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Conference Paper

Local Government Incentives for Sustainable Building

Beacon Pathway Research Findings

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Local Government Incentives for Sustainable Building

Summary

Beacon Pathway Limited has been researching the role and impact of local government and sustainable building. Sustainable building responds directly to Council responsibilities under the LGA and RMA, and can help to deliver a range of Council objectives, such as healthier, more resource efficient communities. Sustainable buildings and sustainable development approaches meet the requirements of the Resource Management Act and Local Government Act *better* than conventional buildings do. There is a clear need to improve Council practices.

Council policies, rules and especially processes have a clear influence over building choices. When rules are not written to provide for sustainable building choices, it can discourage people from making sustainable building choices. In particular people don't want the added risk, time and cost associated with consent requirements and needing to prove that more sustainable solutions fit with the Council context and administrative requirements.

Even when Council policies and plans don't prevent sustainable building, they often don't do much to *encourage* it. Often, this comes down to issues with Council processes – ensuring staff are supported and able to respond to sustainable building proposals. This situation is however changing, with more Councils considering more direct approaches to encourage improvements. Most Councils interviewed by Beacon see themselves as at the beginning of the journey, with only small initiatives so far underway.

In order to assist local government deliver on their mandate, and help their communities develop more sustainably, Beacon is working to put together a resource manual on ways to remove barriers and incentivise sustainable building.

Introduction

The sustainability of the residential built environment is an important issue for New Zealand, as a significant proportion of the energy and water consumed (Statistics New Zealand, 2006) and waste produced (Kazor and Koppel, 2007) in the country occurs in people's homes. Similarly the health of the indoor environment within homes has a significant impact on the overall health of the community, particularly as relates to respiratory conditions.

Beacon Pathway is the vehicle chosen by a number of like-minded organisations that seek to radically change the design, construction and renovation of New Zealand's homes and

neighbourhoods. Our goal is to significantly improve housing sustainability through scientific research, communication, information sharing, and advocacy, opinion forming and networking. The Foundation for Research, Science and Technology matches funding from Beacon's shareholding partners, a unique mix of industry, local government and research organisations: Building Research, Scion, New Zealand Steel, Waitakere City Council and Fletcher Building.

As part of its research into sustainable building, Beacon has identified Local Government as being a key sector within the building value chain – with the ability to either hinder or promote sustainable building outcomes. Research has been undertaken into both the barriers to sustainable building, with some specific case studies (Easton, Mead, Trenouth, Fullbrook and Arnold, 2006; Trenouth and Mead, 2007) and more recently an investigation into what are the best practice policy measures and incentives that Local Government can put in place to promote sustainable building.

Local Government and Sustainable Building

Development within New Zealand is subject to a wide range of legislation, policies and plans. This mosaic of regulation creates the context – supportive or otherwise, for sustainable building. In essence there are three layers of regulation – central, regional and local.

Figure 1 below illustrates the range of legislative and policy mechanisms that have an influence on sustainable housing construction and renovation.

