AA Submission on Clean Car Standard and Clean Car Discount Discussion Document

September 2019

SUBMISSION TO:	Ministry of Transport
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NOTE TO REQUESTOR

The AA thanks the Minister for the 15 day extension to the standard deadline for submissions on this discussion document. However even with 35 working days it has not been possible for the AA to carry out the full range of consultation with either its 1.7 million Members or its 17 Districts which a policy proposal of this scope would normally entail.

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1. Executive Summary

The New Zealand Automobile Association recognises the significance of the Paris Agreement obligations on climate change and the contribution which transport as a sector must make towards this. At issue here is what the best measures are to achieve those objectives. We calculate this policy would at best make a 1% reduction in transport emissions by 2025. We suggest there are more useful alternatives policies that can achieve more.

The AA supports the goals of the Clean Car Standard and the Clean Car Discount scheme but contends that the details of the schemes as proposed are unlikely to reduce carbon dioxide emissions significantly and merely increase taxes on New Zealanders dependent on motorised transport. The AA believes this is not inherent to such schemes but reflects the fact that this scheme has been designed without significant input from the $5bn a year vehicle importation industry and has limited consultation. By not engaging cooperatively with industry it is not surprising that we find the proposed policy is unlikely to be effective.

The fundamental flaws with the proposed Standard and Discount policies are:

1) The target of 105gm CO_2/km by 2025 implies a rate of change that is more ambitious than any other change ever sought anywhere and will therefore create large market distortions because market demand cannot be met by a sufficient supply of compliant vehicles.

2) The mechanism of the Clean Car standard is not a ban but a price penalty. Cost is meant to change behaviour even though the actual effectiveness of the proposed penalty values is unknown. Given the target's unrealistic rate of change and the lack of options for ute buyers it is highly likely that New Zealanders will not change their purchasing behaviour sufficiently and the mechanism will simply generate large penalty incomes for Government without reducing carbon emissions by anything like the hoped for amounts.

3) The penalties proposed in the Clean Car Standard equate to a carbon price in the order of $500 a tonne CO_2e which is significantly higher than any carbon price contemplated by the Productivity Commission or any other New Zealand agency. This seems to contradict New Zealand's climate change policy which has been to be neutral about abatement from different sectors of the economy.

4) The benefit cost ratios supplied by the Ministry are contingent on the effectiveness of the penalties which in turn depend on the target. We will show these are unrealistically optimistic.

5) The proposals rely on a problematic measure of compliance. Typically Governments do not incorporate manufacturers' performance claims into regulation without independent verification. The unreliability of manufacturers' claims in this instance is well documented.

6) There appear to be considerable equity problems with these policies. If some people are helped to avoid paying fuel excise duty by using more fuel efficient vehicles (not necessarily full electric) then others must make up the difference. Because all the information is held by the Government which has granted itself the sole right to access private data to investigate equity problems it is not clear whether these issues are significant or being swept under the carpet in order to meet political objectives. There has not been sufficient time to examine the implications of this policy on social equity, or transport safety to any degree of sufficient rigour.

The AA does not believe that a measure of this scope can meet government's own expectations for the design of regulatory systems without considerably more analysis, cooperation and consideration.

The Australian government undertook a two year engagement with industry before finally deciding this sort of policy was too difficult to implement successfully. New Zealand has given industry 35 working days to respond to its proposals.

Announcing this policy has already reportedly had the perverse incentive of disincentivising electric car purchases because some prospective buyers are anticipating a Government discount. Others will be incentivised to purchase high emitting vehicles likely to be penalised by the scheme in anticipation of its implementation.

Rushing into legislation is not the kind of mature and practical policy development process we have come to expect from New Zealand governments and we hope the current timetable will be replaced with a more considered one.

What the AA Wants

The AA therefore calls on the Government to:

1) Extend the waiver on electric cars paying Road User Charges to 2025. Given the original intention was to reach 64,000 registered electric vehicles by 2021 and projections show the likely total by 2021 will be 32,000 an extension to 2025 will not have any significant effect on the National Land Transport Fund.
2) Withdraw from the stated levels of discounts and penalties alluded to in the discussion document so as to allow the market to return to normal over the next two years so that sales of EVs and utilities are not disrupted or magnified by anticipation of Government subsidies and penalties.
3) Form an industry working group with affected industry parties to develop the policy for delivery in 2022. This would not change the effective start date but would reduce the market distortion due to anticipation before the 2022 effective start date.

2. Summary of AA's Views on Clean Car Standard and Discount Scheme

The AA supports the goals of the proposed emissions measures and any well-designed scheme to achieve those goals. However the AA contends the effect of the measures must be proportionate to the goals, and those effects depend very much on the details of the scheme when it is adopted. It is far from clear to us that this policy, as proposed, meets those criteria.

Our fundamental concern is the rate of change proposed by the policy is far too ambitious.

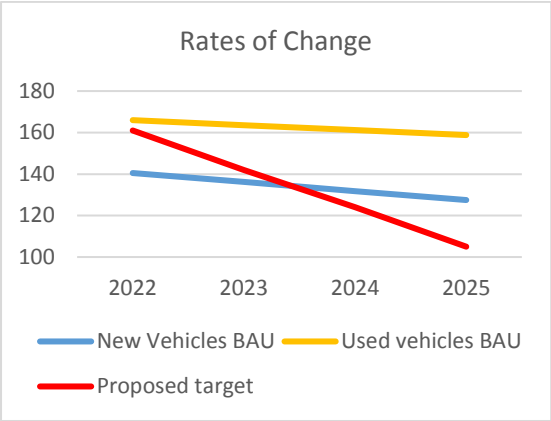


Figure 1: Rate of change of proposed target

On a global level it is the most ambitious rate of change proposed anywhere, ever. Moreover it is the only example of a fuel efficiency standard being proposed for a nation that relies on used vehicle imports from another nation which already has a fuel efficiency standard.

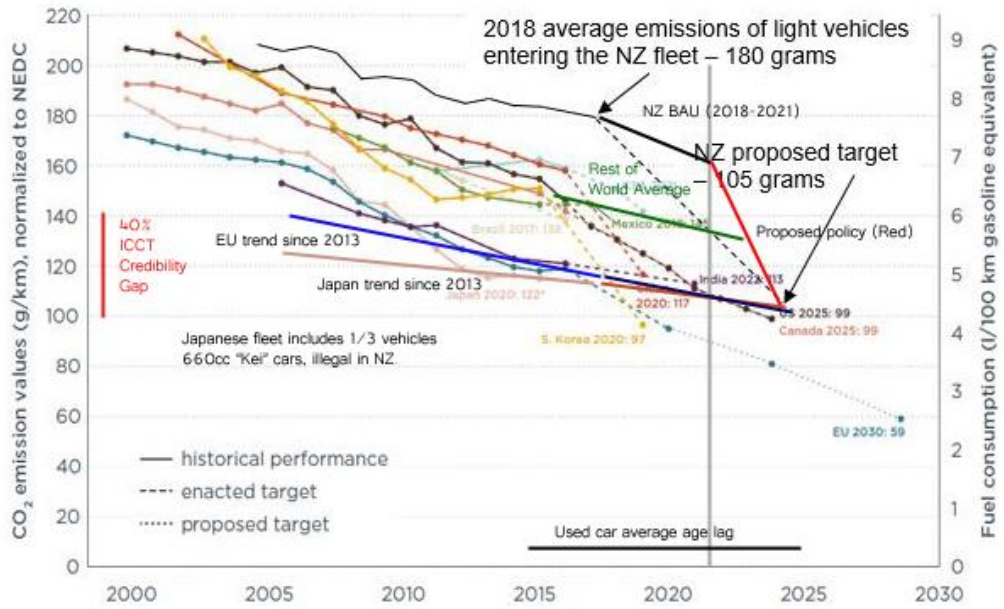


Figure 2: Global context of policy target rates of change

Given such a high level of ambition we would expect the Ministry to present empirical evidence that such a target is based on fleet data from Japan. The Ministry has not done this. Indeed the Ministry has used the car standard but applied it to a fleet which includes utilities and light trucks which normally use a higher standard.

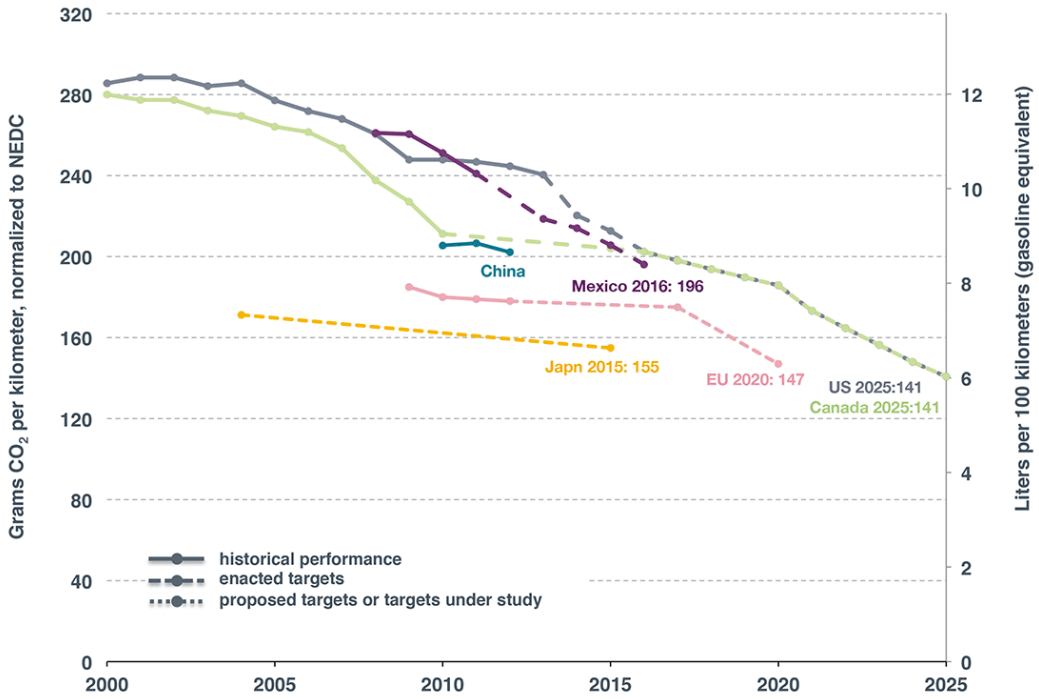


Figure 3: The ICCT graph not included by MoT shows utes on a higher CO_2/km trajectory

All the evidence from the Motor Industry Association (representing new car vendors) and the Imported Motor Vehicle Industry Association (representing used car vendors) is to the contrary. We will show the consequences of a mismatch between demand and supply are likely to be high penalty costs and low policy carbon abatement.

