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STRATEGY | ADVOCACY | CHANGE

Productivity Commission: Low Emissions Economy Inquiry

1. This submission relates solely to the transport aspect of emissions, question 10 in the issues paper. It is a personal submission, unrelated to any organisation I have connections with. It arises from recent work I have done as part of gaining an LLM degree.
2. In particular it relates to the role of rail. Your issues paper notes that rail has a very small carbon footprint, 0.2% of all emissions. This is partly due to its relatively small part in overall passenger and freight transport, and partly due to its inherent fuel efficiency. Most of the rail emissions come from the carriage of goods. For its 0.2% of emissions, rail carries 16% of the freight transport task in the country, in terms of tonne kilometres (*National Freight Demand Study 2014*). Rail transport is internationally regarded as significantly more fuel efficient than road transport, per tonne kilometre carried. A figure of 4 times as efficient has commonly been used in this country, though it depends on the commodity and type of haul. Thus if more freight was carried on rail, its carbon footprint would increase by much less than the footprint of road transport would go down.
3. There appear to be some obstacles in the way of rail achieving this, of an institutional rather than efficiency nature. In an analysis for the evaluation of investment in new roads, environmental and other externalities, including emissions, are valued and taken into account (see NZTA's *Economic Evaluation Manual*). But rail acts as a private business, and cannot take these impacts into account as they are not funded by anyone, and the users appear not to value them. Transport in New Zealand is very competitive and users are unlikely to pay for such community benefits. Thus the very clear climate change implications of removing existing electrification have to be irrelevant to the rail company, however beneficial to the nation. So too would any benefits of extending rail electrification. Electrification of rail is proven technology, and well established technically, as opposed to the very early place in the development curve occupied by electric road vehicles. This is even more true for road freight vehicles, and for the present and foreseeable future large scale electrification of the freight task could only be achieved through rail. Your paper is correct in noting that rail electrification is not cheap, but if the climate benefits were allowed to be taken into account, it may be a worthwhile investment on some lines.
4. But there is another more insidious reason why rail cannot improve its contribution to reducing carbon emissions in this country. The safety rules for rail are much stricter than those applying to road, which leads to road, a high-carbon mode, being cheaper and more competitive. And that is despite the significant number of deaths associated with commercial road transport. Restoring some sort of equilibrium between road and rail might enable rail to play a greater role in reducing carbon emissions.
5. All rail activities are governed by both the Railways Act 2005 and the Health and Safety at Work Act 2015. They are written in similar terms and provide very stringent controls on rail, coupled with active supervision by a specialised rail regulator. These controls include the "reasonably practicable" criteria (s 22 of the HSWA), which provide for cost being a criterion, but it has to be "grossly disproportionate" to the risk before it can count. Exactly what "grossly disproportionate"



means has not been tested, but estimates range from 3 times to 10 times the benefits. That is, if it is necessary to spend \$3 to achieve benefits of \$1, then that \$3 should be spent, even though it results in a benefit: cost ratio of only 0.33. This applies to both rail infrastructure and to its operations.

6. The Productivity Commission might well be interested in the “grossly disproportionate” wording outside the immediate context of this inquiry, as it applies to nearly the whole economy, and values safety well above any other factor, creating distortions in investment. If there is a case for such unevenness, i.e. that safety is not properly valued, then the proper way of addressing it is to re-examine the value of statistical life that is used when assessing safety benefits. I attach a presentation I made to the Law and Economics Association on the subject.
7. There is no equivalent to the Railways Act for roads. In fact, it is difficult to find any real safety obligation on owners of roads. It is as well moot as to whether the HSWA actually applies to roads, even though they are clearly a product of work. I attach a paper on the subject. At present, if a safety improvement on road costing \$1 does not have benefits of at least \$1 then it would not get made, ie a minimum benefit: cost ratio of 1. In practice a BCR of more than 1 would be sought. This is a serious imbalance relative to rail, in my view.
8. The HSWA clearly applies to vehicles where they are a place of work. So not only trucks and buses, but also all manner of vans and private cars used for work purposes are covered. But there is doubt as to whether this is enforced, as there is debate over funding between agencies for that enforcement. So work-related road users are judged according to the road rules, and not the HSWA. Moreover, it is the individual driver that gets attention, not the firm behind it as would be the case under the HSWA. So while on paper road and rail operations are evenly dealt with, in practice the same differential in favour of road exists in operations as in infrastructure.
9. In my submission, the differential impact of safety rules on road and rail mean that rail is unable to perform to the full extent possible. If they were more evenly applied, then rail would have a greater market share, and emissions would be lower.
10. The analysis behind the safety argument is contained in an LLM dissertation, available from the Victoria University Library at <http://hdl.handle.net/10063/5095>. An overview of the subject is in a paper to the forthcoming Australian Transport Research Forum in November. I attach a copy of that paper for your convenience, but please do not make it publicly accessible before 30 November.
11. I am happy to discuss this submission with you. I can be contacted on 021 621 051.

Murray King
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