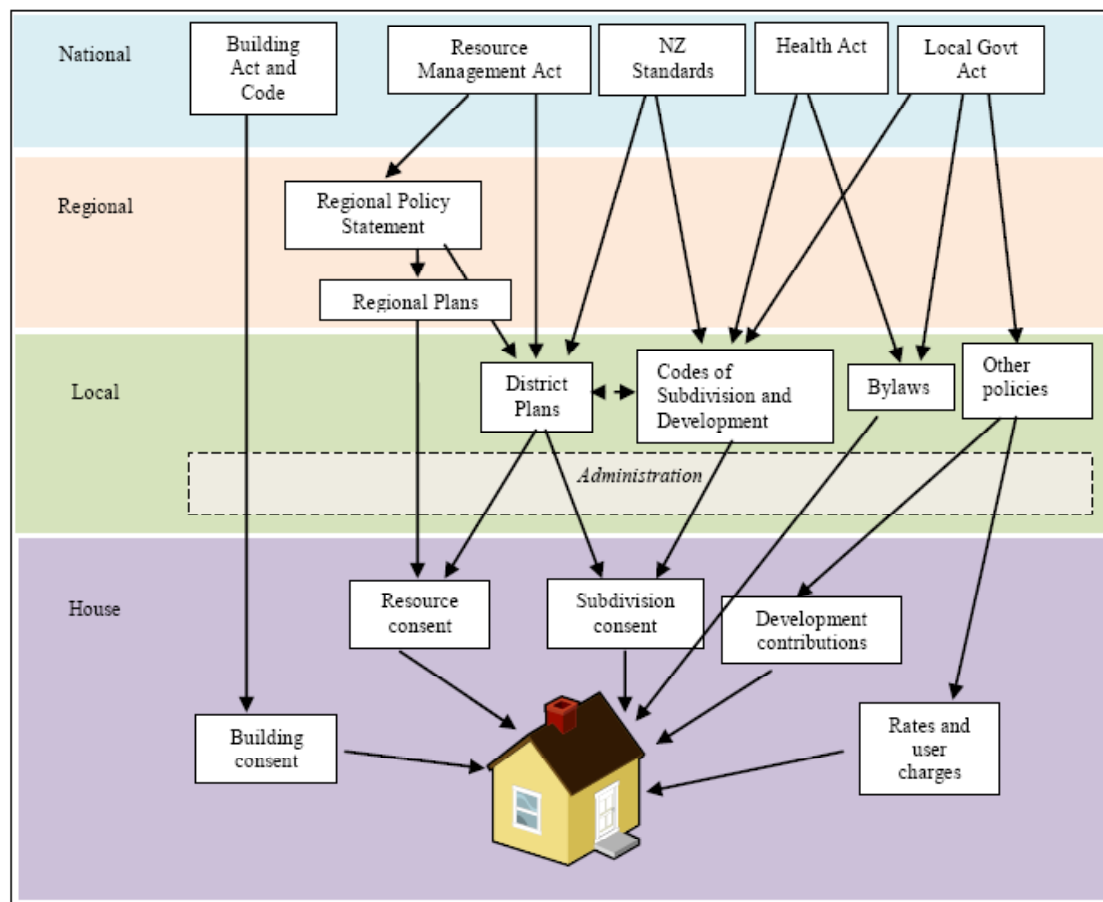


Figure 1 Local government legislative and policy mechanisms that affect sustainable housing

Local councils administer development controls under the Building Act and the Resource Management Act. These two pieces of legislation in particular govern the form and cost of development to a significant degree.

In addition to the matters spelt out in the pieces of legislation and regulation, a key influence on the development of sustainable buildings is the implementation of regulation by local councils – most notably the Building Code. As all building work of any significance is required to be code compliant, how councils interpret and administer the code is a critical issue.

In addition to their regulatory roles, local councils also manage a significant amount of infrastructure and services which impact on the sustainability of the built environment. They set the standards for infrastructure provision – roads, water, wastewater and water supply systems, and have a strong influence on the types of systems which are able to be utilised within development.

Barriers to Sustainable Building

Building Act, Building Code and its administration

The Building Code only requires minimum standards to avoid ‘bad building’ rather than ‘best practice’ or ‘building excellence’ which sustainable building seeks to encourage. Sustainable building therefore goes beyond minimum standards and seeks to provide

- Radically reduced energy consumption
- Radically improved water conservation
- Less impact on the environment and local infrastructure
- Improved use of resources
- Improved internal environmental quality
- Use of environmentally friendly materials
- Enhanced quality, marketability and asset value

Currently many more sustainable approaches to building are not included with the Acceptable Solution framework provided by the New Zealand Building Code. This makes the approval of such approaches generally more difficult for both the applicant and the council staff. In addition, their current “alternative” nature means that council staff are often not familiar with such measures, leading to increased time required by staff to ensure that they are being used appropriately.

A good example of this is seen with the replacing of existing windows with double glazing. The Acceptable Solution only deals with new double glazing units into new windows. While the window industry has developed their own solutions to support the requirements of installing heavy windows these are different from the E2/AS1 solutions, and are not accepted by some local councils in their role as Building Consent Authorities, despite the fact that they have been demonstrated to be Alternative Solutions through the use of the E2/VM1 test (Buckett, Burgess and Hancock, 2008).

As a result of the unfamiliarity with these “alternative” approaches, time pressures can often lead to some sustainable building measures being discouraged, or for additional information requests from council staff to ensure proof that such measures will work. This is in essence the greatest regulatory barrier to many sustainable building approaches which Beacon has found in researching case studies and with its practical sustainable building projects.

