



14 April 2022

OC220137

Hon Michael Wood
Minister of Transport

Action required by:
Wednesday, 20 April 2022

RELEASE OF HAPINZ 3.0 AND OPTIONS TO REDUCE HARMFUL MOTOR VEHICLE EMISSIONS

Purpose

Provide you with options on implementing more stringent harmful emissions standards, considering the new Health and Air Pollution in New Zealand 3.0 report (HAPINZ 3.0) and associated modelling. We also seek your agreement to additional actions to address air pollution in New Zealand.

Key points

- The updated HAPINZ 3.0 report shows the harm from motor vehicle pollution is much more significant than previously thought. We now understand motor vehicle pollution in Aotearoa causes 2,247 premature deaths and \$10.5 billion in social harm annually.
- Requiring the Euro 6/VI vehicle emissions standard quickly could mean a saving of NZD\$8.6 billion in cumulative social costs out to 2050, as opposed to NZD\$1.24 billion if we wait until 2030. The decarbonising transport work programme can also help reduce harmful emissions.
- Having assessed the modelling and engaged with industry, we recommend a staggered approach to implementing Euro 6/VI:
 - From January 2023, used light and heavy vehicles, currently subject to Euro 4/VI, would be required to meet Euro 5/V and related standards, matching the current standard imposed on new vehicles.
 - From 2024, light vehicles, new and used, then move to Euro 6d, with used Japanese petrol imports being phased in over the 2024-2027 period to avoid supply constraints.
 - From January 2025, heavy vehicles, new and used move to Euro VI step-e.
- We recommend you circulate a letter to industry outlining the above plan. Early notice is particularly important to distributors who will no longer be able to rely on the Australian market for new light vehicles as a result of New Zealand adopting a tougher standard.
- Although implementing new exhaust standards will reduce the levels of harmful emissions for newly imported vehicles, the current fleet will continue to contribute high levels of


harmful pollution. We propose several additional measures to combat harmful pollution in the vehicle fleet; including educational campaigns, updating Rightcar, investigating low-emission zones, and anti-tampering proposals.

- The motor vehicle industry has previously noted that New Zealand petrol specifications may be incompatible with Euro 6 vehicles [OC210634 refers].^{s 9(2)(f)(iv)}



Recommendations

We recommend you:

- 1 **note** HAPINZ 3.0 findings and associated modelling are to be treated as in-confidence and are not to be shared until the report is released in June
- 2 **agree** used light and heavy vehicle imports, currently subject to Euro 4/VI, be required to meet Euro 5/V and related standards from January 2023, matching the current standard imposed on new vehicles Yes/No
- 3 **agree** new and used light vehicle imports move to Euro 6d and related standards, on January 2024, though used Japanese petrol imports are phased in over the 2024-2027 period to avoid supply constraints Yes/No
- 4 **agree** heavy vehicle imports, new and used, move to Euro VI step-e and related standards from January 2025 Yes/No
- 5 **note** officials will develop a proposal to address vehicle emission control system tampering
- 6 ^{s 9(2)(f)(iv)} 
- 7 **sign** the attached letter to industry on the intended timing and changes to exhaust emissions requirements Yes/No
- 8 **note** Waka Kotahi intends to update Rightcar with more appropriate ratings for harmful emissions
- 9 **agree** to instruct Waka Kotahi to carry out ongoing consumer-facing public information communications on the social damage caused by diesel engines, and to promote the use of Euro 6 and zero emission vehicles (once HAPINZ 3.0 is public) Yes/No
- 10 **agree** to officials engaging with relevant agencies, asthma foundations, Māori health organisations, councils and other relevant parties to develop further advice and to invite them to be part of wider efforts to build awareness about harmful emissions (once HAPINZ 3.0 is public) Yes/No

- 11 **note** officials will engage with industry to propose affordable and practical methods to reduce harmful emissions in our existing fleet of light diesel vehicles Yes/No
- 12 **agree** to investigate the harmful emission reduction benefits of low-emission zones as part of the Ministry's work into congestion charging



