



Beacon Pathway Ltd

Annual Report

2008/2009



Contents

1	What have we learnt after five years?.....	3
2	Research achievements	5
2.1	HSS High Standard of Sustainability®.....	5
2.2	Neighbourhood Sustainability Framework.....	6
2.3	Tools to build and renovate sustainable homes	7
3	Tools for councils	8
4	Demonstrations: providing the proof.....	10
4.1	New homes	10
4.2	Existing homes: Papakowhai Renovation project.....	12
4.3	Existing Homes: HomeSmart Renovations	13
5	Core research	14
5.1	Energy	15
5.2	Water.....	16
5.3	Indoor environment.....	17
5.4	Systems reports	17
6	Using research to drive change.....	18
6.1	Value cases lead to change	18
6.2	Rating tool development.....	19
6.3	Influencing government.....	20
6.4	Influencing industry.....	21
6.5	Sharing our research with stakeholders	22
6.6	Communications strategy	23

1 What have we learnt after five years?

About the focus of our research

Homes and neighbourhoods are useful units of research focus as all key stakeholder channels (consumers, industry, infrastructure and government) operate at these levels too.

Costs and benefits do not fall in same place and can be difficult to measure. While cost benefit analysis is a valuable tool to make the financial benefits explicit we believe it is but one approach needed to understand the true value to all players of improved house performance in New Zealand. The benefits are wide ranging (e.g. financial, health, comfort) and fall to many players (e.g. occupants, industry, councils, central government and the environment).

Performance is interdependent – our houses are a web of interdependent features and building systems. We cannot fix one area only without compromises and under-performance in other aspects of the home. Beacon’s ‘whole of house’ approach strives to maximise performance through improving each aspect in context.

What it takes to create change

Robust independent research in combination with **effective technology transfer** is a solid foundation to bring about change.

Robust research needs good **quality assurance**, to ensure:

- Research pathways and strategies deliver on objectives;
- Briefs, reviews and outcomes are to specification;
- Multidisciplinary approach; and,
- Interpretation / joined-up systems thinking (i.e. what does this mean to different players) and a clear agreement on direction / priorities (portfolio approach).

Technology transfer requires an:

- In-depth understanding of audience;
- Ongoing relationship management; and,
- Appropriately packaged information that is perceived to be independent and credible.

There is no magic bullet to improving the housing stock - action is required on many technical fronts and across many stakeholder / institutional groups.

Beacon's model is an effective one

Without the **commitment of our shareholders**, we would never have started. Their vision in setting up Beacon when sustainability was still a relatively unknown concept in New Zealand cannot be underestimated. Crucially, Beacon's shareholding provides credibility to all activities and it is unlikely that any single shareholder could have achieved what Beacon has achieved.

Beacon has a successful model of commissioning '**joined up**' research designed to inform better decision making in New Zealand. The joined up approach has enabled Beacon to address the interdependencies between systems in the house.

Beacon has recognised the **value of demonstrations**, with data from live research projects providing crucial evidence of the effectiveness of sustainable design or renovation.

Our aspirational goals could not be achieved by Beacon alone. Recognising the importance of partnerships and building **strong links with key partners** in each channel has allowed Beacon to punch above its weight.

Beacon's portfolio of research (structured on the HSS High Standard of Sustainability®) and established channels to consumers, industry, infrastructure and government have enabled us to be an **independent and credible voice** for improved home performance.

New Zealand's knowledge base on improving the housing stock is well established but fragmented across individuals and organisations with different remits and capacity. Beacon has **acted as a broker** to bring much of the information into one place and synthesising in partnership with stakeholders into outputs that can be understood and acted upon.

Having a **level of agility** has enabled Beacon to respond to opportunities, often unforeseen. This reflects a wide base of research knowledge, excellent communication, good relationships with stakeholders, and a strong trusting network (e.g., Beacon's input into the Jobs Summit).

The roles required for change

We have effected change by playing these roles:

- **Researcher:** robust research providers from different disciplines with strong QA to ensure delivery, good communication and cooperation skills.
- **Interpreter:** multidisciplinary group who set research frame, draw together findings in context of stakeholder needs/constraints and package the results.
- **Networker:** strong understanding of the industry, established network with key stakeholders, understands research and feeds back stakeholder voice.
- **Communicator:** established strategy of who to target and knowledge of how to pitch findings to different groups, writers, media connections, web resource
- **Independent broker:** Beacon's model has enabled it to act as an independent broker, i.e. a consortium which commissions research from range of providers, interprets findings and delivers targeted relevant material to a well established and (increasingly receptive) stakeholder network.