We also believe that as proposed this policy raises serious equity issues. As drafted and with the timeframe we have been given the proposal would rush into a complex policy minefield of the future of fuel excise. It has been long known by the transport industry that the funding of public infrastructure through fuel excise duty (petrol tax) would ultimately face serious issues as electric (hybrid through to full electric) engine technology increased fuel efficiency and hence the tax paid by some road users. It has also be long realised that those possessing fuel efficiency technology were likely to be wealthier than those who did not. Unless these issues are addressed accelerating this decarbonisation trend could accelerate those significant social equity issues as poorer people end up subsiding the transport options of the wealthy.

Of the two proposed policies the AA has mostly concerned itself with the vehicle fuel efficiency standard (Clean Car Standard) which would affect the supply of vehicles into the New Zealand market. This is not because the feebate is without problems but because 1) we have better access to data to comment on the Standard and 2) 80% of CO_2 abatement has been attributed to the standard. There are potentially serious equity issues related to the discount scheme which we cannot explore because we have lacked the time and the data access to do so.

The AA notes that the Australian Government's development of an equivalent policy was open to industry engagement for over two years while this consultation with affected parties allowed 35 working days. The AA believes the time frame allowed for carrying out an adequate policy process for a measure of this scope has been manifestly too short for adequate analysis to be properly carried out.

It is our strong view that the proposed timeframe for this policy needs to be reconsidered because the detailed analysis of the proposal provided by officials does not meet the Governments own expectations for the design of regulatory systems. In particular it fails to demonstrate that the proposal:

- *seeks to achieve its objectives in a least cost way, and with the least adverse impact on market competition, property rights, and individual autonomy and responsibility*
- *is well-aligned with existing requirements in related or supporting regulatory systems through minimising unintended gaps or overlaps and inconsistent or duplicative requirements.*
- *is proportionate, fair and equitable in the way it treats regulated parties*[1]

Importantly the AA contends there is no policy justification for such a short policy development time frame. The short run effect of the proposed policy on greenhouse gas emissions is very small and there is time to ensure a high quality regulatory intervention rather than a rushed and poorly developed one which will inevitably need to be revisited as the implications of the design are revealed.

[1] *"Government Expectations of Good Regulatory Practice" Part A p2*

3. Structure of this Document

This submission is a long, complex and sustained argument. Most of it is focused on the cost benefits of the Clean Car Standard proposal. In order to aid its digestion we summarise the argument here.

Section	Page	Purpose
4. Facts to be born in mind while considering these policies	13	A summary of significant facts about the vehicle market and industry and why it is the way it is.
5. Gaps in the interim analysis	17	A brief critique of important missing elements in the arguments in support of the policy as proposed. We challenge the cost benefit analysis on the basis that it takes the unduly optimistic view that no penalties are paid (no projections are included in the interim CBA) and that the proposed penalties will achieve 100% compliance yielding maximal fuel and carbon savings.
6. Clean Car Standard Penalty Rates not justified	20	We argue that the proposed Clean Car Standard Penalties amount to a carbon abatement price 3-4 times any carbon price projections made by the Ministry
7. Business as usual fuel efficiency improvements	21	We use MoT data to generate a regression model of the likely course of fuel efficiency improvement without any policy. We introduce our modelling technique based on the known implications for fuel consumption, taxes, costs and CO_2 emissions of a 1gm CO_2/km per vehicle improvement in fuel efficiency.
7a Policy Effectiveness of the Clean Car Standard.	21	Using the regression model we generate a range of fuel efficiency fleet averages from 0% or business as usual (maximum penalties paid and no carbon or fuel is saved) to 100% policy effectiveness (no penalties are paid and maximum carbon and fuel is saved) for policy effectiveness levels of 80%, to 20%.
7b Delta values	23	We calculate the difference in grams CO_2 per kilometre travelled between the business as usual regression and each policy effectiveness level.
Carbon and Fiscal impact for years 2022-2025 and beyond	24	We examine the carbon and fiscal outcomes of changes in average fleet fuel efficiency at different levels of policy effectiveness (100% effective to BAU)

New Fleet Analysis of Clean Car Standard Compliance Rates and Penalties	26	We examine MIA data for new car models and conclude that the evidence suggests there will be low levels of policy effectiveness
Used Fleet Analysis of Clean Car Standard Compliance Rates and Penalties	28	We examine VIA data for used car models and conclude the evidence suggests there will be low levels of policy effectiveness for used car imports as well.
Cost Benefit of Clean Car Standard to Vehicle Buyers	30	We model the penalty costs of changes in average fleet fuel efficiency at different levels of policy effectiveness (100% effective to BAU) We then compare the penalty costs and the fuel savings at different levels of policy effectiveness showing that at predicted low levels of policy effectiveness there is a negative cost benefit of the policy to vehicle purchasers generally.
Carbon abatement costs to all motorists	33	We use the Transport Costs Index to calculate the abatement cost of carbon to all motorists which is again higher than any contemplated in any other sector.
Serious concerns with the truth of core measurements used in the policy	35	The problems with vehicle manufacturers cheating fuel efficiency tests are not inconsequential to the design of this policy
Safety Issues raised by the Clean Car Standard	37	The Clean Car Standard encourages New Zealanders to substitutel vehicles with unknown consequences for road safety.
Alternative policies for greater carbon abatement	39	We draw attention to the Productivity Commissions examination of biofuels which offer the opportunity to indigenously produce zero carbon fuel for land, sea and air transport without modification to engine technology.
Equity Issues	40	We identify the many and troubling equity issues the policy raises we believe need a more complete investigation before implementing a policy of this scope.
Other Issues Stimulated by the Proposed Policy	41	We identify other leakage and perverse outcome issues with the detailed policy design
Conclusions	43	A brief round up.
AA Districts View	44	Verbatim comments from AA Districts

4. Facts to be born in mind when considering these policies

1) The principle reason for the growth in transport carbon emissions is nothing to do with vehicle efficiency. It has been driven by population growth. Vehicle purchases and population growth are very highly correlated. Lacking alternatives much of New Zealand relies on motorised transport and consequently has the third highest number of vehicles per head of population in the world. In recent years New Zealand's population growth has been driven by migration which is a direct consequence of government policy. The New Zealand public does not have the transport options enjoyed in many wealthier nations.

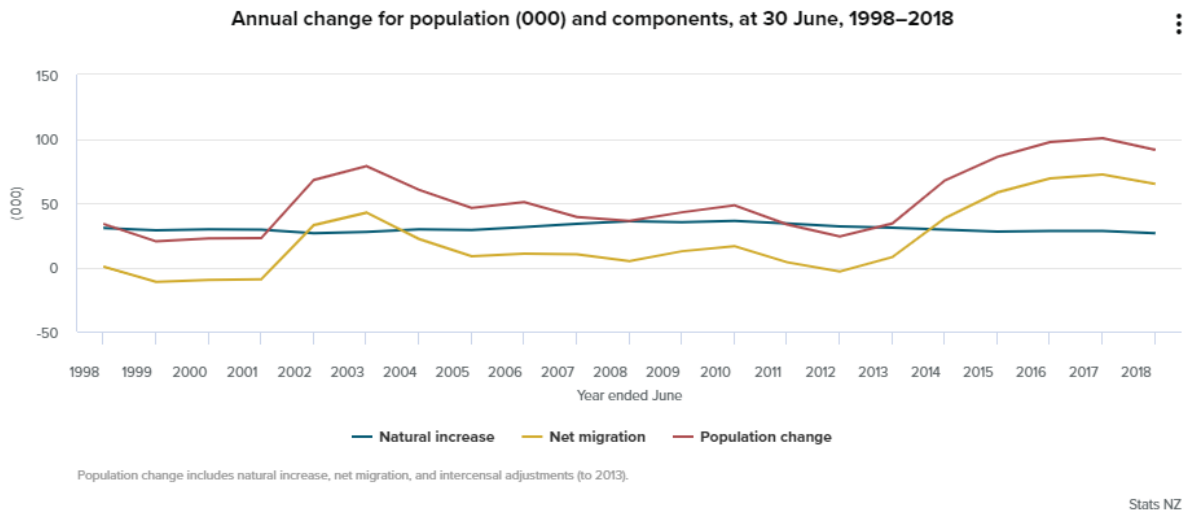


Figure 4 Population increase has been driven by immigration

2) The New Zealand car market is large. There are 5.2 million vehicles registered in New Zealand of which 3.5 million are passenger cars and vans. In 2018 New Zealanders imported 304,574 cars and utes for $5.1 billion at an average cost of $16,857 per unit. In 2017 this was 179,568 used vehicles and 157,556 new vehicles. In 2018 the total trade in motor vehicles and parts in New Zealand had sales of $11 billion making it a tenth of total wholesaling sales by value in the country.

3) However the $16,857 average price disguises the fact that there are in fact two vehicle import markets. Unused (new) and used vehicles. Of the approximately 300,000 imports a year 53% are typically used imports from Japan. This very large used import trade is because a high proportion of New Zealanders cannot afford new vehicles. According to the Imported Motor Vehicle Industry Association (VIA) in the used vehicle market the rule-of-thumb for the "sweet spot price" for vehicles landed in New Zealand is around $8,000. This is the price the majority of New Zealanders can afford. The average age of used vehicles when imported into New Zealand has climbed from 7 years 3 months in 2000 to 9 years 9 months in 2017.

4) This, in effect, means that New Zealand's current fleet is Japan's old fleet, and that New Zealand's future fleet is Japan's current fleet. Unlike most nations who buy new vehicles if we want to see New Zealand's future fleet we can visit it now in Japan.

5) The reason we import 70% of New Zealand light passenger vehicle fleet from Japan is simply due to the fact that Japan produces around 75% of the world's exportable **right hand drive** vehicles. About 24% of New

Zealand's fleet was made by Toyota.

6) As of 2015 New Zealand was the largest customer for Japanese used passenger vehicles closely followed by the United Arab Emirates. Other nations buying Japanese second hand imports to date are the Myanmar, Kenya, Chile, Sri Lanka, Pakistan, Russia, South Africa and Tanzania. In 2015 New Zealand took 17.5% of the 645,776 vehicles that were re-exported from Japan[i].

7) According to the Japanese Automotive Manufacturers Association (2018) the Japanese domestic fleet (2017) consisted of 61.8 million passenger vehicles. Of these 22 million (35%) are "mini" Kei class cars which are 660cc vehicles with a limit of 47kW a maximum length of 3.4m, width of 1.48m and height of 2m. Vehicles which are too short to provide a crumple zone do not meet New Zealand's frontal impact standards. In other words a third of Japan's highest fuel efficiency vehicles are not available to New Zealand importers because of safety standards. From 2020 all imported cars must also have electronic stability control.

