Chapter 14

Aronga Kaupapa – Te Āheinga o Ngā Rori
Policy direction for transport

Summary

Transport makes up almost 33% of total long-lived gas emissions in Aotearoa. Action to reduce these is critical if Aotearoa is going to reach its climate targets.

There is an opportunity to decarbonise transport by 2050. This can be achieved by investing in the right infrastructure and systems, encouraging changes to behaviour, and adopting technologies that are available now and improving fast.

We have recommended three areas for the Government to focus on to reduce greenhouse gas emissions from transport. They are:

1. **Reducing the reliance on cars (or light vehicles)** and supporting people to walk, cycle and use public transport. Government needs to support this change with clear targets, plans to meet those targets, and substantial increases to funding.

   Local government plays an important role in changing how people travel, and it needs more support from central government to do the job well. This includes enabling them through legislation, removing regulatory barriers, and providing increased and targeted funding.

2. **Rapidly adopting electric vehicles (EVs).** Ambitious policies are needed to address supply and cost constraints, and bring more EVs into the country. Aotearoa should import more efficient vehicles until EVs are widely available and affordable.

3. **Beginning work now to decarbonise heavy transport and freight.** Government should develop a national low-emissions freight strategy, that includes moving more freight by rail and sea. It should also encourage the production and use of low-emissions fuels, such as biofuels, electricity, and green hydrogen.

Changes in our final advice

Our final advice is more ambitious, compared to our *2021 Draft Advice for Consultation*, around shifting the way New Zealanders travel and supporting better infrastructure for walking and cycling. It places less emphasis on private vehicle use, although accelerating EV uptake is still key to achieving our emissions budgets.

We have moved the section on urban form to the multi-sector chapter, and have conducted further analysis into this area to highlight its system-level importance.

More detail on the benefits of reducing emissions from transport, including health and environmental benefits, have been added.

We heard through consultation that the role of alternative fuels, such as hydrogen for heavy transport, was underplayed in our *2021 Draft Advice for Consultation*. In response, we have been more fuel-neutral in our discussion of low-carbon fuel options.

We have also taken a broader and more ambitious approach to heavy transport and freight, which considers efficiency and shifting to lower-emissions alternatives such as shipping and rail, rather than solely focusing on increasing low-carbon fuels.

Introduction

1 Transport made up 33% of long-lived greenhouse gas emissions in Aotearoa in 2019 and provides many options for reducing emissions within the first three emissions budget periods.

2 Investing in infrastructure, behaviour change, and technology that is available now is important. Action in these areas will be critical for achieving the 2050 net zero target for long-lived gases.

3 Our advice on policy direction was informed by the 'Avoid, Shift, Improve' hierarchy. To achieve a systematic change in our transport system, action is required on all components of this hierarchy. This point was emphasised strongly by some submitters during consultation.

- **Avoid:** reducing the need to travel and/or the time or distance travelled by car, while improving or maintaining accessibility.
- **Shift:** changing how New Zealanders move. For example, shifting from cars to lower-emissions types of travel such as public transport, cycling and walking.
- **Improve:** improving the emissions efficiency and the use of low-carbon fuels in the fleet.

4 This chapter contains three recommendations that fit across all three pillars of our policy approach.

5 The New Zealand Emissions Trading Scheme (NZ ETS) is the primary mechanism for pricing emissions, but it is insufficient on its own to change behaviour in the transport sector. Complementary policies are required to drive changes to the way New Zealanders travel.

6 In the short term, emissions savings are possible through supporting behaviour change, including reducing travel or car use. Over the next 15 years, the largest opportunity comes from electrifying the light vehicle fleet. Policies will be needed to overcome barriers and support this.

7 In the long term, better urban planning could create cities and towns that are designed for liveability and ease of mobility. Decarbonising heavy transport and freight is also a longer-term challenge, but there is action government can take now to unlock future emissions reductions.

8 Transport policy should be designed in a way that reflects the context of a diverse range of communities and individuals. Some communities have and will continue to have a high dependence on vehicles for their mobility. For example, public transport is often not practical in rural communities. Other groups have limited transport options – for example people with disabilities or limited mobility.

9 Some submitters were concerned that policies that increase the cost of vehicles, or increase driving costs, may fall disproportionately on low-income households.

