

Transport, Mobility, and Access to Services

Sustainable Energy Forum

Transport Working Group Convenor -
Tim Jones

www.sef.org.nz

The Draft NZES Transport Goal

“Resilient, low carbon transport”

- Resilience and low carbon emissions are good goals, BUT:
- This goal is meaningless without **measurable targets**. To make the goal meaningful, it needs:
- A definition of “resilience” - which isn’t easy. In the transport sector, resilience is closely bound up with (a) independence from fossil fuels, especially imported fossil fuels and (b) diversity of modes – including non-transport modes of providing access to services.
- A definition of “low carbon”. The goal has to say what reduction in transport carbon emissions (compared with 1990 levels) is to be achieved by when.
- For transport to play its part in avoiding dangerous climate change, the following goals, relative to 1990 levels, are ambitious but appropriate:
 - A **25% reduction** in transport carbon emissions by **2025**
 - An **80% reduction** in transport carbon emissions by **2050**

Targets: Absolute, not Intensity

- The targets in the consultation documents are unclear. It is hard to tell whether the proposed savings are absolute reductions or merely a reduced rate of increase. For example, the draft target in the NZEECS for 'further on a full tank' is an energy saving of 35 PJ/yr in 2030. This begs three major questions:
 - Is 'energy saving' the same as 'demand reduction', or is it savings on some hypothetical business-as-usual scenario?
 - What are the intermediate targets? There is a big difference between achieving half a 2030 target in 2010 or not until 2025. In the former case the target can probably be improved on, in the latter case it may not be met at all.
 - Which actions are to be deferred and for how long? We note that the 23 years to the primary target date of 2030 is substantially longer than the average life of an imported vehicle: does this mean that no effective action is contemplated for another decade?

Draft NZES: Transport Objectives

Transport Objectives:

1. Continue to meet the demand for transport services
2. Reduce greenhouse gas emissions from transport
3. Continue to manage other effects of transport, such as exhaust emissions that affect local air quality
4. Maintain reliable supplies of transport fuel during any short-term disruptions
5. Increase the transport system's resilience to higher or more volatile fuel prices (p. 31)

Draft NZES: Emissions Projections

- Draft NZES – Figure 4.1, p. 21
- Shows that transport emissions have risen from 10 to over 15 million tonnes CO₂-e from 1990 to 2005
- Projects that, if all “emissions reductions opportunities in transport energy” are taken, emissions will still be well above 1990 levels in 2030
- Officials have told me that this graph is “indicative only” – but that illustrates the problem – where are the measurable targets?
- We have to do a lot better than this.

Achieving Resilience

- To be resilient (NZES Objectives 4 and 5), we have to be less dependent on fossil fuels, especially imported fossil fuels. How do we achieve this?
- Recent experience shows that two things lead to a shift away from intensive use of fossil fuels: rising prices, and the availability of alternatives to private transport
- But oil prices fluctuate widely in response to both transient and underlying factors
- SEF is considering a range of proposals designed to keep the price of fossil oil high and push the move towards resilience, such as:
 - Using variable levels of fuel tax to ensure that the price of liquid fuels derived from fossil fuels remains at or above a certain "floor" price (this price to rise over time, in line with emissions reduction and resilience targets), and using the additional tax revenue gained when the world price of fuel is lower than this floor to fund transport alternatives.
 - Putting a quota on either the importation, or the overall use, of fossil fuels in New Zealand; this quota to progressively reduce over time.
 - Allocating tradeable individual permits for fossil fuels, the permit level to reduce over time. (This could also form part of a wider domestic tradeable carbon quota scheme.)

NZES Objective 1: A Serious Error

- Objective 1 in the draft NZES is to, “continue to meet the demand for transport services.” **This, as worded, is a serious mistake.** It is impractical to meet the demand for transport services in centres of any size, and the result is congestion.
- **Attempts to relieve congestion by road building usually ensure that all attempts to control transport energy use will fail.**
- The problem is that building a new road sets off a ‘triple convergence’ of effects which consume most or all of the capacity gains, sometimes in as little as three years. New traffic fills up the road from three sources:
 - Rerouted trips (“the motorway is now much faster than going through...”).
 - Retimed trips (“I don’t need to avoid peak hours now”).
 - Trips previously made on other modes — walking, cycling or public transport (“The car is so much more safe/pleasant/ convenient now”). Some commentators believe that this effect alone is enough to ensure failure.

SEF's Proposed Transport Objectives

- The provision of transport is not an end in itself - **it is a way to provide access to services**. Where possible, access to these services should be provided by means other than motorised transport.
- SEF proposes a number of transport objectives to lead to the stated goal of a resilient, low carbon transport system. (NB: these objectives relate to land transport. Air transport, a rapidly rising source of emissions, should not be ignored, but is not the focus of this presentation.)
 1. Avoid or reduce the use of motorised transport where possible.
 2. Where motorised transport is needed, encourage alternatives to private road transport (especially single-user private road transport) where possible.
 3. Provide transport energy in ways which have the minimum possible net emissions profile and use the minimum possible quantity of fossil fuels (NB: two basic approaches here are the increased use of biofuels, and the increased use of electrification e.g. electric vehicles. Both need further research, piloting, and evaluation in NZ conditions).
 4. Where fossil fuels are being used for transport, use them as efficiently as possible, and with the lowest possible emissions profile. (we will suggest many specific methods of doing this).
 5. Ensure that fossil fuel prices are kept at a level which encourages the transition to lower-emissions alternatives.

