Submission re Light Vehicle CO2 Emission Standards

Philip Laird  University of Wollongong, November 2010

Introduction

This submission is a general one suggesting that more attention by given in the short term to provide more effective pricing signals to improve energy efficiency in light vehicles, and, to the inclusion of petrol and diesel in carbon pricing. The submission is based on earlier ones of this writer including to the 2008 Carbon Pollution Reduction Scheme Green Paper and the Garnaut Review. This submission has drawn on research conducted at the University of Wollongong. However, it does not necessarily reflect the views of the University.

The Light Vehicle CO2 Emission Standards for Australia Key Issues -paper is of interest, and particularly so given Australia’s commitment through legislation (Senate 8 November 2011) to lower carbon dioxide emissions. As noted in the paper, transport produces about 15 per cent of Australia’s CO2-e emissions.

1. The Australian Bureau of Statistics, Canberra (2011) Survey of Motor Vehicle Usage for 12 months ended 31 October 2010. Cat. No. 9208.0 shows that for this time period, cars, buses and trucks used about 31 billion litres of petrol, diesel, and LPG. Earlier SMVU data notes that in 1991 Australian road vehicles used about 21 billion litres of fuel and in 2001, about 26 billion litres. To stop this fuel use reaching 36 billion litres by 2016, sterner measures than what is currently proposed will be needed. The submission addresses potential missing gaps and next steps.

2. The world scene in regards to oil supply and demand is rapidly changing. In 2006, this led to the Senate Rural and Regional Affairs and Transport Legislation Committee holding an Inquiry into Australia's future oil supply and alternative transport fuels. ¹

   Increased oil prices over the past decade have already led to increased energy prices. Climate change and energy costs are good reasons for increasing energy efficiency in urban passenger transport. This includes more fuel efficient cars and mode shifting.

3. Carbon pricing is not a new concept for Australia and has been subject to earlier inquiries and debate. Support is extended to many recent measures adopted by Parliament including a price of $23 per tonne (see section 16 below) on carbon dioxide emissions, and including the carbon pricing of aviation (where aviation fuel attracts an excise of only 2.854 cents per litre as opposed to 38.143 cents per litre for petrol).

4. More effort in research and development in reducing energy use in transport is required. There is a case for establishment of a federal Energy and Greenhouse Research Corporation as a "complementary measure" to assist in improvement in energy efficiency. Further comment is offered in Appendix A. There is also scope for reintroduction of a

¹ The findings and recommendations of this Committee in its Final Report of February 2007 are of note, and include integrating transport planning and land use planning to reduce car and making more use of rail for long distance freight. A government response to this report is now overdue.
National Energy Conservation Program (that was in place in Australia after the second world oil price shock).

5. New Zealand ratified the Kyoto protocol in 2002, and along with increasing fuel excise during 2007 took a number of measures, including budgetary, to place more emphasis on sustainability. To quote http://www.beehive.govt.nz/feature/energy …) "It's important that New Zealand plays its part in tackling climate change. We need to reduce our greenhouse gas emissions from energy use. This strategy, and its companion document, the New Zealand Energy Efficiency and Conservation Strategy, help us do that," said former Prime Minister Helen Clark.

In 2008, legislation was introduced by the Clark government to introduce an Emissions Trading Scheme, and this was amended in 2009 by the National Government led by Prime Minister Keys. On 1 July 2010, the stationary energy, industrial processes and liquid fossil fuel sectors entered into the scheme, where a transition period operates until 31 December 2012, putting a cap on the price of emission units.

As noted, http://www.climatechange.govt.nz/emissions-trading-scheme…"As well as helping New Zealand do its fair share in cutting emissions, the ETS will strengthen the country’s clean green brand – an important issue for a small trading nation like New Zealand as international markets and consumers increasingly demand environmentally friendly products."

See Appendix B re some New Zealand and other overseas transport initiatives.

Comment on transport and oil use

6. As a 2011 PMC Issues Paper on energy efficiency noted on page 13 "The transport sector accounts for around 39 per cent of Australia’s final energy use (including energy used by passenger motor vehicles and motorbikes). Australia is increasingly reliant on imports to supply our demand for transport fuels."