10 In upholding Te Tiriti o Waitangi/The Treaty of Waitangi throughout the transformation of the transport system, the Government should ensure that transport options reflect the realities for whānau Māori, particularly in remote or rural communities. Iwi/Māori submissions identified a range of barriers to transitioning away from high-emitting transport options, mainly due to affordability constraints and lack of appropriate low-carbon vehicle options.

14.1 Provide affordable, reliable, convenient, low emissions alternatives to high emissions vehicles

11 Aotearoa has high rates of vehicle ownership and high rates of travel per person compared to other developed countries. Travel by light vehicles, such as cars, utes, vans and SUVs must be reduced as a priority, with light vehicles accounting for over 70% of transport emissions in 2019.

12 Increasing the use of low-emissions public transport, shared transport, and encouraging walking and cycling will be important for reducing reliance on light vehicles. However, decades of under-investment in infrastructure and services have often made these travel choices slower, less reliable, and ultimately less attractive than travelling by private vehicle.

13 Making sure people have access to affordable, reliable, convenient and well-integrated public transport, and extensive, high-quality and safe cycling and walking infrastructure will be critical for achieving the scale of change required.

14 Communities need to be connected to a range of different transport options to make it easy for people to get where they need to go. There are several ways to reduce reliance on driving and support the scale of shift required, which will have impacts over different timeframes. These include:

- **Optimising existing systems**, such as reallocating road space and creating low-traffic neighbourhoods or streets. This can happen immediately.
- **Investing in new infrastructure and services** and providing better connections between different transport modes. This is important but will take time to become fully effective.
- **End-to-end integrated transport planning**, which includes making sure operations are coordinated so that services function well together, with 'first-and-last kilometre solutions'. It also involves providing convenient payment and booking options, secure car parking near public transport hubs and access to mobility.
- **Designing compact communities with infrastructure that enables easy access to alternative transport.** Changing the way cities and towns are planned can support rapid/frequent transit, shorter trips between home, work and leisure, and safe, healthy and attractive urban environments that encourage more walking and cycling. This is discussed further in *Chapter 13: Policy direction that cuts across sectors*, *Section 13.6* on urban form.

15 At the moment, transport planning and funding is largely centred around private vehicle use. Of the approximately $4 billion spent on land transport in 2017, only around $600 million was spent on public transport, and less than $100 million on walking and cycling.

16 This may improve based on the strategic direction set out for transport in the new Government Policy Statement on Land Transport 2021, but there should be a large increase in the proportion of funding spent on public and active mobility, including for integrating a national public transport network.

17 Local authorities play a crucial role in enabling the shift away from private car travel. They need adequate funding and must be empowered through regulation to make the necessary changes.

18 This includes, for example, changing the cost recovery model for public transport, which currently requires 50% of costs to be recovered through fares (the 'farebox system'), to allow public transport fares to be reduced. Another example is enabling local authorities to put additional price signals in place, such as congestion charging, as appropriate for their region.

19 Yet, we heard during consultation that local authorities face many barriers in making these types of changes, including regulatory barriers.

20 Setting transport targets can help to make sure funding for low-emissions alternatives are prioritised, and can help make central and local government accountable. This includes targets to increase public and active types of travel, and to decrease the kilometres travelled by private vehicles.

14.1.1 There are significant co-benefits from increasing alternative types of transport

21 Some submitters stressed the significant co-benefits of shifting to public and active transport. These submitters stressed that many of the true costs of travelling by light vehicles are hidden, especially health and environmental effects.

22 Greater use of active types of travel promotes physical activity, which improves health and reduces deaths from diseases of inactivity – including cardiovascular disease, diabetes, dementia, cancer and depression. Low physical activity was estimated to contribute to about 1,400 deaths in Aotearoa in 2015. This compares to about 300 people per year who die in road crashes, which justifies a large amount of road investment.

23 Improved public transport can also help to reduce health inequities. Public transport is a very safe way to travel, reduces crashes due to fewer vehicles, while also reducing noise and harmful emissions – all of which have health benefits. These benefits are increased if clean public transport is used, such as electric buses.

24 We heard during consultation on our *2021 Draft Advice for Consultation* that an affordable and accessible public transport system must ensure that non-drivers (e.g. young people, the elderly, those with a physical disability, those who cannot afford a car) are able to get around easily.