Proposed Transport Objectives: 1

- **Avoid or reduce the use of motorised transport where possible, by:**
 - improving urban design to minimise travel distances and facilitate walking and cycling, including the provision of walkways and cycleways.
 - promoting walking and cycling for both their transport and health benefits.
 - providing institutional, social, regulatory and possibly tax support for teleworking / working from home.
- As an example, let's look at teleworking.

The Case for Telework: 1

- Trying to eliminate the need for travel is one of the smartest things we can do. It reduces congestion, emissions, and could lead to long-term savings in the capital cost of all transport-related infrastructure.
- Eliminating problems at source is smarter than accommodating them.
- Longer trips, as our cities spread, create congestion at every point on the journey. (One vehicle travelling through ten potential bottlenecks has the same network effect as ten vehicles travelling through a single potential bottleneck.) And long trips make telework more popular with commuters.
- UK research suggests if only 15% of long distance commuters teleworked, the net effect on the overall network is a saving in the vicinity of 50% of congestion, emissions and fuel consumption.

The Case for Telework: 2

- Done properly, telework promotion will cost the Government very little.
- Once a company starts teleworking, the practice (and therefore the traffic benefits) continues to increase with no further cost implications for Government. Furthermore, reducing work trips has also been shown to reduce non-work trips. (A 20% reduction in commuting leads to 22% reduction in total car usage.)
- The key element that is missing in New Zealand is **effective Government leadership**. There are template promotional campaigns available -- tested in a wide variety of settings. And at c. \$1.5 million over three years, these campaigns would deliver far higher traffic, environment, business and personal benefits than an equivalent investment in roads or public transport.
- The benefits would be available within months, not years, as there is no lead time for construction.

Proposed Transport Objectives: 2

- **Where motorised transport is needed, encourage alternatives to private road transport where possible, by:**
 - Changing the present institutional and financial arrangement which favour road building, and in particular highway building, over other transport modes
 - Evaluating all proposals for new transport infrastructure against a set of criteria which take into account national as well as local environmental effects (including GHG emissions), effects on the reliance of the transport system, and public health effects.
 - Create a New Zealand Freight Strategy which evaluates different modes of handling freight according to their resilience and GHG emissions
 - Removing the institutional and financial barriers which are currently preventing an increase in the movement of freight by rail
 - Providing funding firstly to meet the existing increased demand for urban public transport services, and secondly to anticipate projected future increases in demand. This funding should be spent not just on improving the number and extent of services, but also on improving the quality and useability of services: criteria here include access, waiting times, transit and transfer times, timekeeping, and the provision of real-time information on services to travellers and intending travellers.
 - Putting rules, and enforcement provisions, in place to ensure that housing developments are transit-friendly.

Proposed Transport Objectives: 3

- **Provide transport energy in ways which have the minimum possible net emissions profile and use the minimum possible quantity of fossil fuels, by:**
 - Electrifying transport wherever possible, where that electrification can be done in ways which reduce net emissions. Priorities for electrification include urban public transport (road and rail), and electric vehicles.
 - Replacing fossil fuels with biofuels, where this can be done in a way which meets environmental standards (which should ensure, for example, that we do not import biofuels which have been produced on land cleared from tropical rainforests), deals with land use issues, and reduces net emissions
 - Further researching and piloting the growing and harvesting of biofuels as part of holistic greenhouse gas management strategies which make use of the natural carbon cycle in managing net GHG emissions
- **Note:** This isn't about "picking winners" on the basis of expectation rather than evidence. We need to evaluate, pilot, and measure the effect of a range of technologies in New Zealand conditions – and then decide. To do this, present energy and emissions modelling and measuring capacities need to be improved.

Proposed Transport Objectives: 4

- **Where fossil fuels are being used for transport, use them as efficiently as possible, and with the lowest possible emissions profile, by**
 - using a mixture of regulation and incentives to reward the fuel-efficient use of efficient internal combustion vehicles
 - using a mixture of regulations, incentives and information provision to encourage and reward the importation, purchase and retention of fuel-efficient vehicles
 - educating drivers in vehicle maintenance and driving techniques which enhance fuel economy
 - implementing price-based measures to discourage car use in urban centres (e.g. congestion charging), and using the proceeds to enhance the provision of alternative modes.
- Note: these are only a few of many possible measures SEF will outline in our submission on the draft NZES/NZEECS. There are a lot of policy measures which can be taken to start making a difference right away, before fleet and technology changes become significant.

Proposed Transport Objectives: 5

- **Ensure that fossil fuel prices are kept at a level which encourages the transition to lower-emissions alternatives.**
- SEF is considering a range of proposals designed to keep the price of fossil oil high and push the move towards resilience:
 - Using variable levels of fuel tax to ensure that the price of liquid fuels derived from fossil fuels remains at or above a certain "floor" price (this price to rise over time, in line with emissions reduction and resilience targets), and using the additional tax revenue gained when the world price of fuel is lower than this floor to fund transport alternatives.
 - Putting a quota on either the importation, or the overall use, of fossil fuels in New Zealand; this quota to progressively reduce over time.
 - Allocating tradeable individual permits for fossil fuels, the permit level to reduce over time. (This could also form part of a wider domestic tradeable carbon quota scheme.)

Conclusions

- The transport goal of the draft NZES needs measurable targets to be meaningful
- These targets need to be bold if transport is to play its part in the transition to a low-carbon energy system
- The current transport system is not designed to meet such goals
- Providing access to services by non-transport means is one approach that needs much more prominence.