From Red Lights to Green Lights: Town Planning Incentives for Green Building

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Climate Change induced by human activity and associated emissions is commonly recognised as one of the most pressing issues of our age. The buildings we construct, and the energy they use, are highly significant in terms of total energy consumption and emissions. Although debate still rages in the scientific community on the vexed Climate change issue, the consensus appears to be weighing in favour of the camp supporting a theory of human-induced climate change. Regardless of the reality or otherwise of human-induced climate change, energy efficiency and renewable energy make sense for a variety of reasons, including increased health and wellbeing of occupants, increased productivity, longer term cost savings, reduced demand on an increasingly under-pressure energy infrastructure and market image. However, despite these benefits, there is, by international standards a low uptake of energy efficient building practice in New Zealand. Internationally, we are witnessing the genesis of an international movement in providing town planning incentives for green building. Innovative local and regional authorities in the USA, Japan and France have had demonstrated success with such schemes. This paper provides preliminary analysis on the ways in which planning incentives can make a significant difference in increasing the uptake of green building developments. It defines further research questions that will be addressed by the author in the Resource Management Law Association Fellowship for 2006 / 2007.

1. INTRODUCTION

The Resource Management Act 1991 provides a mandate for those exercising authority under the statute to pay particular regard to *"the benefits to be derived from the use and development of renewable energy"* and "*the effects of climate change"*[1]. Meanwhile, the Local Government Act 2002 requires Councils to take a "sustainable development approach."[2] Therefore the question of whether planning in New Zealand can, or should, be involved in addressing this global issue has already been answered in the affirmative by the legislators.

But just what role can the planning profession play in addressing climate change and promoting renewable energy? Beyond "Feel good" plan statements and policies, can planning really make a difference in a practical sense to one of the biggest issues of our age? Or, to rephrase this question in light of the theme of this conference, can planning "*Walk the Talk*" with regard to sustainability?

This paper, which builds on earlier research carried out by the author in 2004 and 2005, and presented to the New Zealand and Australian Conjoint Planning Conference in Australia in April 2006, addresses this question. It suggests that planning ***must*** play an important role in promoting energy efficiency and the use of renewable energy through proactive planning incentive schemes. It illustrates in brief overseas success stories and how similar provisions could be applied in New Zealand.

2. CLIMATE CHANGE, RENEWABLE ENERGY AND URBAN PLANNING IN NEW ZEALAND

Most, if not all, of the District Plans in New Zealand's urban areas contain higher-level objectives and policies promoting city development which seek to reduce the impact of cities on climate change. The most common approach in this area of macro-planning is to encourage the development of urban forms that promote the use of public transport and other alternative modes such as walking and cycling, and reduce dependency on private automobile use. Typically, such approaches involve integrated strategic planning that encourages intensification of development around nodes and along transport corridors.

Such provisions are admirable in addressing the critical issues of land use form and development and its impact on transport systems and infrastructure. However whilst these policies address urban form and transport systems and their relationship to greenhouse gas emissions, they do not address the energy efficiency of buildings and renewable energy forms.

Moughtin states that:

Much of the pollution causing environmental damage can be attributed directly to the building process. Approximately half of the CFCs (chloroflourocarbons) produced throughout the world are used in buildings, as part of their air conditioning, refrigeration and fire extinguishing systems. Fifty percent of the world's fossil fuel consumption is directly related to the servicing and use of buildings.3

In terms of energy usage, the World Business Council for Sustainable Development (WBCSD) states that in OECD countries, the building sector accounts for 25-40% of the final energy demand. Therefore, creating a building stock that is more energy efficient can have significant benefits in terms of reducing energy demand. Again, the WBCSD states that:

Globally, carbon could be reduced by 715 million tons by 2010 through simply improving the energy efficiency in buildings and appliances. This would be equivalent to 27% of the projected increase GHG emissions to that date.[4]

However, the benefits to be gained from Building Green extend much further than reducing energy demand and emissions. A growing body of research points to categorical evidence that green buildings offer the following additional benefits:

- Improved inhabitant health
- Improved staff productivity
- Reduced demand on energy infrastructure
- Positive marketing image
- Longer term energy costs savings