"The scope for energy efficiency improvements in transport is very broad – improvements can potentially come from making existing technologies more efficient, switching to more efficient modes of transport, and (over the longer term) improving the liveability of our cities in ways which reduce the need for travel."

As the 2007 Prime Ministerial Task Group on Emissions Trading issues paper noted, inter alia, in 'Context setting': "Significant effort will also be needed to restrain emissions in other sectors, especially transport."

However, the efforts made to date by the Australian government to restrain greenhouse gas emissions in transport and to improve overall energy efficiency in transport have been somewhat limited. One move that would help would be to implement the recommendations of the 2010 Henry Tax Review for transport (some follow in part).

Recommendation 61: Governments should analyse the potential network-wide benefits and costs of introducing variable congestion pricing on existing tolled roads (or lanes), and consider extending existing technology across heavily congested parts of the road network. Beyond that, new technologies may further enable wider application of road pricing if
Proven cost-effective. In general, congestion charges should apply to all registered vehicles using congested roads. The use of revenues should be transparent to the community and subject to further institutional reform.

**Recommendation 67:** Governments should continue to reform road infrastructure provision, applying economic assessment to investments comparable to that for other forms of infrastructure.

**Recommendation 68:** COAG should develop a National Road Transport Agreement to establish objectives, outcomes, outputs and incentives to guide governments in the use and supply of road infrastructure. COAG should nominate a single institution to lead road tax reform, and ensure implementation of this agreement.

7. International oil prices trending upwards this decade may turn out to demand real changes in the present decade. Some measures to reduce oil dependence are suggested by the Garnaut Review in 2008, including In this regard the 2008 Garnaut climate change review observed\(^2\) that "Governments have a major role in lowering the economic costs of adjustment to higher oil prices, an emissions price and population growth, ... Mode shift may account for a quarter of emissions reductions in urban public transport..."

Information on oil vulnerability in an international context and how this may be addressed is given by Gilbert and Perl (2010) *Transport Revolutions: Moving People and Freight without Oil* New Society Publishers, Gabriola Island BC Canada. The book "*Why Your World is to get a Whole Lot Smaller*" by Jeff Rubin is one of many that suggest a need for rethinking transport policy.

It is accepted that predicting future oil prices is not easy. Gargett\(^3\), after detailed analysis, found "that petrol prices are likely to be restrained in this decade." However, the situation next decade could be quite different.

A precautionary approach is recommended. This writer in various publications has expressed the view that there is considerable scope in improving energy efficiency in the transport of people and goods in Australia to reduce dependence on imported oil and greenhouse gas emissions. These publications include a 1989 conference paper\(^4\), a 2001 joint authored book\(^5\), a 2003 paper\(^6\), and a February 2007 paper on road pricing\(^7\).

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\(^2\) Garnaut Climate Change 2008 review -Chapter 21 -'Transforming transport' at http://www.garnautreview.org.au
\(^3\) Gargett D (2010) Petrol prices in Australia, Australasian Transport Research Forum (www.patrec.org)
\(^4\) The potential for liquid fuel savings in Australian land freight transport, Greenhouse and Energy 1990, edited by D. Swaine, p 304-314, CSIRO Australia
\(^6\) Australian transport and greenhouse gas reduction targets Australasian Transport Research Forum 2003, Wellington, New Zealand (see patrec.org for ATRF papers)
\(^7\) Road pricing in Australia - too little or too much? Australian Road Summit Sydney 27 - 28 February 2007
8. In August 1978, Australia introduced import parity pricing for all Australian-produced crude oil. This was not a popular move at the time, but in hindsight was a good decision. The Prime Minister of the day made it clear that import parity pricing was being introduced in response to a changing world situation and a need to encourage energy conservation, oil exploration in Australia and the development of alternative energy sources.

A similar move is now needed to deliver strong financial incentives to further improve energy efficiency in Australian transport. The post 1978 improvements were aided by government complementary measures including a National Energy Conservation Program. The fuel savings outcomes, assisted by various reports (see Appendix C) from the period 1976 to 1984-85 differ significantly, and actually exceeded projected savings.

