

Public Health Association (NZ) Policy:

Preventing Global Climate Change

Adopted July 5 2001

Introduction

Current patterns of carbon dioxide emissions by developed nations such as New Zealand are completely unsustainable. Based on Intergovernmental Panel on Climate Change (IPCC) estimates, a 90-95% reduction in carbon emissions by industrial nations is required for the sustainable release of greenhouse gases.¹ The IPCC now estimates that these greenhouse gases will increase the global temperature by 1.5 to 6 degrees C by 2100 (IPCC estimates cited in: Kennedy²). Furthermore, the IPCC expects the mean sea-level to rise by 15-95 centimetres by 2100 as a result of these higher temperatures.

Without a reduction in global carbon dioxide levels, there is a potential risk of severe ecosystem disruptions as the planet warms. Indeed, there is already some evidence that global warming may be disrupting vulnerable ecosystems – particularly in the Arctic but also coral reef ecosystems. The severity and frequency of recent storm events around the world may also be partly attributable to global warming.

Some of New Zealand's Pacific neighbours are especially vulnerable to rising sea levels and to weather extremes.³ Sea-level rises from global warming could wipe out low-lying coral atolls such as Kiribati and Tuvalu. Some of these Pacific countries provide evidence for the impact of climatic change on communicable disease epidemics. Examples are dengue epidemics in Pacific Island Countries associated with the El Niño Southern Oscillation (ENSO)⁴ and the association between leptospirosis and heavy rainfall in the Pacific.⁵

Available evidence suggests that the poorest countries in the world will suffer the most from global warming – particularly from droughts.⁶

¹ Brown LR, Flavin C, French H, et al. *State of the World 1999*. New York: WW Norton, 1999. p173-4.

² Kennedy D. New Climate News. *Science* 2000; 290: 1091.

³ Woodward A, Hales S, Litidamu N, et al. Protecting human health in a changing world: the role of social and economic development. *Bull World Health Organ* 2000; 78: 1148-55.

⁴ Hales S, Weinstein P, Souares Y, Woodward A. El Nino and the dynamics of vectorborne disease transmission. *Environ Health Perspect* 1999; 107: 99-102.

⁵ Perrocheau A, Perolat P. Epidemiology of leptospirosis in New Caledonia (South Pacific): a one-year survey. *Eur J Epidemiol* 1997; 13: 161-7.

⁶ See: www.tyndall.uea.ac.uk

At present the New Zealand Government's specific actions to prevent greenhouse gas emissions are limited to energy efficiency improvements (eg, promoted by the Energy Efficiency and Conservation Authority). New Zealand also imposes an excise tax on petrol, liquefied petroleum gas (LPG) and compressed natural gas (CNG) - when used for motor fuel. Small taxes are applied to coal and gas but none (other than GST) on fuel oil and diesel.

Key Elements of the PHA's Policy

The PHA notes that:

Health impact (New Zealand): Greenhouse gases that warm the planet are likely to have overall adverse impacts on human health.^{7 8 9} For New Zealand, the following adverse impacts are possible:

- It could increase the risk of vector-borne diseases (such as dengue fever) if the range of the relevant insect vectors expand due to changes in temperature and rainfall.
- It could increase the risk of severe storms and associated floods. Floods can cause injury and death, trigger infectious disease outbreaks (if water supplies and sewerage systems are disrupted) and cause long-term psychological effects on victims.
- It could increase the risk of morbidity and mortality from heat stress during heat waves. The most vulnerable groups are likely to be older people and people who cannot afford air conditioning.
- It could increase the risk of food-borne disease occurring from consumption of foods that are left out of refrigerators for brief periods (if average temperatures increase or summers last longer).
- It could increase the risk of injury and death from wildfires if some areas become more prone to drought.
- It could increase the risk of infectious disease transmission if increased numbers of environmental refugees moved from Asia and the Pacific to New Zealand. (For example it is possible that the whole population of Kiribati may need to be relocated as rising sea levels cover their country).

Economic rationale for carbon user charges: The "polluter pays" principle is the one which implies that users should pay for the externalities of energy use – including greenhouse gases emissions (eg, carbon dioxide), air pollutants, noise pollution and road crash injuries and deaths.

Externalities affecting people: Fossil fuel use by vehicles and other sources produces air pollutants that kill New Zealanders (eg, in Christchurch¹⁰). Air pollution in New Zealand urban settings probably also exacerbates chronic respiratory disease (eg,

⁷ Epstein PR. Is global warming harmful to health. *Scientific American* 2000; (August): 36-43.

⁸ Epstein PR. Climate and health. *Science* 1999; 285: 347-8.

