



Creating homes and neighbourhoods
that work well into the future
and don't cost the Earth

Introductions and The National Value Case

Beacon Symposium 2008

Vicki Cowan, Knowledge and Science Manager

Beacon Pathway Limited

What is Beacon Pathway?



Beacon Pathway is a collaborative research consortium working to find affordable ways to make New Zealand homes more resource-efficient, cheaper to run, healthier to live in – and kinder to our environment.



What are we aiming for?

1. To bring the ***vast majority*** (90%) of NZ homes to a ***high standard of sustainability*** by **2012**
2. Every ***new subdivision and any redeveloped subdivision or neighbourhood***, from **2008** onwards, be developed with reference to a ***nationally recognised sustainability framework***.



BEACON OPERATING MODEL

Pull based on prioritised systems and HSS

Pull based on market area needs

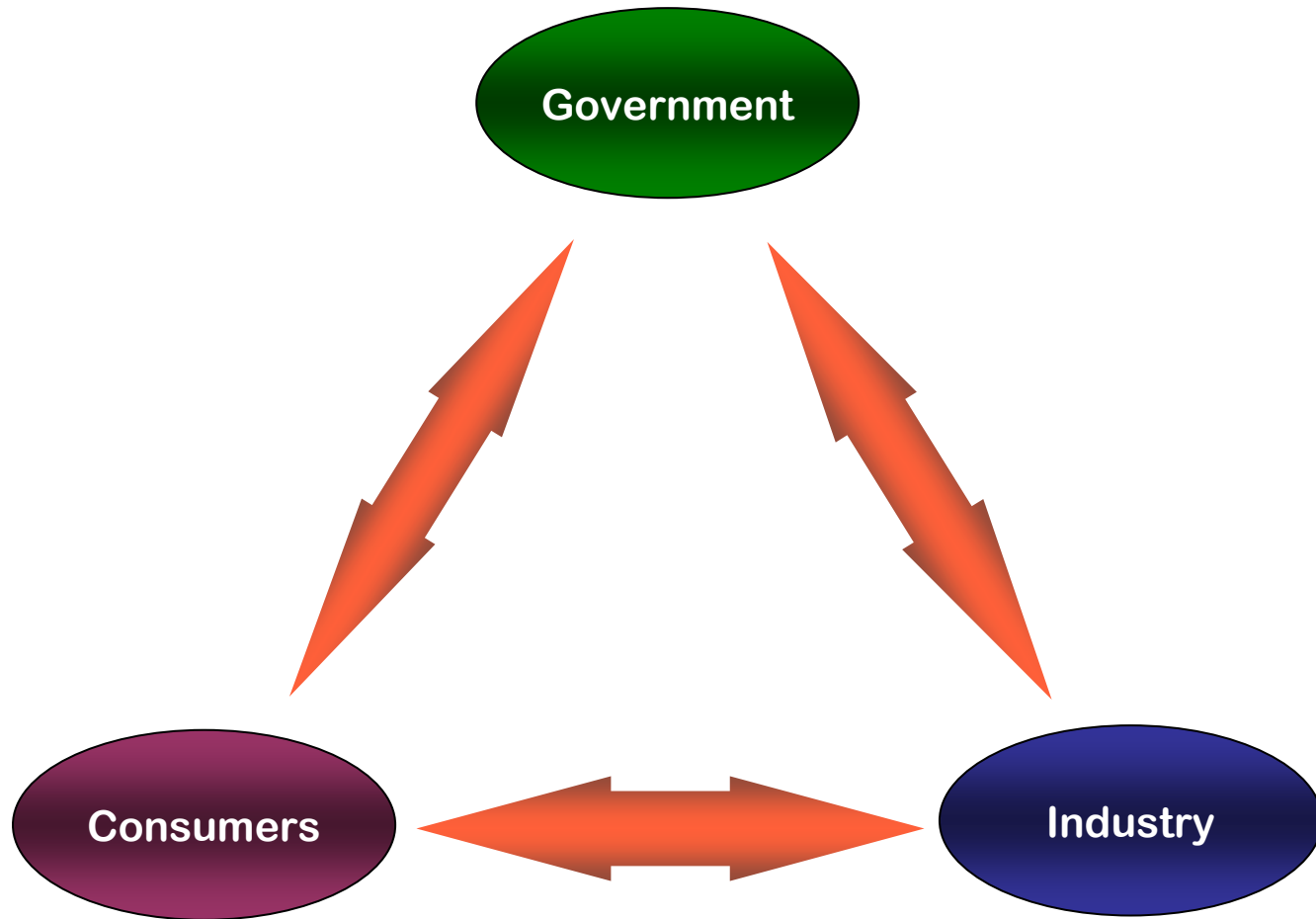
Four channels



Market Transformation - pan communication and alignment

Policy and regulation - pan regulatory involvement

Building momentum: Who has to do what?



The National Value Case



Our message to **central government**:

- New Zealand's housing stock is a 'means to achieve' a range of central government priorities. Particularly: health, energy, carbon emissions, water, productivity and resilience.
- Central government has key role: leading and communicating, enabling policy and regulatory environment, direct action and assistance to stimulate change, mandating performance levels.