2 Research achievements

2.1 HSS High Standard of Sustainability®

Outputs:

- HSS® benchmarks updated to 2008
- HSS® reviewed against international benchmarks

Outcomes:

- HSS® benchmarks provide a robust New Zealand standard against which the performance of Beacon's research homes was measured: research from the Waitakere NOW Home® and the Papakowhai Renovation homes has influenced central and local government policy.
- The Renovation Plan Builder was developed to deliver to the HSS® benchmarks and more than 600 homeowners across New Zealand are considering their renovations against the Beacon plans
- Rating tool for new and existing New Zealand homes is under development in partnership with BRANZ and NZ Green Building Council: the HSS® principles and benchmarks underpin the tools.
- SHAC competition based their judging of homes against HSS® benchmarks

Beacon has defined household sustainability (the HSS High Standard of Sustainability® (HSS®)) on the basis of the NOW Homes® and other commissioned research (indoor environment quality, energy and water). The approach has been reviewed for robustness and practicality in New Zealand context against international experience. A programme to update HSS® benchmarks on the basis of Beacon's improving knowledge base is established: the second iteration issued in 2008.

The HSS® principles are the core 'system' in Beacon's research portfolio with the benchmarks communicating Beacon's whole of house approach. The HSS® illustrates the systems thinking embedded across the portfolio: the principles and benchmark frame all Beacon research, support communication of the goal and provide foundations for initiatives such as a residential rating tool.



2.2 Neighbourhood Sustainability Framework

Outputs:

- Software interface for Neighbourhood Sustainability Framework
- Survey data for New Zealand neighbourhoods

Outcomes:

- NSF interface licensed to trial by LandLink (0809) and Housing New Zealand (0910)
- Unique neighbourhood sustainability data made available to councils, researchers and planners

The Neighbourhood Sustainability Framework (NSF) tools have been tested in both new and existing urban neighbourhoods, confirming their value for improved management and planning. A software interface has been developed and tested with users: Beacon shareholders formally reviewed the NSF for commercial opportunity. While its value was recognised, the NSF was not considered to be at a suitable stage for shareholder commercialisation. Two licences to trial the NSF interface have been signed as part of the testing and development of the software.

The interface is underpinned by a unique neighbourhood database that is New Zealand's first nationally representative survey of neighbourhoods. The survey provides, for the first time, direct evidence of the impact of densities and use profiles on neighbourhood sustainability: data are available through Beacon's website. This resource provides councils, researchers and policy-makers insight into impact of density and use on sustainability.

Research into 'valuing' neighbourhoods will support the development of uptake pathways for the NSF next year.



2.3 Tools to build and renovate sustainable homes

Outputs:

- Procedures and guidelines to build new homes to a HSS High Standard of Sustainability®
- Procedures and guidelines to renovate existing homes to a HSS High Standard of Sustainability® have been tested in the market. They include: an efficient in-house assessment method, a unique Renovation Plan Builder and Homeowner kit for HomeSmart Renovations project (homeowner manual and project management guide)
- Over 600 homeowners received the Homeowner Kit
- Renovation plan builder used to update consumer facing web-based tool, Homesmarts, which offers a prototype ‘do it yourself’ plan for renovation; supported by 7 articles
- Consumer guide to assessing site suitability for renewable energy options

Outcomes:

- A HomeSmart Home built by New Zealand Housing Foundation (under MOU, licence to trial) on basis of new homes procedures.
- Professional development of energy trust partners to extend their capacity beyond energy to whole of house assessments and renovation to meet HSS®
- Over 600 homeowners have detailed prioritised renovation plans generated by the Renovation Plan Builder, to help them on a pathway to better-performing homes.

Prototype **procedures** (“how to guides”) for building new homes and renovating existing homes to meet the HSS® have been developed. This codified form of Beacon knowledge is being tested in the market through the demonstration projects, HomeSmart Homes and HomeSmart Renovations, as a means to achieve the transformation required to meet the goal. Guides are targeted variously at house designers, builders, building trades, energy retrofitters, councils, developers and homeowners.

Research from across Beacon’s portfolio underpins the **Renovation Plan Builder**, a unique tool that draws together data from the house and occupants to develop a plan for that home. In the HomeSmart Renovation project, over 600 homeowners received an individually tailored renovation plan 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.

The renewable energy research team developed a **framework for decision making** to enable the process of technology selection, technology assessment and the evaluation of appropriate renewable options.

From this framework, a guideline was written to support consumers’ assessment of their site suitability for renewable energy. This will be further developed to complement the individually tailored renovation advice on the Homesmarts website (www.homesmarts.org.nz).

3 Tools for councils

Outputs:

- *Building Sustainable Homes: A Resource Manual for Local Government* – publication
- Working sessions held with councils on their use of the Resource Manual: completed in Christchurch, Wellington, and Rotorua with further workshops in Auckland and the lower South Island planned. Beacon's 09/10 research will draw on councils' experience of using the Manual to inform a final iteration.
- *Slowing the Flow: A Comprehensive Demand Management Framework for Councils* – publication
- Beacon's housing typology has been further developed to provide a picture of the prevalence of each house type by territorial local authority (TLA). This, in combination with Beacon's understanding of the retrofit potential of each house type, provides councils with a valuable picture of the opportunities available to a region for improving performance of the housing stock.