⁹ Longstreth J. Public health consequences of global climate change in the United States – some regions may suffer disproportionately. *Environ Health Perspect* 1999; 107(Suppl 1): 169-179.

¹⁰ Hales S, Salmond C, Town GI, et al. Daily mortality in relation to weather and air pollution in Christchurch, New Zealand. *Aust NZ J Public Health* 2000; 24: 89-91.

asthma). Indeed, air pollutants frequently exceed safe levels in Auckland.¹¹ Fossil fuel use in transport is also associated with noise pollution, injury and death of pedestrians and people in other cars, and the wastage of time due to traffic congestion.

The possible adverse externalities associated with global warming have been briefly discussed above. Such impacts are likely to most seriously impact on people in developing countries who cannot readily adapt to the changes. In New Zealand, it is older people and low-income people who would have the least capacity to adapt.

At present the costs of these externalities are not systematically addressed in the price paid by industry and consumers for these fossil fuels.

Externalities affecting the environment: The major externality impacting on the environment is the production of greenhouse gases from fossil fuel use – which contributes to the global climate change. Air pollution from the burning of fossil fuels by vehicles and industry can also damage crops and other vegetation. At present none of the costs of these externalities are built into prices paid by industry and consumers.

International evidence for carbon user charges: Carbon user charges have lowered carbon dioxide emissions in Norway¹² and user charges on cars have led to reductions in car use into the central business district in Singapore. A number of other countries have oil and or gas excise taxes eg, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, Portugal, Spain, Sweden, Switzerland, and the UK.¹³

Similar user charges have reduced sulphur oxide emissions (Sweden) and ozone-depleting gases (United States).¹⁴ Also, user charges shown to be effective include those on leaded petrol (eg, Denmark¹⁵), toxic waste (Germany), and water pollution (Netherlands).¹⁶

New Zealand evidence for carbon user charges: There is some evidence that high fuel prices during the oil shocks of the 1970s led to an increase in the use of smaller cars, greater car pooling and the greater use of alternative fuels to petrol such as CNG and LPG.¹⁷ More recently, there is evidence that the higher petrol prices seen during the year 2000 led to a small reduction in petrol sales.¹⁸ There were also anecdotal reports of increased usage rates of buses in some cities (eg, Auckland). However, large price rises appear to be necessary to achieve significant reductions in vehicle use.

¹¹ Fowler P. Crackdown on Auckland Air Pollution. *Newsroom* 14/08/00. (<http://newsroom.co.NZ>).

¹² Brown LR, Flavin C, French H, et al. *State of the World 1999*. New York: WW Norton, 1999. p173-4.

¹³ Messere K. *Tax Policy in OECD Countries*. Amsterdam: IBFD Publications 1993: 155.

¹⁴ Brown LR, Flavin C, French H, et al. *State of the World 1999*. New York: WW Norton, 1999. p173-4.

¹⁵ Jensen FP, Fenger J. The air quality in Danish urban areas. *Environ Health Perspect* 1994; 102 (Suppl 4): 55-60.

¹⁶ Brown LR, Flavin C, French H, et al. *State of the World 1999*. New York: WW Norton, 1999. p173.

¹⁷ Ansley B. Pump action. *Listener* 2000; (30 September): 22-4.

¹⁸ Foster S. (Shell Oil Retail Manager) Interviewed on “Insight” Radio New Zealand (8 October 2000).

Evidence for health benefits: Higher fuel taxes are likely to reduce injury and death on the roads in the long-term – given available US data.¹⁹ Such a benefit is plausible for New Zealand as there were notable declines in road traffic death rates during the mid and late 1970s²⁰ (though this trend has not been analysed statistically).

The evidence on air pollution and health would suggest that interventions to reduce fossil fuel use would reduce premature mortality in areas exposed to these pollutants.²¹ Indeed, recent evidence suggests that air pollution is probably more dangerous to health than previously thought.²² Higher transport fuel prices may facilitate greater rates of walking and cycling as transport options (with associated health benefits²³).

Feasibility: User charges on carbon are likely to be administratively feasible given the New Zealand experience with petrol tax. The international experience with such user charges includes Sweden (carbon tax), Denmark (motor fuel tax, coal, electricity, carbon emissions), Netherlands (natural gas, electricity), Finland (energy sales), and Germany (energy sales)²⁴ as well as other countries with excise tax on oil and or gas (eg, Austria, Belgium, Canada, France, Ireland, Italy, Japan, Portugal, Spain, Switzerland, and the UK²⁵). Sweden has also imposed user charges on nitrogen fertilisers, pesticides, the scrapping of cars, water pollution and gravel extraction.²⁶ One issue is that carbon user charges in New Zealand would favour imports of energy-intensive products from countries without such user charges. This would not be a major issue for low levels of carbon user charges in New Zealand, but at higher levels it would need to be addressed eg, by applying equivalent user charges on these imports. Alternately specific New Zealand industries such as those producing methanol, cement, steel, and aluminium could be treated with separate policy instruments (eg, carbon certificate trading between them).