Resource Management Act

The issue of sustainable buildings is one that district plans are only just beginning to grapple with. To date, the focus of district planning has been on the spatial issues associated with city development, and within this context, the relationships and effects between different activities. This is based on the “avoid, remedy, mitigate” type approach that many plans adopt (that is, managing adverse effects of activities on adjacent land uses). The quality and sustainability of

the “internal environment” involved in different activities and buildings is generally something that district plans have not directly addressed.

When considering the extent to which district plans may impose a barrier to the up take of sustainable building technologies, it is important to place district plan rules in this context. Sometimes there will be conflicts between particular rules and sustainability outcomes, at a site-by-site level. More often, plans are silent about sustainability features. The emphasis of district plans on zoning patterns and land use relationships is important to wider sustainability outcomes. Great gains to sustainability outcomes will come about from improving the way that cities are laid out.

Where conflicts do arise with site-based development proposals that may be promoted as being more sustainable and wider zoning strategies, then it is important to keep in mind that a balance needs to be struck between encouraging more sustainable city forms, as well as more sustainable buildings.

The task currently facing local councils is how to overlay on the traditional spatial focus of district plans a new layer related to the quality and sustainability of individual buildings and activities. Getting the two layers to interrelate is a challenge.

Case Studies

Beacon has looked at four case study Councils (Auckland City Council, Kapiti Coast District Council, Hamilton City Council and Christchurch City Council) in relation to barriers and incentives for sustainable building within their District Plans and infrastructure Codes of Practice (Easton et al, 2006; Trenouth and Mead, 2007).

A number of common barriers were identified through this process as outlined below:

- **Traditional development controls** (height, yard, height-in-relation-to-boundary, building coverage, etc) where there is no exemption or allowance for features such as rain water tanks, solar panels or small-scale energy generation. Solar orientation is often constrained by rules which push buildings into the middle of lots so as to protect sunlight to adjoining properties. There is no requirement to orientate buildings on lots for sunlight.
- **Low impact approaches** to stormwater management **are restricted** to areas of particular environmental sensitivity, or where there are infrastructure constraints.
- **Process issues** were highlighted as a major barrier to the incorporation of sustainability features, with the costs, uncertainty and delays of getting consent for discretionary and non-complying activity consents (including the need for written approvals) generally deterring people from incorporating sustainable features.
- **Codes of practice** were similarly identified as a barrier, with sustainable water solutions in particularly being undermined by provisions which required large pipes, kerb and channel and discouraged rainwater reuse. Low impact approaches to water management were often discouraged. Carparking and manoeuvring requirements also pushed development,

particularly that on smaller sites, to be designed around the car – rather than the optimum orientation for the building.

In addition to the barriers identified, a number of methods were also identified that help to encourage more sustainable approaches. These are summarised below, and are identified as being relevant to other districts either in their current form or as a basis for further development.

- **Objectives, policies and assessment criteria** that recognise and provide for sustainability and enable the wider positive benefits to be taken into consideration through resource consent processes.
- **Allowance within standards** for features like rain tanks, but also providing exemptions where sustainable features are included.
- **Non-regulatory methods** such as guidelines or information that assists in designing development appropriately to reflect sustainability matters.
- **Development controls** that require sustainability features, such as requiring appropriate building orientation for solar gain and natural ventilation.

In early March 2007 Waitakere City Council hosted a Beacon Pathway “Barriers to Sustainability” workshop. The workshop was facilitated by David Mead, a director at environmental consultancy Hill Young Cooper. Other participants were drawn from those councils that had been involved in earlier Beacon research for reports PR 200 and 201 (Christchurch City Council, Hamilton City Council, Auckland City Council, Kapiti District Council), Beacon Pathway, Hill Young Cooper and Waitakere City Council.

Some of the positive and negative features of the RMA were identified by participants in 1 below:

Summary of RMA barriers identified by attendees	
RMA Positives	RMA – Negatives
<ul style="list-style-type: none"> ■ Water tanks – allowances for height and height in relation to boundary ■ Comprehensive subdivision plan @ WCC ■ Structure plans @ KCDC – masterplans down to the design working well (i.e. dual plumbing, rain tanks) ■ T.U.S.C – tools for urban sustainability code of practice offered at application stage 	<ul style="list-style-type: none"> ■ Solar panels – visual impact ■ Water tanks – height in relation to boundary, often required to be elevated above the ground ■ No exemptions for sustainability – costs / time / notification ■ Slow speed of policy changes (i.e. plan change process) ■ Processing and processes – staff turnover ■ Communication ■ Standard engineering ■ Discretion in criteria lacking