Ewan Delany
Manager, Environment, Emissions and Adaptation

15 / 4 / 22

Hon Michael Wood
Minister of Transport

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- Minister's office to complete:**
- Approved Declined
- Seen by Minister Not seen by Minister
- Overtaken by events

Comments

Contacts

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RELEASE OF HAPINZ 3.0 AND OPTIONS TO REDUCE MOTOR VEHICLE HARMFUL EMISSIONS

The social damage from motor vehicle pollution is over eight times higher than previously thought

- 1 The new data shows transport air pollution causes 2,247 premature deaths and contributes \$10.5 billion in social costs annually in New Zealand. This is approximately double the total social cost of motor vehicle fatal and injury crashes.
- 2 HAPINZ 3.0 highlights the need for more stringent emissions standards, and additional measures, to reduce the harm and health costs caused by motor vehicle emissions.
- 3 HAPINZ 3.0 incorporates Aotearoa-specific health impacts of exposure, such as mortality and hospital admissions — in previous reports overseas data was used. It also assesses the impacts on Aotearoa-specific childhood asthma for the first time. Due to the significant increases in pollution determined by HAPINZ 3.0, additional international peer review was commissioned, which confirmed its accuracy.

Although pollution has worsened slightly since the last HAPINZ report, the change is mainly driven by better understanding of the problem

- 4 The HAPINZ 3.0 report (based on data from 2015-2017) has found motor vehicle emissions contribute roughly two thirds (67 percent) of total air pollution social costs in New Zealand.¹ Previous reports did not have sufficient nitrous oxide (NO₂) data for to be able to account for it in social costs and morbidity. Being able to account for NO₂, together with moderate increases in pollution, shows the overall impacts are significantly higher than previously understood. This is consistent with new international findings on air pollution by the World Health Organisation.²
- 5 Although particulate matter (PM) concentrations have overall reduced by 14 percent since the 2012 study (17 percent of PM_{2.5} is attributed to motor vehicles), nitrogen dioxide (NO₂) concentrations have worsened by nearly 15 percent.³ This has resulted in an increase in social costs of nearly 18 percent from 2006 to 2016. Vehicle kilometres travelled and the number of diesel vehicles (which are the major source of NO₂), have increased progressively over the last decade.
- 6 Overall, combining PM_{2.5} and NO₂, the air pollution health burden due to anthropogenic (man-made) sources has increased by 5.3 percent between 2006 and 2016. The increase is attributed to NO₂ but the full impact has been lessened by the improvements in PM_{2.5} concentrations. The total social damage for air pollution is \$15.6 billion, causing 3,317 premature deaths. Transport is responsible for \$10.5 billion; most of the remaining harmful air pollution cost is from domestic fires.

¹ HAPINZ is funded by Ministry for the Environment, Ministry of Health, Ministry of Transport and Waka Kotahi NZ Transport Agency.

² New WHO Global Air Quality Guidelines published 2021 provide clear evidence of the damage air pollution inflicts on human health, at even lower concentrations than previously understood.

³ PM₁₀ is particulate matter 10 micrometres or less in diameter, PM_{2.5} is particulate matter 2.5 micrometres or less in diameter. PM_{2.5} is more likely to travel into and deposit on the surface of the deeper parts of the lung, while PM₁₀ is more likely to deposit on the surfaces of the larger airways of the upper region of the lung.

The effects of air pollution are not felt equally

- 7 The young, sick, and elderly are much more likely to be affected. Māori are 3 times and Pacific peoples 3.2 times more likely to be hospitalised for asthma than Europeans or other New Zealanders. People living in the most deprived areas are almost 3 times more likely to be hospitalised than those in the least deprived areas.⁴ The World Health Organisation states that children living close to roads with heavy-duty vehicle traffic have twice the risk of developing respiratory disease as children who do not.⁵
- 8 Social damage costs include premature death, hospitalisations, restricted activity days, and rates of childhood asthma. Aotearoa has some of the highest rates of childhood asthma in the world, with one in seven children aged 2-14 years taking medication. For respiratory hospital admissions due to motor vehicle pollution, 13 percent of the cases occur in children presenting with asthma/wheeze.⁶ Motor vehicle pollution causes 13,229 cases of asthma prevalence in children annually.
- 9 HAPINZ 3.0 figures used in this briefing, including the attached A3 in **annex one**, and the cost/benefit modelling in **annex two**, must be treated as **in confidence** and embargoed until the full report is published in June. Ministers of relevant portfolios (Environment, Health and Transport) will be informed of the full HAPINZ report through a joint briefing in May.