Outcomes:

- Greater Wellington Regional Council has requested Beacon lead an integrated working session for politicians and all levels of staff to embed the knowledge across council.
- *Slowing the Flow* underpins Water New Zealand case for demand management brochure, and is referenced by IPENZ and the recently released MfE publication, *On Tap?: Attitudes, behaviours, and perceptions of household water use – informing demand management*.
- As a result of Beacon engagement with councils to develop *Slowing the Flow*, Christchurch has commissioned sophisticated water modelling to help them further understand benefits for their city of demand management; Tauranga and Western Bay of Plenty sent a delegation (officials and a politician) to Waitakere City Council to review their practice around demand management; and, Western Bay of Plenty is going to trial household water metering.
- Beacon's researchers have been asked to contribute to working groups for issues such as the National Policy Statement on Freshwater Management.

Beacon has developed tools for local councils who play a key role in determining the quality of homes and neighbourhoods.

Beacon research has identified that council policies, plans and processes can present significant barriers to building and renovation for improved performance. To help councils address this, a *Resource Manual for Local Government* has been published. The document sets out the context and defines council's roles and obligations then provides a toolkit of options each council can consider. Advice covers strategic policy signals; Resource Management Act policies and plans; development standards and guidelines; Building Code administration; bylaws; economic tools; community education; council administrative procedures.

The manual has been presented to councils as part of a comprehensive Beacon workshop. Two regional workshops were held (Christchurch, Wellington) this year and the programme continues. Requests for Beacon to run individual working sessions on the manual drawing together politicians and staff from one council are under review.

Water research based on international and national best practice has been tested with case study councils who received detailed reports on the findings. From this, a generic framework to guide the development of water demand management strategies and policies was published. *Slowing the Flow* is a comprehensive framework of use to managers of reticulated water supply (councils, central government agencies and industry).

The publication was well received by industry and government and its timing ensured the government's national policy statement on water was informed by this research. The publication was also used by industry: for example, it underpinned Water New Zealand's *Case for Demand Management* in council water supplies and was referenced in IPENZ' water report. The framework has been drawn on at central government as evidenced by permission being sought to use it.



What councils can do to promote more sustainable homes

4 Demonstrations: providing the proof

4.1 New homes

Outputs:

- Waitakere NOW Home® case study published on web
- NOW Home® learnings and subsequent research from Energy, Water and IEQ streams have been collated into HomeSmart Homes procedures – a ‘how to’ guide to designing and building a new sustainable home
- The New Zealand Housing Foundation designed and built a house using the HomeSmart Homes procedures and with Beacon input. Beacon will be monitoring the performance of the house.
- Learnings from the discussions with group builders, developers and industry during the development of the HomeSmart Homes procedures have been captured to inform future projects and help determine the best uptake pathways for Beacon to achieve its goal.

Outcomes:

- Waitakere NOW Home® continues to get good media coverage. Results used in media items relating to water, energy, IEQ and the impact on health and family life. 5 articles including Consumer feature on IEQ
- The Waitakere NOW Home® research remains a constant feature of conference presentations, workshops and sessions held with government and industry to demonstrate the benefits of sustainable homes: more than 50 instances in 0809 year.
- The first HomeSmart Home is leading a change in thinking toward provision of better performing homes by NZ Housing Foundation. As well as an opportunity to connect further with Housing New Zealand, Tindall Foundation and the Foundation, the home displays to the rest of the sector what can be achieved in new build

The **Waitakere NOW Home®** is a significant achievement: intensely monitored, the home is powerful proof that, using materials currently available, homes can be designed which cost no more to build than an average home and doesn't cost the earth: i.e. significantly lower demand on reticulated energy and water, yet warmer and drier. The experience of the tenants demonstrated the greater health, social and family benefits of living in a sustainable home. The research continues to be widely reported at peer review conferences, in the media, and targeted presentations to government and industry. Two reports are due which focus specifically on the solar hot water performance (across all Beacon research homes: new and renovated) and the issue of takeback (the two and a half years of detailed monitoring of Waitakere NOW Home® put Beacon in a unique position to contribute to this debate)

The second NOW Home® built in Rotorua in partnership with HNZC has also provided valuable learning. A final report on the performance of the **Rotorua NOW Home®** is being prepared.

Data and experience from the two NOW Homes® have fed into the **HomeSmart Homes** project, aimed at continuing to influence the new homes space. The changing economic climate and resultant downturn in the volume of new homes being built, forced a revision to Beacon's new homes research plans. Ambitious plans to support the building and monitoring of 100 new homes were scaled back.