25 We also heard that the cost of public transport is a barrier to many people, especially those with large families. Services that do not connect to outer city suburbs or do not account for shift work are another barrier.

Recommendation 17

Improve mobility options and reduce emissions

We recommend that, in the first emissions reduction plan, the Government commit to:

Improving mobility options and reducing emissions by providing affordable, reliable, convenient and low-emissions alternatives to high-emissions vehicle use.

This should include the Government working with local authorities in:

1. Setting targets and implementing plans to substantially increase walking, cycling, public transport and shared transport use to displace vehicle use. This should be delivered through:
    a. Substantially increasing the share of central government funding dedicated to active and public transport infrastructure. Funding should be aligned with achieving a thriving, climate-resilient and low-emissions Aotearoa.
    b. Better connecting communities, cities and regions by improving the frequency, accessibility and integration of intermodal low-emissions transport services.
    c. Reducing public transport fares to encourage greater use of public transport.
    d. Developing targets, plans and approaches:
        i. In partnership with Iwi/Māori, giving effect to the principles of Te Tiriti o Waitangi/The Treaty of Waitangi, and aligning with the He Ara Waiora framework.
        ii. In collaboration with local authorities, consideration should be given to the different circumstances for rural communities, towns and cities.
        iii. In collaboration with stakeholders in the community and business to ensure that outcomes are low emissions, affordable, and support mobility options for diverse communities.
2. Encouraging higher rates of working from home and flexible work arrangements to reduce travel demand and associated emissions. (see also Recommendation 24 (2c) in *Chapter 17: Policy direction for agriculture*).
3. Ensuring regulatory settings provide local authorities with the tools needed to deliver a low-emissions and climate-resilient transport system at pace. This should include evaluating the role of pricing incentives beyond the NZ ETS. For example, congestion charges or where public transport fare reduction would have the greatest impact on behaviour change.

Recommendation 17

Provisional progress indicators

1. Government to have, by 31 December 2022, set targets and implemented a plan, including substantially increasing the share of central government funding, to increase walking, cycling, public transport and shared transport to displace vehicle use.
2. Government to have, by 31 December 2022, identified and implemented the regulatory settings needed to enable local authorities to deliver a low-emissions transport system at pace.
3. Government to report on indicators annually from 31 December 2022. This could include mode share by distance travelled for walking, cycling and private car use, public transport, and would need to be measured regionally and aggregated nationally.

14.2 Accelerate emissions reductions from the light vehicle fleet

26 Light vehicles are the biggest source of transport emissions in Aotearoa, with most running on petrol or diesel. They were responsible for almost 11 $MtCO_2e$ emissions in 2019.

27 Electrifying light vehicles and rapidly improving the energy efficiency of the light vehicle fleet will play a crucial role in meeting emissions budgets and the 2050 target. Battery electric vehicles, plug-in hybrids (together referred to as EVs), and more efficient vehicles are currently the best technologies available to reduce emissions from the light vehicle fleet.

28 In the future other very low-emissions vehicles such as hydrogen fuel cell vehicles, or low-emissions fuels such as drop-in biofuels, may become available.

29 Although 84% of New Zealanders live in urban areas, Aotearoa is sparsely populated. There is limited connectivity between towns and cities, and there are limited transport options for people living outside urban centres. Some communities have, and will continue to have, a high dependence on vehicles for their mobility.

30 Aotearoa is heavily dependent on private vehicles. As a result, New Zealanders spend a significant amount of money on private vehicles each year ($8.7 billion in 2019). Culturally, New Zealanders have strong preferences for utes and SUVs, which made up 8 of the top 10 selling vehicles in Aotearoa in 2020.

14.2.1 Electric vehicle ownership in Aotearoa is increasing but remains low

31 Aotearoa has one of the most renewable electricity systems in the world. This gives the country one of the best opportunities in the world to reduce emissions from transport by adopting EVs.

32 The majority of submissions from individuals who mentioned EVs supported an ambitious package of policies to accelerate electrification of the light vehicle fleet. During consultation we also heard concerns about the environmental impact of EVs, including from their manufacture and from battery disposal, as well as emissions from electricity use.

33 An EV used in Aotearoa emits about 60% fewer emissions over its full life cycle than an equivalent petrol vehicle. This is the case even when accounting for emissions from raw material extraction, manufacture, and shipping. This figure will improve as Aotearoa phases out fossil fuels in electricity generation and as global efforts decrease emissions from EV supply chains.