8) In addition the Japanese fleet includes 7.5 million (12.1%) hybrid vehicles and (0.4%) 257,000 electric and plug in electric vehicles. Japan currently (2017) manufactures 18,092 EVs per year. Japan produces more electric vehicles than any other nation but its *entire annual production is just 10% of New Zealand's second hand imports each year*.

Japanese Vehicle Production

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Hybrid vehicles	108,518	347,999	481,221	451,308	887,863	921,045	1,058,402	1,074,926	1,275,560	1,385,343
Plug-in hybrid vehicles	0	0	0	15	10,968	14,122	16,178	14,188	9,390	36,004
Electric vehicles	0	1,078	2,442	12,607	13,469	14,756	16,110	10,467	15,299	18,092
Fuel cell vehicles	0	0	0	0	0	0	7	411	1,054	849
Clean diesel vehicles	0	4,364	8,927	8,797	40,201	75,430	78,822	153,768	143,468	154,803
Total	108,518	353,441	492,590	472,727	952,501	1,025,353	1,169,519	1,253,760	1,444,771	1,595,091

Source: Japan Automobile Manufacturers Association

Table 1 Japanese alternate fuel vehicle production

9) According to the International Energy Agency Global Fuel Efficiency Initiative (using the World Harmonised Light Vehicles Test Procedure (WLTP) only) the Japanese domestic fleet has been stalled at about 144gm/km since 2013.

Japanese vs New Zealand Fuel Efficiency Performance

	2010	2011	2012	2013	2014	2015	2016	2017
Japan(GFEI)	163	159	147	143	136	143	144	144
Change		-2.5%	-7.5%	-2.7%	-4.9%	+5.1%	+0.7%	0.0%
NZ(fleet)[2]	230	229	225	222	218	217	214	207
Change		0%	-2%	-1%	-2%	0%	-2%	-3%

Table 2 IEA Global Fuel Efficiency Initiative track of Japanese fleet achieved fuel efficiency compared to real world NZ petrol fleet fuel efficiency (MBIE petrol consumption divided by MoT petrol mileage data)

Japan's flat line is despite having the best average fuel consumption from electrified vehicles in the world.

World's Best Fleets Fuel Efficiency Performance

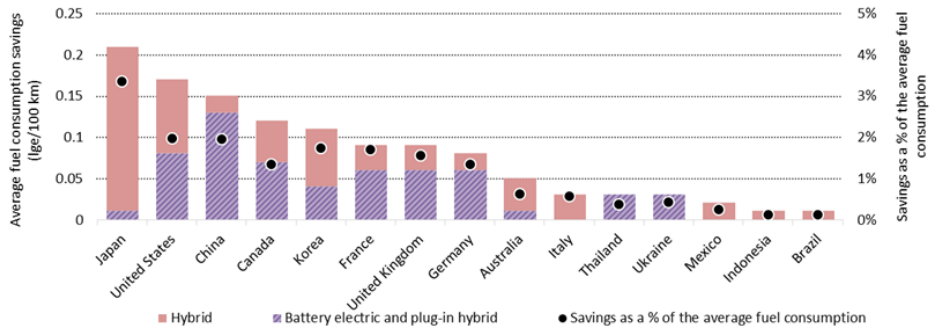
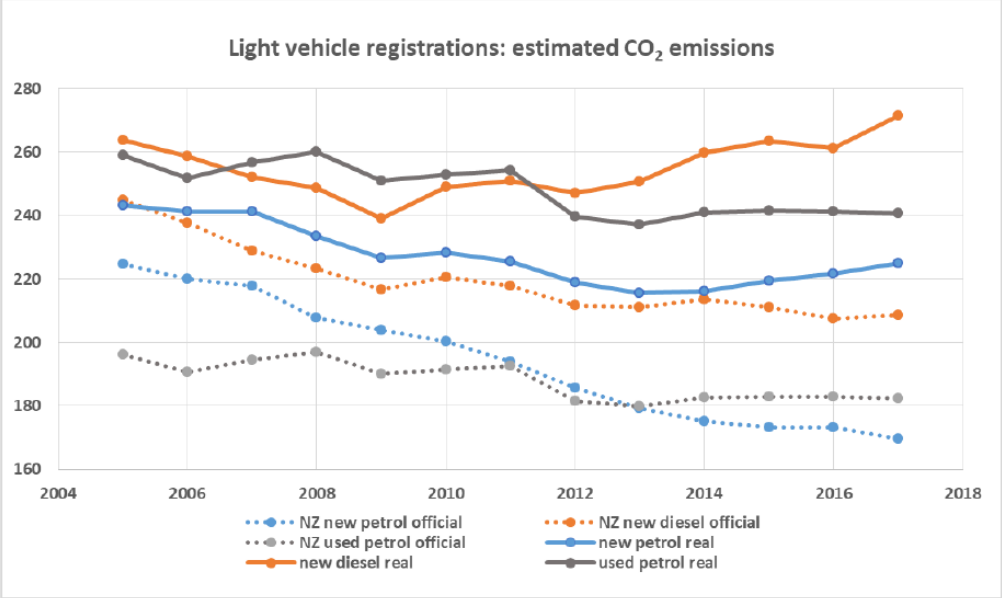


Figure 5 Japan leads the world in fuel efficiency savings through electric vehicles

10) There is growing evidence that the tendency towards manufacturing ever larger vehicles is behind the global stalling in vehicle fuel efficiency. Research by Emission Impossible Ltd for the AA Research Foundation (Jun 2019) suggests new vehicle real fuel efficiency may even be getting worse. A newer fleet is not necessarily better.

[2] New Zealand actuals are for Petrol light vehicles only using MBIE emissions data and MOT fleet stats The value above for the New Zealand fleet includes all petrol vehicles in the fleet not just the vehicles manufactured in that year. This should not be confused with the targets referred to in the discussion document which are for the year of registration only.



This analysis suggests that it is **possible that there has been no improvement in fuel efficiency** of vehicles coming into New Zealand over the past decade. Efficiency **may actually be getting worse**.

Figure 6 Research by Emission Impossible for the AA Research Foundation hints real world fuel efficiency is getting worse not better as people opt for heavier vehicles

11) The New Zealand new vehicle import market is treated by many manufacturers as a branch of the larger Australian market, making up 15% of the Australasian market. The Australian market preference is for SUV models. In 2017 Australian buyers bought 465,646 SUVs vs 450,012 passenger cars[ii]. The same is true in New Zealand. The NZ Motor Industry Association reports that for 161,519 new vehicles sales in calendar year 2018 106,504 were SUVs or pick-ups using Australian Federal Chamber of Automotive Industries segmentation classifications. Australia has no fuel efficiency or carbon emissions standard.

12) As the MIA point out models are sold to specific markets and because New Zealand's market is tiny by world standards it is (for the most part) treated as part of a single Australasian market. At a certain point manufacturers must balance the cost of configuring a new model for the Australasian market against the profitability of doing so. This does not just include physical fit-out. As modern vehicles contain around 10 million lines of software code[iii] new vehicle models must also be configured and the more technology vehicles incorporate (lane departure warnings, traction control, road sign recognition) the more expensive this becomes.

5. Gaps in the Ministry's Interim Analyses

According to the Cabinet Paper introducing consultation on this policy proposal the objective of the policy is to reduce carbon emissions from the transport sector. Despite this the amount of carbon actually saved by the scheme is very small.

The fundamental flaw in the Ministry's Cost Benefit Analysis is that it does not include any values for the increased cost of cars due to the Clean Car Standard in particular. It uses instead a "technology scenario" approach to overcome the fact that the Ministry had no data on the substitutability of actual vehicle makes and models. Price increases are alluded to in the Social Impact Assessment but not effectively quantified in the Cost Benefit Analysis. Because the mechanism is a price change, not a ban (like the Electronic Stability Control ban), neither 100% and 0% policy effectiveness is likely. For example, as an extreme case for the point of argument only, if New Zealanders chose to simply pay the penalty for new vehicles over the 2022 to 2025 period there would be no fuel or CO_2 savings at all, just a large fiscal windfall in penalties for the Government.

The cost benefit analysis has mostly been based on benefits, not costs. If (as hinted at by the SIA) vehicle prices rise at the border they will ripple through the used car market. In 2018 the AA Research Foundation commissioned Statistics New Zealand to develop a transport costs index based on Consumer Price Index and Household Economic Survey data. This showed that the primary component of transport costs for drivers was price changes to fuel (42% of the total in the North Island and 39% in the South Island) but that the cost of vehicles was the second most important component (34.5% in the North Island and 38.8% in the South Island). This demonstrates that the price of vehicles in the marketplace is a real and significant component of annual transport costs for the millions of New Zealanders who operate a motor vehicle.

The interim CBA for the Vehicle Fuel Efficiency Standard does not include penalty income for Government (nor yet what would happen to it). This can only happen if the policy is 100% effective and no penalties are paid and maximum fuel efficiency is achieved. The AA has extreme doubts this is possible and for this reason much of this submission is devoted to the estimating the cost benefits of the proposal under differing levels of policy effectiveness.

According to the Cost Benefit Analysis (CBA) report provided by the Ministry of Transport the Clean Car/ Vehicle Fuel Efficiency Standard (VFES) the estimated annualised savings from the Fuel efficiency standard is expected to be 233 Kt of CO_2 equivalent (over 21 years) while the savings from the Feebate scheme (calculated on the same basis) would be 73.1 Kt CO_2e. This totals 306 Kt of CO_2 per year.

This must be put in the context of petrol transport emissions currently totalling 7,500 Kt tons of CO_2 *per year*.[iv] This means the VFES would eventually reduce emissions by 3% of today's values. While the CBA compared this to tree planting it is also equivalent to the current number of petrol vehicles being driven on average 500km less than 11,691km they were driven in 2017, which is actually in line with declining per vehicle annual mileages[3]. But this does not account for changes due to migration which is a large part of the reason for increasing transport CO_2 emissions in the first place.

According to Ministry figures the correlation between light fleet growth and population increase is very high (r^2=0.93) and yet the baseline scenario in the VFES cost benefit analysis[4] projects an average decline in petrol

[3] Average annual per vehicle mileage has fallen from 13,270km in 2001 to 12,256 in 2007 to 11,691km in 2017.

[4] Table 2 page 5

internal combustion engine registrations year on year from 2017 to 2040 of -3% and diesel of -1%. While some loss to petrol hybrids and other fuels is possible Ministry figures show that hybrid imports while growing at 32% per year are coming off a very small base (less than 6% of petrol imports). In order for the baseline projections to be close to reality hybrid import growth rates would have to be 400% to equate with the annual growth in petrol vehicles but the projections used in the baseline scenario are far more modest. This therefore suggests a baseline scenario where the vehicle market will somehow shrink when all the evidence is that it will continue to grow in line with population.

