

New Zealand Green Building Response to the Productivity Commission
October 2017

Q2 – Other approaches

As the report admits Chapter 3 is focussed on the reduction of greenhouse gas emissions at source. Another way to express this is that the chapter focusses on decarbonising the supply of goods and services rather than reducing demand.

By framing the problem in this way it gives the impression that carbon emissions in the energy sector, for example, are best addressed by decarbonising energy *supply* rather than reducing energy *demand*. As the report notes buildings consume 20% of energy-related emissions. Much of this energy is wasted in poorly insulated homes that are making us sick and less productive.

Moreover, much of the peak generation of electricity in New Zealand is met with fossil fuel (thermal) plant and therefore efforts to increase the share of renewables on the New Zealand grid need to include measures to flatten energy demand and make buildings more responsive to the more intermittent availability of renewables.

Similarly, industrial processes and manufacturing account for a further 17.9% of New Zealand's GHG emissions. A large proportion of these emissions (particularly steel, cement and aluminium) will be destined for use in the construction of buildings. Rather than simply looking at decarbonising these sectors the productivity commission should also explore ways in which buildings can reduce demand for (or substitute) high carbon materials such as steel and concrete. Embodied carbon will be an integral part of the calculation of the carbon neutral standard that will be developed as part of the new Design and As Built standard for new buildings in late 2018.

Waste makes up a further 5% of GHG, of which up to 50% (depending on definitions) comes from the construction sector. Again, rather than simply looking at ways to decarbonise the disposal of this waste the Productivity Commission should look at ways to reduce the generation of this waste in the first place through the better design of buildings, prefabrication, modular construction and contractor education. High landfill taxes have been shown to be a good incentive for construction sites to reduce waste in other countries, notably the EU.

Q16 – What Policies and initiatives would best promote....

As noted by the IEA and the OECD New Zealand has one of the weakest Building Code's in the developed world:

"The New Zealand Building Code is below the standards required in most IEA countries with comparable climates." - International Energy Agency, Energy Policies of IEA Countries 2017 Review, 2017

"Government should consider modernising the Building Code; its building standards are less stringent than those of many OECD countries." - OECD, Environmental Performance Review of New Zealand 2017, 2017

While EU members have been rapidly tightening their building codes in the race towards “nearly zero carbon” standards New Zealand has largely stood still with only very minor improvements to insulation standards in the building code since 1978.

We support the Productivity Commission’s assertion that improving the energy efficiency of buildings has co-benefits of improved comfort and health. We note in addition that more energy efficient buildings have been shown in many recent studies, including one by Harvard University¹, to also improve the productivity of their occupants.

In addition, as noted in our answers to questions 3 and 18, the Productivity Commission must address the obvious synergies that exist between buildings, the manufacture of material and products, transport and (construction-related) waste generation.

Q18 – Interactions with other emission sources.

There are obvious synergies between buildings, urban planning and transport. A previous Productivity Commission report “Better Urban Planning” briefly explored the link between urban planning and carbon emissions and reached the conclusion that planning policy should not promote denser, more transit orientated development in an effort to reduce car use since, in the productivity commission’s view, the process of changing urban form takes too long, is not cost effective and is not allowed by the current RMA (cite 2004 amendment).

In NZGBC’s view the conclusions of the urban planning report were made without detailed review of the international evidence. New Zealand has the 3rd highest car ownership in the world largely due to its urban form, and transport emissions are the fastest rising component of New Zealand’s greenhouse gas emissions. It may be, as the Productivity Commission asserts, that alternative investments in reducing carbon emissions might be more cost effective in the New Zealand context but this has yet to be rigorously tested.

We strongly recommend that the productivity commission explores the link between urban form and carbon emissions (in the New Zealand context but drawing on international evidence) and the extent to which policy might cost effectively move urban form towards less car dependent, more transit orientated development. Indeed, any recommendations on reducing emissions in the transport sector through greater uptake of public transport must acknowledge that PT cannot work if New Zealand continues to incentivise urban sprawl.

In addition, the encouragement of urban form that promotes active modes of transport should also be explored and any cost benefit take into account the health benefits of walking and cycling and the health disbenefits of commuting by car.

The Urban Planning report did not either explore the link between dwelling size and carbon emissions. New Zealand has the 3rd largest new-build dwellings in the world (as with car ownership second only to the USA and Australia). The average size of a newly built dwelling rose from 110m² in 1974 to 197m² in

¹ <https://green.harvard.edu/tools-resources/research-highlight/impact-green-buildings-cognitive-function>

2013² (in the UK it is 96m²³) and this is despite a drop in the average occupancy of each home during the same time. The average space per person has risen dramatically. The BRANZ Heep report⁴ shows that floor space and energy use in dwellings is strongly correlated meaning that planning rules that encourage denser development and therefore smaller homes would (as with transport) have the effect of reducing carbon emissions.

Indeed, the average new-build dwelling has been reducing in size since 2013 largely due to planning rules permitting denser development in city centres and encouraging more compact suburban development on public transport corridors.

In summary the above shows the synergies that exist between buildings, transport, health and energy consumption and therefore carbon emissions. It is important that the productivity commission tackles each of these sectors systemically rather than in isolation.

Other general points

At times the Productivity Commission has framed in the consultation that lower carbon could mean higher prices on some products and that some sections of society will be impacted by this. This is true. It is though also important to note the significant upsides.

- 1) The EU, Singapore, many US states and other countries have energy measurement of their existing homes and buildings. NZ has neither. 40% of New Zealand homes are damp and mouldy. NZ has one of the highest rates of respiratory disease in the western world partly due to our poor housing stock. These illnesses are costing NZ \$6bn per year. Improving insulation, ventilation and heating dramatically drop health visits. It also means parents are less likely to stay home for sick children.
- 2) Homestar six star makes each household \$1,000 a year better off on average. They have more money for rent or for saving for a home. Research in the UK shows that the more energy efficient a home, the lower the voids and rent areas. Energy efficiency is positive for landlords and businesses
- 3) Research sent to you shows the business standard to gain significantly from more energy efficient buildings. NABERSNZ delivered \$45m benefit to Australian and over \$160m productivity returns.

Thank you for the opportunity to submit a response. We hope this has been of use and is the start of the conversation. We will be in touch with further information and research.

Best regards



Andrew Eagles, CEO, New Zealand Green Building Council

² http://m.stats.govt.nz/browse_for_stats/industry_sectors/Construction/building-bigger-5oct-16.aspx

³ http://pdf.savills.com/documents/20150506SizeMatters.pdf?_ga=2.148353015.1500101231.1506633951-1937263069.1506633950

⁴ <https://www.branz.co.nz/heep>