34 Policy actions and consumer demand will be important to encourage manufacturers to adopt sound ethical and environmental practices across their supply chains, including managing the reuse, recycling and disposal of batteries.

35 There are several supply and demand barriers to people choosing EVs. Barriers to EV uptake include higher up-front costs, lack of choice and supply volumes. Range anxiety, charging network access and expected battery life also affect demand. These concerns were raised by some submitters during consultation.

36 The country's limited leverage for accessing future EV supplies contributes to the lack of choice and supply. The availability of EVs is also a potential constraint. The Aotearoa vehicle market is small, remote, right-hand drive, and is heavily dependent on used vehicle imports from Japan.

37 We heard from some industry submitters that EV manufacturers currently have limited production capacity globally, and that they are likely to prioritise markets with stronger low emissions vehicle policies than Aotearoa currently has.

38 Putting policies in place to support the adoption of new EVs can help to limit the impact of this constraint. There are strong signals that EV production will scale up significantly in the coming years. Many vehicle manufacturers announced EV targets in late 2020 and early 2021, in response to overseas regulations.

39 Used vehicle imports make up about 45% of total annual vehicle imports, with a large proportion of these coming from Japan. Aotearoa is therefore heavily dependent on the choices Japanese manufacturers and consumers make at least five years prior to those vehicles entering the Aotearoa market. Consumers in Japan have historically favoured conventional hybrid vehicles as a low-emissions option, although Japan's small domestic EV market is growing.

40 Aotearoa also faces competition from other right-hand drive countries for second hand EVs. As a result, there are likely to be supply constraints on the volume of second-hand EVs that can be sourced from Japan over the coming decade. In contrast, there are unlikely to be constraints on the availability of second-hand conventional hybrid vehicles.

14.2.2 An ambitious package of policies is needed to address the challenges

41 If Aotearoa is to achieve a low-emissions vehicle fleet by 2050, all light vehicles entering the country must be low emissions by 2035.

42 Most vehicles entering the country today will be on the road for almost 20 years. Conventional internal combustion engine (ICE) vehicles need to be rapidly phased out and replaced by EVs, if the transport sector is to meet our proposed emissions budgets.

43 In the short term, policy action should focus on the emissions efficiency of the vehicles being added to the fleet each year. In 2019, Aotearoa imported about 300,000 light vehicles.

44 Once the emissions efficiency of vehicles entering the fleet has been addressed, the Government will need to consider actions that address the emissions from the existing ICE vehicle fleet. This will be important because of the slow turnover of vehicles in Aotearoa.

45 International experience shows that sending strong, clear signals is important for improving the efficiency of the light vehicle fleet.

46 A ban on the import or manufacture of ICE vehicles at some point in the early 2030s would help set a clear timeframe for the phase out of ICE vehicles. This would send a strong signal to manufacturers about the future requirements of our fleet. It could also remove the risk of Aotearoa becoming a dumping ground for ICE vehicles.

47 Access to EVs is important in the context of an equitable transition. The high upfront costs of EVs create a significant barrier for low-income households who struggle to access capital for major one-off purchases like an EV. We heard this concern clearly reflected through consultation, and particularly from Iwi/Māori.

48 Fiscal incentives to lower the upfront costs of EVs should also be introduced as a matter of urgency, to help overcome this cost barrier. Such incentives could include, for example, direct subsidies or a feebate scheme. A feebate scheme has the additional benefit that it disincentivises high-emitting vehicles, while encouraging lower-emissions ones.

49 High costs could be a particular barrier if Aotearoa faces increased competition from other nations for the limited supply of used EVs. Leasing, financing, and car share schemes targeted at low-income communities should be considered to help address this. Policies to support EV adoption by government and businesses could also be designed in a way that encourages fast rotation of their fleets, which in turn could support a domestic second-hand market.

50 The tax system should also be examined for ways to discourage the adoption of ICE vehicles and encourage low-emissions options. For example, some submitters raised concerns about how the Fringe Benefit Tax is calculated on light vehicles, specifically the ability to claim for emissions-intensive utes and trucks.

51 Charging infrastructure is relatively well developed in Aotearoa, given the number of EVs currently on the road. However, it will need to keep pace with EV uptake to ensure wide coverage and multiple access points in urban centres. More community charging stations, including at marae, will be needed to ensure access for people who cannot charge at home.

