

## Submission by Beacon Pathway Ltd (Beacon)

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### Submission on LTCCP for Nelson City Council

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| Date            | 4 May 2009   |
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### About Beacon

- Beacon Pathway (Beacon) is a research consortium that seeks to radically change the design, construction and renovation of New Zealand's homes and neighbourhoods. Beacon aims to bring about a significant improvement in the sustainability of the residential built environment in New Zealand through science-based New Zealand research. Our vision is "Creating homes and neighbourhoods that work well into the future and don't cost the earth".
- Beacon's shareholding partners are organisations with a considerable stake in the quality of the residential sector: BRANZ, Fletcher Building, New Zealand Steel, Scion and Waitakere City Council. Contributions from the shareholders are matched, dollar for dollar, by funding from the Foundation for Research, Science and Technology (FRST).
- Beacon believes it is only through collaboration and the sharing of knowledge that there can be a significant improvement in New Zealand's homes.
- Beacon's goal is to significantly improve housing sustainability through:
  - influencing policy and regulation;
  - understanding consumer and industry needs;
  - defining an appropriate high standard of sustainability; and
  - developing the tools to achieve, measure and monitor progress to achieving that standard at the house and neighbourhood levels.

A summary of Beacon's research is annexed to this submission.

### Reason for Submission

Beacon recognises the need for maximising the sustainability potential of the residential built environment during the development process at all scales - including individual homes, new developments and neighbourhoods. It also recognises the important role that local councils play in both supporting and encouraging the development and management of homes with a greater emphasis on sustainability.

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## Submission

Beacon does not wish to make a verbal submission.

### ***Performing Arts and Conference Centre (p10)***

Beacon supports the development of a Performing Arts and Conference Centre and submits that a) sustainable building practices are the foundation of this new Centre; and b) that it is used to showcase sustainable and low impact design and development, in line with the Council's focus on sustainability.

Note that Beacon is producing a *Local Government Resource Manual* in June 2009, which provides the rationale, suggested solutions, case studies and best practice policy measures to support sustainable building. This Manual is being launched through a series of workshops, the first of which is being held in Christchurch on 11 June 2009. Nelson City Council will be invited to the Christchurch and Wellington workshops (the latter to be held in July 2009) on this Plan.

### ***Environmental Sustainability and Management***

Beacon strongly supports the Sustainability Policy and the Council's efforts to include sustainable measures in all building and construction, waste minimisation and public transport improvements (p11).

Beacon supports the Council's waiving of consent and inspection fees for solar heating installations (p11).

Beacon supports the role of the Eco Design Advisor and working in partnership to promote the development of home gardens (p89).

Beacon supports the Carbon Reduction Reward Scheme and applying the Sustainability Checklist to all new significant Council projects (p89).

Beacon supports Council's non-regulatory measures to promote environmental sustainability, including the Ecofest, air quality improvement campaigns and water and land care programmes (p90).

### ***Solar City Initiative***

Beacon strongly supports the Council installing solar water heating in its own facilities, and the Solar City Initiative to support local households to install solar water heating systems through providing loans (p11). Beacon congratulates the Council on this progressive and inspiring initiative and its aim to develop Nelson as the 'solar capital of New Zealand'.

**Central City Development (p14)**

Beacon seeks the integration of sustainable building and low impact design and development in the new 'Heart of the City' initiatives. Beacon's *Local Government Resource Manual* can assist this.

**Maitai Water Supply Pipeline (p15)**

Beacon supports the development of a new Maitai water supply pipeline.

**Water supply, waste water and demand management (p48)**

Beacon applauds Nelson's water metering approach and seeks that a core focus on water demand management occurs. Council is referred to Beacon's *Slowing the Flow* report, which was prepared specifically to assist councils to put in place a package of water demand management practices, see [http://beaconpathway.co.nz/further-research/article/a\\_framework\\_for\\_councils](http://beaconpathway.co.nz/further-research/article/a_framework_for_councils). It draws on a range of methods from more efficient management of infrastructure and community education to a suite of regulatory methods and economic tools.

Beacon also seeks that Nelson investigate increased energy efficiency measures in the way it develops and manages its water supply and deals with wastewater treatment.

Note that a forthcoming Beacon report (to be released later in 2009) on the relationship between energy use and reticulated water systems, has found that the best potential for reducing energy use within the reticulated water system would appear to be first through the wastewater treatment process, then water supply treatment, followed by water supply and wastewater pumping in equal measure. It finds that clear financial and electricity savings will result for councils pursuing energy efficient strategies within their water supply model. Councils can also reduce their greenhouse gas emissions through reducing the energy intensity of their water supply and wastewater treatment systems.

Nelson is one of the four case studies within this research project, which found that Nelson has the most energy intensive system of the four councils (Waitakere, Palmerston and Kapiti being the other three councils), which means there is great potential for energy conservation initiatives in the way that Nelson supplies its water and deals with wastewater.

As with all the case studies the highest energy use in Nelson occurs with wastewater treatment (51.58%), followed by water treatment (22.47%), then water pumping (14.84%) and wastewater pumping (11.08%). The report notes that Nelson requires a high level of treatment of its water supply as the base level quality of its water is poor, and that a significant proportion of Nelson's supply is utilised by the port and seafood industries. This water then has to be pumped back up to the wastewater treatment plant.

This report will be provided to the Council as soon as it is released and provides ideas on how to increase energy efficiency of water supply and treatment while achieving environmental and financial gains.

### ***Stormwater (p68)***

Beacon supports the implementation of low impact approaches to stormwater, such as rainwater tanks, swales and rain gardens and seeks that this becomes an integral part of the Council's approach to stormwater.