International commitments: Under the Kyoto Protocol (1997) New Zealand has agreed to reduce its greenhouse gas emissions back to 1990 levels by between 2008 and 2012. Progress to date has been minimal and current emissions are around 40% over the 1990 level. One way to achieve progress would be user charges that encouraged industrial and other consumers to conserve energy and use more energy efficient technologies.

The PHA affirms the following principles:

¹⁹ Leigh JP, Frank AL. Gas taxes and motor vehicle fatalities. *J Health Politics Policy Law* 1988; 13: 723-34.

²⁰ Statistics New Zealand. *New Zealand Official Yearbook 1998*. Wellington: Statistics New Zealand, 1998: 187.

²¹ WGPFFC (Working Group on Public Health and Fossil-Fuel Combustion). Short-term improvements in public health from global-climate policies on fossil-fuel combustion: an interim report. *Lancet* 1997; 350: 1341-9.

²² Kaiser J. Evidence mounts that tiny particles can kill. *Science* 2000; 289: 22-3.

²³ Dora C. A different route to health: implications of transport policies. *BMJ* 1999; 318: 1686-9.

²⁴ Brown LR, Flavin C, French H, et al. *State of the World 1999*. New York: WW Norton, 1999. p174.

²⁵ Messere K. *Tax Policy in OECD Countries*. Amsterdam: IBFD Publications 1993: 155.

²⁶ Pearce F. If you want to be green, recycle your taxes. *New Scientist* 1997; (3 April): 6.

- The “**polluter pays**” principle is fundamental and energy users should pay for the externalities of energy use such greenhouse gases emissions and air pollutants (but also noise pollution and road crash injuries and deaths). A key way that the government can make polluters pay is to levy charges on polluting energy sources (such as user charges on carbon-containing fossil fuels). Such charges act as disincentives on the use of the atmosphere as an open sewer.
- As a Kyoto Protocol participant, New Zealand should meet its **international responsibilities** to help prevent global climate change (especially given the likely adverse impacts on developing countries and Pacific Island nations). Introducing carbon user charges would be one of the most efficient ways of NZ meeting its responsibilities.
- **Responsible use of the revenue from carbon charges:** The revenue from carbon user charges should ideally be used to support research into energy efficiency in the New Zealand context and to assist New Zealanders in conserving energy (eg, supporting public transport where this is efficient, and supporting greater use of home insulation). Even if carbon user charge revenue is not directly linked to these types expenditure, carbon charges would still provide a more desirable source of government revenue than income taxes on low-income groups. Therefore the introduction of carbon charges should ideally be balanced to some extent by reducing income tax rates for low-income groups.

The PHA believes the following steps should be taken:

1. That government introduce a rational system of carbon user charges that better address the public health and environmental externalities of fossil fuel use.
2. That government give consideration to increasing public acceptability of carbon user charges by: (i) using the revenue gained to fund energy efficiency initiatives such as improvements in public transport; (ii) lowering income tax rates for low-income citizens at the same time as any new carbon user charges were introduced; (iii) better educating the public about the current and potential adverse impacts of the current unsustainable use of fossil fuels; (iv) ensuring that the actual charges (when introduced) were not particularly high in absolute terms.
3. That central and local government continue to pursue strategies to promote energy efficiency and reduce greenhouse gas emissions from New Zealand such as:
 - Improving public transport and promoting cycling and walking (with appropriate cycle ways and paths). Further subsidies for public transport should be considered where this is efficient (eg, where such services reduce air pollution and time wasted due to traffic congestion in urban settings).
 - Making government-owned buildings and housing stock more energy efficient (through regulations and possibly economic incentives).
 - Providing funding for routine emissions tests on vehicles at the time of the Warrant of Fitness check.
 - Raising fuel efficiency standards for all new and used vehicles (and funding the enforcement of these standards).

- Providing greater funding for research into energy efficiency in the New Zealand context.
- Exploring strategies to reduce methane emissions since methane is another important greenhouse gas (particularly methane production associated with this country's relatively large numbers of ruminant livestock).

Review

This policy will be reviewed annually given the rapid developments in international knowledge concerning the environmental and public health threats posed by global climate change.