However, relationships continue: the NZ Housing Foundation signed a licence to trial Beacon's "how to" HomeSmart Homes procedures to build a home in Auckland. The home is part of the West Coast Rd sustainable development and is due to be opened at the end of August. Beacon will be monitoring the performance of the home. Stonewood Homes is working with a Fletcher Building company and Beacon on three homes in the South Island.



The first HomeSmart Home under construction



The West Coast Rd subdivision

4.2 Existing homes: Papakowhai Renovation project

Outputs:

- A suite of reports detailing technical performance and documenting Beacon learning on how to run a large scale renovation project.
- Research reports documenting occupant experience of the project (helped to inform larger scale HomeSmart Renovation project) and the performance of their newly renovated homes (supported technical reporting and captured ‘value’ to occupants to support Beacon’s cases for change)
- A synthesis report drew together findings from a range of sources and presented each house as a case study. This enabled Beacon to share the experience with a wide range of stakeholders and was published on web.
- Results presented to central government departments DBH, EECA, HNZN and MfE
- Results continue to be used in media to highlight the positive spin offs of renovation, especially the impact on health and family life. Overview of project launched in *Build*, followed by more detailed analysis. Featured in *Consumer* and *The Shed* articles

Outcomes:

- Papakowhai proved a valuable experience that improved the capacity of the Beacon team (and key research providers) to successfully establish the larger scale HomeSmart Renovation project.
- Research findings have been accepted at central government and are subsequently reflected in policy. For example Papakowhai demonstrated clearly that to improve the quality of the indoor environment (warmer and drier) renovation requires insulation of full thermal envelope in combination with efficient heating. The government’s Warm Up New Zealand package includes both underfloor and ceiling insulation with heating.

Beacon’s first renovation project in Papakowhai (Porirua City) concluded this year, having provided a valuable foundation on which to specify and launch the HomeSmart Renovation project. Key learnings about retrofit have been important for influencing government policy.

A presentation of Beacon’s retrofit knowledge to senior officials from DBH, EECA, HNZN and MfE made the case that New Zealand knows enough to act now, i.e. initiatives to upgrade homes need not be delayed for more research. A synthesis of Beacon’s learning was published on the website as a series of case studies.

4.3 Existing Homes: HomeSmart Renovations

Outputs:

- Learnings from the Papakowhai project and other foundation research into energy retrofit have formed basis for HomeSmart Renovations procedures – ‘how to’ guides on renovating – and Renovation Plan Builder
- Experience of setting up large scale project and working with community retrofit partners captured in report
- Assessment of over 600 homes using the Renovation Plan Builder
- House performance data being collected for over 600 homes with intensive monitoring of 200, capturing variation in climate and house type
- Continuing media engagement with 31 articles from press releases, interviews and written by Beacon

Outcomes:

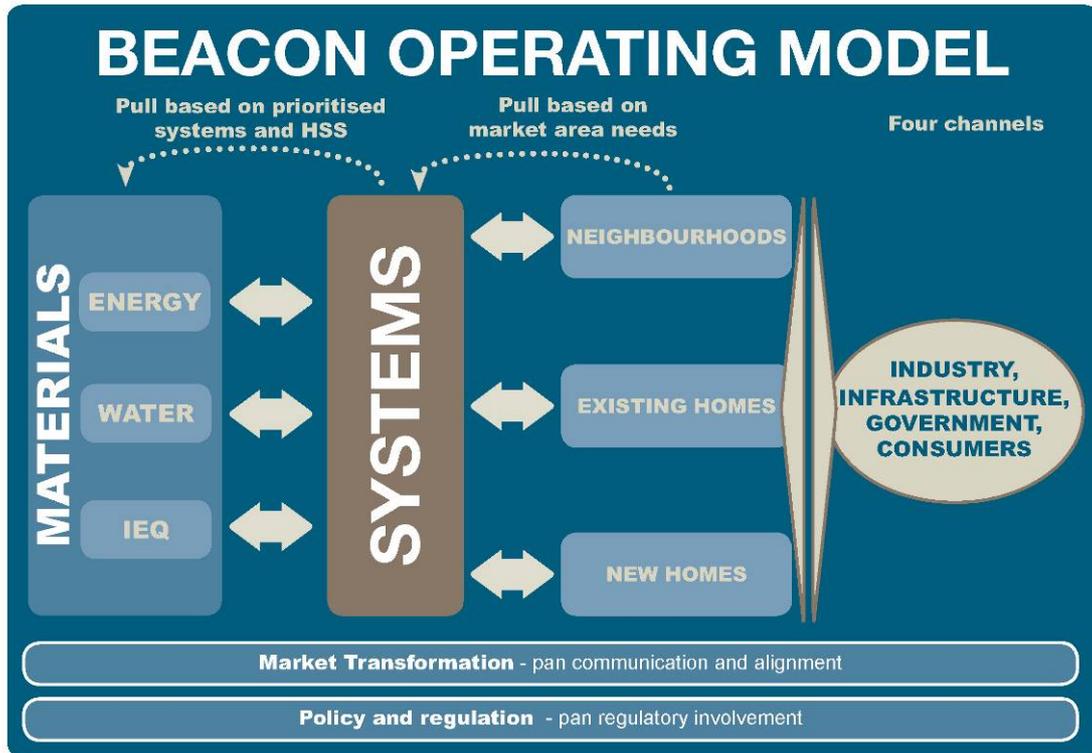
- Engagement of over 600 homeowners from around New Zealand in considering the performance of their home. Homeowner kits and newsletters, and access to research team leader key to engagement
- Working with community retrofit organisations builds their capacity and changes their focus. Training materials and workshops provided.
- contracted by EECA to bolt on a hot water system project