It is doubtful of these savings (about 200 million litres of liquid fuel per year) would have been made so quickly without import parity pricing. The reduction and fuel excise for diesel (via rebates) and some post GST policies have failed to deliver adequate reductions in both imported oil and carbon pollution. It is submitted that strong government measures are now necessary to get both improvements in energy efficiency for each mode of transport, AND switching from road (and air) transport to the more energy efficient modes of rail (or sea).

Thus giving rebates in carbon pricing to car and truck use, whilst denying rebates to urban public transport and rail, is somewhat counterproductive to reducing oil use and greenhouse gas emissions.

As observed by The Australian, July 26-27 2008 "Greenhouse plans went off the rails" the CPRS Green Paper went in the wrong direction in proposing initial rebates for the use of diesel fuel and petrol. This has carried through to the present proposals.

9. In early 2001, the Federal government reduced fuel excise and froze indexation in response to higher oil prices and community concerns. Since March 2001, this excise has remained at 38.143 cents per litre.

A recent publication by the Bureau of Infrastructure, Transport and Regional Economics (BITRE)\(^8\) notes that the federal fuel excise was $8817 million in 2000-01 and $8686 million in 2008-09.

During these 8 years, total government outlays on roads increased from $8183 million to $15,792 million. Although government also collects vehicle registration fees, it appears that the fuel excise is no longer a good source of revenue to fund additional expenditure on roads and alternatives to roads.

10. Quite simply, of Australia’s five major cities, only Perth has a good urban rail system that has been recently expanded to meet growth areas. Adelaide, Brisbane and Melbourne have catch-up programmes underway. However, Sydney, due to past under-investment, presents major challenges in improving rail. This, coupled with Sydney's costly road congestion invites attention to the application of congestion pricing to Sydney.

\(^8\) (BITRE) (2011) Information Sheet 40 - Public Road-Related Expenditure and Revenue in Australia
11. The current fuel use of Australia's passenger vehicle fleet continues, on 2010 ABS SMVU data to be about 11.1 litres per 100 km. As noted by Mees (2000)\(^9\) (see also reference in footnote 5, page 86), the dismal performance since 1963 of a high average fuel use (consistently more than 11 litres per 100 km) needs reducing to 10 litres/100km.

12. It is submitted that consideration should be given to applying the proceeds from carbon pricing of rail passengers (in the order of $50 million from use of diesel and likely more from electricity usage) should be applied, on top of existing programmes, to improving urban rail, with a view to lowering greenhouse emissions.

13. A National Strategy for Lowering Emissions from Urban Traffic and a National Action Plan, as approved by the Australian Transport Council in August 2002, recommended a new approach. To quote from the communiqué for this meeting: \textit{The Strategy and Action Plan developed by the National Transport Secretariat in collaboration with all states, territories and the Commonwealth government provides a groundbreaking national approach to reducing greenhouse emissions from the transport sector. This includes, within the next 5-10 year 'programs that encourage people to take fewer trips by car' and transport 'from predominantly fixed to predominantly variable costs' to '... ensure that transport users experience more of the true cost of their travel choices.'}

This recommendation was made over 9 years ago. It is now time to move this way. As noted elsewhere, New Zealand has made more progress than Australia in this regard.

To these reports and policy approaches must be added the 2005 report on Sustainable Cities by the House of Representatives Standing Committee on Environment and Heritage and the 2007 report of a Senate Committee into their Inquiry into Australia's Oil Supplies. A formal government response to these reports is still awaited although the reinstatement in 2009 of federal funds for urban public transport was a step forward and did address a recommendation in the 2005 report on Sustainable Cities. (part # 6) that the Australian Government significantly boost its funding commitment for public transport systems, particularly light and heavy rail, in the major cities.

Progress has also been recently made with recommendation # 8: \textit{The committee recommends that the Australian Government review the current FBT concessions for car use with a view to removing incentives for greater car use and extending incentives to other modes of transport.}

14. The Organisation for Economic Co-operation and Development (OECD) in its 2004 Annual Report noted (page 48) the need for government to avoid ‘\textit{Environmental harmful subsidies}’ that exacerbate adverse environmental impacts; also (page 51) that governments can use taxes to encourage their citizens to take better care of their environment.