Cost benefit analysis shows large benefits to implementing more stringent emissions standards as quickly as possible

- 10 We commissioned the same expert organisation behind the HAPINZ 3.0 report (Emissions Impossible) to model the benefit of introducing Euro 6/VI at different dates. The modelling showed the greatest cost savings are made the sooner Euro 6/VI is adopted, and that diesel vehicles represent most of the cause of air pollution. The total additional cost for manufacturing Euro 6/VI vehicles is very small compared to the benefits in air pollution savings.
- 11 New Zealand is approximately a decade behind in adopting newer exhaust requirements imposed in Europe, US, and Japan. In New Zealand, the most common approach to limiting harmful emissions from vehicles is the Euro standards, with the latest being Euro 6 (light vehicles) and Euro VI (heavy vehicles). There are different stringencies within the Euro 6/VI standard. We are seeking to adopt the most recent standards – Euro 6d for light vehicles and Euro VI step-e for heavy vehicles.

12

s 9(2)(b)(v)

- 13 **Table one** below shows the total air pollution costs and benefits for implementing Euro 6/VI across four scenarios: adoption in 2024, 2025, 2027 and 2030. The total cost

⁴ <https://www.asthmafoundation.org.nz/research/key-statistics>

⁵ <https://www.euro.who.int/en/health-topics/environment-and-health/Transport-and-health/data-and-statistics/air-pollution-and-climate-change2>

⁶ Aged 0 to 18 years.

shows the cost of the emissions at net present value, and the benefits show the savings in air pollution social costs out to 2050.

Table one

Scenario	CO	VOC	NO _x	PM ₁₀	Total social cost	Benefit
	Cumulative emissions 2021 to 2050 (tonnes)				NPV \$2019 (in \$million)	NPV \$2019 (in \$million)
Base	684,205	32,625	503,490	29,685	\$ 68,744	-
Scenario 1: 2024	657,541	32,442	420,749	28,574	\$ 60,402	\$ 8,342
Scenario 2: 2025	662,984	32,473	435,633	28,759	\$ 62,083	\$ 6,662
Scenario 3: 2027	672,544	32,530	463,090	29,103	\$ 64,995	\$ 3,749
Scenario 4: 2030	680,641	32,591	490,774	29,471	\$ 67,668	\$ 1,076

- 14 **Table two** represents the additional cost of manufacturing Euro 6/VI vehicles (compared with a Euro 5/V vehicles) for the vehicles affected under each policy scenario between 2021 and 2050. The cost is based on an estimated worst-case manufacturing cost premium of \$300 for petrol cars, \$900 for light diesel vehicles, and \$4000 for heavy diesel vehicles.⁷ This is then compared with the benefit in saved harmful emissions.

Table two

Scenario	Benefit	Cost
	NPV \$2019 (in \$million)	NPV \$2019 (in \$million)
Scenario 1: 2024	\$ 8,342	\$236
Scenario 2: 2025	\$ 6,662	\$182
Scenario 3: 2027	\$ 3,749	\$92
Scenario 4: 2030	\$ 1,076	\$22

- 15 The results show that the implementation of Euro 6 and Euro VI standards achieves substantial benefits due to harmful air pollutant emissions reduction relative to the base case, and that the benefits are at least 35 times greater the costs (Table 2). Scenario 1 (introduction in 2024) delivers nearly eight times the benefits for Scenario 4 (introduction delayed to 2030).
- 16 The A3 attached at **annex one** goes into further detail on the HAPINZ 3.0 report and the modelling report commissioned by Te Manatū Waka, the Ministry of Transport (the Ministry).