To address Beacon’s homes objective, the HomeSmart Renovation project made significant progress in this year, recruiting over 600 households in a research framework across New Zealand. Members of Beacon’s energy, indoor environment quality and homes research streams came together to develop a unique tool to support the project: the renovation plan-builder. Each home was assessed (using Beacon’s whole of house perspective) and a renovation plan generated. The dataset is developing: all homes contribute data from the house assessment, utility use and experience; and a 200 home subset has more intensive performance monitoring.

Considerable effort was made to recruit and retain households: they received regular newsletters and have email access to the homes research team leader. EECA funded a ‘bolt-on’ project to understand the effectiveness of hot water upgrades (solar & water heat pump systems) in reducing energy demands from homes.

5 Core research

In Beacon's operating model, the three priority areas are supported by foundation research. Research from each of these streams feeds into the demonstration projects, and works together to provide a joined up, whole-of-house, overview.



5.1 Energy

Outputs:

- Three energy retrofit surveys of homeowners analysed what homeowners did to improve the energy efficiency of their homes and why
- An analysis of house types and their ease of energy retrofit provided key data on how to tackle New Zealand's housing types
- Renewable energy decision-making framework on site and location suitability
- Value case for feed-in tariffs

Outcomes:

- Energy retrofit work underpins HomeSmart Renovations assessment and plan builder and house typology data is being made available to councils to encourage support for large scale renovation
- House typology work used in media including Consumer and in job summit briefing
- Renewable energy framework to be broken down on web and to feed media articles
- Beacon has worked with industry players with stake in renewable energy. SEANZ and partners have drawn on Beacon's energy research to draft an industry value case to government for feed-in tariffs. The progression of this value proposition now lies in SEANZ' hands.

The energy retrofit work was undertaken with the intent of providing a strong energy base for the HomeSmart Renovations project. An added bonus was the use of the house typologies data to make the value case to councils for support of renovation in their areas.



The energy team engaged with renewable energy industry organisations: the result is a developing value proposition for government to consider establishing feed in tariffs. Absence of a mechanism for small scale generators to feed back to the grid is a barrier to wider uptake of renewable energy options in homes.

5.2 Water

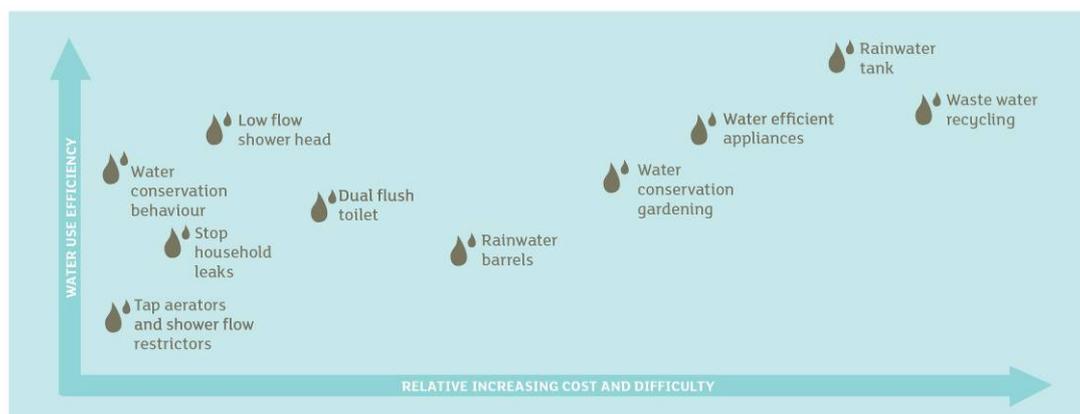
Outputs:

- *Slowing the Flow*, as reported under tools for councils
- Within the Valuing Water programme, an "energy in water" report uses four case studies to discuss the implications of water use for energy efficiency for councils. This aims to provide councils with more incentives to value water more highly and will be drawn on by Beacon's media communications to help consumers understand the 'hidden costs of water'.
- Another 'valuing water' report reviews water technologies from a systems perspective, it provides a robust analysis of water products and systems that might improve water efficiency at home and neighbourhoods
- Supported by 4 water focused articles in industry journals and national press

Outcomes:

- *Slowing the Flow* underpins Water New Zealand case for demand management brochure, and is referenced by IPENZ and the recently released MfE publication, *On Tap?*
- As a result of Beacon engagement with councils to develop *Slowing the Flow*, Christchurch has commissioned sophisticated water modelling to help them further understand benefits for their city of demand management; Tauranga and Western Bay of Plenty sent a delegation (officials and a politician) to Waitakere City Council to review their practice around demand management; and, Western Bay of Plenty is going to trial household water metering.
- Beacon's researchers have been asked to contribute to working groups for issues such as the National Policy Statement on Freshwater Management.

The research programme to develop value cases for improved management of residential water is well established. One report makes the case for councils to take account of the energy in water, offering a different perspective to the costs borne by councils. Another provides a systematic review of technology appropriate to New Zealand and is under review with one of Beacon's shareholders as the year ends.



Estimation of effectiveness of interventions against cost and difficulty

5.3 Indoor environment

Outputs:

- Review of Beacon's HSS® IEQ benchmarks to support the 08 revision
- Monitoring approach established and ongoing for ventilation project assessing mechanical whole house ventilation systems alongside the HomeSmart Renovation project
- Media release on the ventilation project generated two articles in Dunedin press; 8 consumer-facing articles on ventilation
- Presentation made to LPG Association Conference on unflued gas heaters

Outcomes:

- None to report as research not complete.

Beacon's IEQ research programme is focussed on understanding forced air ventilation systems and their role in helping homes reach HSS®. This year has seen the team test and trial how best to monitor and establish their programme alongside the HomeSmart Renovation project.

Engagement is underway with government and the gas industry toward banning unflued gas heating. Several presentations have been made to gas industry groups.

5.4 Systems reports

Outputs:

- Prioritisation of building systems – approach to **review and rank** all systems in a house using criteria that embed the HSS®. Windows/walls were prioritised for investigation.
- Life Cycle Assessment NOW Homes® and Papakowhai Renovation homes - a **systems assessment** of new home and a renovation, showing where the hot spots are
- Design criteria for retrofit windows and new walls - an approach to develop **design criteria** for new solutions, applied to two case studies (walls and windows).
- LCA-based windows calculator - first step on pathway delivering 'new solution'

Outcomes:

- The research discovery, primarily from the Life Cycle Assessment of Beacon's new and renovated homes, that the greatest contribution of a home is the operational phase. The implications from this work on the FRST milestones have been reported to the Foundation and the work programme for the next 12 months established. The focus is to synthesise the findings and engage industry via a series of workshops and publications. The opportunities for industry in New Zealand will be clarified as a result of this work

A series of reports commissioned under the system programme were delivered this year and considerable effort by Beacon and shareholders has gone into review and consultation about how to best use the findings to achieve the objective. A synthesis of the key learnings of the reports is being prepared, highlighting what industry should know, and will be presented at comprehensive Beacon workshops for industry later in 2009.

6 Using research to drive change

6.1 Value cases lead to change

Outputs:

- Beacon briefing submitted to new Ministers after national election to maintain traction with agencies through change of government. Subsequently, Beacon's hosted a meeting between its board members and the new Minister of Building and Housing.
- Beacon prepared a briefing for the government's Job Summit entitled "Large scale renovation is BIG on job creation". This made the case that renovation of New Zealand's housing stock would meet several government objectives, most relevantly job creation and investment in infrastructure.
- Beacon communications drew on the briefing: NZ Herald thought piece, Build article and 6 articles
- Beacon presented research from energy and renovation projects to a GUEDO hosted workshop that explored Waitakere City's proposition to 'Retrofit a City'.

Outcomes:

- Recipients of Job Summit briefing from various sectors actively commended Beacon for the work. Some seeking further clarification on the analysis in order to draw it into their own submissions and contributions on the day.
- Research underpinning the Job Summit briefing was directly used in MED cabinet paper on the "warm up NZ" programme and informed EECA's related press releases
- Waitakere City Council strongly advocated the 'retrofit the city' approach to the Auckland Transition Authority (informed by Beacon's knowledge base).

