

Comments on the Draft New Zealand Energy Strategy from Researchers at the [New Zealand Centre for Sustainable Cities \(University of Otago\)](#)

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Vision & Goals

We find the vision of the Draft Strategy limited. We believe the stated vision is one more suitable to the 20th century, than the 21st. The stated vision is unclear and uninspiring, located firmly within the silo of energy use with no acknowledgement of the urgency and severity of climate change, peak oil or of the importance of other sectors. As a relatively wealthy, small and dynamic country with many renewable energy resources New Zealand should aim to be an exemplar country. This vision would be compatible with international leadership moves by this country in the past (see Appendix 1). In particular:

- The stated vision of 90% of electricity from renewables is a missed opportunity, New Zealand should be aiming for 100% by 2020 (for a typical rainfall year) *while* maintaining security of supply. In particular making a commitment to 100% renewables for electricity generation could help affirm our international clean green image, so vital to our trading position. But to achieve the 100%, the pricing signals need to be right: and so the current emissions trading scheme (ETS) would need to be substantially strengthened. The vision also misses the opportunity to work more closely with China and India and other developing countries in trade and technology development as they rapidly seek to build their internal renewable energy profiles.

- The stated vision ignores that New Zealand rates very poorly in energy per vehicle kilometre travelled (VKT) and has high car ownership rates. We believe it appropriate to set a goal for 20% renewables for passenger transport by 2020. Simply reversing the recent trend of increasing energy intensity in transport would be a worthwhile target.

- The stated vision fails to recognise the extent to which our tourist and food industries as well as cultural identities and economic and political base are related to our environment. It misses the job creation and health benefits associated with an increased focus on renewables and reduced energy use. The vision should take a broad view of the benefits across sectors of shifting to renewables and reducing demand. Towns and regions have the opportunity to build identities around localised technology and renewable energy profiles. This will be increasingly important in terms of attracting highly skilled workers from other countries, retaining skilled New Zealand workers and counteracting the high energy footprint that tourists incur in terms of their carbon emissions when travelling to and within our remote nation.

- It is short sighted to prioritise short or medium term economic growth over a fuller economic picture, including valuing the eco-system services that the economy and society rely on. While the goal that the country's diverse energy resources be developed and used in such a way that "*the environment is recognised for its importance to our New Zealand way of life*" is laudable, the role of the environment in maintaining the economy should be explicitly acknowledged.

Specific points

The draft strategy lacks detail as well as goals and timeframes. There is not even an indication of the intended life of the strategy.

There is virtually no actual evidence in the draft strategy, in many places there appear to be unjustified assumptions. Two of those assumptions are: (1) Household energy use can be changed by information and education¹ (2) Technology advances that have not yet been made will happen.

The draft strategy does not mention smart grids or the need for an interconnected delivery mechanism, Cook Strait-cabling options or a distributed network. This is a major failing: a distributed, and at times local, network reduces the impacts of power cuts and reduces the systems vulnerability to terrorists or natural disasters. Extended use of solar water heating and solar electricity production on roofs (which can now be linked to the local grid) are ways forward that reduce the need for coal/oil powered electricity generation. There is a need to access a wide variety of fuels not just electricity and oil². There is a significant amount of innovation happening globally in relation to alternative fuels and we need to embrace this.

The draft strategy does not address the relative costs of using clean/renewable energy. Specifically: (1) that renewable energy projects generally have a higher regulatory burden than, for example, increasing the output and energy intensity of a thermal power station; (2) that the ETS needs to ensure that clean energy options and good design are cheaper and more viable than the alternative. Currently the Canterbury District Health Board is building a new hospital and as a cost saving measure they are putting in a coal fire to fuel it. This should be unacceptable.

Likewise, the draft strategy does not discuss Vehicle Emission Standards and Fuel Efficiency Standards which are obvious ways to reduce energy use, lower emissions and complement the ETS. Nor does it discuss that even those advances are unlikely to be enough to lower emissions to a reasonable level³ – there also needs to be a reduction in VKT.

The role of design and planning to achieve better urban form and national distribution networks is only implicitly referenced in the draft strategy and this misses a significant opportunity for reducing emissions, and energy use via reducing dependence on private motor vehicles.

The health benefits of moving to renewables and increasing active modes of transport are in improved air quality and reduced injuries, as well as protection from multiple health problems including obesity (see Appendix 2). An appendix with a table of the benefits of moving to renewables and more active transport would clearly highlight the value of shifting modes and setting ambitious renewable targets. It could also guide the strategy implementation and ensure that specific actions really do produce health and economic benefits.

If the strategy is to seriously propose the further exploitation of mineral resources, especially coal then there should be a cost benefit analysis that consider the potential costs in terms of emissions, impacts on tourism, food production, pollution and the wider economy.

In relation to oil and gas exploration and exploitation the draft strategy seems to assume government ownership and control of the resources, which is inconsistent with current patterns. Assuming this government is not talking about nationalising the oil or gas fields, the draft strategy seems to overstate the potential economic benefit of resource exploitation to the country as a whole. There is no recognition of existing or even currently viable contract models.