We recommend updating the Vehicle Exhaust Emissions Rule in three stages

- 17 **From 1 January 2023**, Euro 5/V and similar Japanese and American standards would be required on used imports, both light and heavy.

⁷ Based on investigation in 2022 into the additional engine and related components required, performed by consultants Hale and Twomey as commissioned by the Ministry and MBIE.

- 18 **From 1 January 2024**, Euro 6d and similar Japanese (Japan 2018, likely with specific emission codes to ensure strong emission reductions) and American (EPA Tier 3) regulations would be required on *light* petrol and diesel imported vehicles.
- 19 **From 1 January 2025**, Euro VI and similar Japanese (Japan 2018) and American (US 2010) standards will be required on heavy vehicles, new and used imports.

Currently New Zealand accepts used petrol and diesel vehicles where they are tested to Euro 4/IV, Japanese regulations established in 2005, or US 2004.

- 20 However, in practice, most used imports are now voluntarily achieving a Euro 5/V level of emissions. We therefore recommend making this the legal requirement. The used import industry is ready to move on this quickly given officials have discussed it with stakeholders for almost a year.
- 21 The Automobile Association and Motor Trade Association and Imported Motor Vehicle Industry Association (VIA) are supportive of doing from January 2023, though the VIA seek more leniency for a small number of commercial vans than what we recommend.⁸
- 22 Proceeding with this recommendation means updating requirements that used vehicles must achieve one of the following standards:
- 22.1 Euro 5/V;
- 22.2 Japan 2005 with a 75% emission reduction code “Dxx”, for petrol vehicles; or Japan 2009 regulations, for diesel light and heavy vehicles;
- 22.3 US 2007, or
- 22.4 Australian regulations where they equate to the above.

Adopting Euro 6/VI and equivalent standards for new vehicles early provides the greatest savings in social costs

New vehicle imports currently conform to Euro 5/V standards

- 23 New vehicle imports are required to meet Euro 5/V, and Japanese and American standards of similar stringency. Most new vehicles imported are Euro 5/V although a progression to Euro 6/VI is underway voluntarily by importers of European vehicles.
- 24 Engagement with the new vehicle industry in June 2021 revealed that some suppliers, mostly those with European links, were able to adopt Euro 6/VI quickly. Others are more commercially tied to Australian distribution and would like a two to six-year lead time. ^{s 6(b)}

We recommend a two-step shift towards Euro 6/VI, based on readiness of the industry

⁸ Motor vehicle registrations for 2021 show that about 75 Japanese used import petrol vans a month don't meet this requirement; restricting them is *not* seen as material given the market has other choices (newer Japanese petrol imports, diesel vans, UK imported vans, and brand new vans).

25 **For all light vehicles**, we recommend moving to Euro 6d on 1 January 2024. This ensures social harms from air pollution, and in particular, our light diesel utes and vans, is addressed urgently. It also ensures that the 2024 legislated review of the Clean Car Standard targets can use more accurate carbon dioxide (CO₂) values on vehicles.

26 Your letter of 4 October 2021 to David Crawford of the Motor Industry Association indicated an expectation to shift to World-Light Harmonised Procedure (WLTP) testing in 2024. Because only Euro 6d vehicles are tested to WLTP, many importers have been working to achieving that timeline already.

27 s 9(2)(b)(ii)

28 Brands have noted that this change may result in certain engine sizes or configurations being dropped, but does not require a widespread reduction in vehicle diversity or availability. For some suppliers, this change will require a significant replanning exercise, to shift supply and business processes away from a reliance on the Australian vehicle market, s 9(2)(g)(i). However, our strong vehicle CO₂ targets are likely already pushing distributors to decouple from Australia.