The *National Value Case for Sustainable Housing Innovations* was published in 2007 and widely distributed and referenced. Economic analysis clearly showed the benefits to the nation of improving New Zealand's housing stock. Building on this foundation, Beacon drew on the Papakowhai Renovation project and energy retrofit research to prepare value propositions for participants at the government's job summit. A submission making the case for government to explicitly treat housing as part of urban infrastructure and consider large scale renovation as a viable source of job creation was prepared for the Government's Job Summit. The data illustrated the power of upgrading the housing stock in meeting government aims of using infrastructure to help the economy and create jobs. Beacon's aim was to ensure that renovation of New Zealand's housing stock was considered a viable intervention to meet government goals of infrastructure spending and job creation.

The paper was sent to six central government agencies, four local councils, seven industry groups, one political leader: feedback very positive and included requests for additional information. In June the government announced an initiative, Warm Up New Zealand: Heat Smart, to improve 180,000 homes with a budget of \$323m. The resultant EECA “Warm Up NZ” programme with its package of insulation (ceiling & under-floor so higher specification than before) and heating (not accessible unless fully insulated) to homes independent of income (new recognition that all homes in New Zealand are affected) is a valuable contribution to the improvement of the housing stock. Beacon research informed MED’s cabinet paper on this and EECA’s press releases drew from Beacon’s knowledge base.

6.2 Rating tool development

Outputs:

- Beacon hosted a UK/Asia Study Tour drawing together participants from across the value chain.
- In partnership with BRANZ and NZ Green Building Council, a scoping report on the rating scheme was delivered to central government agencies. Along with partners, Beacon invested considerable resources to bring its knowledge to the development of the tool.
- Media release generated 7 items online, in industry journals and NZ Herald. Ensured publicity was maintained as the rating tool initiative was established.

Outcomes:

- Study tour participants actively met and discussed potential for a NZ Code for Sustainable Homes: this evolved over time to agreement on the need for a NZ residential rating tool
- Formal relationship (via joint venture) established with NZ Green Building Council and BRANZ to develop approach to rating scheme
- Joint venture ensures rating tool will be based on robust research, including Beacon’s HSS High Standard of Sustainability® and the Renovation Plan Builder
- Engagement of key central government departments with drive for rating tool
- Wider stakeholders actively involved as a ‘governance group’ have developed a business case for an organisation to ‘run’ the rating scheme when launched. This is under discussion with all parties
- Central government agencies (DBH, MED, MfE, EECA) are reviewing the technical report and continue to engage with the joint venture partners on the rating tool initiative.

Beacon has invested considerable effort to develop value propositions for government, industry and consumers during 0809. Beacon hosted a study tour to UK and Asia: representatives from across the value chain benefitted from exposure to international initiatives and resulted in greater engagement with Beacon’s programme.

A working partnership with BRANZ (a shareholder) and New Zealand Green Building council to develop the technical aspects of a rating tool for NZ is a noteworthy outcome of Beacon's research. The intention is to provide the market with an initiative that transforms how New Zealanders demand and supply homes. The partnership produced a first technical scoping report to the wider governance group of industry and central government agencies outlining how their joint research and knowledge can underpin such an initiative. The partnership delivered a technical scoping report outlining the rating scheme to MED, DBH, EECA and MfE.

Work continues next year towards a launch. This initiative has a governance group of industry players and central government agencies. The HSS®, alongside the HomeSmart Renovation house assessment and plan builder, provide substantive technical foundations to the rating tool being developed. This tool is intended to be a transformative mechanism to improve the performance of New Zealand homes.

6.3 Influencing government

Outputs:

- Briefing for four incoming ministers, supported by meeting with the Minister of Building and Construction
- MOU signed with EECA to share research
- Regular briefings with EECA, DBH, MfE and MED officials sharing learnings from Beacon research
- Submissions on Local Government Auckland Council Bill, Unit Titles Bill, National Policy Statement on Freshwater Management, Building Sustainable Urban Communities, Joint Implementation and Clean Development Mechanism
- 10 submissions on LTCCP plans in 2009

Outcomes:

- Developing conversation that homes and neighbourhoods are an integral component of urban infrastructure and their quality / performance needs to be addressed.
- Insulating and heating of homes recognised as a valuable source of job creation and stimulus to economic development.
- Demand management and integrated water management are recognised as key components of National Policy on Water Management

Beacon developed a briefing for new Ministers at the change of government to maintain traction with central government agencies. Subsequently, Beacon hosted a meeting between shareholders and the Minister of Building and Construction.

Central government agencies are significant end users of Beacon research. Department of Building and Housing (DBH), Ministry of Economic Development (MED), Ministry for Environment (MfE) and Energy Efficiency and Conservation Authority (EECA) have all drawn on research findings to inform policy, review incentive schemes and legislation. Beacon's live demonstration projects of the two NOW Home® and the Papakowhai Renovation project have provided a rich knowledge base around building renovating and living in New Zealand homes. This has contributed to the now widespread understanding that insulation to a high specification in combination with an efficient heating device is an essential first step to bring indoor environment quality closer to World Health Organisation standards.