52 A large increase in EVs would also add significant load to local electricity networks if they are all charged during peak periods. As EV numbers increase, measures will be needed to help manage this risk. This could include regulating the use of smart chargers and/or more cost reflective pricing of electricity (see also Recommendation 20 in *Chapter 15: Policy direction for energy, industry and buildings*).

53 Improved charging infrastructure will also be important for electrifying heavy vehicles, which could also put a large demand on local electricity networks.

54 Aotearoa needs clear and urgent guidance on emissions efficiency standards to prevent the country from becoming a dumping ground for inefficient vehicles. A lack of emissions or fuel efficiency regulations, or of restrictions on light vehicles entering the country, has contributed to the inefficiency of the fleet.

55 While EVs will make the biggest difference to the efficiency of the country's fleet and to emissions reductions from transport, more efficient petrol and diesel cars can also contribute.

56 Until EVs reach price parity with ICE vehicles, conventional hybrids are likely to play an important role in increasing fleet efficiency. They will also provide affordable travel options for low- and middle-income households that are reliant on private car use for their mobility.

Recommendation 18

Accelerate emissions reductions from the light vehicle fleet

We recommend that, in the first emissions reduction plan, the Government commit to:

Accelerating emissions reductions from the light vehicle fleet.

This should include the Government:

1. Setting a time-limit on light vehicles with internal combustion engines entering, being manufactured, or assembled in Aotearoa. The time limit should be no later than 2035 and, if possible, as early as 2030.
2. Setting an emissions efficiency standard for light vehicle imports and steadily strengthening this to improve overall efficiency of the light vehicle fleet.
3. Accelerating the uptake of electric vehicles (EVs) by introducing a range of measures, including:
    a. A policy to reduce the relative upfront cost of EVs until they reach price parity with internal combustion engine (ICE) vehicles.
    b. Supporting EV leasing, purchasing and sharing schemes to improve equitable access. Regard needs to be given to ensuring that Iwi/Māori, and those in low income and vulnerable groups have the opportunity to access electric mobility.
    c. Enabling ways to bulk procure electric vehicle fleets, working with the private sector and public sector procurement to do so.
    d. Encouraging battery refurbishment, repurposing, and recycling systems, working with the private sector to do so. (See also Recommendation 13 in *Chapter 13: Policy direction that cuts across sectors* and Recommendation 22 in *Chapter 16: Policy direction for waste*.)
    e. Enhancing the roll out of EV charging infrastructure to ensure greater coverage, including at marae, multiple points of access, mandatory smart charging, and fast charging. (See also Recommendation 19, and Recommendation 20 in *Chapter 15: Policy direction for energy, industry and buildings*).
4. Determining how the tax system could be used to discourage the purchase of ICE vehicles and support the adoption of low-emissions vehicles.

Note: Recommendation 19, part 2 would also deliver emissions reductions from the light vehicle fleet.

Recommendation 18

Provisional progress indicators

1. Government to have, by 30 June 2022, implemented policy options to accelerate EV uptake.
2. Government to report at least annually, from 31 December 2022, on the emissions intensity of the whole light vehicle fleet, and the average emissions intensity of imported light vehicles. Imported light vehicles to average, by 31 December 2028, a maximum of 105 grams CO_2 per kilometre.
3. Government to report on additional indicators at least annually, from 31 December 2022, including the number of EVs being registered in Aotearoa, the percentage of EVs in the fleet, average forecourt cost of an EV by make/model.

14.3 Enable the decarbonisation of heavy transport and freight

57 Aotearoa has one of the oldest heavy transport fleets in the OECD. Most heavy transport is used to move freight, but it is also used for passenger services such as planes, buses, and ferries. Decarbonising heavy transport is challenging, yet it is critical that progress is made in this area.

58 **In the short term**, optimising the current heavy transport fleet can achieve immediate emissions reductions. This means ensuring the heavy fleet runs as efficiently as possible, minimising freight movements and using the lowest emissions form of freight transport available.

To realise these opportunities, some challenges will need to be overcome. Many sectors are driven by 'just-in-time' or 'delivery on demand' business models, so freight needs to be delivered quickly and reliably (such as perishable goods). These models limit the ability to shift away from road, because they prioritise timeliness and reliability over other objectives.