29 **For heavy vehicles**, we recommend moving to Euro VI, one year later, on 1 January 2025. This reflects that the government is yet to provide notice to the heavy motor industry. Waiting until 2025 may enable easier compliance for the motor industry, should Australia update its requirements on a similar timeframe.⁹

Japanese and American standards will need to tighten alongside the move to Euro 6

30 The latest light vehicle standards were introduced in Japan in 2018-2019 and the US in 2017 (EPA Tier 3); these are comparable to Euro 6 except for light Japanese diesel vehicles, where the standards are noticeably weaker.¹⁰

31 To ensure that emissions are managed in the absence of strong Japanese standards, we will continue to require better than baseline emissions performance when we shift from the Japan 2005 to Japan 2018 standard. This is likely to require 75 percent improvement over Japan 2018 regulations, or where the vehicle is a hybrid or plug-in hybrid, a 50 percent improvement over Japan 2018 would be accepted.

32 A large proportion of the Japanese petrol passenger vehicle market have achieved these levels since 2018. This will be easier for petrol cars which are already achieving very low harmful emissions levels than it will be for diesel vehicles; officials are continuing to study this point to determine a solution, though it likely only affects the used import supply.

⁹ This is plausible given Australia's diesel is already compatible with Euro VI trucks, whereas petrol vehicles cannot shift to Euro 6 in Australia until their refineries are upgraded, which could take years.

¹⁰ This issue is summarised by the Emissions Impossible report in chapter seven, attached to this briefing.

- 33 The latest heavy vehicle standards were introduced in Japan in 2016 and the US in 2010, and while there are some differences, these are reasonably similar to Euro VI.
- 34 Australia is drafting a new regulation to require a standard similar to Euro 6c for heavy vehicles, though its implementation timing is unclear. Once this is public, we will investigate how, and if, it should be an accepted standard in the new Vehicle Exhaust Emissions Rule.
- 35 Industry may raise that requiring Euro 6/VI ahead of Australia could result in a temporary increase in vehicle prices. We do not recommend offsetting this issue with a financial incentive or subsidy for Euro 6/VI diesel vehicles at this time, but we can investigate it if you wish.

Used vehicles should shift to Euro 6 at the same time as new vehicles, but we recommend a slower phase-in for used petrol cars from Japan

- 36 Used diesel vehicles should move to Euro 6d and VI step E (and the equivalents in the above section) on the same dates as new diesel vehicles (light vehicles in 2024; heavy in 2025). This prevents buyers of new vehicles buying used vehicles to bypass requirements.
- 37 For used petrol vehicles, Euro 6d and US 2017 (EPA Tier 3) standards can also be imposed at the same time as new vehicles, because this is unlikely to cause supply constraints.
- 38 We recommend that the Japanese 2018 standard be phased in over a four-year period as Japan has only recently implemented it. Moving more quickly would significantly constrain our primary source of used vehicles.¹¹ We therefore recommend that used petrol vehicles from Japan must, if manufactured from 2024, achieve the Japan 2018 standard. We recommend that from January 2028, all used vehicles from Japan must achieve the Japan 2018 standard, i.e. ten years after first introduced into Japan. Vehicles meeting the Japan 2018 standard were not widely available in Japan until 2020, hence the later date for the requirement.
- 39 This would treat petrol used imports from Japan more leniently than those from the UK and other Euro markets and you would need to consider whether the policy benefits outweigh potential trade law implications, noting this affects only a small number of used petrol imports.¹²
- 40 In January 2021 Cabinet decided to prevent the importation of Japanese vehicles certified by the very old J10-15 test cycle (CAB-21-MIN-004 refers). The purpose of ending the use of J10-15 is to ensure that harmful pollution and CO₂ emission figures from Japanese imports can be more accurately assessed as being low. We now recommend delaying this by 18 months so that this would commence instead in January 2024, to be timed with other changes noted above, particularly the implementation of

¹¹ A review of brand-new vehicle websites and databases for the Japanese Domestic Market, including for Toyota and Nissan, shows that all 2021 models for sale now meet the Japan 2018 regulations, and that many models shifted to the new standard in either 2019 or 2020.