As above, it can be argued that Australia's recent past and present road pricing policies have encouraged an increase in road vehicle use, and a failure to get appreciable reduction in the average fuel use by passenger vehicles, now at about 11.1 litres per 100 km/h.

\(^9\) Mees P (2000) Transport in the dispersed city, a very public solution, MUP.
The present proposals for carbon pricing to exempt petrol and give diesel used by road trucks a two year tax holiday, whilst imposing a carbon price on urban rail and rail freight continue to give pricing signals that support an increase in road vehicle use. Since rail, on average, is more energy efficient than road in moving people and freight, this will increase rather than decrease emissions.

There is also a reduced incentive in buying a new car to buy a smaller and more fuel efficient car. In addition, there is less incentive not to buy, for urban use, a large Four Wheel Drive or a Sports Utility Vehicle.

15. In consideration of improving the energy efficiency of transport, along with the need to sustain the economy and standard of living of people, there are two questions worth considering:

   a) Whether all transport activity should be subject to a carbon tax?
   b) Whether particular transport activities, including road and rail are subsidized, and if so should these subsidies be reduced?

16. Re question (a) it is submitted that a modest carbon tax in Australia is long overdue for all transport activity.

   The proposed $23 per tonne is similar to a value of $25 per tonne of carbon dioxide equivalent (CO2e) was supported by several writers (eg Quiggin\(^\text{10}\)) and is similar to a value of $NZ30 per CO2e tonne used by Transfund New Zealand\(^\text{11}\). It may be argued that a cost of $25 per tonne of CO2e is either too low, or too high. A BIC\(^\text{12}\)(2001) recommendation was for a tax using $40 per tonne of CO2e.

   For petrol use in cars, using a factor of 1 litre of petrol directly emits 2.4 kg of CO2e\(^\text{13}\), at $25 per tonne, a fuel levy of 6 cents per litre is warranted. In reducing greenhouse gases, government is encouraged to take a view that each sector should be required, in the development of any scheme, to ‘pull its weight’.

17. Re question (b), in 2001, Prof Peter Newman and myself argued (loc. cit. footnote 5) that hidden subsidies to road vehicle use, even with excluding congestion costs and not having any allowance for greenhouse gas emissions, resulted in the late 1990s of a ‘road deficit’ of $8 billion per annum.

   This estimate has since been updated (footnote ref 5) and including greenhouse gas emissions at $25 per tonne, a case can now be made that there is a ‘road deficit’ of

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\(^\text{10}\) Quiggin J (1998) Taxing times: A guide to Australia's tax debate, UNSW Press

\(^\text{11}\) Austroads (2000) Australia Valuing emissions and other externalities: A brief review of recent studies


\(^\text{13}\) AGO Factors and Methods Workbook, Department of the Environment and Heritage, December 2006 page 10
around $13 billion per annum. This estimate is less than one due to Prof. John Stanley who estimates a ‘road deficit’ of $14 billion a year (excluding congestion).

18. Three papers were presented at the 2007 Australasian Transport Research Forum in Melbourne that outlined measures to reduce GHG emissions. Firstly, keynote speaker Professor Elizabeth Deakin of the University of California, Berkeley in her paper “California Futures: Towards a Workable Transport – Greenhouse Policy”, noted that state wide enforced reductions of GHG require year 2000 levels by 2010 (as opposed to an 11 per cent growth under business as usual (bau) and a further reduction to 1990 levels by 2020 (cf 25 per cent below bau).

Secondly, "Moving More with Less: Integrated transportation demand management at the University of British Columbia" (UBC) Carole Jolly from Canada, outlined that although UBC student numbers were up 28 per cent since 1997, car kilometers were down 22 per cent, and public transport use was dominant with a reduction of 16,000 tonnes of GHG per year.

Thirdly, in a joint paper "Reducing VKT, Reducing emissions: a long road ahead" Anne Percy of the Auckland Regional Transport Authority referred to two initiatives – Northern Express buses coupled with park and ride saved 1162 tonnes CO2e pa and a multifaceted Travel Wise school encouraged more walking and less driving, reducing CO2e by 685 tonnes pa.

