

# Submission by KiwiRail

## On the Low-emissions economy Draft Report

June 2018

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### 1. Introduction

KiwiRail thanks the Productivity Commission for the opportunity to submit on the Productivity Commission Draft Report (the Report) and emphasise the benefits of facilitating a modal shift from road to rail for freight transport.

Rail can be perceived by some as antiquated due to the age of the technology and the low visibility of efficiency-enhancing technological innovation in rail, and we believe this causes the potential of rail to help New Zealand achieve an emissions reduction in the transport sector to be overlooked.

### 2. Response to the Productivity Commission Report

KiwiRail believes the Report has under-emphasised the potential emissions reduction benefits of rail in some aspects, while in others has neglected to mention factors relevant to the reduction of emissions that rail has played a role in. Our position is that the Report will benefit from further discussion of rail. Below are 8 key points KiwiRail would like to raise with the Productivity Commission.

#### 2.1 Figure 11.15 and the surrounding discussion underrepresents the rail share of the freight task

Figure 11.15 notes the tonnage of freight shifted regionally, making the case that, due to the high quantity of freight transported wholly within individual regions and hence preferring road transport, the volume of freight that is contestable by rail is lower. The Productivity Commission concludes, *“as a result, the volume of freight contestable across modes is limited”*. KiwiRail takes the position that this illustration under-emphasises the viability of rail and its potential as a means to reduce carbon emissions and suggests further investigation into freight contestability. We would like to highlight two related points:

##### 2.1.1 *The graphic does not account for the length of journeys for within-region and inter-regional freight*

Measuring the total number of trips or the tonnage they convey does not take into account trip length, a notable contributor to the total level of emissions. The graphic and accompanying statistics place one inter-regional trip on an equal footing with a within region trip. However, as inter-regional freight is long-distance, each trip contributes significantly more to carbon emissions. Contesting within-region freight is therefore less important in this context. Replacing one road inter-regional freight trip with rail may have an effect several times greater than replacing one within-region freight trip. KiwiRail recommends the graphic or its discussion be updated to reflect this differential

##### 2.1.2 *The statistics used are not indicative of rail’s ability to contest road’s modal share of freight*

KiwiRail believes the predominance of within-region freight illustrated is not an accurate or fair indication of contestability, as the statistics used to create figure 11.15 do not represent the portion of freight demand satisfied solely by road. This is caused by many freight journeys being counted twice. Many within-region freight movements are freight that is

satisfied by a combination of rail or shipping and road, as freight that is offloaded from rail often requires road transport for the final leg. Presenting the number of short trips undertaken as an example of non-contestable freight misses that many of these trips are made possible by rail, with most long-distance rail trips creating a corresponding short distance road trip. These trips should not weigh negatively on the assessment of what portion of freight is contestable by rail, as such freight has already been successfully contested and the resultant gains in carbon efficiency achieved.

Road's dominance of regional freight in this statistic is more indicative of the nature of rail freight and its reliance on road freight to complete the final stretch (in many cases) rather than a lack of viability of rail as a replacement for road freight. KiwiRail therefore requests the graphic be further refined to represent this fact.

### ***2.1.3 Tonne-kilometres are a preferable measure of the freight task***

In order to account for the above points, KiwiRail recommends presenting information in terms of tonne-kilometres. Firstly, this intensity measure better reflects carbon emissions in relation to the volume and distance of freight transported, clarifying the nature of the journeys being illustrated. Secondly, freight tonne-kilometres provide a better indicator to target than freight-tonnes, as significantly longer trips emit significantly larger amounts of carbon.

## **2.2 More freight may be more contestable than indicated by the Report**

In addition to those noted in point 2.1, there are numerous other factors suggesting rail's ability to increase its modal share is greater than estimated.

In discussing the potential for New Zealand to engage in modal shift towards rail, the Report cites a 2006 report that claims it is *"unlikely that rail could transport more than 20% of the current freight task without revolutionary changes to the way freight is transported"*. As the study is dated 2006, KiwiRail recommends that this piece of research is updated with the latest information and forecasts.

By way of example, an [EU Report](#)<sup>1</sup> (2015) summarises a survey of a wide range of literature to find avenues and percentages of road freight that could be shifted onto rail, and resulted in a range of figures from 0.4%-14%. In 2012, five EU-15 Member States had a modal share higher than the average: Austria (41%), Sweden (40%), Finland (27%), Germany (23%) and the United Kingdom (18%). In Germany, despite the high share of rail freight (23% of tonne-km in 2012), policy-makers consider that there is potential to increase it by addressing a number of factors reducing rail competitiveness.

KiwiRail believes that further examination of the feasibility of modal shift and/or its likely benefits is warranted, and requests further discussion be undertaken in this section of the report.