¹² Considered minor due to the low volume of Euro 5 petrol used vehicles imported, though they are beginning to rise. In 2020 and 2021 this would effect approximately 1000 vehicles out of about 150,000 used imports. On average for the decade prior, around 100 vehicles a year on average would be affected. Most come from UK, Singapore, and Australia).

the WLTP. This will assist importers in sourcing more low emission vehicles over 2022 and 2023.¹³

- 41 When imposed in 2024, this change would reduce availability of vehicles built between 2008 and 2013, and prevent the importation of Japanese vehicles built before 2008. It would not constrain vehicles newer than 11 years old.
- 42 We have discussed these timeframes with the VIA, and they appear broadly open to them, particularly for passenger cars. They would prefer greater transition time for commercial diesel used imports, but that is at odds with reducing air pollution harm.

We have prepared a letter for you to send to industry to notify them

- 43 This letter outlines the dates by which you are minded to require more stringent emissions standards for used and new vehicles, with the caveat that this is subject to Cabinet approval later in the year
- 44 We recommend you send this letter to VIA, the MIA, the Motor Trade Association, the Automobile Association and the Special Interest Vehicle Association so they can work with their members to prepare for the changes.

Progressing harmful emission standards will support safety and CO₂ goals

- 45 This proposal is expected to slightly increase the adoption of safety features in used vehicles from 2024, due to reversing the current trend of used imports entering New Zealand progressively getting older each year. While age of the vehicle itself doesn't impact safety, the proportion of vehicles in the Japanese domestic market manufactured with better safety features is increasing each year, thus importing younger vehicles means better access to those safety features.
- 46 This proposal is expected to reduce CO₂ emissions, because vehicles with lower harmful emissions usually correlate with lower CO₂ emissions, as manufacturers tend to bundle this technology together. New Zealand truck distributors have provided examples where CO₂ reductions of 13 percent to 20 percent were achieved by moving from Euro V to VI, however we have not found a source of information to quantify this impact accurately for the entire fleet. The phased shift to Japan 2018 used imports later this decade requires vehicles to achieve very low harmful emissions levels and will make it harder for importers to source high CO₂ emission vehicles. This aligns with government policy by nudging importers to achieve the Clean Vehicle Standard CO₂ targets rather than pay penalties for not meeting them.

Concerns about fuel quality raised by the MIA are being addressed

- 47 Submissions from the MIA raised two concerns related to petrol: aromatic and octane levels. We investigated this further through MBIE, which included Euro 6/VI concerns in its fuel specification review, and a solution to the MIA's concerns is being implemented.

¹³ About 30% of used hybrids are aged 9-12 years and a further 10% are 12-15 years old when they entered New Zealand in 2021. Restricting most cars of that age could raise their purchase price, though will encourage vehicles manufactured to newer safety standards.

48 New Zealand's fuel quality specifications currently permit higher aromatic levels (maximum 45 percent) in petrol than appears to be expected by Euro 6 vehicle manufacturers (maximum 35 percent). The latter is the current limit in the European Union. Currently, regular 91 regular petrol has a 35 percent aromatic level *on average*. Aromatic levels higher than this can lead to onboard diagnostic failures, and potentially early failures and warranty issues for emissions critical hardware.

49 A Fuel Specification Review by Hale and Twomey commissioned by the Ministry and MBIE this year found that regular 91 petrol does not need to be phased out to meet Euro 6 emissions standards.

50 s 9(2)(g)(i)



51 s 9(2)(f)(iv)



Technologies to reduce emissions have become more complex and expensive to maintain, leading to 'tampering' of vehicle emission control systems

52 Tampering usually involves either the removal or bypassing of filters and catalysts, rather than their replacement, or avoiding the use of AdBlue.

53 AdBlue is a mix of urea and water that is injected into the exhaust stream of diesel engines. The resulting chemical reactions convert NO₂ into harmless substances. This process is referred to as selective catalyst reduction (SCR).

54 While the SCR process works well in reducing NO₂ emissions, it requires drivers to purchase AdBlue on a regular basis. This imposes a direct cost on the operator of the vehicle and there is therefore an ongoing financial incentive to avoid the use of AdBlue. Tampering in this context usually involves modifying software installed in vehicles that monitor levels of AdBlue and indicate when a vehicle needs to refill.

