

Low Carbon Auckland: Buildings and green infrastructure

By Anthony Doesburg

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The link between smoky vehicle exhausts and environmental harm is easy to see. But less obvious is the connection between rows of buildings and rising carbon emissions.

Many Aucklanders would be surprised to learn that buildings use about a third of the city's energy and are responsible for a similar proportion of its greenhouse gas emissions. That makes the built environment and infrastructure a key focus of Auckland Council efforts to cut emissions. The target of reducing emissions to 40 per cent below 1990 levels by 2040 would be tough enough even if the city didn't get any bigger. But at the present rate of energy demand and with the population projected to grow, it's estimated that by 2025 Auckland's carbon emissions will be 46 per cent higher and, by 2040, energy use will have climbed by almost two-thirds.

What hope, then, is there of hitting the target? According to green building proponents, by making new and existing commercial and residential structures more energy efficient, there is every chance.

The challenge, says Alex Cutler, chief executive of the New Zealand Green Building Council, is to convince developers and home builders that green is the new normal.

"With what we know about the principles of designing and building for energy efficiency, and the statistics connecting poor respiratory health with damp, mouldy homes, the building and construction sector possesses a significant opportunity to address the challenge," says Cutler.

Overcoming the perception that green buildings blow budgets is a key issue. A report by the World Green Building Council, of which the New Zealand body is a member, reveals both the problem and the answer.

In "The Business Case for Green Building", released last year, the council writes that property developers typically estimate the price premium for an environmentally friendly building to be 10-20 per cent. But actual green design and construction costs are said to range from 0.5 per cent less than conventional building to 12.5 per cent more, according to the report.

Energy efficiency makeovers of existing buildings come at a similar premium over standard refurbishments. The payback, however, can be even bigger.

The New Zealand Green Building Council, which runs the Green Star rating system, puts the energy savings for a green office or industrial building at 25-50 per cent.

On top of that, water use in a green building is said to be 40 per cent less than a conventional structure, the productivity and health of the occupants are reportedly significantly improved, and lease and market values can be expected to be six per cent and 20 per cent higher respectively.

Auckland Council is proposing to take the lead by gradually making "whole-of-life" value assessments of all council property spending the norm. It will also make existing buildings more energy efficient, aiming



NZ Green Building Council CEO Alex Cutler says more work to green New Zealand's buildings is needed. Photo / Supplied

to have a quarter retrofitted by 2020 and 95 per cent by 2040.

As an example of the possible savings, it points to Auckland War Memorial Museum, which has cut energy use by more than a third – and its power bill by \$40,000 a year – with new lighting, air conditioning and heating systems.

To help it reach its emissions target, the council will be counting on central government support. Among other measures, it wants mandatory disclosure of the energy and water performance of buildings for sale or lease.

Progress is being made, says Cutler, with the milestone of 100 Green Star-rated buildings recently being reached, but "there is still a long way to go in evolving our built environment to be more sustainable", she says.

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Future scenario

- If all goes to plan, in 2040 Aucklanders will be living in sustainable neighbourhoods connected by frequent public transport, cycleways and walking routes. City dwellers will be able to get to their jobs, schools, health centres and entertainment on foot or public transport.
- New buildings will use no more energy and water than they generate and collect, and there will be no waste or greenhouse gas emissions. Most existing buildings will have been retrofitted towards the same goal.
- Increasingly, buildings will generate more resources than they use, setting international standards for health, efficiency and comfort. Every home will have energy-saving appliances and be connected to a smart electricity grid.
- Housing shortages will be a thing of the past: home-building will be easy with modular designs and smart technology creating affordable dwellings adaptable to changing lifestyles.
- And the city will have a network of green and open spaces, urban garden allotments, waterways and coastal areas that will enhance air quality, moderate temperatures, absorb greenhouse gases, be a source of food and result in overall improved liveability.
- The heavy hand of city officials won't have brought this about: Aucklanders will be fully engaged with the sustainable design, construction and management of the city environment, with an innovative mix of regulation, financing and educational programmes helping get there.
- But so the city's population can be confident that the structures they live and work in make the green grade, energy, sustainability and resilience performance labels will be mandatory on all buildings.

Residents can have their say on the Auckland Low Carbon Action Plan on the Auckland Council website. The closing date is 7 April 2014.

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