We are also concerned that Ministry fuel price projections which account for the bulk of the benefits are based on projections which do not correspond with reality. We have been advised that: "*The fuel price used in the preliminary CBA, over the lifetime of the policy evaluation period of up to 2042, ranged from $1.47 to $2.58 per litre (excluding all taxes)*"[5]. Actual prices in the past ten years have only ever peaked at $1.45 and are currently 25 cents per litre cheaper. Research[v] shows that even the IEA's World Energy Outlook has low accuracy on price, even though production predictions have been more accurate.

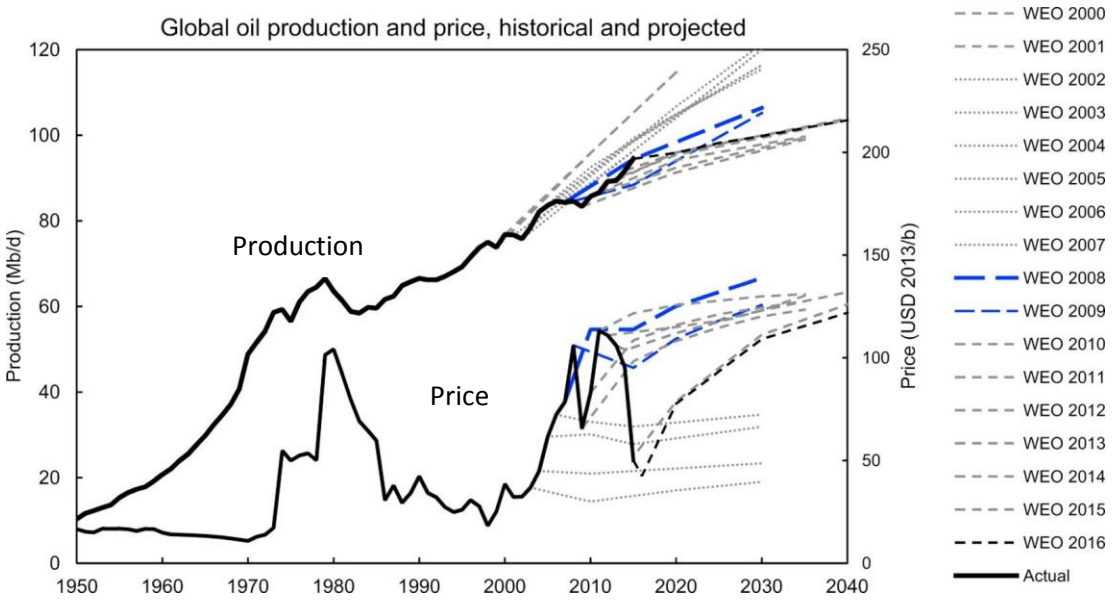


Figure 7 IEA Historical oil production and price projections

Basing a cost benefit analysis on what the Ministry *thinks* fuel prices *might be* runs a significant risk of unjustifiably overstating the benefits of the policy. This runs the significant risk of cost benefit analysis simply becoming an exercise in retrospective justification. The AA would expect a far more conservative approach to oil price projections. For our part we have used the current ex tax price ($1.20) as a constant even though this is higher than the ten year average ($1.14).

A large part of the flaw in this analysis is that the Government has no real justification for the penalties proposed. We understand the Ministry could not carry out any investigation into price sensitivity in the vehicle market as part of its assessment of this policy, or (as importantly) when combined with the effect of other new policies (such as the ban on vehicles not fitted with Electronic Stability Control from 2020) because the Ministry has had no data on real world vehicle models, or their prices, nor on the potential supply of such vehicles in the marketplace[vi].

We note however that the bulk of the carbon saving projected by the Ministry come from the Vehicle Fuel Efficiency Standard not the Discount scheme. If there is a problem with justification for the standard there is likely to be a problem with the discount scheme as well.

[5] Personal communication

Criticism of the Clean Car Discount scheme is more difficult to make because the funding flow is meant to be self contained. One vehicle buyer loses and another gains. The question here is whether this transfer of benefit is likely to be from poor people to the wealthy (regressive) or the other way around (progressive). There is a suggestion in the Interim Clean Car Discount Social Impact Assessment that the policy is likely to be regressive, however there is not enough clarity in this document to state this categorically. This is largely because this research requires access to private data which privacy laws make very difficult for non-Government agencies such as the AA to verify (certainly in less than 35 days). Resolving this openly before the public is another reason the AA believes this policy process should be slowed and opened to public scrutiny.

Finally while the Ministry has traditionally been keen to research externality costs associated with car transport it has never produced a social or economic model that accounts for New Zealand's very high reliance on the car or the average or marginal benefit of cars to society or the economy. It therefore cannot calculate the social or economic effect of an artificial price increase would be in terms of deprivation rates and overall wellbeing.

While we believe the Ministry has done its best to prepare the best cost benefit and social impact assessments for the proposed policy it could in difficult and rushed circumstances the interim assessments do not appear to do justice to the full amount of work attempted and in some areas the Ministry is in effect papering over very large gaps in its available data The AA is confident that given sufficient time and the support of the motor vehicle industry a workable solution is possible.

6. Clean car standard penalty rates not justified as a carbon abatement measure

In climate change policy the New Zealand government's policy has always been that no one sector's carbon emissions are any better or worse than any other sector's emissions. For this reason New Zealand uses a common price set through the emissions trading scheme.

The unit measure of this policy is a gram of carbon per kilometre travelled (which equates to a change of 0.043 litres per 100km in fuel efficiency). Because the relationship between the weight of carbon emissions and petrol burned is chemically constant[6] we can readily calculate the unit impact of this central policy measure using average mileages published by the Ministry.

For every new vehicle 1gm CO_2/km over a 17 year average vehicle lifetime (the point when the average scrappage mileage is met) represents 83 litres of fuel, 0.204 Tonnes of CO_2, $56 of fuel excise tax expenditure, $23 of GST, $5 to ACC and $2.80 of Auckland petrol tax. While taxes are fixed, fuel prices are highly variable and predictions of them are almost always wrong. At current fuel prices (importer cost plus margin $1.20) each 1gm CO_2/km increase in efficiency reduces costs by $99.60 per vehicle over 17 years.

Because used vehicles have already consumed a fraction of their total lifetime offshore used vehicle whole of life emissions are considerably lower. Thus for every imported used vehicle 1gm CO_2/km over a 17 year average life represents 39 litres of fuel, 0.096 Tonnes of CO_2, $26 of fuel tax expenditure, $11 of GST, $2.40 to ACC and $1.30 of Auckland petrol tax. At current fuel prices each 1gm CO_2/km increase in efficiency reduces fuel costs $47 over a 17 year lifetime.

From this we can see the proposed Fuel Efficiency Standard penalty of $100 for each 1 gram every new car is over the standard therefore represents an abatement cost (or carbon tax rate) of around $100/0.204T CO_2 = $490/Tonne CO_2. By contrast the lifetime ETS charges (at the current $24/T CO_2) would be $4.91. The MoT Assumed scenario[vii] in the Cost Benefit Analysis for the Clean Car standard forecasts a social cost of carbon of $100 per tonne in 2020 (four times the current price) rising to $250 per tonne (ten times the current price) by 2050. Even applying this maximum MoT assumed scenario carbon price to actual carbon emissions over 17 years the social cost of carbon ($250 x 0.204T CO_2) would only be $51. *The carbon penalty for new vehicles is therefore (using MoT social cost of carbon projections)* ***two times higher than can ever be economically justified****.*

A $50 penalty for each gram per kilometre each used car is over the standard represents an abatement cost (or carbon tax rate) of $50/0.096T CO_2 = $520/Tonne. By contrast the lifetime ETS charges (at the current 24/T) would be $2.30. Again using MoT maximum social cost of carbon projections over the whole of life carbon emissions ($250x 0.096T CO2) of the vehicle the total cost is $24. *The carbon penalty for used vehicles is therefore (using MoT social cost of carbon projections) over* ***four times higher than can ever be economically justified****.*

Conclusion: There is no apparent justification for the level of the proposed Penalty Rates.

7. Business as usual improvements in fuel efficiency vs policy targets

The Cabinet paper justification for the proposal is that if it is 100% successful it will reduce emissions and expenditure on fuel for those fortunate enough to buy a vehicle meeting the target instead of one exceeding the target. If the policy is 0% successful vehicle buyers will pay the government high penalties and no saving will be

[6] Measuring Emissions: A Guide for Organisations - 2019 Summary of Emission Factors, p6, Table 4.

achieved. We propose that the policy's effectiveness can only be assessed as the difference between business-as-usual fuel efficiency improvements which would happen anyway, and the policy effects. The degree to which the policy is successful or not we term the *policy effectiveness*.

We have used a straight line regression model to estimate business-as-usual improvements in average fuel efficiency for the new and used petrol vehicles entering the fleet compared to the targets[7]. The model was based on forty quarters of fuel efficiency improvement up to the 2017 Q4 value published by MoT[viii]. The yellow shaded area are the AA values generated by regression. The regression achieved the highest correlation levels (R^2) we could with the data given.

Business as Usual Imported Fleet Fuel Economy Regression Projections

coefficient R^2	-1.0845 0.92569	-0.6 0.576387	Values
BAU	**NEW**	**USED**	MoT
2017	162	178	actual
2018	158	176	
2019	154	173	
2020	149	171	**Policy**
2021	145	168	**Targets**
2022	140	166	161
2023	136	164	142
2024	132	161	124
2025	127	159	105

Table 3: A Business as Usual Regression Model

We have ignored diesel and commercial vehicles which are a relatively small proportion of the light fleet. Had we had more time this analysis could have been included.

The values of average fleet efficiency achieved at different levels of policy effectiveness were determined mathematically by taking the spread between business as usual average fleet vehicle efficiency (0% policy effectiveness) and the 2025 target (100% policy effectiveness). We assume BAU reductions up to 2021 (as there is an incentive to import higher emitting vehicles leading up to the penalty introduction) followed by reductions from 2022 to 2025. We have used a constant reduction factor for each level of policy effectiveness.

7a Policy Effectiveness of the Clean Car Standard

The policy effectiveness rate is a theoretical measure of the effectiveness of the policy at achieving its goals. It could also be interpreted as the percentage of the imported fleet complying with the standard and not paying a penalty.

Here we take the business as usual (BAU) regression from page 17 which represents 0% policy effectiveness and then calculate further regressions for 20% to 100% policy effectiveness (the rosiest view).