55 Euro 6/VI usually requires the use of the SCR process. This means that the issue of tampering with the SCR process is likely to get larger over time as we require these standards. In contrast, the failure to properly repair or replace damaged filters and catalysts is a concern, but it will not affect the majority of vehicles, as there is not a direct incentive on owners to tamper with these unless they actually fail.

We may need to strengthen the provisions in the Exhaust Emissions Rule (the Rule) that deal with bypassing emissions systems and to deal more directly with tampering

56 The forms of tampering stated above are not likely to cause a Euro 5 or 6 diesel vehicle to fail the provisions in the current Rule. This is because the current Rule defines failure as the presence of visible smoke (opacity) and checks only for carbon monoxide and hydrocarbons being within permitted levels; importantly, it does not test for NO₂ emissions which is what tampering with the SCR process or removing a catalytic

converter would drastically alter. If the opacity of the exhaust is not affected, modifications (tampering) are currently considered legal.

- 57 As a result, tampering is expected to increase in scale as a problem as all new diesel engines use urea-based liquid, such as AdBlue.
- 58 We recommend officials develop a proposal for consultation to reduce tampering. This could include a tampering offence as part of the work to update the Exhaust Emissions Rule, and additional checks at the Warrant of Fitness and Certificate of Compliance level to address obvious tampering. The MIA supports strengthening anti-tampering provisions in the Rule.

Additional measures could address vehicle pollution and reduce social harm

- 59 The measures in this briefing and parts of the decarbonising transport work programme will make a significant contribution to phasing out harmful emissions.
- 60 Given the significant costs and harm associated with motor vehicle pollution in the newly released HAPINZ 3.0 report, and noting the four million vehicles already in New Zealand would not be subject to tighter exhaust emission rules, we think further measures may be justified.

Additional measures

- 61 The below are measures we can look to implement, as we continue work to tighten harmful emissions standards. We do not have the capacity to implement all of the following measures immediately but seek your agreement in principle to seek to progress the following:

Potential initiative	Details
Update the government procurement rules	So that where diesel vehicles are purchased or used in contracting arrangements, they should be Euro 6 or better. This will help to stimulate suppliers into providing Euro 6 vehicles ahead of it being a legal requirement. MBIE would undertake this work.
Public information campaigns	Once the HAPINZ 3.0 report is public, instruct Waka Kotahi New Zealand Transport Agency to carry out ongoing consumer-facing public information communications on the social damage caused by diesel engines, and to promote the use of Euro 6 and zero emission vehicles, and helpful behavioural changes, such as avoiding unnecessary engine idling outside schools and in populated areas.
Engage with organisations	Once the HAPINZ 3.0 report is public, we will look to engage with relevant agencies, asthma organisations, health organisations, including Māori health organisations, councils and other relevant parties to develop further advice and to invite them to be part of wider efforts to build awareness about harmful emissions.
Update Rightcar website	To accurately depict harmful emissions on vehicle models.
Investigate further initiatives with industry	Engage with industry to investigate affordable and practical methods to reduce harmful emissions in our existing fleet of diesel utes, vans and trucks. For example, there could be additional checks and fixes at warrant of fitness and certificate of compliance tests that can be

	set up quickly, or Clean Vehicle Retrofits. Retrofits add Euro 6/VI technology to older vehicles to help them comply with Low Emission Zones.
Low-Emission Zones (LEZs)	s 9(2)(f)(iv)
Investigate harmful motorcycle emissions	We are seeking to better understand the scale of harmful emissions caused by motorcycles entering New Zealand. Waka Kotahi does not currently collect relevant vehicle data when motorcycles are registered, so we cannot accurately determine their fuel consumption, CO ₂ emissions, or harmful emissions. We recommend that this information should be required to be collected, so that it can inform modelling and policy. Subject to discussions with MIA, it may be appropriate to set an emissions standard. Modelling by Emissions Impossible shows that on an average basis, that motorcycles in the fleet produce significantly more harmful pollution per kilometre than an average petrol car, though this is offset by their much smaller role in our fleet.

Elements of our current work programme will help to reduce harmful air pollution

62 There are some initiatives underway, or proposed in the Emissions Reduction Plan which will have a positive impact on motor vehicle pollution.