Each of the above three examples are from overseas. Hopefully some Australian examples can be encouraged by the Australian government.

20. In conclusion, there is scope for improved reporting of energy use and energy efficiency by both government and listed corporations. Complementary measures are needed to assist increases in energy efficiency. Including financial sticks and carrots to drive the average fuel efficiency of the passenger vehicle fleet to less than 10 litres per 100 km for cars.

In the absence of carbon pricing for petrol and, to June 2014, for diesel used by trucks, there is a strong case for early implementation of the Henry Taxation Review recommendations as they relate to land transport. This includes the use of congestion pricing in Sydney.

There is also a case for the proceeds of carbon taxation of rail and urban public transport to go to projects that will reduce greenhouse gas emissions from rail freight and passenger operations and urban bus operations.

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14 Australian Financial Review, 24 January 2011
APPENDIX A  ENERGY / GREENHOUSE RESEARCH AND DEVELOPMENT

It is a good question as to how much Government should fund research and development into reducing dependence on oil and reducing greenhouse gas emissions.

This question re energy use was canvassed by the Productivity Commission in its inquiry into Energy Efficiency. Its finding 7.2 (2005 report 'The private cost effectiveness of improving Energy Efficiency', p143) as follows remains of concern: The need for special energy efficiency research and development funds has not been substantiated. Sourcing funds from existing more general research and development programs enables contestability between proposals and selection of those yielding the greatest net benefit.

This negative view of supporting energy efficiency research and development stands in contrast with the Productivity Commission's strong support of the generous Automotive Competitiveness and Investment Scheme (ACIS) worth over $4 billion over 10 years. This includes the ACIS Stage 2 Motor Vehicle Producer Research and Development Scheme (MVP R&D Scheme) which is directed to encourage Australian motor vehicle producers to invest in high-end R&D technologies, offering up to $150 million in R&D assistance from 2006 to 2010. This assistance commenced on 1 January 2006.

The Energy Research and Development Corporation (ERDC) was formed in 1990 to increase commercialisation and the effectiveness of a long standing National Energy Research, Development and Demonstration Council. It was regretfully abolished in 1997.

To quote Senator Meg Lees (Hansard, Wed 25th March 1998) in speaking to a disallowance motion after the Government had moved to close down ERDC. "The Energy Research and Development Corporation was set up to manage the federal government's direct investment in energy innovation and research in energy supply and use. The way this works is that it invests in energy projects right from concept through to commercialisation, focusing on traditional energy supply, alternative and renewable energy sources and systems, and sustainable energy use. It covers a range of things, including gas and liquid fuels, electricity generation, distribution and application of energy use in Australian industry, manufacturing, transport, the built environment, appliances, processing and agriculture—in other words, the full gamut."

"The ERDC selects projects and then funds them to meet these priorities. Therefore, it supplies support to the private research sector. It is a big injector of funds in research and development—indeed, the major injector of funds—and was about ensuring that Australia had a leg-up in the new technology field, that we actually got into the sunrise industries and really made a contribution to the future of energy trends and use."

"It has in its short time developed a very good reputation, a good name in the industry and research institutions, and it was helping to create a lot of jobs, not just jobs directly in the specific research areas but, as processes and procedures came on stream and as products were developed, further jobs down the line. As an Australian it was very good to see the Australian stamp on much of this marketed technology."

With a modest Federal outlay of about $12.5 million a year, and a small dedicated professional staff, ERDC supported projects that were mainly funded by industry with the
strong prospect of saving energy. The scope of its later projects was wide ranging. One was improved control of electric motors with big power savings, and applications including a sawmill in Tumbarumba, Queensland Rail’s Brisbane-Rockhampton electric tilt train that started running in 1998, and exports to Hong Kong’s Mass Transit Railway. Solar heating and solar power cell development was supported along with energy efficient housing.