Summary of RMA barriers identified by attendees	
RMA Positives	RMA – Negatives
Additional Comments	
	<ul style="list-style-type: none"> ■ Electricity likely to feed back to network, why individuals treated differently to network utility ■ Mechanical ventilation, affordability issue (central operation)

Table 1 Summary of RMA barriers identified by Beacon workshop participants

Participants were also asked to discuss what types of tools were required by Local Government and what approaches any toolkit might need to take. These are summarised in Table 2 Tools for local government, as identified by Beacon workshop participants below:

Specific Tools / considerations	Toolkit approaches
Need to consider regional differences	Urban design protocol – integration
Maximum controls / rules (minimum density) – bonuses	Provide a range of solutions
Risk management	Checklist (case studies / best practice / guidelines)
Asset management	Process-based approaches
Building Act > RMA relationship (erratic court decisions & ultra vires))	RMA > Brookers type digest of provisions and examples
Urban design > sustainability linkage	Guidelines - identifying what is a particular barrier to a particular set of problems (i.e. rain tanks)
Address three levels: house (insulation) > neighbours (solar access) > networks / community (provision)	Green Building Code
Planning considerations could look roughly the same (i.e. roof tank: roof area)	Similar process to Urban Design Panel (non-stat) e.g peer review of sustainability features of a development
Principles to incentivise / promote	

Table 2 Tools for local government, as identified by Beacon workshop participants

Other ideas for overcoming barriers and other possible incentives include:

Overcoming barriers:

- use of non-statutory processes (encourage change)
- piggy back on urban design initiatives
- use of climate change mandate
- consistency among the disciplines

Incentives:

- Rain tanks exempt from earthworks (certain size)
- Development contributions reduction (TUSC)
- Rating system of sustainability features (stars)
- More efficient home more saleable (Australia)
- Whole of life costings

Incentives to Promote Sustainable Building

Building Act and Resource Management Act Interrelationships

One of the key concerns identified in previous Beacon research and workshops is the interrelationship between the Building Act 2004 and the Resource Management Act 1991. Specifically, section 18 of the Building Act¹, which specifies that:

*s. 18 (1) A person who carries out any building work is not required by this Act to –
(a) achieve performance criteria that are additional to, or more restrictive than, the performance criteria prescribed in the building code in relation to that building work: or
(b) take any action in respect of that building work if it complies with the building code.
(2) Subsection (1) is subject to any express provision to the contrary in any Act.*

This would suggest that District Plan provisions, prepared under the RMA, cannot specify standards that are higher than the standards contained in the Building Code. There has been only one legal test of this provision, in *Christchurch International Airport Ltd v Christchurch City Council*².

Summarising the findings of the High Court's decision in that case, Ceri Warnock, a barrister and lecturer in the Faculty of Law at Otago University concludes in Howell, Birchfield and Warnock (2008) that:

'a territorial authority will be free to promulgate conditions and rules concerning the use of a building even if those rules affect the construction of buildings, provided of course that such rules are "appropriate and necessary" to "promote the sustainable management of natural and physical resources".'

¹ A carry-over from s.7 of the 1991 Building Act.

² [1997] 1 NZLR 573, concerning noise attenuation in a development close to Christchurch Airport, where the buildings could have been constructed to building code standards, but would not have received a resource consent as they were not fit for use.

Warnock concludes:

‘To date, in the absence of clear authority to the contrary, it is apparent that local authorities will be able to introduce rules to ensure the sustainable management of natural and physical resources even if these directly influence the construction process. Carefully drafted rules, emphasising their valid resource management function, are likely to be safe from legal challenge despite s 18 BA04. To further safeguard any rules, local authorities would be well advised to tie or to link the rule to the use of the building if possible.’

Consumer Perceptions

Alison Hall’s Masters of Planning thesis “Barriers to Sustainable Renovations and the Incentives Local Government Can Provide to Encourage Sustainable Renovations” (2007) provides some further background information. Hall surveyed 200 homeowners who had applied for and been granted a Building Consent for Additions and Alterations in Waitakere City and North Shore City during 2006.