EECA and Beacon have signed a Memoranda of Understanding reflecting mutual objectives around research: this agreement is EECA's first signed with a non-government agency. DBH's Smarter Homes website refers consumers to Beacon's prototype consumer tool, Homesmarts. This web-based tool enables consumers to conduct a home health check and get advice (based on HomeSmart Renovation project tools) on what interventions will improve home performance.

Beacon contributed knowledge to a series of meetings hosted by government agencies to review Waitakere City's proposition to 'retrofit a city'. Waitakere City Council strongly advocated this approach to the Auckland Transition Authority (super city).

6.4 Influencing industry

Outputs:

- Presentations to seminars and workshops for Fletcher Building and NZ Steel
- Regular series in *Inhouse* (Certified Builders' magazine)
- Two licenses to trial Beacon research signed (NSF and HomeSmart Homes procedures)

Outcomes:

- New initiatives within Fletcher Building reflect engagement with research
- Industry referencing Beacon work (NZ Business Council for Sustainable Development in *Better Performing Homes for New Zealanders*; Water NZ in *The Case for Demand Managements in Council Water Supplies*; and Institution of Professional Engineers New Zealand (IPENZ) in their Water Report.

Industry is another target group of end users: Beacon's shareholders are core users of research. Fletcher Building, via Winstone Wallboards, and NZ Steel have priority access to Beacon research and have sought Beacon researcher input to in-house seminars and workshops for their staff. The organic nature of these relationships means uptake is rarely recorded as a direct causal shift. Change is noted when reflecting on situations such as: the detailed requests from Fletcher Aluminium in preparation for a Beacon renovation presentation illustrating a deepening engagement with research in relation to their business needs, the trialling of new initiatives

(e.g. Fletcher's Home&Dry team sought time with Beacon researchers), an upturn in business (for example, Tasman Insulation is busy due to launch of government housing initiative) or the gradual change to language and emphasis used in promotional material.

Beacon publications have been actively referenced by industry organisations as they make a case for change in relation to homes and the resources they rely on. Examples include a NZ Business Council for Sustainable Development publication (Better Performing Homes for New Zealanders), Water NZ's brochure (The Case for Demand Managements in Council Water Supplies), and Institution of Professional Engineers New Zealand (IPENZ) Water Report.

6.5 Sharing our research with stakeholders

Outputs:

- Sponsor and organiser SB10 Sustainable Building Conference New Zealand
- 4 peer-reviewed papers presented at SB08 World Conference in Melbourne; 1 peer reviewed paper to NZSSES international conference; 1 poster presentation on the HSS® to SB08
- 11 presentations to New Zealand-based, industry/sector conferences
- 3 research symposia held for stakeholders; featured in 2 write-ups, one in Progressive Building, one in New Zealand Herald

Outcomes:

- Sharing of results leads to higher profile for Beacon research, reflected in use of research findings by government and industry
- Capacity and capability building with research providers

The research community is both a contributor to Beacon's research as well as being an end-user. This has ensured Beacon research isn't gathering dust – it is in active use. Following the success of New Zealand's first Sustainable Building Conference, SB07, Beacon is taking a lead in organisation of the forthcoming SB10 conference in May 2010. This is an international series of conferences with regional sessions held in alternate years.

Beacon's research has contributed to peer-reviewed international and peer reviewed conferences. Formal presentations to 11 conferences / hui have ensured Beacon's research profile is high among New Zealand researchers, industry organisations, councils and government agencies.

Three Beacon research symposia in 2008 showcased our research and acted as a forum to bring together all those with a stake in New Zealand's residential built environment.

6.6 Communications strategy

Outputs:

- Revised website with greater functionality and comprehensive document management
- MOU with Consumer New Zealand to supply research for articles
- Approximately 120 articles published in 2008/9 – over 80 focused on consumers, 30 on industry, and 7 on government
- Regular series provided to *Inhouse*; regular contributor to *Build* and *Progressive Building*

Outcomes:

- Beacon contributions well-accepted by editors. Regular series requested by Certified Builders.

Beacon revised its website this year, providing a more accessible ‘window’ to our research. Purpose is to support New Zealanders’ decision-making about their homes by providing a simple, but joined-up, picture of the issues and our research. Functionality for our shareholders was improved through the private portal.

Beacon has a well established communications strategy designed to push research findings into the public arena to help drive change. A steady stream of research findings have been reported in media (over 80 instances in broadsheets, community newspapers, radio, online news), and industry magazines (at least 35 instances). There is greater demand for Beacon’s material perhaps reflecting raised public awareness of how a home’s performance affects consumer’s health and finances. Beacon has a well-established working relationship with Consumer New Zealand: considered an independent provider of robust information, it is a natural outlet for research findings.