Initiative	Details
Mode-shift	Work underway to reduce vehicle kilometres travelled (V _k T) will help to reduce harmful emissions from motor vehicles.
The Clean Vehicles Programme	The Clean Vehicle Discount and Standard, which will continue to incentivise consumers towards low and zero-emission vehicles, is unlikely to have a significant impact on harmful emissions. This is because these policies mainly impact petrol vehicles, which contribute much less to harmful emission levels than diesel vehicles.
Freight decarbonisation	The work on the freight decarbonisation strategy, and the shifting of freight to coastal shipping and rail will help to reduce high numbers of harmful emissions from heavy vehicles in the long term. Reducing harmful emissions has been added as an additional aim of the strategy.
MARPOL Annex VI	Acceding to the Marine International Convention for the Prevention of Pollution from Ships (MARPOL) will reduce harmful emissions from shipping in and around New Zealand ports and harbours.
Public transport bus fleet decarbonisation	The public transport bus fleet is progressively being decarbonised. The Government requires all new public transport buses must be electric from 2025 and is targeting decarbonisation of the entire fleet by 2035. Based on existing diesel buses being operated until they reach a

	<p>maximum of 20 years, we expect that most of our 900 very worst emission (Euro 3 and Euro 4) buses will exit the fleet between 2022 and 2032.¹⁴ From 2032, we would start to see significant numbers of our existing 1000 Euro 5 buses exiting the fleet, but a full replacement of these vehicles would take until 2041.</p> <p>Accelerating the replacement of Euro 3, 4 and 5 buses with zero-emission buses sooner would be reliant on additional funding given the current cost premium for providing services with electric buses. As you know, a bid to support accelerated decarbonisation of the public transport bus fleet is being considered as part of Budget 2022. This bid, if funded in full or in part, would support accelerated replacement of existing diesel buses.</p>
<p>Off-road diesel fuel use</p>	<p>Nearly 30% of New Zealand’s diesel fuel is used in ‘off road’ applications such as agricultural machinery, construction, mining, portable generators, and recreational boating. More work is needed to assess the appropriate ways to address this issue. The Energy Efficiency Conservation Authority (EECA) is researching use of off-road fuels and has funding mechanisms that may help address the issue partially, by supporting businesses to shift into electrification and more efficient equipment. We are in the process of discussing this topic further with EECA.</p>

Updating the Exhaust Emissions Rule and next steps

- 63 With your agreement, we will seek to develop rule drafting instructions to Waka Kotahi New Zealand Transport Agency (Waka Kotahi) to update the Exhaust Emissions Rule to:
- Simplify the Exhaust Emissions Rule to make compliance easier.
 - Implement a staggered approach to implementing Euro 6/VI and similar US and Japanese standards.
- 64 In tandem, we will develop a Cabinet paper and Regulatory Impact Assessment to seek approval to publicly consult on the new Rule, and amend Cabinet's previous decision on the timeline for restricting J10-15 imports. We will also develop a proposal to address tampering, continue investigating the potential for LEZs to reduce harmful emissions, and seek to gain a better understanding of motorcycle emission levels.
- 65 Officials are monitoring the European Union’s drafting of a Euro 7 proposal anticipated later this year. The stated objective of the current Emissions Rule is a lag behind parent jurisdictions by two years; If the EU proposes Euro 7 for 2025 as expected, New Zealand could look to follow two years later. However, the EU’s proposal is unlikely to be finalised in time to be incorporated into this Rule change.

Consultation

- 66 Waka Kotahi, MBIE, the Ministry of Foreign Affairs and Trade (MFAT) and the HAPINZ 3.0 steering group (consisting of members from Ministry of Health, Ministry for the Environment, Statistics New Zealand, Waka Kotahi, Environment Canterbury, and Greater Wellington Regional Council) were consulted on this paper.

¹⁴ The maximum vehicle age in the Requirements for Urban Buses.

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s 9(2)(h)



PROACTIVELY RELEASED BY
TE MANATŪ WAKA MINISTRY OF TRANSPORT