Of particular relevance for this research, Hall asked respondents ‘what is the best way for local government to encourage sustainable renovations?’ From a list of six ‘possible Council incentives that would encourage them to act more sustainability if they were to undertake a similar renovation in the future’ (Hall, 2007, p. 8), most homeowners selected financial incentives and discounts on products and services (see Table 3). Regulation was the least-selected incentive. This is perhaps not a surprising result, given that respondents also identified that the biggest barrier between residents and sustainable renovations is the cost of the product and installation.

Preferred Council Incentives	%
Financial incentives	29%
Discount on products and services	26%
In-house advice	16%
Education	12%
Demonstration	10%
Regulation	7%
TOTAL	100%

Table 3 Council incentives preferred by home renovators (Hall, 2007)

A survey of homeowners and designers who have made use of the pilot Eco-Design Advisors (EDA) scheme (Christie & Mathews, 2007) concluded that ‘a person who visits an EDA is more likely to include environmental technologies than those who don’t.’ The change was particularly notable for designers, with 100% of those surveyed now discussing eco-design options with their clients, compared to 41% of designers in a control group (who did not meet with an Eco-Design Advisor).

Results of Council Surveys: Current Initiatives to Promote Sustainable Building

As part of its research into best practice mechanisms to promote sustainable building and renovation, Beacon has surveyed 17 of the largest local councils across New Zealand.

Of these 14 identified that encouraging more sustainable building and/or renovation something was something the council actively sets out to do in some capacity. Six main mechanisms were identified being used by the councils as follows:

- Through the use of incentives such as: rebates, fast track permitting/consenting, reduced or nil fees for consents, other incentives
- Providing eco-advice to home renovators when they come to the council for consent and or the use of other guidelines
- Through the use of regulation such as District Plan changes which specifically promote sustainability innovations
- Through the use of other policy interventions such as development contributions, rates remissions, floor area ratio bonuses or similar
- Through the use of rules within the subdivision Codes of Practice and/or other building standards such as engineering standards
- Through collaboration and support of other organisations such as energy efficiency trusts that provide insulation retrofits or similar into homes

Incentives

Identified incentives focused on solar hot water and rainwater tanks and were offered as rebates, nil-fee consents and fast-track consents.

- Auckland, Waitakere and North Shore City Councils offer a rainwater tank rebate
- Hamilton and Waitakere City Councils have waived consent fees for households wanting to install solar hot water heating and several other councils are also considering putting this in place as well as fast tracking consent applications for solar hot water systems
- Waitakere is looking at fast track permitting and consents for larger developments that can demonstrate a sustainable focus through the use of an online “Tool for Urban Sustainability Code of Practice” (TUSC).
- Christchurch City Council identified its heritage grants programme as part of its sustainable building initiatives – supporting the continued use of existing building stock.

Eco-advice to home renovators

Seven Councils have employed Eco Design Advisors, through the BRANZ scheme. A number of councils also indicated their interest in being part of the scheme in the future.

EDA's that had been in their role for some time identified significant success with the scheme, with consistent increases in both interest and the uptake of the service. The popularity of the

service with the wider community appears to be high, with EDA's also having a beneficial effect for suppliers of sustainable products and services within each locality.

Queenstown District Council has also created a document called "Sustainable Building in the Queenstown Lakes" which is available from its website. In a similar vein, Waitakere City Council has developed "Sustainable Home Guidelines" and also partly funds the Sustainable Living Centre which provides a range of eco-friendly education opportunities.

Hamilton City produces "City Scope" a strategic document principally for internal use with guidelines as to how the city should be developed sustainably with direct references to a more sustainable built environment. Hamilton also runs a "Sustainable Urban Design" programme which includes a network of community members which hold workshops, and produce brochures and information booklets.

Regulation

Regulation was the most commonly identified means of Councils encouraging sustainable building, particularly through District Plans and dealing with issues that have effects beyond the site (e.g. stormwater).

