

Submission by Beacon Pathway Ltd (Beacon)

Submission on LTCCP for Kapiti Coast District Council

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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.

Submission

Beacon does not wish to make a verbal submission.

Water Supply (Summary p6)

Beacon supports an immediate water supply upgrade to address the pressing water risks in the District.

However, Beacon also supports the implementation of water metering at the earliest opportunity. Beacon supports water metering as a key means to manage and reduce demand for water.

Beacon supports the Council's focus on reducing water demand as a core strategy to address ongoing water issues in the District, including the provision of information and education to the community regarding water use and conservation and the employment of a Water Conservation Coordinator.

Beacon supports the proposed Plan Change 75 requiring rainwater tanks and greywater re-use on new properties where appropriate.

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

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. 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.

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.

Kapiti Coast is one of the four case studies within this research project (Waitakere, Palmerston North and Nelson being the other three councils). While Kapiti Coast has one of the highest water use rates in the country, currently at 650l/pp/pd, the Council is pursuing a more sustainable system and, as noted, Beacon applauds its employment of a dedicated water use coordinator looking at demand management options.

In contrast to the other case studies, for Kapiti the most energy intensive aspect of the overall system is for water treatment. Figure 4 below provides a pie graph illustrating where in the Kapiti Coast system energy usage occurs. This is the amount of energy used for every m³ of water supplied and/or treated. The highest energy use occurs in treating water (47.69%), followed by wastewater treatment (39.57%), then wastewater pumping (11.06%) and water pumping (1.69%). The total amount of electricity used annually is 7,032,412 kWh. This amount of energy was used to supply 3,472,179 m³ of potable water and to treat 3,560,233 m³ of wastewater. The energy/water ratio for supply was 0.44 kWh/m³ while wastewater treatment was 0.88 kWh/m³.

Kapiti Coast Water Energy Breakdown

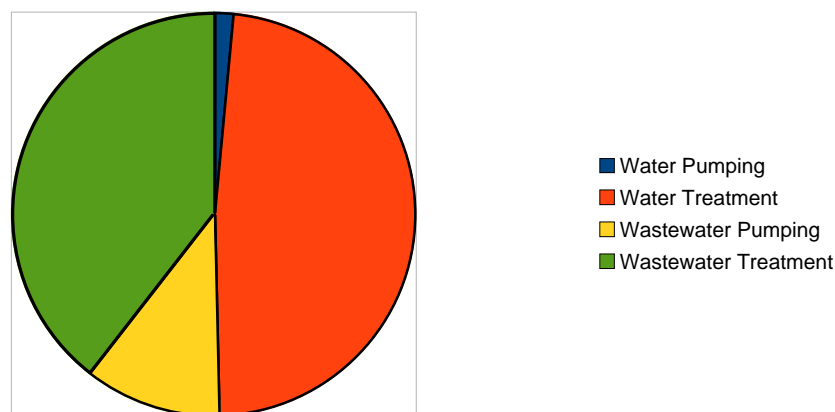


Figure 4: Graph showing Kapiti Coast Water Cycle Energy Breakdown

Stormwater (Summary p9 and p111)

Beacon supports the stormwater upgrade programme planned by the Council, including analysis of needs and options and involving the community in these explorations.

Energy Efficiency Projects (Summary p7)

Beacon applauds the Council's innovative energy efficiency projects, including the switch from diesel to wood burning for the waste treatment boiler at Paraparaumu (which will reduce the Council's greenhouse gas emissions by 22%). Beacon supports reinvesting savings from this project into other energy efficiency and community energy efficiency projects.

Town Centre Design and Upgrades Programme (Summary p7)

Beacon supports this programme of upgrades and seeks that sustainable building practices inform these upgrades.

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 can assist the upgrades programme above and is being launched through a series of workshops, the first of which is being held in Christchurch on 11 June 2009. Kapiti Coast District Council will be invited to the Wellington launch and workshop of this manual, to be held in July 2009.

Housing (p79)

Beacon supports the Council taking a leadership role in increasing housing choice in the district and innovative housing options. Council is referred to Beacon's National Value Case which sets out the case for increasing the sustainability of the nation's housing stock (see Appendix One).

Aquatic Centre Development (p51)

Beacon seeks 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. Beacon's *Local Government Resource Manual* can assist.

Arts and Performance Centre (p53)

Beacon seeks that if and when a new arts and performance centre is developed that sustainable building principles are embedded within its development.

Greater Otaki Project (p54)

Beacon supports the revitalisation work planned for Greater Otaki. Note that Beacon's neighbourhood research team have developed a framework which can be used to measure the sustainability of New Zealand's neighbourhoods. The aim is to create a tool for developers, planners and local government which both measures neighbourhood sustainability and suggests improvements.

Access and Transport (p67)

Beacon supports the proposed investment in walking and cycling to reduce vehicle use, increase connectivity and support more sustainable neighbourhoods.

Beacon supports the aim to have school travel plans in place for all schools within three years.

Building control and resource consents (p71 and 115)

Beacon supports the provision of sustainable building advice via the Eco Design Advisor.

Development management (p84)

Beacon seeks that the District Plan review makes provision for supporting the development of sustainable buildings. The *Local Government Resource Manual* developed by Beacon can assist in this.

Solid Waste (p107)

Beacon supports the Council's zero waste policy, kerbside recycling service, mulching of green waste, the new Resource Recovery Facility in Otaihanga and the assessment of waste to energy and other products as part of its planned review of waste disposal initiatives.

Supporting environmental sustainability (p114)

Beacon supports the Council's ongoing contribution to the Sustainable Home and Garden Show. Beacon refers Council to its research in Appendix One to support upcoming shows.

Beacon supports the Council providing funding assistance for sustainability projects and supporting community and tangata whenua involvement in environmental sustainability projects.

Beacon supports the Council continuing to seek central government funding for sustainability projects, and congratulates the Council on its success in this area to date.

Appendix One: Beacon's research

Reports and further information can be found at Beacon's website: 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)