NEW	Policy Effectiveness	BAU	20%	25%	33%	50%	66%	75%	80%	100%	
2017	(last data)	162	162	162	162	162	162	162	162	162	MOT
2018	AA projections	158	158	158	158	158	158	158	158	158	Proposed interim targets
2019		154	154	154	154	154	154	154	154	154	

[7] Interim targets used in the model p16 in the Discussion document

2020	Policy Year	149	149	149	149	149	149	149	149	149	for all vehicles
2021	0	145	145	145	145	145	145	145	145	145	
2022	1	140	139	139	138	138	136	136	136	135	161
2023	2	136	134	133	132	131	128	128	127	125	142
2024	3	132	128	128	125	123	120	119	118	115	124
2025	4	127	123	122	119	116	111	111	109	105	105
Annual rate of gm/km Reduction >>		4.3	5.5	5.7	6.5	7.1	8.4	8.6	8.8	10	18.6

Table 4: New car business as usual vs other regressions at varying levels of policy effectiveness

The blue shaded region indicates the calculated fleet average would be over the proposed interim MoT targets.

USED	Policy Effectiveness	BAU	20%	25%	33%	50%	66%	75%	80%	100%	MOT Proposed interim targets for all vehicles
2017	(last data)	178	178	178	178	178	178	178	178	178	
2018	Projected	176	176	176	176	176	176	176	176	176	
2019		173	173	173	173	173	173	173	173	173	
2020	**Policy Year**	171	171	171	171	171	171	171	171	171	
2021	0	168	168	168	168	168	168	168	168	168	
2022	1	166	163	163	161	159	157	156	155	153	161
2023	2	164	158	157	154	150	145	143	142	137	142
2024	3	161	153	151	147	141	133	131	129	121	124
2025	4	159	148	145	139	132	122	118	116	105	105
Rate of Reduction >>		2.4	5.1	5.8	7.2	9.1	11.7	12.5	13.2	15.8	18.6

Table 5: Used car business as usual vs other regressions at varying levels of policy effectiveness

All of this is to illustrate the gap between Business as Usual and a policy which is 100% effective at achieving the stated target. We have not established what the actual effectiveness of the policy is going to be yet. However we can see some important patterns.

1) To achieve its goals the policy has to be more effective for used vehicles than new vehicles as they are further from the target.
2) The policy has to be 100% effective to reach its 2025 target.

By simply deducting the policy effectiveness level from BAU regression values (see the tables on page 19) we can calculate the amount of grams per kilometre saved for new and used vehicle by differing levels of policy effectiveness. This yields delta values we can use in later calculations.

7b Delta Values of (gm CO2/km) Policy Effectiveness rate

New Cars	BAU	20%	25%	33%	50%	66%	75%	80%	100%
2022	0	1	1	2	3	4	4	4	6
2023	0	2	3	4	6	8	8	9	11
2024	0	3	4	7	8	12	13	13	17
2025	0	4	6	9	11	16	17	18	22

Table 6: Difference between business as usual and policy ambition for new cars

Used Cars	BAU	20%	25%	33%	50%	66%	75%	80%	100%
2022	0	3	3	5	7	9	10	11	13
2023	0	5	7	10	13	19	20	22	27
2024	0	8	10	15	20	28	30	32	40
2025	0	11	13	19	27	37	40	43	54

Table 7: Difference between Business as Usual and policy ambition for used cars

These values are the difference in grams CO2/km travelled in fuel efficiency between what would happen without any policy intervention (Business as Usual) and varying levels of policy effectiveness (up to and including 100% where no vehicles are imported that don't meet the standard target).

8. Carbon and Fiscal impact for years 2022-2025 and beyond

To calculate the fiscal impact of the reduced petrol sales we need to start with the impact of each 1 gram per kilometre saved on average by all imported vehicles.

Our model only uses 2017 import numbers and current prices, does not use discounting or any guestimates about fuel prices due to the complete unpredictability of future fuel prices.

Prices we have used are: The latest ETS price of $24/T CO2; the latest fuel price of $2.26 per litre comprising $1.20 fuel costs; 66c per litre Fuel Excise duty; 28c per litre GST, 6c per litre for ACC levy.

We have used MoT figures for kilometres driven by age of light petrol vehicle and the average odometer reading of scrapped vehicles. This yields an average scrapping age of 17 years (even though a fifth of the fleet is over 20 years). New vehicles drive 5,000km in the first year further than used vehicles.

We have assumed vehicles added to the fleet in December of any year will be balanced out over 12 months in time so 2025 will extend into 2026.

There were 93,750 new petrol cars imported and 161,891 used petrol cars imported in 2017. So for the purposes of argument we will use these figures.

Using 2017 vehicle import numbers and multiplying these unit values (1 vehicle's 1gm CO_2/km) by the number of vehicles we get the following fleet averages for the first year of importation.

Effect of each 1gm/CO_2 average fuel efficiency improvement on government income

Per 1gm/km over all imports	T CO_2 per annum over all imports	Average fuel saving per annum over all imports	Forgone Fuel Excise per annum over all imports	Forgone Fuel GST reduction per annum over all imports	Forgone ACC per annum over all imports	Forgone Auckland Petrol Tax per annum over 1/3rd imports	Forgone ETS per annum over all imports
New	1,459	$ 714,534	$396,114	$166,725	$35,727	$19,848	$153,178
Used	1,774	$ 868,667	$481,560	$202,689	$43,433	$24,130	$186,221
Total	3232	$ 1,583,201	$877,674	$369,414	$79,160	$43,978	$339,399

Table 8 Effect of each gram of CO_2/km average reduced across each year's total imports on tax income (dollars)

Because this is for 1gm/km the next problem is the actual difference between the fleet average fuel efficiency achieved and business as usual. This will yield the estimated tax impact of the policy. Separately we will consider the difference between the fleet average achieved and the policy targets. This affects the costs of the policy.

Adding up four vehicle cohorts (those imported in 2022,2023, 2024 and 2025) and calculating their carbon savings and fiscal reductions by fiscal year 2025 by multiplying by the delta values for each level of policy effectiveness we can calculate the Fiscal year 2025 Impact on Government of Clean Car Standard policy at differing levels of policy effectiveness. These tables are slightly overstated because fiscal years end in June whereas importation figures use calendar years.

Fiscal year 2025 effect of Clean Car Standard by Policy Effectiveness

Policy Effectiveness	T CO2	Fuel Excise	GST	ACC	AK Petrol	ETS
100%	- 320,467	- $45m	- $20m	- $8m	- $4.6m	- $33m
80%	- 256,374	- $36m[8]	- $16m	- $6m	- $3.7m	- $27m
75%	- 240,350	- $33m	- $15m	- $6m	- $3.5m	- $25m
66%	- 223,198	- $30m	- $13m	- $5m	- $3.2m	- $23m
50%	- 160,233	- $22m	- $10m	- $4m	- $2.3m	- $17m
33%	- 117,444	- $15m	- $7m	- $3m	- $1.7m	- $12m
25%	- 80,117	- $11m	- $5m	- $2m	- $1.2m	- $8m
20%	- 64,093	- $9m	- $4m	- $1m	- $0.9m	- $7m
BAU	No change					

Table 9: Tax impact of Clean Car Standard

Recalling that petrol vehicles emit 7,500,000 tonnes of CO_2 each year this suggests that in the short term impact of the policy in terms of its effectiveness in reducing carbon emissions is likely to be very low. This once again raises questions about why there is a need to rush this policy.

At 25% effectiveness the policy is likely to save 0.25% of New Zealand's petrol emissions (80kt / 4 years of 7,500kt). At 50% the policy will save 0.5%. Even at 100% there is only a 1% reduction in carbon emitted over the four year period.

This effectively means there is a trade-off between policy with low effectiveness (compliance) and low fiscal impact and high effectiveness and higher fiscal impact.

8a Conclusion on fiscal impact of policy

The fiscal impact of the policy is small but not negligible at high levels of policy effectiveness and virtually non-existent at low levels of policy effectiveness. If the policy is effective this will start to create equity issues as the Government subsidises some vehicle buyers into vehicles which do not pay the same level of tax as other vehicles due to their fuel efficiency.

[8] Treasury tax calculator values show that each 1c per litre of fuel excise duty raises $35m in revenue

9. New Car Analysis of Clean Car Standard Compliance Rates and Penalties

The Motor Industry Association has shared its make and model data with the AA. We carried out a projection of 1,768 new car models and found that by 2025 only 166 models would not attract a penalty fee on import under the proposed Clean Car Standard.

Proportion of New Car Models by Type Attracting a Clean Car Standard Penalty

	Micro Cars	Small Car	Light Cars	Medium cars	Large Cars	Small Cheap SUV	Medium SUV	People Movers	Large SUV	Large Expensive SUV	Ute 4x2	Ute 4x4	All Vehicles
2022	0%	13%	25%	36%	81%	59%	47%	39%	68%	30%	70%	79%	53%
2023	86%	34%	49%	44%	84%	88%	78%	100%	82%	61%	100%	92%	77%
2024	100%	74%	69%	60%	94%	94%	88%	100%	99%	85%	100%	100%	90%
2025	100%	83%	95%	79%	96%	96%	91%	100%	100%	95%	100%	100%	95%

Table 10: Percentage of existing new vehicle models paying a penalty under the proposed Clean Car Standard by year

If we assume that the number of buyers remains more or less constant, then we can estimate the penalty effect on the sales price by multiplying the proportion of buyers who will have to pay a penalty, by the average penalty[9] across all the models available in each segment.

This gives us an estimate of the amount all dealers will want to increase their prices by to recoup their losses. Obviously models with much higher penalties than average would be replaced with models closer to the average.

Average Penalty or Price Increase for New Vehicles by Type

	Micro Cars	Small Car	Light Cars	Medium cars	Large Cars	Small low cost SUV	Medium SUV	People Movers	Large SUV	Large Expensive SUV	Ute 4x2	Ute 4x4	Weighted Average
Sold in 2018[10]	*892*	*12,562*	*10,944*	*3,050*	*2,522*	*15,670*	*27,376*	*490*	*10,738*	*4,544*	*15,210*	*25,170*	*129,168 Total*
2022	$0	$262	$ 243	$	$2,132	$911	$837	$1,201	$1,960	$ 975	$ 1,666	$ 1,831	$ 1,130
2023	$157	$601	$ 693	$ 56	$3,228	$ 1,913	$ 1,691	$3,253	$3,601	$2,605	$ 3,809	$ 3,492	$ 2,304
2024	$1,431	$1,895	$ 1,255	$ 1,041	$4,342	$ 3,192	$ 2,869	$5,077	$4,881	$4,011	$ 5,511	$ 5,504	$ 3,668
2025	$2,814	$3,109	$ 2,590	$ 2,731	$5,554	$ 4,353	$ 4,163	$7,001	$6,747	$5,746	$ 7,355	$ 7,422	$ 5,162
		Small vehicle band 2025 average $2,811				Medium vehicle band 2025 average $4,690				Large vehicle band 2025 average $6,854			

Table 11: Estimate of average per vehicle penalty by new car class

While some buyers will be able to change their penalty by changing vehicle bands (shown here by colour) it is notable that there is little difference between the various levels of penalty within a band.