- Christchurch City Council's Cleanfill Licensing Bylaw (2003) increased the price of disposing of cleanfill within the city thus significantly increasing the economic viability of recycling for any such materials.
- North Shore City has introduced new stormwater controls, via Plan Changes 22 - 25. Rainwater tanks are mandatory for some catchments.
- Waitakere City Council has introduced Plan Changes 13 - 18 for the Northern Area of the City, which make reference to a range of sustainable design criteria in promoting the way new and existing town centres are to be developed. This includes:
 - design criteria requiring a demonstration of the extent to which building design includes principles of passive solar design and walkable neighbourhoods.
 - Demonstrable linkages to public transport are required as is the need to cater for pedestrian and cycle linkages.
 - Urban design principles including the need for permeability, design interest in the streetscape, walkable access to services, safe and high quality amenities.
 - The use of stormwater management features such as rain gardens, swales, and permeable paving are incorporated in roading design.³
- Wellington City Council's 2007 Central Area Plan Change exempts buildings' double skin from building mass calculations. This equates to a floor area bonus.
- Far North District Council is introducing an energy chapter into its District Plan which will allow the installation of wind turbines as a permitted activity at a domestic scale, and community scale energy generation projects as a restricted discretionary activity. They are also considering a water use bylaw requiring new houses to install a RW tank.

³ The Waitakere City Council district plan changes 13 - 18 are available from: <http://www.waitakere.govt.nz/AbtCnl/pp/districtplan/districtplanchanges.asp#changes13-18>. Accessed: 9/4/2008.

- Queenstown Lakes District Council (QLDC) has introduced an affordable housing strategy (HOPE - Housing our People in Our Environment) which includes a plan change that will include a requirement to take into consideration housing quality and energy efficiency standards for affordable housing.⁴

Other policy interventions

Waitakere City Council identified its TUSC tool in this category, an online design and assessment tool that rates the sustainability of urban residential buildings, subdivisions, and neighbourhoods. TUSC calculates the energy and water savings and the wider stormwater and transport-related impacts of both existing sites and sites at the concept or design stage. TUSC also includes a remissions tool which enables developers to obtain a rebate on development contributions if a development can demonstrate a number of sustainability features. The tool is currently being reviewed to assess why take up has not been as high as the Council had hoped.

Rules within Subdivision Codes of Practice and other Building Standards

A number of councils identified that they were starting to develop more sustainable design guides and codes of practice – in recognition that these standards can undermine other council policy initiatives to promote sustainable building. Past Beacon research (Easton et al, 2006; Trenouth and Mead, 2007) has identified that this is a key area that councils need to address, particularly as relates to sustainable water solutions.

Collaboration and support of other organisations

There are a number of key initiatives that many local councils take part in with other organisations which support sustainable building and renovation. These include:

- Warm homes/ Snug homes type programmes – retrofitting insulation and in some instances clean heating devices into homes
- Sustainable Living programmes - which are expanding to include retrofitting and new buildings
- Advice and Information Centres – such as the Eco Matters Trust (Waitakere) Sustainable Living Centre, Kaipatiki Project (North Shore) Centre, Lincoln Envirotown Trust Centre (Selwyn), Energy Efficiency Show Home (Christchurch)
- Sustainability expos – eg Waitakere, Kapiti Coast District, Upper Hutt City, Christchurch City

Conclusions

Almost all participants in the research Beacon has undertaken see themselves at the beginning of a transition pathway to improved building sustainability. That said, there is also an

⁴ Queenstown Lakes District Council, 2008. QLDC Website: Plan Change 24 – “Affordable and Community Housing”. Accessed 10/4/2008, Source: <http://www.qldc.govt.nz/Portal.asp?contentid=1728&nextscreenid=201.102.103.101&categoryid=2406&screenid=201.102.101.101&sessionx=F0B4AE48-3356-4EFE-97E2-A475534BEEC2>

encouraging number and diversity of projects underway. It is possible to identify activities within the following six incentive areas:

- Regulation: district plan provisions (policies, rules, assessment criteria, height bonuses etc.)
- Standards: Council Codes of Practice and Engineering Standards
- Financial: development contributions, rates remissions, other funding and grants
- Process: officer training, process 'smoothing', guidelines, practice notes
- Education: advice, assessment, guidelines, (i.e., education offered to the public)
- Working with Others

However most councils appear to focus on the regulation and education areas and there are a large range of initiatives which need to be developed in order to be widely adopted. This contrasts with the consumer view that regulation and education are less favoured forms of incentives.

Perhaps one other key learning from the research to date is recognition of how little is still being done to incentivise people to go further with both new-build situations and renovations. Those councils that are making an effort are only managing to do so in a fragmented manner. For example, while EDA's play an essential role in terms of assisting home owners and developers through the design phase, this service is generally not being supported at the other end of the building process with incentives that make consenting processes easier, or provide financial recognition of the wider community benefits of individuals' sustainable choices.

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