The additional handling and cost of shifting freight from trucks to rail can be a significant disincentive, especially for short distances. Rail and coastal shipping will need to offer freight operators more reliable services to make a significant impact on road freight volumes.

Additional planning and investments are required to overcome these barriers, and to integrate road, rail and coastal shipping into a cohesive transport system. This will be critical as the amount of freight moving around Aotearoa is expected to grow significantly over the next 30 years.

59 **In the medium- to long-term**, switching to low-carbon fuels such as electricity, biofuels and green hydrogen will be central to reducing emissions from heavy vehicles. It is important that work to enable this switch in fuels begins in the first emissions budget period.

60 Public buses and commuter ferries have already begun to electrify and in some cases are already cost effective on a total cost of ownership basis. It will be important to make sure the infrastructure is available to support their wider roll out, and that the local electricity grid can support the increased load from heavy vehicles (see also Recommendation 20 in *Chapter 15: Policy direction for energy, industry and buildings)*.

61 Even if Aotearoa rapidly converts to EVs, biofuels or hydrogen will likely still be needed for ships, trains, aircraft, long-distance trucks, and some off-road vehicles. These heavy vehicles are more difficult to electrify, so the transition is likely to take longer.

62 We heard during consultation that new technologies for heavy transport should be a priority. Low-carbon liquid fuels, synthetic fuels, and hydrogen fuel cell technologies are evolving rapidly. While not yet available at scale, demonstration projects of some of these technologies exist in Aotearoa, such as hydrogen-powered trucks and buses.

63 Some forms of heavy transport, such as aviation and shipping, are particularly challenging to decarbonise. For example, there is currently no viable sustainable aviation fuel (SAF) or low-carbon bunker fuel supply in Aotearoa, though it is possible to import it. Where SAF is produced offshore, it has been supported by public funding and other policies.

64 Small electric aircraft are expected to be operational by 2030 for short distance flights. This could include regional flights.

65 An Aotearoa-specific study is needed to identify the best decarbonisation options for the aviation and shipping sectors. Such a study should estimate the high-level costs, feedstock options and supply, the required policy and investment settings, and the co-benefits of setting up a SAF or low-carbon fuel industry in Aotearoa.

14.3.1 There are some barriers to decarbonising heavy transport and freight

66 Some barriers to decarbonising heavy transport and freight cut across fuels, technologies (the vehicles), and infrastructure. For example:

- Biofuels and green hydrogen are more expensive than fossil fuels. In addition, while electricity may be cheaper, heavy-battery EVs are currently limited by the weight of their batteries, the time it takes to recharge them, and their limited range.
- New vehicle technologies are expensive, and businesses are unlikely to adopt them unless they have been successfully proven in the Aotearoa context.
- Some low-carbon fuels require new infrastructure, or significant upgrades to existing infrastructure, before they can be adopted at scale.

67 Because of these barriers, the use of low-carbon fuels and technologies in heavy transport is unlikely to be adopted at scale in the first three budget periods without supporting policies.

68 Policies should include co-funding pilot and demonstrations projects for technologies that are unproven in Aotearoa. It will be important that learnings from these projects are shared with industry and government.

69 Policy may also be required to support the adoption at scale of successful pilot projects. This could include broadening the Road User Charges exemption for electric heavy transport to other low-emissions options such as green hydrogen or a high-blend biofuel.

70 Scaling up low-carbon fuels will provide a longer-term solution to heavy transport and can also improve the emissions efficiency of the light vehicle fleet in the short term. It will help build demand, and therefore supply. Once the light fleet transitions to EVs, this supply can increasingly support heavy transport.

71 Complementary policies will also be needed to support the establishment of low-emissions fuel plants in Aotearoa. This could boost domestic energy security by reducing our reliance on energy imports in the long term. These policies will need to be considered in the context of the National Energy Strategy and the Bioeconomy Strategy (see Recommendation 15 in *Chapter 13: Policy direction that cuts across sectors*).

72 We heard from some submitters that a significant volume of biofuels could be produced in Aotearoa, including from feedstocks such as tallow. The Government should develop a bioeconomy strategy that considers different feedstocks, when they should be used, and for what purpose.