The draft strategy takes a short to medium term perspective, while it needs to look long-term. It should position our energy supply and behaviour to see us through the transition away from fossil fuels. If our limited supply of natural resources is to be exploited it would make more sense to hold them for as long as possible as they will be far more valuable in the future as a basis for manufacturing plastics, fertiliser, herbicides, or pharmaceutical products.

Appendix 1: Past leadership by New Zealand

The small size of this country has not prevented it from international leadership roles in the past. These include being the first country to give women the vote, being one of the first countries to establish key aspects of the welfare state, and being a key player in the establishment of the United Nations. New Zealand has also provided strong opposition to nuclear testing (with Australia), was the first country to develop national legislation against nuclear weapons in 1987, and has used its “honest broker” status to facilitate conflict resolution (eg, in Bougainville).

New Zealand has at various times been a leader in tobacco control policy (eg, the Smoke-free Environments Act of 1990) and was one of the first few countries to legislate for fully smokefree pubs and restaurants (in 2003).⁴ It is one of the jurisdictions to have eradicated brucellosis⁵ and for one of the first few to have eradicated hydatids (along with Iceland and Tasmania⁶). Most recently it ran a successful national campaign to eradicate the imported southern saltmarsh mosquito,⁷ at a cost of approximately \$70 million over the past 11 years.⁸

This history suggests that New Zealand can make bold policy decisions and should continue to do so by having renewable energy and energy conservation strategies that are exemplars to the world community as we collectively struggle to limit planetary damage from climate change.

Appendix 2: Health benefits for New Zealanders from shifting to an energy efficient and low-carbon economy

These benefits include:

- Benefits to respiratory and cardiovascular health from reduced air pollution if there was greater use of low-emissions vehicles⁹ eg, electric cars and buses with both being supplied with renewably-generated electricity. Air pollution is a public health concern in New Zealand given the results of modelling work on mortality impacts¹⁰ and studies in Christchurch linking particulate levels in ambient air with respiratory symptoms¹¹ and hospitalisations.^{12 13}
- Likely benefits from reduced risks to occupational health associated with reduced dependence of fossil fuel extraction industries (eg, respiratory disease and injuries from coal mining).¹⁴
- Benefits from injury reduction associated with a reduction in road traffic volumes¹⁵ – which would occur with a shift from private cars to more energy efficient public transport.
- Energy conservation involving improved home insulation will cost-effectively benefit health as shown in New Zealand research.^{16 17} New Zealand studies also indicate that home insulation is associated with lower endotoxin levels¹⁸ and lower dust mite allergen.¹⁹ The low quality of New Zealand housing² suggests major gains are possible from home energy efficiency measures in terms of health and cost savings to householders.
- Possible general health benefits to low-income New Zealanders if an expanded renewable energy sector helped generate net employment and reduced unemployment (eg, as modelled for Scotland²⁰ and Germany²¹).

To achieve the target a strong pricing scheme for greenhouse gas emissions would be required such as an upgrade to the currently weak emissions trading system (ETS) or additional taxes on carbon, methane and nitrogen. Such prices would potentially trigger other health benefits:

- Overall benefits to health if there was a shift to increased physical activity associated with active transport (eg, cycling and walking) – even when considering potentially increased injury risk.⁹
- Benefits to cardiovascular health from a shift to more plant-based diets,²² if dietary changes flow from higher ruminant meat and dairy prices (ie, from methane and nitrogen charges to the agricultural sector). One study of this issue suggested a 15% decrease in the burden of ischaemic heart disease for the UK could occur as a climate change response co-benefit.²³
- Benefits from reduced water pollution and its risks to health could arise from various policy instruments (eg, ETS impacts on forestry and methane; and/or methane and fertiliser charges). These policies could control livestock numbers and reduce waterway pollution in terms of nitrogen, phosphorus, suspended sediment and livestock faecal matter. This is a climate response co-benefit topic area of active research in New Zealand.²⁴
- Possible mental health benefits if higher fossil fuel energy prices stimulated improvements urban planning (eg, less suburban sprawl) and reductions in time spent commuting in private vehicles.

It is likely that these health benefits will collectively exceed the potential adverse health effects from any increased fuel poverty with higher electricity prices. The latter could also be ameliorated by targeted electricity subsidises (eg, to low-income elderly residents) or provision of subsidised wood pellets for use in home heating for low-income populations. Similarly, adverse health impacts from wind turbine noise can be minimised with appropriately placement of turbines and sound insulation of nearby buildings.

When thinking internationally, these measures to reduce greenhouse gases (GHGs) will help to reduce the health impact globally. The assumptions for health impacts of further climate change is basically a linear relation between GHGs and global climate change, and a linear relation between global climate change and global health impacts, which occur mainly in low income countries. Even if the NZ contribution was only reduced by 0.1% of the global GHG emissions, this may still add up to 1000 prevented climate change related deaths per year globally later this century. The references and logic behind this calculation is explained in the attached document.

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