National Value Case - grounded in robust research

Research Steps:

1. Prioritised long list of sustainable building interventions (from our knowledge base)
2. Economic modelling* of a prioritised set
3. Analysis* of **whole of economy** impact of the suite of those examples being put in place across New Zealand
4. Drew the threads back together to present value of housing stock reaching a High Standard of Sustainability in a glossy format for central govt.

*economic analysis undertaken by Infometrics



Methodology – First stage analysis

- Qualitative evaluation of a wide range of sustainability innovations– grouped into strong, medium or weak
- Evaluated against a range of criteria:
 - Private benefits
 - Fiscal benefits
 - Resource use efficiency
 - Environmental benefits
 - Externalities and barriers

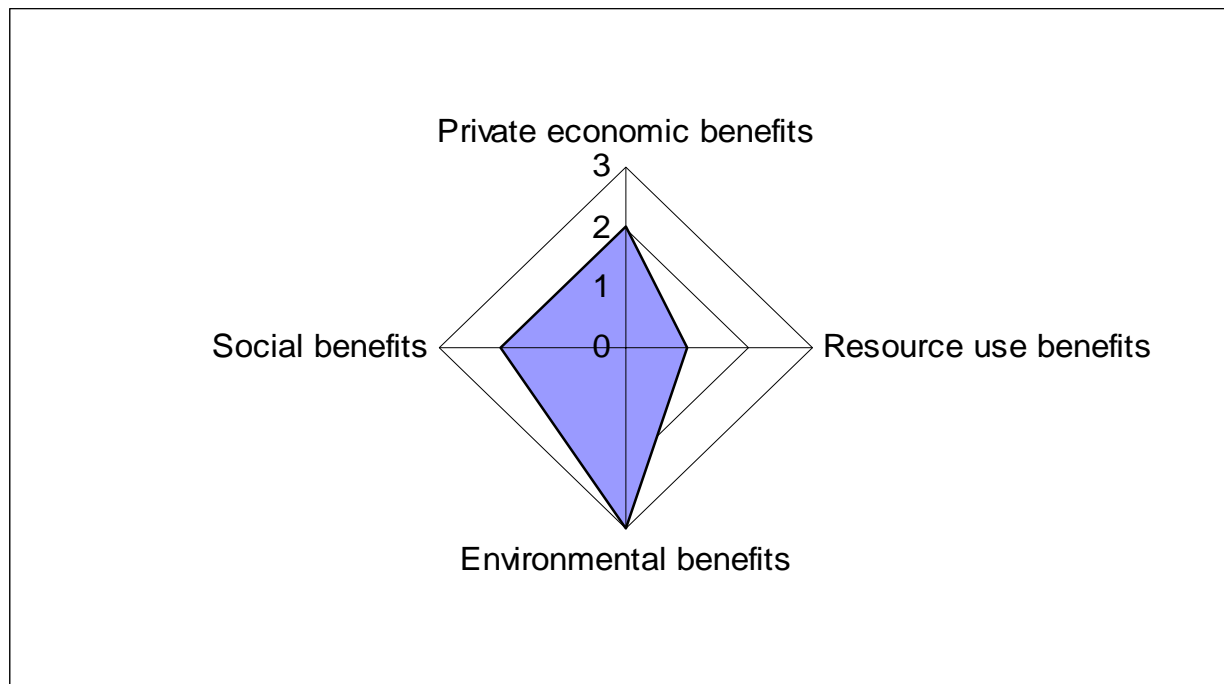


Methodology – Second stage analysis

- 6 innovations with “strong” qualitative evaluation were further analysed: retrofit **insulation**, efficient **space heating**, efficient **water heating**, efficient **lighting**, **water metering**, **water efficient bundle**
- Detailed economic evaluation undertaken – using Infometrics ESSAM general equilibrium model
- Benefits classified and evaluated in 4 groups
 - Environmental
 - Social & private non economic (e.g. warmer homes)
 - Private Economic (e.g. lower energy costs)
 - National efficiency of resource use (as analysed by the ESSAM model)

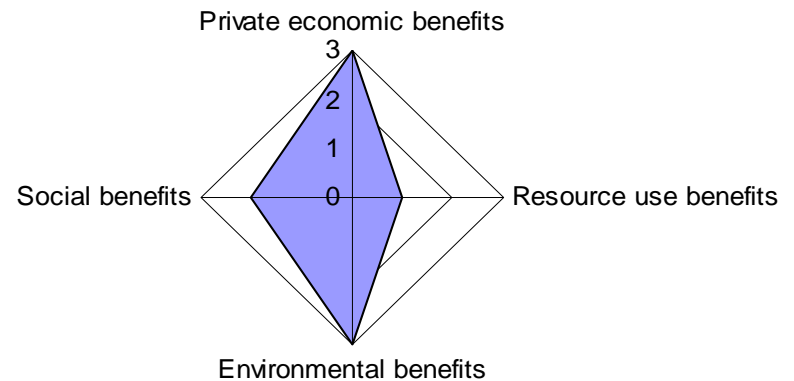
Benefits of retrofit insulation

- Case for government intervention due to misalignment of private benefit (over the long term) and private costs (upfront)