3. PLANNING INCENTIVES – A SHORT HISTORY

The use of planning incentives to encourage energy efficiency in buildings and promote the wider use of renewable energy, offers potential to more comprehensively address the issue of climate change at both macro and micro urban planning levels. However the idea of offering planning incentives, in the form of development bonuses obtained in return for the provision of certain public benefits, is not a new one. In the New Zealand context, the District Plans for Auckland and Wellington's downtown districts have long included provisions which provide bonus floor area in developments where features such as public artwork, plazas, through site links or cycle facilities are provided. The uptake of such bonus features by developers has been high. Examples of projects which the author has worked on utilizing bonus floor area include two major projects for Auckland University of Technology in Auckland's CBD.

Incentive zoning can be attractive because it enables local and central government to secure public and environmental benefits without spending public funds. Unlike much urban planning in New Zealand which is based around a reactive and negative philosophical standpoint ("avoiding, remedying, mitigating"), a planning approach that promotes development incentives in return for certain public and environmental benefits is positive and pro-active.

4. REASONS FOR PLANNING INCENTIVES FOR GREEN BUILDING

4.1 The Building and Development Process

Typically developers of building projects, whether they be residential, commercial, or industrial, are rarely the end users of the buildings. As the Ministry for the Environment states:

"Developers incur all the initial costs and risks, including site purchase, design and construction, and receive all their revenue (site and building sale) at the beginning of a 50-year life for a building".[5]

The obvious exception to this rule is governmental institutions and major corporate organisations who will often commission and then occupy a building development. However, unlike tenants and owner-occupiers, developers generally have little interest in the longer term running costs of a building. They do not benefit from the lower running costs of energy efficient buildings over a building's lifetime. The developer will typically only benefit if the value added through a building being designed to be energy efficient leads to a product (the building) which is more marketable, sells more quickly and possibly at a higher price. Indications at this stage are that the market in New Zealand does not place a premium on green buildings.

4.2 Cost of Green Building

There is no doubt that green buildings cost more to build, especially in New Zealand* where the market is a lot less developed and sophisticated than in North America, Europe and Japan, and where economies of scale are smaller. In this age of rising material costs and regulatory fees, the

margins of Developers are often tight. This means that energy efficiency and sustainability is often the last consideration in project design, and is viewed by many developers very much as a luxury.

Many developers with whom the author has worked with have noted that they would seriously consider developing projects with higher levels of energy efficiency and sustainability if assistance was provided by Councils. Because of this, developers need "carrots" to encourage the development of green building in New Zealand, to develop sufficient capacity and maturity in this market. This is where planning incentives could be invaluable.

4.3 But are Incentives actually necessary?

The alternatives to providing incentives are to:

1. Do nothing; or
2. Impose compulsory energy efficiency and sustainability requirements.

The problem with the first option is that "Doing Nothing" is the status quo, and other than local and central government projects, there has been very little uptake of green building approaches. Whilst in theory the second option is a possibility, it ignores the real cost that such a requirement would place on developers already facing increasing layers of regulatory requirements and associated costs. Further cost is likely to exacerbate the significant problem of property affordability, as developers' costs ultimately get passed on to prospective purchasers or leasees. It is also the author's opinion that providing ***incentives*** for green building is more likely to result in positive and long-lasting shifts in philosophy than compulsory regulation, to which there is often a backlash.

It is critical that business is not seen as the enemy to sustainability. In fact, engagement with the business sector is critical to achieving greater implementation of sustainable practices. As Al Gore states in his book "An Inconvenient Truth":

One of the keys to solving the climate change crisis involves findings ways to use the powerful forces of market capitalism as an ally.[6]

In the following sections international case studies are presented which illustrate how planning incentives can be successful in forging alliances with market capitalism and thereby increasing the uptake of renewable energy and energy-efficient building practices.

*Whilst the costs of building "green" are higher than conventional construction, the degree of greater expense has perhaps been overstated. MFE, based on the study of a number of recently constructed green buildings in New Zealand, estimate on average that such buildings cost between 2-6% extra to build.

