the housing stock and the health of the New Zealand population.



Awards season

The Rotorua NOW Home® has received Highly Commended in the Sustainable Building category at the **Govt3 Awards**. Congratulations to Housing New Zealand which also won the Sustainable Transport category. Read more [here](#).

Beacon's Waitakere NOW Home® is a finalist in the **EECA Energywise Awards** in the category of the Fujitsu General NZ Ltd Residential Award. The green carpet VIP awards ceremony is being held on 1 November at the Rangitoto Ballroom, Langham Hotel, Auckland.

Beacon is proud to be the sponsor of the Sustainable Design and Innovation Award at the **Sustainable Business Network Awards**. This award recognises sustainable design and innovation (including building) that is having proven economic, environmental and/or social benefits, contributing to sustainable development. The SBN Awards ceremony is being held on 25 October 2007.

Beacon goes to Christchurch

The Beacon team travelled to Christchurch recently to present a summary of the last two years' research to a very interested and engaged audience. The strong level of interest created challenging debate at question time, with strong positive support expressed for Beacon's research and NOW Home® projects.

47 people attended from regional, city and local district councils, tertiary institutes, Landcare Research, architects and developers. We would like to thank those who attended for their enthusiasm and support. The symposium was hosted by Environment Canterbury, and we would especially like to thank Mike O'Connell of ECan for his assistance.

Nga Whare Oranga: whanau eco-village

The Beacon team recently visited the Nga Whare Oranga site and met with Tess Kora and Waereti Tait-Rolleston. The project, which is developing a model whanau eco-village, mirrors many of Beacon's goals and aspirations and we found much in common with respect to the process of building sustainable homes.



My impressions of the Climate Change and Business conference

by Nick Collins, General Manager, Beacon Pathway Ltd

I recently attended the 3rd Australian New Zealand Conference on Climate Change and Business in Brisbane, where I was struck by the overall acceptance of the scientific evidence of climate change and the economic benefits of starting to address the threat now.

In fact, far from questioning the scientific evidence, concern was expressed that IPCC and the Stern Report have presented conservative scenarios and that already actual experience is starting to drive policy. New Orleans was cited as an example where modeling had identified the potential threat to the levees and costs to address a river breach were estimated in 2003 to be \$2 billion. Actual rebuilding costs after Hurricane Katrina are in the order of \$125 billion.

I was amazed by the facts and figures presented on the rapid economic growth of China and India, the impact of which some commentators fear has also been underestimated. Both countries are using economic growth to alleviate poverty, and creating a substantial demand for energy. China is opening a new coal-fired power station per week, and the magnitude of energy demand in India is enormous – 44% of India's households (current population 1.3 billion) do not use electricity.

I noted an emphasis on the critical role of government in providing clear direction for business. Without it, investment will continue to be in fossil fuel based electricity and polluting technologies, rather than investing in and developing clean fuels. Given the enormous investment required to change, governments need to include business in their policy development. Interestingly, browsing news coverage in Australia highlighted that sustainability is becoming a major policy platform in the run-up to Australian State and Federal Elections.

There was strong representation at the conference from corporate Australia with banks, energy companies, accounting, legal, mining and manufacturers all present. One

presenter described it as “the injection of interest from the unsentimental players from the centre of town.” Overall though I felt that New Zealand business was less well-represented, with largely professional services, energy and research attending, and less representation from manufacturing or building products.

As an example of a business engaged in sustainability, I enjoyed Andy Ruben's presentation on Walmart. WalMart sees sustainability as a business strategy, driven by clear goals (zero waste, 100% renewable energy, selling products which sustain our environment), robust measurement and high degree of employee involvement.