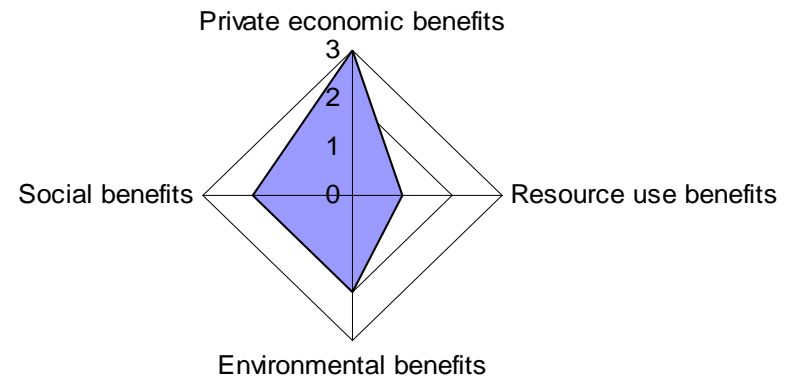


Space heating comparison

- Pellet Burners (stronger case for government intervention due to better environmental benefits – primarily CO₂ reduction)

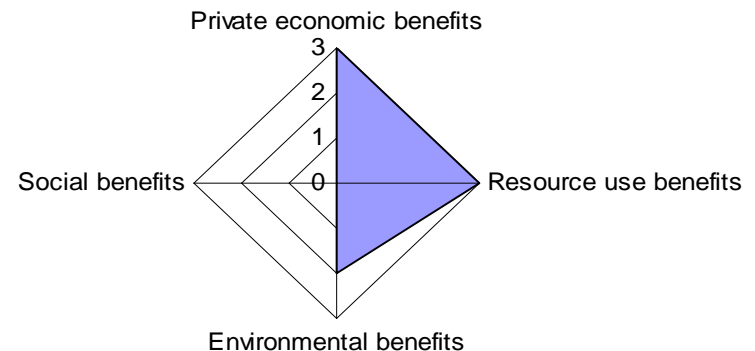
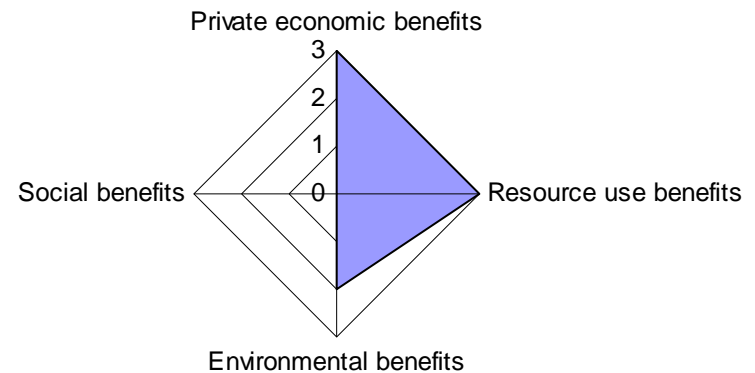


- Heat Pumps



Benefits of water saving initiatives

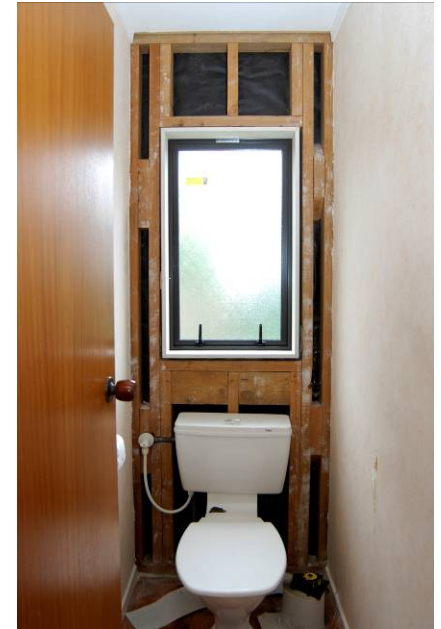
- Water efficient bundle (strong case for government intervention – from a national resource efficiency perspective is virtually costless, as low cost intervention saves so much water – and energy)
- Water pricing (strong case for government intervention)



Overall findings – what does this mean for New Zealand?

Combining the most effective innovations, if installed over 20 years, results in:

- a direct private economic gain to households equivalent to **1% of GDP** annually by 2017 or about \$2 billion
- Direct savings in household energy consumption amount to almost 22 PJ per year, or enough to power over **500,000 New Zealand homes for a year**
- a reduction in CO₂ emissions of 3,600kt per year, the equivalent of **\$54 million** in tradable emissions (at \$15/tonne)
- Direct **water savings** amount to 81 litres per person per day, or about 130 million m³ per year



Key areas of Government action identified

1. Amend the Building Code
2. Upgrade/expand current incentives around insulation and solar water heating
3. Ban unflued gas heaters
4. Upgrade government housing stock in next 5 years
5. Make HERS mandatory
6. Review relevant policy/regulation (tenancy act, water policies)