73 In the short term, low-carbon fuels may need to be sourced internationally. The sustainability and lifecycle analysis of low-carbon fuels will have to be managed to ensure this results in overall emissions reductions. The Commission's modelling has not included imported low-carbon fuels, given uncertainties on available supply and pricing, so has focused on domestically available biomass.

74 The Government should develop a national low-emissions freight strategy to integrate and address these challenges in a deliberate manner. This should be done through working with the freight sector to identify where and how emissions reductions can be made**.**

75 During consultation we heard about work led by many companies in the freight sector to identify emissions reduction opportunities, including via efficiency gains and greater use of technology such as advanced biofuels and hydrogen. Collaborating on a national freight strategy will ensure the right investment and policy settings to achieve emissions reductions.

76 More overhead electrification of rail, battery-hybrid or low-carbon fuel locomotives, and shifting freight from road to coastal shipping also has potential to reduce emissions.

77 Significant parts of the freight rail network have faced a state of managed decline due to lack of long-term investment and inadequate planning and funding frameworks. The New Zealand Rail Plan sets out a remedial investment programme, and a new planning and funding framework, to maintain freight rail, but does not focus on increasing rail share.

Recommendation 19

Create options to decarbonise heavy transport and freight by 2050

We recommend that, in the first emissions reduction plan, the Government commit to:

Creating options to decarbonise heavy transport and freight by 2050.

This should include:

1. Developing a national low-emissions freight strategy that establishes the investment settings and infrastructure required to deliver a low-emissions freight system.
   The strategy should:
   a. Be developed in partnership with Iwi/Māori, give effect to the principles of Te Tiriti o Waitangi/The Treaty of Waitangi, and align with the He Ara Waiora framework.
   b. Be developed in collaboration with freight stakeholders, to leverage private-sector action and finance.
   c. Enable opportunities to improve emissions efficiency and freight optimisation.
   d. Set clear targets to increase the share of rail and coastal shipping.
   e. Encourage fuel switching opportunities where appropriate. This should be aligned with Recommendation 19.2 below.
2. Developing low-carbon fuel markets through measures that include:
   a. A low-carbon fuel standard or mandate to increase demand for low-carbon fuels.
   b. Supporting demonstration and pilot projects for low-carbon heavy vehicles.
   c. Offering targeted support for the uptake of low-carbon heavy vehicles. This could include broadening the exemption battery EVs have from paying road user charges to include other low-carbon technologies.
3. Undertaking a detailed study into the use of low-carbon fuels for aviation and shipping in Aotearoa. This should identity options for Aotearoa, their barriers to uptake and actions to address them.

These recommendations should be considered alongside the recommendations for a national energy strategy and a bioeconomy strategy.

Recommendation 19

Provisional progress indicators

1. Government to have, by 30 June 2022, consulted on a national low-emissions freight strategy and on measures to support the development of low-carbon fuel markets.
2. Government to have, by 31 December 2022, introduced a national low-emissions freight strategy and made Cabinet decisions on preferred policy options to support the development of low-carbon fuel markets.
3. Government to report annually, by 30 June 2022, on the emissions intensity of the heavy vehicles fleet, and on additional indicators such as the mode share of freight distance by road, rail and coastal shipping.

Assessment of our recommendations against our policy approach

Recommendation 17	Action to address barriers	Pricing to influence investment & choices	Enable innovation & system transformation
Improve mobility options and reduce emissions			
Develop targets and plans to increase walking, cycling, public transport and shared transport	✓	✓	✓
Encourage higher rates of working from home and flexible work arrangements	✓		
Ensure regulatory settings provide councils with the tools they need	✓	✓	

Recommendation 18	Action to address barriers	Pricing to influence investment & choices	Enable innovation & system transformation
Accelerate emissions reductions from the light vehicle fleet			
Set a time limit on light vehicles with internal combustion engines	✓		
Set an emissions efficiency standard for light vehicle imports	✓		
Accelerate the uptake of EVs	✓	✓	✓
Determine how the tax system could incentivise EVs and discourage ICE vehicles	✓	✓	

Recommendation 19	Action to address barriers	Pricing to influence investment & choices	Enable innovation & system transformation
Create options to decarbonise heavy transport and freight by 2050			
Develop a national low emissions freight strategy	✓		✓
Develop low-carbon fuel markets	✓	✓	✓
Study into the use of low-carbon fuels for aviation and shipping			✓