5. INTERNATIONAL CASE STUDIES

In this section various international examples of innovative Councils implementing planning incentives for green building are outlined in brief. In 2007 the author will undertake more comprehensive analysis of particular project case studies and the overall effectiveness, strengths and weaknesses of these schemes. Overseas travel will be undertaken by the author as part of the 2006 / 2007 Resource Management Law Association Fellowship. The results of this study tour will be reported in that Association's journal, and conference, later in 2007.

5.1 United States of America

Interestingly, although perhaps not surprisingly, it has been smaller constituencies in the States that have pioneered the use of planning incentives for green building. "Not surprisingly" because in general it is in smaller Councils with smaller strands of bureaucracy and vested interest where brave decisions can be more easily made.

The success of smaller Councils such as Arlington and Ashland, as outlined in the following section of the presentation, means that their ideas are now being adopted by larger Councils such as Minneapolis, and Seattle. The author is also aware that New York City is now planning to introduce similar schemes.

5.1.1 Arlington County, Washington

Best known as the home of the Pentagon, Arlington County in Washington has been one of the most prominent advocates State-side of green building incentive programmes. Indeed, Arlington was one of, if not the first, Councils in the States to introduce a scheme of planning incentives for green building in 2003 and 2004.

Developers can be awarded bonus density and/or height if developments incorporate green building components. The program uses the U.S. Green Building Council's (USGBC) "LEED" rating system to evaluate bonuses. The higher the rating, the greater the potential bonus.

To date, four major projects utilizing the density bonus provision have been approved and built since the scheme was finalised. These include a 25 level apartment building – "Eighteen 81" – in downtown Arlington, and two other large condominium projects.

5.1.2 Ashland, Oregon

Ashland, Oregon, can be considered to be the other major pioneer of promoting planning incentives for pro-green building. There, density bonuses of 15% can be obtained for residential developments which meet certain energy efficiency standards. An application for such density bonuses is still subject to Council scrutiny in terms of urban design.

The scheme has been running for more than three years now and Larry Giardina, a Planner at Ashland, has advised the author that the density bonus has been very successful and is used in the majority of subdivisions in Ashland because of the relative scarcity and high price of buildable lots in the City. Mr Giardina advises that developers profit from the sale of additional lots so they consistently participate.

5.1.3 Minneapolis

In Minneapolis developers can attain a density bonus in the form of a floor-to-area ratio bonus (which allows downtown buildings to build extra stories). The bonus is awarded if the total modeled energy use is at least 35% lower than what would have happened without the efficiency or renewable energy improvements.

Minneapolis is also currently investigating the possibility of implementing development bonuses in suburban areas in return for energy efficient development, as part of its "Midwest Million Solar Roofs" programme.

5.1.4 Seattle

Seattle introduced planning incentives for the promotion of Green Building to its ordinances in May 2006. The Council has designed the incentive scheme such that, in order to take advantage of other incentives, it is compulsory in the first instance to utilize the green building incentive. As such, the Seattle scheme represents a hybrid of the voluntary / compulsory approaches.

Already development schemes have been submitted to Council for consideration which make use of these incentives.

5.2 France

5.2.1 Paris

New Legislation relating to the energy sector was enacted in July 2005 by the French Government allowing French municipalities to provide density bonuses of up to 20% for sustainable construction and energy initiatives. ARENE Ile de France, the Paris Regional Agency for the environment and new energies, and Recherche Developpement International, are now working with municipalities in the Paris region who are intending to implement this legislation. They are currently leading an interesting research study. The idea is to explore measures adopted in the international setting, and the effect of new incentives through concrete urban experimentations.

The first part of the project was to study incentives in neighbouring countries such as Switzerland and Germany. This was undertaken in order to collect feedback on the experience of these countries with incentive schemes, and to gather environmental data on successful urban projects in these countries.

The second part of the project was to constitute a network of local authorities and federating districts in the Greater Paris region interested in experimenting with planning incentives. At the time of writing, their workshops in the Paris region were progressing rapidly. They have selected 7 pioneering local authorities willing to implement a density bonus on their territory and started choosing the urban districts that they want to focus on, as well as on incentive levels and accompanying measures.