These average penalties are certainly within the negotiating range of dealers. Thus someone seeking a large vehicle (costing on average $70,000) will pay an average $7,000 extra in 2025, $5,000 for a largish car or smaller SUV (worth $50,000), and $2,700 more for a smaller car around ($27,000).

[9] The average of penalties, not including rebate values. N.B. some segments have been left out.

[10] NB. This includes diesel vehicles.

The very large number of new vehicle models which would attract a penalty could generate considerable income for the Government.

Estimated Government Income from New Car Penalties ($m)

Govt Income (thousands)	Micro Cars	Small Car	Light Cars	Medium cars	Large Cars	Small Cheap SUV	Medium SUV	People Movers	Large economy SUV	Large exp SUV	Utes 4x2	Utes 4x4	Total Penalties Paid
2022	$ -	$3m	$ 2,662	$ -	$ 5m	$14m	$ 23m	$ 0.6m	$ 21m	$ 4m	$25m	$46m	$146m
2023	$0.14m	$ 7.5m	$ 7.5m	$0.17m	$ 8m	$29m	$ 46m	$1.6m	$ 39m	$12m	$58m	$ 88m	$298m
2024	$1.2m	$24m	$14m	$3m	$10m	$50m	$ 79m	$2m	$52m	$18m	$84m	$139m	$477m
2025	$2.5m	$39m	$28m	$8m	$14m	$68m	$114m	$3m	$72m	$26m	$111m	$187m	$675m

Table 12: Estimate of Government total revenues due to penalties

We note that two thirds of the new model penalties would be paid by large SUVs and Utes. This once again raises questions about why these vehicles should be compared to car standards and reinforces questions about the substitutability of these vehicles with lighter vehicle types. While there are certainly a proportion of "latte tractors" employed by motorists who could substitute these vehicles with other vehicle types those who cannot do so because they require the basic utility of the Ute vehicle type cannot do so.

Given the very large numbers of models paying penalties it is probable that as far as new vehicles are concerned the policy would not achieve high levels of effectiveness.

9.a Conclusion on policy effectiveness for new vehicle imports

This would suggest the 25% policy effectiveness level by 2025 is the most likely scenario.[11] **However we need to consider the impact of banking on the total level of penalties.**

[11] We note that the discussion document is silent on the question of GST with regards to both the penalty and the feebate. That is to say we would expect the Goods and Services Tax to amplify the penalties and feebates. We have not included GST in any of our modelling of vehicle prices but unless penalties are expressly excluded we would expect GST to increase costs even further.

10 Used Car Analysis of Clean Car Standard Compliance Penalties

Using VIA data we estimated the average vehicle fuel efficiency standard penalties on 13,926 model year combinations of vehicles[12]. Once again the findings show that on average by 2025 the targets cannot be met by vehicles known to the New Zealand market.

The table below shows the average weight adjusted Clean Car Standard penalty for different price bands and sizes of vehicle. Red cells represent an average penalty for all the models in the class.

We assume that the average penalty will become the de-facto increase in vehicle prices as dealers switch to lower emitting vehicles and pass on the average penalty.

Average Used Car Penalty (Price Increase) by Price Range and Size

		2022	2023	2024	2025
Cheap cars	(under $16k new)				
228 models	**Micro**	$ 1,583	$ 833	$ 183	-$ 567
Economy Cars	($16-$32k new)	$ 1,199	$ 428	-$ 292	-$ 1,079
4,436 models	**Micro**	$ 1,482	$ 732	$ 77	-$ 676
	Small	$ 953	$ 170	-$ 614	-$ 1,431
	Medium	-$ 107	-$ 1,063	-$ 1,969	-$ 2,925
Medium Price	($32-64k new)	$ 89	-$ 865	-$ 1,779	-$ 2,735
3,580 models	**Micro**	$ 385	-$ 365	-$ 1,025	-$ 1,780
	Small	$ 440	-$ 392	-$ 1,221	-$ 2,066
	Medium	$ 225	-$ 745	-$ 1,664	-$ 2,634
	Large/SUV	-$ 1,184	-$ 2,318	**-$ 3,385**	**-$ 4,502**
	Very Large/SUV	-$ 2,037	**-$ 3,337**	**-$ 4,537**	**-$ 5,787**
High End Cars	($64-$128k new)	-$ 34	-$ 1,073	-$ 2,057	-$ 3,090
3,402 models	**Micro**	-$ 2,914	**-$ 3,664**	**-$ 4,314**	**-$ 5,064**
	Small	-$ 1,808	-$ 2,650	**-$ 3,485**	**-$ 4,338**
	Medium	$ 83	-$ 908	-$ 1,848	-$ 2,838
	Large/SUV	$ 140	-$ 993	-$ 2,061	-$ 3,179
	Very Large/SUV	-$ 2,788	**-$ 4,088**	**-$ 5,288**	**-$ 6,538**
Luxury Models	($128-$256k new)	-$ 2,020	-$ 3,168	**-$ 4,241**	**-$ 5,364**
1,163 models	**Micro**	**-$ 5,144**	**-$ 5,894**	**-$ 6,544**	**-$ 7,294**
	Medium	**-$ 3,286**	**-$ 4,284**	**-$ 5,232**	**-$ 6,230**
	Large/SUV	-$ 1,728	-$ 2,879	**-$ 3,955**	**-$ 5,081**
	Very Large	-$ 1,509	-$ 2,809	**-$ 4,009**	**-$ 5,259**

Table 13: Average used car price penalty by class of current used vehicles

This implies, once again, low policy effectiveness is a highly likely outcome of the fuel efficiency standard.

The VIA advises that for commercial reasons (sales and profit maximisation) the optimal price for Japanese used vehicles (f.o.b ex Japan) is around NZ$8,000 in a band between $6,000 to $10,000.

[12] Applying Discussion Document Appendix Two interim target values

As a further check of the question of whether penalties would be absorbed or passed on we developed a model for all 13,298 models in the VIA database with price and weight data. Industry sources suggested a rule of thumb for margins would be $1,000 for vehicles around $8,000, $500 for cheaper vehicles and $2,000 for vehicles around $16,000. We proposed that a dealer would absorb a penalty if it was equivalent to less than 25% of their margin (in order to secure a sale) but would pass it on if it were any higher.

The table below shows the proportion of vehicle models where the penalty is more than 25% of the notional margin.

Proportion of $6,000 - $10,000 Used Vehicles Where Price Increases Likely

Average price		Vehicle Size	2022	2023	2024	2025
Cheap	Less than $16k new	All	21%	34%	38%	50%
		Micro	21%	34%	38%	50%
Economy	$16k-$32k new	All	11%	30%	54%	88%
		Micro	7%	15%	36%	83%
		Small	14%	43%	72%	92%
		Medium	55%	97%	99%	99%
Medium	$32-$64k new	All	42%	68%	84%	91%
($10k)		Micro	32%	58%	90%	94%
		Small	33%	58%	79%	90%
		Medium	39%	69%	86%	91%
		Large	74%	86%	89%	94%
		Very Large	100%	100%	100%	100%

Table 14: Percent of used models where penalty is more than 25% of sellers margin

This means that the 2022 year would be relatively light on prices but by 2025 the target would impact more than 80% of vehicle models.

10a. Conclusion on Policy Effectiveness for used vehicle imports

Once again this implies 80% of used vehicles can't meet the 2025 target so there would be low policy effectiveness of around 20%.[13] However we need to consider the impact of banking.

[13] Again we have not included GST in any of our modelling but unless penalties are expressly excluded we would expect GST to increase costs even further.

11 Cost Benefit of Clean Car Standard to Vehicle Buyers

The Ministry's interim cost benefit analysis found that the bulk of the benefit from the proposed policy came from fuel savings to vehicle buyers. This is only true at high levels of policy effectiveness. If the policy is ineffective there will be low levels of fuel savings (and hence low levels of carbon emission savings) and high levels of penalties.

The analysis from the MIA and VIA suggests that there will indeed be low policy effectiveness, particularly by 2025. The by model analysis on pages 21-24 however does not allow for banking between import years alluded to on page 3 of the discussion document. These are particularly important to new vehicle importers. The following table is the difference between the MoT targets and average fleet performance at varying levels of policy effectiveness. Negative values mean the fleet average is under the target value.

Importer Average New Fleet Carry-Over Values in gm/km for Banking Between Years

New Cars	100%	80%	75%	66%	50%	33%	25%	20%	BAU
2022	-26	-25	-25	-25	-23	-23	-22	-22	-21
2023	-17	-15	-14	-14	-11	-10	-9	-8	-6
2024	-9	-6	-5	-4	-1	1	4	4	8
2025	0	4	6	6	11	14	17	18	22
2025 Bank balance	-26	-16	-13	-12	-1	0	0	0	0

Table 15 Whole Fleet Banking Carry Over Values for New Vehicle Importers.

This shows that on average if high policy effectiveness was achieved the new car industry (on average) theoretically escapes penalties. However the evidence from the MIA is that this is most unlikely and we should assume low policy effectiveness (the gold shaded region).

Importer Average New Fleet Carry-Over Values in gm/km for Banking Between Years

Used Cars	100%	80%	75%	66%	50%	33%	25%	20%	BAU
2022	-8	-6	-5	-4	-2	0	2	2	5
2023	-5	0	1	3	8	12	15	16	22
2024	-3	5	7	9	17	23	27	29	37
2025	0	11	13	17	27	34	40	43	54
2025 Nett	-17	0	0	0	0	0	0	0	0

Table 16 Whole Fleet Banking Carry Over Values for Used Vehicle Importers

This shows that the used car industry will not be able to banked and is likely to face penalties regardless.

Multiplying by the number of vehicles and the $100 penalty gives the following table for new vehicles. Note the number of vehicles is cumulative (2025 = 2022+2023+2024+2025).