So also was the use of methane gas drained from NSW coal mines to run bulk haulage trucks, and compressed natural gas to run quieter cleaner garbage trucks for Waverley Council. Another ERDC project (Weekend Australian 17-18 May, 1997 p42) was to make drink vending machines more power efficient with a saving each year for each new machine of $350. The electricity saved meant less carbon dioxide emissions to the greenhouse and less air pollution in our cities.

In short, ERDC actively supported measures to save energy, increase Australia’s international competitiveness and to reduce greenhouse gas emissions. There is a clear need for Australia to improve its performance in these areas.

The 1996 State of the Environment Australia report noted that Australia’s average energy consumption per head (at 16.2 gigajoules per head in 1993-94) had increased in recent years, and, is a little higher than the OECD average. In a warm country, we should be using below the OECD average. This report also notes that Australia has a high fuel use per capita which is some 20 per cent higher than the OECD urban average, and the relatively poor average fuel efficiency of our car fleet.

In place of ERDC, other arrangements were made, including an increased reliance on State Governments and private sector, along with Universities working with reduced resources, to advance essential energy research of national significance.

In one sense, during the late 1990s, the Australian Greenhouse Office (AGO) became the Federal Government's lead agency in energy efficiency. However, issues of energy efficiency and conservation, and reducing greenhouse gas emissions from the electricity and transport sectors appear to have been subordinated in some years to suggestions that somehow Australia is meeting its agreed Kyoto targets for greenhouse gas emissions.

It is recommended that consideration be given to the establishment of a federal Energy and Greenhouse Research Corporation.

It is further recommended that consideration be given to reintroduction of a National Energy Conservation Program.
APPENDIX B Some overseas perspectives

New Zealand

Australia’s trans-Tasman neighbour for many years has taken both climate change and potential oil price problems seriously. The New Zealand Parliament approved in February 2002 a Land Transport Package called Moving Forward. Along with increasing petrol tax by 4.7 cents per litre in 2002 and a further 5 cents per litre in 2005 with proceeds going to alternatives to roads and replacing of road funds with transport funds, the package aims for a transport system that is 'affordable, integrated, safe, responsive and sustainable.'

Of note is a speech given by the Prime Minister Rt. Hon Helen Clark MP on 26 July 2007 to a conference 'Transport - the Next 50 years' held late July at Christchurch New Zealand. Limited excerpts from the address follow.

"One thing is for sure: the era when transport planning focused excessively on building infrastructure to service the private motor-car is coming to an end. Today the focus is shifting to how to plan integrated and diversified transport systems, in which many modes play their part.

"...I believe that the sustainability challenge is a defining issue for the twenty-first century. ... Sustainability is a term most commonly applied to the need for sound environmental policies. But it is a concept I believe we also need to apply across economic, social, and cultural policies too. Those are the four pillars of a sustainable nation.

"The four pillars are mutually reinforcing: we cannot build a strong economy on a society where too many are left to fail, and where we plunder the natural environment for short term gain.

"Conversely we cannot build a strong society on an economy which fails to generate the wealth required to fund opportunity and security for our people, protect our environment, and develop our culture.

"Once you take a broader view of sustainability, it becomes clear that we have a once in a generation opportunity to improve our way of life, our standard of living, and the state of our environment by putting sustainability at the heart of our thinking and decision making – as we must do with transport policy."

To update re New Zealand transport, in December 2007, the New Zealand Government released "Sustainable Transport", a discussion document to update the 2002 New Zealand Transport Strategy. To quote from Minister Annette King's speech in launching the paper: "Transport in the future will be more sustainable. There will be more hybrid and full electric vehicles. More freight will be carried by rail and sea. More people will walk, cycle, and use public transport. There will be lower CO2 emissions as travel behaviour changes and the use of electric vehicles becomes more widespread.

The 2007 discussion paper also proposes an expanded role for Coastal Shipping and notes targets for other objectives including "...increasing public transport use, increasing rail and shipping's share of freight movement and reducing carbon dioxide emissions from
the vehicle fleet. Each of them is challenging and none of them will be achieved without acceptance that change is necessary and a willingness to make different transport choices."

Not surprisingly, the Automobile Association (AA) in a submission, as seen by Minister King in a March 2008 speech, "felt the Sustainable Transport document focused too heavily on environmental sustainability and set lofty transport targets."