### **2.3 Encouraging modal shift**

Modal shift can be facilitated by a general expansion and improvement of the network that could make rail freight more competitive for certain time-sensitive goods and/or increase the geographical scope that rail can operate within. There are multiple avenues by which government policy has and can have a large effect on the rate of modal shift. KiwiRail is interested in knowing what avenues of modal shift the Productivity Commission considers most viable in the context of New Zealand, and which policy tools are best suited to encouraging this shift. KiwiRail welcomes any estimates of the effect these instruments would have, and would like to offer its resources and active support towards any

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<sup>1</sup> European Parliament. (2015). *Freight on Road: Why EU shippers prefer truck to train*.

investigation into the degree of modal shift possible. We would also like to highlight several factors:

### ***2.3.1 Infrastructure funding***

KiwiRail welcomes the inclusion of pricing externalities into the Report's recommendations. KiwiRail would like to further point out that the significant negative externalities discussed either do not apply to rail transport, or apply to a significantly lesser extent. The Provincial Growth Fund is also enabling expansion of the rail network, meaning further opportunities for rail freight to compete with road are being created.

Finally, the Report makes numerous statements regarding the distribution of infrastructure funding. These include the absence of pricing adverse effects arising from road usage, and current policy structures that emphasise investment in road infrastructure over rail. KiwiRail welcomes the recommendation of changes to the system of transport infrastructure funding, and would like to additionally note that a reallocation of funding may encourage modal shift, as well as creating greater potential for a larger modal shift to occur than has been considered to date.

### ***2.3.2 Emissions pricing***

Given that rail is a more carbon efficient form of freight transport than road, increases in carbon prices are also likely to make rail freight a more economically viable alternative. KiwiRail welcomes such incentives as a method of enhancing the carbon efficiency of the transport sector.

### ***2.3.3 Incentive programs***

KiwiRail believes further research into avenues to encourage modal shift in New Zealand is warranted. The [EU report](#) noted earlier also discusses incentive schemes to encourage shift towards rail where contestable. These schemes include:

- Marco Polo
- TEN-T investment programme
- In France: Financial support for the improvement or extension of combined transport terminals.
- In Germany, there is the intention to promote the use of combined transport:
  - A tax exemption for vehicles used exclusively for pre- and post-rail hauls;
  - Subsidising the construction of private sidings.

In addition, [some research](#)<sup>2</sup> explores avenues that enable modal shift in the European context. These include a better ICT system to enhance tracking and coordination, the reduction of operating costs through operation of heavier and longer trains, wider loading gauge, higher average speed, and better utilisation of wagon space and all assets.

## **2.4 Rail and road function as complements**

KiwiRail would like to draw attention to the benefits of a truly integrated transport system that combines multiple modes in an effective way. While the Report typically presents rail and road in a dichotomous fashion, KiwiRail believes this does not accurately represent the potential for value to be created. Further attention can be given to the ways in which different modes of transport complement each other.

While the Ministry of Transport is correct in asserting that rail is not a viable mode of transport for many types of short trips, much of these trips are made more viable because of

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<sup>2</sup> Islam, Ricci, & Nelldal. (2016). How to make modal shift from road to rail possible in the European Transport market, as aspired to in the EU Transport White Paper 2011.

rail, rather than serving as a replacement. Because of this, enhancements to the productivity of rail can be made by improving access to rail infrastructure for road freight. In addition, KiwiRail suggests that more avenues be explored regarding the symbiotic relationship between road, shipping and rail, particularly potential gains in efficiency for the loading of rail onto road and vice versa.

#### **2.4.1 Rail provides a beneficial short-haul service**

KiwiRail would like to note that there have been relatively recent changes in the transport industry that have given rail a short-haul role, principally to overcome congestion in getting products to ports. Examples include rail from inland ports at Wiri and Rolleston to the nearby ports, movement of steel billet from NZ Steel at Glenbrook to Pacific Steel in Otahuhu, and movement of dairy products from factory to Fonterra's distribution hub in Hamilton. KiwiRail expects further growth in this type of trip. These trips reduce emissions by removing congestion, reducing traffic idle time, and provide an economic service to the enterprises they serve.

### **2.5 Potential technological advances in rail are not discussed**

While the report spends considerable time exploring the usage of future technologies with regards to road transport, none of the same considerations are given to the usage of the same technology in rail. Examples include the discussion of hybrid and hydrogen vehicles. Both technologies exist in trains, despite being somewhat behind in terms of implementation, and KiwiRail would like to see a proportional discussion of the ability of such technologies in rail to ensure that the assessment is comprehensive and more potential innovations in transport technology are covered. KiwiRail would also like to note that hydrogen technology and hybridisation provide an alternative to the large capital cost of electrifying rail discussed in the Report.

### **2.6 The Report overstates the role of heavy vehicles at each end of the rail line**

The report notes that: *"...these estimates assume that the freight load is delivered directly from its origin to its destination. In reality, both rail and shipping rely on heavy vehicles to transport goods at both ends."* While it is true that road freight plays an integral role in both rail and shipping, in many cases, containers are offloaded directly from the ship onto rail and vice versa, meaning road freight is only required at one end of the journey. For some journeys, such as for dairy products, the product is loaded directly onto rail at a plant or distribution centre and then transported directly onto the port terminal once it reaches the port, never requiring the use of road transport. In addition, while it is true the initial and final leg often involve road freight, this comprises a tiny proportion of the total freight kilometres of a combined journey. KiwiRail would like to suggest the wording be adjusted to more accurately represent this.