Net Penalties After Banking for New Cars

New Cars	100%	80%	75%	66%	50%	33%	25%	0.2	BAU
2022	0	0	0	0	0	0	0	0	0
2023	0	0	0	0	0	0	0	0	0
2024	0	0	0	0	0	$12m	$34m	$42m	$73m
2025	0	$42m	$53m	$60m	$105m	$129m	$158m	$169m	$211m

Table 17: Net Penalties after banking for new vehicles

Multiplying by the number of vehicles and the $50 penalty gives the following table for used vehicles. (2025= 2022+2023+2024+2025)

Net Penalties After Banking for Used Cars

Used Cars	100%	80%	75%	66%	50%	33%	25%	20%	BAU
2022	0	0	0	0	0	$1m	$13m	$19m	$40m
2023	0	$1m	$11m	$25m	$66m	$96m	$120m	$131m	$175m
2024	0	$40m	$56m	$76m	$138m	$184m	$219m	$236m	$301m
2025	0	$87m	$109m	$135m	$218m	$279m	$327m	$348m	$435m

Table 18: Net penalty after banking for all cars

This yields the following total penalties paid by vehicle buyers

Net Penalties After Banking for All Cars

Total	100%	80%	75%	66%	50%	33%	25%	0.2	BAU
2022	0	0	0	0	0	$1m	$13m	$19m	$40m
2023	0	$1m	$11m	$25m	$66m	$96m	$120m	$131m	$175m
2024	0	$40m	$56m	$76m	$138m	$196m	$253m	$277m	$374m
2025	0	$129m	$162m	$195m	$323m	$408m	$485m	$517m	$646m

Table 19: Total net penalties after banking

Cumulative Fuel Savings to vehicle buyers due to policy (at current fuel prices)

Fuel savings	100%	80%	75%	66%	50%	33%	25%	20%	BAU
2022	$16m	$13m	$12m	$11m	$8m	$6m	$4m	$3m	$0
2023	$31m	$25m	$24m	$22m	$16m	$12m	$8m	$6m	$0m
2024	$47m	$38m	$35m	$33m	$24m	$17m	$12m	$9m	$0m
2025	$63m	$50m	$47m	$44m	$31m	$23m	$16m	$13m	$0m

Table 20: Cumulative Fuel savings due to policy

This allows us to calculate a Cost Benefit Value including penalties and fuel savings for the first four years of the scheme.

Cost Benefit of Clean Car Policy by Policy Effectiveness Level

Benefit	100%	80%	75%	66%	50%	33%	25%	20%	BAU
2022	$16m	$13m	$12m	$11m	$8m	$5m	-$9m	-$15m	-$40m
2023	$31m	$25m	$12m	-$3m	-$50m	-$85m	-$112m	-$125m	-$175m
2024	$47m	-$2m	-$21m	-$43m	-$114m	-$179m	-$241m	-$268m	-$374m
2025	$63m	-$79m	-$114m	-$151m	-$292m	-$385m	-$469m	-$504m	-$646m
Saved CO_2	320kT	256kT	240kt	223kt	160kt	117kt	80kt	64kt	0
Saved %	1.1%	0.9%	0.8%	0.7%	0.5%	0.4%	0.3%	0.2%	0.0%

Table 21: Policy benefits less costs to car buyers

11a. Conclusion – The broad cost benefit projections for the clean car standard

This shows that the Benefit Cost/Ratios are negative for all but 100% effectiveness of the policy (the scenario where no vehicles incurring a penalty are imported) for the first four years. This is, like the Ministry's cost benefit value, benefits purely accruing to those buying newly imported vehicles.

In short there is very little likelihood of a benefit to vehicle buyers in the short term and the very definite probability (given low policy effectiveness and high penalties) of not much real benefit in the long run either due to higher purchase costs.

The best case for 2025 if no penalties are paid is a carbon abatement cost of 320kT/$63m = $196 per ton, roughly seven times the current price and almost twice the Ministry value.

Note that we have not included GST in these calculations which will further effect prices.

12. Carbon Abatement Cost to All Motorists is Disproportionately High

If the Vehicle Fuel Efficiency Standard policy impacts on imported vehicle prices it will inevitably feed through into the domestic used market as buyers of imported vehicles seek to close the price difference with newly imported vehicles by selling their existing vehicle for more.

The AA Research Foundation Transport Costs Index[ix] was developed by Statistics New Zealand. It uses the following weights regime derived from the Household Economic Survey for assessing the impact of price changes from different cost sources on the total motoring transport costs to the public. All weights add up to 100%.

Weights	North Island	South Island	Metro
Used	19.7%	25.4%	17.2%
New	14.8%	13.3%	12.9%
Purchase	**34.5%**	**38.7%**	**30.1%**
Petrol	40.0%	36.3%	42.9%
Diesel	1.8%	2.3%	0.9%
Fuel	**41.8%**	**38.6%**	**43.8%**
Others	**23.7%**	**22.7%**	**26.1%**

Table 22: Transport Costs Index values

Based on the projections on pages 21-27 we have estimated the net effect on car prices as a result of the Clean Car Standard.

	New Cars	**Used Cars**
2023	1%	4%
2024	6.5%	9%
2025	9.5%	13%

Table 23: Estimated effects on car prices due to policy

Multiplying these figures weighted by market share and the weights above we can estimate the impact on the transport costs index and the economy as a whole by multiplying the price increase by the index weights for vehicle purchase and then cross multiplying them to yield the equivalent expressed as an increase in petrol prices.

	North	**South**	**Metro**
Vehicle price increases			
2023	0.9%	1.1%	0.8%
2024	2.7%	3.2%	2.4%
2025	4.0%	4.6%	3.5%
We can then convert these changes to petrol equivalent price changes			
Equivalent Petrol increases			
2023	0.8%	1.2%	0.6%
2024	2.4%	3.4%	1.7%
2025	3.4%	4.9%	2.4%

Table 24: conversion of vehicle purchase percentage to equivalent petrol price increases

The next stage should not be misinterpreted because it is indicative only. It works like this: because we know the price of petrol in cents per litre we can use the petrol equivalent price increase to derive an equivalence in costs to the consumer expressed as cents per litre of petrol. This does not mean that the Clean Car Standard will increase the price of petrol. What it does mean is the changes to the consumer price index as a result of increases in vehicle costs are equivalent to the following increases in petrol prices.

	North Island	South Island	Metro	Average	Total cost in $m
2023	1.0c	1.5c	0.7c	1c	37m
2024	2.8c	4.0c	2.0c	2.9c	103m
2025	4.1c	5.8c	2.9c	4.2c	149m

Table 25: Equivalent petrol price cost increases of vehicle purchase increases

This in turn can be used to estimate the whole cost of living effect of raising motor vehicle prices because we know 1c per litre is equivalent to $35 million across the whole country. The three regions equate to a third of the country each thus the average of the three multiplied by this factor is the net effect on the country in total.

Compared to our Gross Domestic Product these costs are extremely modest. However the purpose of the policy is not to change gross domestic product, it is to reduce carbon emissions. We therefore now have a way to evaluate the cost to the economy as a whole of the policy as proposed as a means to reduce carbon emissions. Recalling our estimates of cumulative carbon savings compared to business as usual, the fuel savings and using the above costs we can calculate the carbon cost equivalent of the abatement policy.

CO_2 Abatement Cost per tonne

Policy effectiveness	2023	2024	2025
100%	$ 457	$ 566	$ 462
80%	$ 603	$ 726	$ 592
75%	$ 651	$ 779	$ 635
66%	$ 707	$ 843	$ 686
50%	$ 1,040	$ 1,206	$ 980
33%	$ 1,457	$ 1,669	$ 1,354
25%	$ 2,205	$ 2,488	$ 2,015
20%	$ 2,787	$ 3,128	$ 2,533
BAU	infinitely expensive		

Table 26: Cost per tonne of carbon abated due to vehicle price increases

Conclusion

Recalling that highest emission trading scheme abatement cost considered by the Ministry or the Productivity Commission was $250 per tonne and that the current price is $25 per tonne this suggests that even if the policy only raises vehicle market prices by 1% (and even allowing for the fuel cost savings) this carbon abatement policy cost is twice as high as any contemplated by the Productivity Commission and nine times greater than any other abatement value used anywhere by the New Zealand Government.

13 Serious concerns with the truth of core measurements used in the policy

This submission to this point has focused on the problems with cost benefits of the Clean Car/Vehicle Fuel Efficiency Standard in particular. There are, however, also significant issues with the implementation of the policy using manufacturers' values for vehicle fuel efficiency. This applies to both the standard but also to the operation of the feebate proposal.

The problem in a word is cheating. A simple google search for fuel efficiency test cheating returns published news stories about Ford, Mitsubishi, VW, Suzuki, Subaru, Mazda. To quote the uncompromising language of "*CO_2 Emissions from Cars: The facts*" by Transport & Environment[x] (April 2018):

> "*New car CO_2 regulations have delivered only about a 10% reduction in on-road emissions in the 20 years since the first [European] Voluntary Agreement was established in 1998; and there has been effectively no improvement in the last five years. In spite of this, all carmakers achieved their 2015 new car CO_2 targets and most are on track to achieve 2020/1 goals. This has been achieved in very large part by exploiting the flexibilities in the testing procedure which has meant the gap between test results and real-world performance has grown from 9% to 42%, equivalent to 31g CO_2/km of fake savings … In addition, the industry consistently fits technology to cars that will deflate emissions far more in the lab than on the road, such as short range plug-in hybrids, stop-start and cylinder deactivation*
>
> *Recent figures suggest that the fleet average CO_2 emissions from new cars is set to rise when the European Environment Agency shortly publishes its data for 2017. There are several factors contributing to the rise but steep increases in the size and weight of cars is a leading reason. SUV sales have rocketed from 4% in 2001 to 26% in 2016, and the average SUV has emissions of 132g CO_2/km compared to 118g CO_2/km for a medium segment car. The increase in the average weight of new cars by 124kg from 2000 to 2016 has helped to bring about a rise in average emissions of around 10g/km*. "

The main problem is that it is cheaper for manufacturers to cheat tests than meet standards and the tests for fuel economy are relatively simple to manipulate. The European car makers use the NEDC standard, while Japan has been using the JC08 standard. Some methods to rig the results of these tests are so well known they can be found on Wikipedia[xi]. As the Ministry is well aware The International Council on Clean Transportation has compared claimed fuel efficiency with real world fuel efficiency experience and found a steady increase in discrepancy as the standards have tightened (from 9% to 42%).

In its investigations into the discontinued Australian standard the Australian AA commissioned ABmark[xii] to carry out tailpipe Portable Emissions Measurement System (PEMS) tests on a range of vehicles. Abmark found the Mitubishi Outlander Plug-in Electric Hybrid emitted 1.6 times (166%) more than the 39g/km the manufacturer claimed when the battery was full and 3.4 times (337%) more when the battery was low. Unhelpfully the Australian PEMS tests found no predictable pattern to the disparity between real world and claimed values by vehicle make, model or market.