However, in a March 2008 speech to the AA, the Minister reiterated the need for change: The creation of a truly sustainable transport system – one that delivers on our economic, social and environmental needs – is not optional. We cannot carry on with ‘business as usual’. Reducing transport’s contribution to greenhouse gas emissions is vital. It is non-negotiable for the success of our transport system and for our position as a responsible international citizen."

In August 2008, the New Zealand Transport Strategy was updated with stronger measures, including monitoring. These include the goal to halve by 2040 per capita domestic greenhouse gas transport emissions from 2007 levels.

These transport policies have continued with a change of government, and petrol in New Zealand now costs over $2.00 per litre. Petrol excise in New Zealand is 48.524 cents per litre (as of October 2010) and has been increased many times since Australia froze fuel excise indexation in 2001 at 38.143 cents per litre.

In New Zealand, all fuel excise is applied to both roads and transport alternatives to roads. In addition there is a national compulsory Accident Compensation Corporation motor vehicle levy of 9.9 cents/litre.

In July 2011, New Zealand Transport Minister Steven Joyce announced that $36 billion will be invested over the next ten years through a National Land Transport Fund. This $36 billion will give priority to repairing Christchurch's transport network is in addition to $1.6 billion for the major upgrade of Auckland's rail system due 2014 and $488 million for ongoing upgrading of Wellington's rail network.

Japan/global

On 14 December 2007 the "International Symposium-Climate Change and Transport Strategy" was held at Nagoya with a total of approximately 350 experts in attendance from Japan and around the world, who specialize in climate change, transportation and the economy. The Symposium's Keynote Speaker was Lord Nicholas Stern, Professor at the London School of Economics who spoke on "Climate Change, Economics of a Global Deal and the Role of Transport". What follows is edited from an account at the website http://ecotransport.jp/en/eventreport.html

▪ Unless action is taken now to reduce greenhouse gases (GHG), there is positive scientific evidence that a major disaster will result.

▪ Targets must be established to prompt action now to reduce CO2e (CO2 equivalent) throughout the world by 50% (80% in developed nations). For example,
targets achievable by 2020 need to be set.

- There is no specific remedy, but a combination of mitigating mechanisms are required, including a pricing system (taxes, ETS), regulations, infrastructure investment, public transportation systems, and technology.

- Transport is a principal source of GHG emissions, and thus one major cause of climate change

- Such emissions account for 13～14% of CO2e and 23～24% of CO2 emissions (30% in OECD nations)

- On the per passenger-kilometer basis, railways have a much smaller impact on the environment and climate change than aircraft or automobiles.

- The demand for aircraft and airports is continuing its rapid increase (5% annually on a global scale). Airports and aircraft management systems are directly confronting a serious problem of capacity.

- It was reported that the development of high-speed railways on high-density urban lines can alleviate problems of congestion as well as automobile and aircraft transport capacity, in addition to being consistent with appropriate climate change policies.

  In brief summary, "delaying climate change mitigation is dangerous and costly" and when we consider passenger transportation from the perspective of the global environment, it is necessary to increase the traffic share allocated to railways.

APPENDIX C  1979-1999 Australian Reports re energy efficiency

i. Following the second world oil price shock, a then relatively 'new' approach to energy use in transport was suggested in 1979 in a government Australian Transport Advisory Council publication called Transport and Energy Overview. Although the data used in this report is now dated, the approach is commended, as are the conclusions. In part: "... rail is relatively energy efficient compared to road for long distance freight ... (and) ... does have fuel substitute options, such as coal-oil slurries or electrification ........ As far as possible pricing and cost recovery policies should be consistent across the modes so as to encourage use of modes appropriate to particular tasks. Appropriateness may be defined broadly as minimising the total social cost of transport services, including externalities.

ii. Many Government and parliamentary inquiries since the 1980s have explored the question of how to reduce greenhouse gas emissions in Australia. Of particular note is the Senate Standing Committee on Industry, Science and Technology in its 1991 report Rescue the Future: reducing the impact of the greenhouse effect that addressed, inter alia, transport. Noting that transport contributed over a quarter of Australia’s Carbon dioxide emissions, the Committee made six specific transport recommendations. These comprised:
an integrated national transport strategy within two years.