Also of interest to me was a presentation by Michael Molitor from Carbon Stuff on the business opportunities in removing carbon. To stabilise atmospheric carbon at 500ppm, there will, by 2030, be the need to remove 600–650 billion tonnes of carbon. At an extremely conservative rate of \$25US per tonne, the value of market opportunity is in the trillions of \$. The risks for business were identified as the direct impact of not managing the threats of climate change on business (e.g. the likely impact on your supply chain), and secondly, not managing the commercial impacts of climate change. With the global value of carbon to double every 15 years, it will be vital for business to cost in the carbon cost of any new plant.

The technology focus was largely on clean coal, more relevant to Australia than New Zealand. However, among the technological drivers identified by Jae Edmonds of Battelle to address the climate change were wind and solar, and end use energy in buildings, much more in line with Beacon's, and indeed, New Zealand's approach.

In refining the wealth of information from this conference into a future focus for Beacon, I felt that the challenge for Beacon will be in building resilience in our homes and neighbourhoods against the primary challenges of climate change. For New Zealand these will be the likely impacts of climate change on the coast and flood plains of rivers where most of our cities are, and in particular on the high value housing built on the young, easily eroded rocks of our exposed coasts. We must also address the potential for climate changes to exceed the design performance criteria in the built environment. For example, houses originally built in low wind areas will become exposed to higher winds which may cause issues for fastening of roof cladding/structures.

Presentations available at:

www.climateandbusiness.com/program.html

Building Code Submission

Beacon has recently made a submission to the Department of Building and Housing on the New Zealand Building Code Discussion Document.

Our key points were:

- Beacon strongly supports the inclusion of provisions for improved indoor environment quality.
- Beacon opposes the proposals to abandon some minimum performance requirements around thermal performance for buildings. These are a necessary and demonstrably effective “safety net” that ensure buildings, and in particular homes, remain healthy and affordable. Carbon and energy use are not the only considerations here. There is strong evidence to show that poorly insulated buildings lead to significant adverse health outcomes.
- Beacon believes that recent changes to the Code around thermal performance and hot water efficiency do not go far enough, and that the work underway in EECA around the HERS scheme needs to be considered within the decision making framework around the new Code. Minimum performance standards for energy efficiency in new homes, equating to a relatively efficient HERS rating, should be mandated under the Building Code
- Beacon is concerned about the proposals to allow trade-offs between embodied energy (particularly with carbon as the metric) and energy use within the building, particularly in relation to residential dwellings. The energy used within a residential home is paid for and managed by the occupier – who is frequently not the builder of the home. On average, over 100,000 homes change hands every year. It is therefore unreasonable that matters such as minimum thermal performance requirements be traded off against low embodied energy within the building materials.
- Beacon supports the move towards a Life Cycle Approach for materials, which will result in more sustainable materials choices, with the proviso that it should be underpinned by sound technical data and independently verified.
- Beacon strongly opposes the suggested minimum water supply performance standard of 250 litres per person per day. Recent research from Beacon indicates that average water use in many localities is far lower than 250 litres per person today. For example, with many older homes with inefficient appliances, Waitakere City Council residents

average 167 litres per person per day. Instead of the proposed performance standard for minimum supply, the Department should include a performance standard for a minimum level of efficiency of buildings.

- The Discussion Document proposes to address water efficiency through the resource efficiency provisions around carbon. Beacon opposes this approach. Research in Australia (where pumping stations, treatment plants and other water infrastructure are powered by coal power stations) indicates that the embodied energy in water supply to the home is very low.
- Beacon recommends that a water efficiency standard should be developed, in line with policy being introduced by DEFRA in the UK. This could be a relatively simple measure, would be easily understood by the industry, and with the wide availability of water efficient fittings – available at no extra cost above inefficient fittings, should be able to be implemented at no extra cost to the consumer. Given costs of water supply and infrastructure are increasing, there would be substantial benefit to both individual buildings and the wider community from requiring minimum water efficiency standards within the Building Code.
- Staircasing is not mentioned in the new document and Beacon considers that it is too important a concept to be omitted by default and some explicit commitment to the idea is sought.

The full submission is available at
www.beaconpathway.co.nz/submissions.aspx