Finally, through those experimentations, they will review the experiment and try to answer fundamental questions such as:

- what is the effect of the density bonuses on the value of building?
- where is the line of threshold between the cost of building green and the additional financial gain obtained by developers with the density bonuses?
- What impact do the density bonuses and associated incentives have on the urban environment?

By the time the author has visited Paris in April 2007, the findings of this study should be available, and will be reported on later in 2007.

5.3 Japan

5.3.1 Osaka and Nagoya

In Japan, the major urban centres of Nagoya and Osaka have implemented bonus floor area schemes for buildings that meet a certain energy efficiency standard as measured by Japan's "CASBEE" rating. This system is the Japanese equivalent of the USA's LEED system.

CASBEE was developed according to the following policies:

1) The system should be structured to award high assessments to superior buildings, thereby enhancing incentives to designers and others.
2) The assessment system should be as simple as possible.
3) The system should be applicable to buildings in a wide range of applications.
4) The system should take into consideration issues and problems peculiar to Japan and Asia.

According to Japan's "Institute for Building Environment and Energy Conservation (IBEC)" the incentive scheme implemented in Osaka and Nagoya has been popular with developers and has had a significant impact in increasing the construction of energy-efficient buildings.

In visiting Japan in 2007, the author will gather further data supporting the success of these schemes.

5.3.2 Tokyo

Tokyo is investigating the implementation of a similar scheme. This would complement existing incentives, such as a special mortgage rate subsidized by City Hall for those who want to buy condominiums that have received a high energy efficiency rating under CASBEE.

6. DISCUSSION

Overseas case studies outlined in this paper demonstrate that planning incentives have real practical potential to make a significant difference in encouraging developers to "build green." The increasingly widespread adoption of such provisions in the USA and Japan, in particular, bears witness to this potential.

What is required from Councils in New Zealand is a comprehensive programme providing development bonuses coupled with financial incentives such as development contribution remissions, and even possibly the "fast-tracking" or expedient processing of consent applications, for green developments. Such provisions can also complement tax incentive schemes that could be provided by Central Government. A common theme appearing in the overseas examples is that a multi-faceted approach is most effective.

The fundamental and most complex issue in devising a development incentive scheme is the inherent tension in seeking to balance the requirement for tangible, profitable development gains with the need to avoid adverse impacts on residential character and the environment. Without the

former, the ultimate objectives that are sought to be gained from the incentives will not be achieved because the incentives are not attractive or profitable enough to the development industry. Without the latter, the cost of the incentives will be perceived by the community to be greater than the benefits. As such, a community specific cost/benefit analysis is required.

In addition, New Zealand has its own unique legislative, economic, environmental and social context. This context raises unique questions about how such incentive schemes could be applied here. It is likely that this unique context will justify consideration of incentive schemes that, whilst influenced by successful international scheme, respond uniquely to this context.

These and a number of other questions are evident in this exciting area of research. Ongoing research carried out by the author will address these important questions as part of the 2006/2007 Resource Management Law Association Fellowship.

7. CONCLUSION

Planning incentives for energy efficiency have real potential to aid in encouraging developers and their architects to think and build green, significantly increasing the uptake of energy efficient building forms and renewable energy. Case studies outlined in brief in this paper have provided preliminary evidence that this is not a "pie in the sky" idea. More detailed analysis of these schemes, their benefits and costs, and project case studies, will be presented as part of the Resource Management Law Association Fellowship.

In a profession that is often reactive, development incentives are a positive, proactive tool to encourage the greater uptake of green building and renewable energy solutions. But the implementation of planning incentives for sustainability will require political action. In 2005 the author approached the Energy Efficiency and Conservation Authority (EECA) with the proposal for planning incentives. Whilst EECA showed significant interest in the concept, they withdrew from taking a proactive leadership role, finally advising that developing planning incentives for sustainability is the role of local government.

So this paper presents a challenge to Councils in New Zealand. Are Councils willing to draw a line in the sand and make stronger commitments to sustainability? Real commitments that allow for action and real gains, through the provision of proven incentive schemes?

Only time will tell. In the mean time, this paper concludes with another quote from Al Gore's "An Inconvenient Truth":

"We have everything we need to begin solving the climate change crisis, save, perhaps, the political will"[6]

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