- a national action plan for urban public transport minimum fuel economy of 8 litres per 100 km for all new vehicles sold in Australia reducing to 6 litres per 100 km by 2005.
- incentives for fuel efficient vehicles, mode shifting to public transport, and replacing high standing charges (registration and insurance) by those proportional to vehicle use.
- favouring LPG and natural gas research re use of lower carbon fuels

The 1991 Senate Committee report also noted that "already much has been written and said, including strategies and recommendations that would greatly reduce greenhouse gas emissions. The element that is missing is not information but action.”

Reducing greenhouse emissions from transport goes hand in hand with reducing dependence on imported oil, and conserving Australia's limited domestic resources. If the Australian Government was serious about reducing greenhouse gas emissions from transport, it could well reach the same conclusions that the 1991 Committee did.

iii. A 1991 report from an Ecologically Sustainable Development (ESD) Working Group on Transport is also of note. This report was one of nine reports on ESD sponsored by the Federal Government. The ESD transport final report gave a careful examination of the issues, and made some 30 recommendations.

These addressed concerns about concessions within the Fringe Benefits Tax system that encouraged the provision of company cars, the need to encourage the use of public transport as part of salary packages, better vehicle pollution control measures, effective schemes to improve fuel efficiency with labelling, the removal of subsidies to encourage greenfield suburbanisation, road pricing mechanisms, priority for high-occupancy vehicles, bicycling etc.

Many of these recommendations were passed over by Government when formulating budgets, although some influenced 1992 Government policies on ESD, and a National Greenhouse Reduction Strategy. This included reducing ‘...total energy consumption in transport through improved technical and economic efficiency of urban and non-urban transportation and switching to alternative transport technologies or modes where this reduces greenhouse emissions per passenger or unit of freight’.

Giving rebates to cars and trucks not only reduces incentives to move to more energy efficient road vehicle operations, but also reduces incentives to switch modes. The incentive to switch to less energy intensive modes of public transport and rail (and sea) freight is further reduced by imposing carbon pricing on these modes.

iv. During the late 1990s, two notable contributions to the transport debate in Australia were made by non government organisations.

One was from the Chartered Institute of Transport in Australia who found it necessary to issue a sternly worded statement at its 1998 National Symposium about the oil situation: "Our greatest ever source of cheap energy may soon contract and the 'Petroleum Age' in which we live now can be seen to be approaching an eventual end."
...The Symposium heard that a clear consensus is emerging that cheap oil production outside the Middle East will begin permanent decline around the year 2000, to be followed by permanent world decline within 15 years. 'More of the same' in our current transport plans and ways of thinking is no longer tenable."

The Institution of Engineers, Australia (1999)\(^\text{15}\) found that we have major problems in major cities, and there is a need to respond to the challenges. In brief:

A Taxation and fiscal policy instruments should encourage sustainable transport. At present, these measures encourage car and truck use.

B There is a strong case for increased investment in transport infrastructure that is more sustainable and less greenhouse gas intensive. Where market forces fail, government should intervene.

C More holistic approaches to transport decisions are needed that integrate considerations of impacts on health, sustainability and greenhouse gas emissions.

D There is a need for research to support cleaner transport fuels and technologies, along with transport pricing, economics and demand management technologies.

v. The Bureau of Transport and Regional Economics has more than once examined reducing energy use and greenhouse gas emission from transport, including in 2002\(^\text{16}\) with some 11 groups of measures. These include reduce vehicle kilometres travelled (VKT), nine measures to reduce emissions per VKT, four road pricing measures (mass-distance charges for heavy trucks, tolls, internalising transport externalities and emission charging), carbon taxes and tradable permits. Optimal road pricing was held to offer the best way forward.

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\(^{15}\) Institution of Engineers, Australia (IE Aust -1999) *Sustainable transport: responding to the challenges.*

See also related IE Aust 2001 reports re Sustainable energy use and sustainable energy innovation in the commercial building sector.