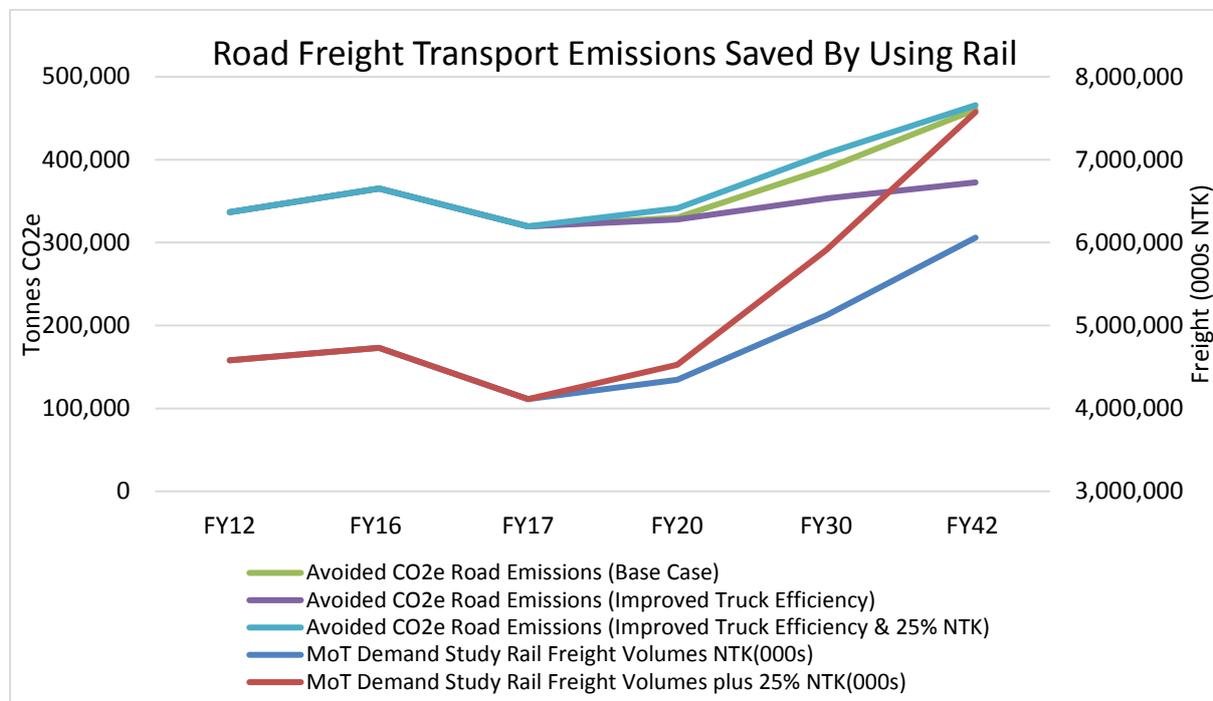
### **2.7 KiwiRail makes an ideal candidate for an early adopter of new technologies**

As a state owned enterprise, KiwiRail has the opportunity to take decisions that, while not necessarily in the financial interest of the organisation itself, serve the broader public interest. An example is becoming an early adopter of emissions-saving technologies that may spur greater public and private interest. Working to adopt hybrid or hydrogen locomotives, for example, could demonstrate the technology's viability in freight transport and encourage uptake by the private sector.

## 2.8 Practical increases in rail’s share of freight result in notable reductions of CO2 emissions

Ministry of Transport figures<sup>3</sup> predict an overall rise in rail freight transport, but a decrease in rail freight transport as a portion of all freight from 16.2% in 2012/13 to 14.5% in 2042/43 due to differential growth by commodity sector. When comparing this case to an alternative scenario in which both rail and coastal shipping see a 25% increase in growth relative to the prediction (rail instead reaches a modal share of approximately 18.1% of freight), an additional annual quantity of 209 kilo-tonnes of CO2 are avoided compared to the base case by 2040.

KiwiRail forecasts predict that if KiwiRail implements the efficiency measures in its Energy Management Plan, the NZTA-predicted increase in freight output combined with predicted reductions in rail freight carbon intensity could result in an annual saving of 372,519 tonnes of CO2 compared to moving the same freight on road by FY2042. With an additional increase in net tonne-kilometres of 25%, this saving becomes 465,739 tonnes of CO2 annually<sup>4</sup>. This can be compared with the present figure of 319,611 tonnes.



## 3. Conclusion

KiwiRail submits that there is a need to enhance the discussion of rail as a contributor towards New Zealand’s transition to a low-emissions future. We would welcome the opportunity to discuss this submission with the Productivity Commission in more detail.

Thank you for the opportunity to provide this submission. For enquiries, please contact Grant Heather: [grant.heather@kiwirail.co.nz](mailto:grant.heather@kiwirail.co.nz).

<sup>3</sup> Unpublished Ministry of Transport estimates from July 2017

<sup>4</sup> Please contact us if you would like more information regarding these figures