Beacon supports the intention of the Council to focus on sustainable approaches throughout its stormwater activity.

### ***Waste management (79)***

Beacon submits in support of sustainable waste management practices, especially for the construction industry and cleanfill management.

Beacon supports the Council's proposed focus on reuse and recycle initiatives to reduce waste production at source.

### ***Community facilities and housing (p157)***

Beacon seeks the implementation and show casing of sustainable building practices in all regional and community facility upgrades and new developments, including Council's community housing. Beacon's *Local Government Resource Manual* can assist with this.

Beacon's *National Value Case* also makes the case for supporting sustainable housing, see Appendix A.

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## **Appendix A: Beacon's research**

Reports and further information can be found at Beacon's website: [www.beaconpathway.co.nz](http://www.beaconpathway.co.nz)

### ***National Value Case***

Beacon believes there is a significant role for Government to drive the necessary upgrade of the existing housing stock to a higher standard of sustainability as well as substantially raise minimum standards in the Building Code for new houses. Furthermore, our research indicates a strong value case at a national level to transform a significant proportion of the New Zealand housing stock to Beacon's HSS High Standard of Sustainability® with beneficial social, health, environmental and economic outcomes.

- [National Value Case for Sustainable Housing Innovations](#) (PDF 2MB)

### ***Large-scale renovation is big on job creation***

Prudent investment by the Government in New Zealand's residential infrastructure, in partnership with local government and industry, will maintain employment and critical mass in the building, building product manufacturing and building retail industries. Beacon's submission to the Government's Job Summit showed that, for every 1,000 houses retrofitted, a total of 151 full-time equivalent jobs would be required for delivery solely of on-site retrofitting services; a total of 392 full-time equivalent jobs would be required to provide the products and services involved in the renovation activity.

### ***HomeSmart Renovations***

The HomeSmart Renovation project involves the assessment and evaluation of renovations undertaken by approximately 600 homeowners across New Zealand to improve their building performance. Each home will receive an individually tailored renovation plan (based on our research so far) which shows participants how to get the best return on their investment, by drawing up a detailed pathway to improve the sustainability of their home. Through the project, we're developing tools which will assist homeowners in making good choices when they make changes to their homes, and collecting information to assess the benefits of renovating homes and the best ways to do this. The research outputs from the project will be available late 2010.

### ***Barriers to sustainable building***

Beacon has conducted detailed work looking at the barriers to sustainable building within local government and that this has resulted in the development of a Local Government Resource Manual which provides the detailed rationale, suggested solutions and case studies for best practice policy measures to support sustainable building. In 2009, this Resource Manual is being launched through a series of workshops in Christchurch, Wellington, Rotorua and Auckland. This resource will be available through our website to all councils.

- [Best Practice Policy Approaches to Encourage Sustainable Residential Building and Retrofitting: Evaluation and shortlist of initiatives](#) (PDF 118 KB)
- [Best Practice Policy Approaches to Encourage Sustainable Residential Building and Renovation: Survey and Literature Review Results](#) (PDF 820 KB)

### ***Neighbourhood research***

Beacon's neighbourhood research team have developed a framework which could be used to measure the sustainability of New Zealand's neighbourhoods. Our aim is to create a tool for developers, planners and local government which both measures neighbourhood sustainability and suggests improvements. The goal is how to design, construct, and manage neighbourhoods which: are adaptive; are resilient; allow people to construct rich satisfying lives; and, respect the limits of the environment.

### **Water research**

Beacon has undertaken a significant amount of research over the past two years related to water. Our premise is that the increasing cost, the decreasing availability of water supply in some parts of the country, and conflicting demands for water allocation between some rural and urban parts, will require a more efficient and conservation-orientated approach if New Zealand is to achieve widespread household sustainability.

During 2008 Beacon ran workshops with six councils across the country in order to explain in detail the range of methods that Councils could consider to intensify their water demand management approaches. Each Council then prioritised their next likely steps. Beacon continues to observe their progress, so that ways of overcoming potential barriers might be identified and shared with others.

Three other current pieces of work are aimed at deepening our understanding of water issues. One looks at the value case for water, one looks at the relationship between water and energy, and the third looks at the benefits of the integrated management of the three waters.

Key water reports are:

- 2008 [Slowing the Flow: A Comprehensive Demand Management Framework for Reticulated Water Supply](#) (PDF 1.4MB)
- 2008 [Best Practice Water Efficiency Policy and Regulation](#) (PDF 1.4MB)
- 2007 [Demand Management Through Water Retrofit Projects \(Public report\)](#) (PDF 737KB)
- 2007 [Making Policy and Regulations Rain Tank Friendly](#) (PDF 234KB)
- 2006 [Water Efficiencies: Report on Existing Technologies/Expertise in New Zealand](#) (PDF 116KB)

### **Energy research**

Our Energy Retrofit research will provide robust information to inform decision makers and actors in the value chain on how to cost effectively renovate New Zealand homes to a high standard of energy sustainability. We're tackling this in three ways.

- 1) We're looking at how hard or easy it is to renovate the energy performance of **different types** of existing homes. Our houses were built significantly differently over the last century and each type poses different problems for energy retrofits.
- 2) We want to understand how **different consumers** see the energy performance of their home and respond to retrofit opportunities. Specifically we've focused on landlords, high energy users and recent home buyers.
- 3) We're using what we learned along with our experience in the HomeSmart Renovations project to build a series of **energy retrofit packages** that will provide effective improvements for each type of home and different consumer groups.

- 2008 [New Zealand House Typologies to Inform Energy Retrofits](#) (PDF 651KB)
- 2008 [Housing Typologies: Current Stock Prevalence](#) (PDF 392KB)