As a worked example of the impact of cheating we provide the following example.

Fuelly which crowd sources fuel consumption data from real world users reports the Mitsubishi Outlander actually delivers 113g/km (51 vehicles over 852k km) on average (or 289% more than claimed). Nor is this the only real world test where hybrid models have not lived up to their claimed fuel economy. Even the hybrid Yaris (1.5 VVT-I Auto) when reviewed by crowd sourced fuel economy site Honest John has fallen 22% short of its 79g/km claim. By

contrast the small Toyota Yaris (VVT-I Auto) for which the manufacturer claims 134g/km actually delivers (according to both Fuelly and Honest John) 134kg/km (Fuelly: 1,752 vehicles over 54m km).

However by 2021 the discussion document suggests the Outlander customer would gain a discount of $1,600 while the Yaris customer would pay a $600 fee. However it unlikely the Yaris would even be imported as a 2019 Yaris imported used in 2025 under the weight adjusted schedule would be 49g/km over the weight adjusted 85g/km target. This would mean a six year old 2019 Yaris (typically sells for $7,500) would attract a $2,450 additional charge effectively making it uneconomic to import it into New Zealand.

The fuel efficiency tests are de jure accurate even if they had been manipulated within the rules of the test to be de facto *inaccurate*. In short the policy could be built on a known foundation of deception.

The discussion document proposes allowing the use of the JC08 and NEDC standards as well as the Worldwide Harmonized Light Vehicles Test Procedure (WLTP) which is being introduced to Japan from 2018. The WLTP[xiii] is meant to be more accurate than the JC08 or NEDC tests and uses four driving cycles: low (to 56.5km/h) medium (to 76.6km/h), high (to 97km/h) and extra high (to 131km/h). Unlike Europe, Japan, like New Zealand, does not have 130km/h motorways so Japan adopted a variant which does not include this element of the drive cycle.

In the UK[xiv] official values for taxation purposes of new vehicles will remain based on the NEDC until 20 April 2020, after that WLTP values will be used. Values to be referenced will be those used when the vehicle was first registered however it is probable that 2020 WLTP values will be higher than JC08 and NEDC values[xv]. This means that new vehicles tested under WLTP will be at a disadvantage compared to older vehicles tested purely under NEDC. The EU is proposing to introduce an adjustment algorithm to NEDC values to bring them into line with WLTP this will effectively raise the target at the same time.

While it is perfectly possible to introduce the scheme based on flawed data the object of the exercise according to the Cabinet paper is to reduce emissions not reduce New Zealanders access to cars as a transport mode for its own sake. If the policy does not take any reference to real world emissions it is difficult to see how it is meant to achieve that objective.

As the AAA in Australia recommended to its government so the AA believes that a programme of real world fuel efficiency data gathering for vehicles is urgently needed to determine whether policy intentions are being realised or the policy has simply been an exercise in self-deception. The AA Research Foundation has begun a programme to investigate methods to gather such data but believes government should address this matter with some urgency.

While the proposed policy raises the possibility of penalties for misreporting vehicle fuel efficiency performance the problem becomes who would check and against what. What funding, if any, would be dedicated to finding cheating? How much effort would be put into prosecutions? Would New Zealand match overseas jurisdictions? The area is fraught with difficulty.

14 Safety Issues raised by the Clean Car Standard

In order to meet ever tighter safety standards vehicle models have grown heavier and heftier over time. The reasons why have been a combination of safety requirements and comfort.[xvi]

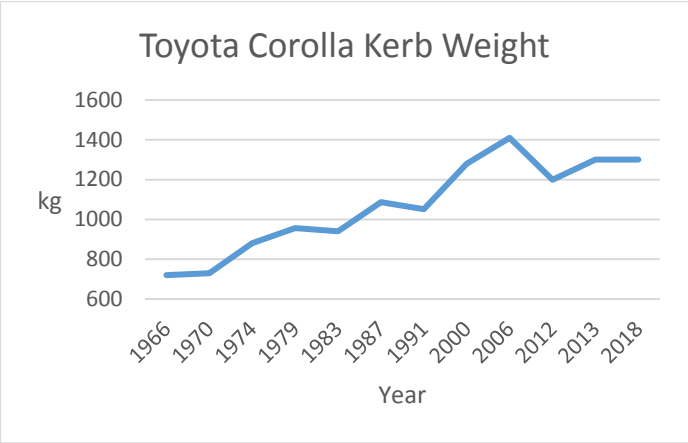


Table 27: Kerb weight of Toyota Corolla by year (source data: Wikipedia)

In pursuit of the same goals of safety and comfort we are also buying heavier types of vehicles such as SUVs. The US Insurance Institute for Highway Safety (IIHS) analysis [xvii] has shown that which seems self-evident to many vehicle buyers. Bigger vehicles are safer. The more mass the more protection.

While it is true that collision avoidance technologies such as collision warning, lane assist, and automatic braking create an electronic safety perimeter, they are not 100% reliable as a number of Tesla Autopilot users have discovered (fatal failures of technology). This means the ultimate protection comes from the relative kinetic energy and structural integrity of the vehicle versus whatever it is colliding with. According to Goldman Sachs[xviii] building lighter stronger vehicles means using materials which are significantly more expensive. For example aluminium is three times more expensive than steel and carbon fibre is 40 times more expensive than steel.

Culture plays an extremely important part in transport safety. Japan has an enviable record in road safety. According to International Transport Forum Road Safety reports (2018) traffic deaths per 100,000 population are 3.5 in Japan compared to New Zealand's 7.9. But while 67% of New Zealand's road fatalities are passenger car occupants, Japan's rate is only 21%. And while young people figure disproportionately in New Zealand traffic injuries in Japan that role is filled by the elderly. Where 22% of injuries in New Zealand are due to inappropriate speed in Japan the figure is 5.2%. Thus although New Zealanders drive the same vehicles as the Japanese over very similar topology on similar roads it is evident that it is *how* we drive rather than *what* we drive that inflates risks in this country.

This cultural difference is why Japan's fleet includes 21 million "micro" or Kei class cars. These vehicles work well in Japan's narrow urban alleyways and small parking spaces. The tiny Kei class car is low cost, popular and very fuel efficient at around 3.5 l/100km or 80gm CO_2/km. The discussion document has mooted 80gm/km as a NZ target for 2030 and is the weight adjusted target for vehicles under one tonne in 2025.

While the weight adjustment is meant to favour a broad range of vehicles being imported MIA and VIA data show that the ambitious fuel efficiency target effectively counteract that measure, particularly in 2025.

The most popular Kei class vehicle in Japan between 2003 and 2008 was the Suzuki Wagon R which has been re-engineered for export as the Wagon R+ and has met New Zealand safety frontal impact standards since 2002[xix].While very popular in India and Indonesia so far only 853 have been imported into this country. There are plenty more where those came from with five million manufactured, although it is unclear how many models have electronic stability control. The latest Maruti Indian versions are certainly advertised with it even though the JNCAP test[xx] in

2011 states it was not present when awarded four safety stars. The question is what happens when such vehicles are shoehorned into New Zealand's less restrained driving culture?

The AA's concern is that the introduction of a large number of new smaller vehicles could result in negative safety outcomes.

Unfortunately to date there has been little significant research about the role of vehicle mass and safety technology in road crashes in New Zealand. Mostly civil engineers by training safety engineers tend to focus on road layout and performance rather than vehicle qualities. For example, even today, there is precious little data about the deployment of airbags in road crashes in the Crash Analysis System. This is despite the fact airbags were introduced in the 1990s.

Another important concern is the possibility that the Clean Car Standard could lead to an resurgance in the popularity of motorcycles. Motorcycles are not covered by the standard so motorcycle prices should not be affected by it. Motorcycles injury risk is 21 times higher than car injury risk.

Decline of motorcycle casualties

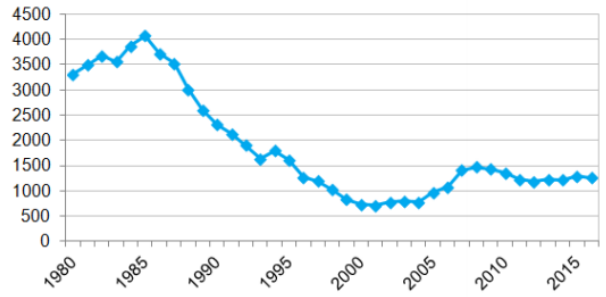


Table 28: Motorcyclists killed and injured (1980 -2016) source: MoT

Import restrictions prior to the 1990s led many young people to adopt motorcycles as a mode of transport. The combination of youth, the inherent risk of motorcycling and New Zealand culture resulted in very high safety costs until the advent of used import motor vehicles from Japan.

The AA recommends that a full safety analysis of the implications of the Clean Car Standard is carried out to determine the optimal policy mix. We do not believe there is sufficient time to undertake such a review under the proposed timeframe.

15 Alternative policies for greater carbon abatement

The stated of objectives of the Clean Car Standard and the Clean Car Discount is to help meet New Zealand's obligations to the Paris Agreement on Climate Change.

While we note that the Productivity Commission's "*Low Emissions Economy*" final report "key points"[xxi] highlight EVs, feebates and vehicle emissions standards the text of the document (p365) makes mention of the potential for biofuels to make a significant contribution to meeting New Zealand's Paris Obligations. The AA believes the potential contribution of EVs to meeting Paris targets has been overstated given the need for effectively replacing the entire vehicle fleet, and the slow rate of adoption. By contrast the potential for biofuels (particularly second generation synfuels) has been unnecessarily undersold by the Ministry of Transport (noting that biofuels fall mostly within the ambit of the Ministry of Business Innovation and Employment).

The rate of production of right hand drive electric cars in Japan and Britain remains very low. Japan's current electric car production is only 5% of New Zealand's total annual vehicle imports. While New Zealand has shown a definite appetite for Japanese EVs our rate of adoption is still only likely to reach precisely half of the 64,000 target by 2021. Given that there is a significant lag between Japanese production reaching New Zealand it seems that the chances of EVs making a significant contribution before the Paris deadline of 2030 is rather small.

The prospects for importing some of Japan's 7.5 million hybrids is somewhat better but there are serious questions about the difference between the actual on-road fuel efficiency of hybrids and the claims made about them by manufacturers. Hybrid technology is certainly more fuel efficient than simple internal combustion engine technology but it is almost certainly not as good as manufacturers claim. This means that even when all vehicles eventually include an element of hybrid technology there will still be a significant reliance on liquid fuels.

Second generation biofuels are part of the Scion (the New Zealand forestry Crown Science Institute) "Biofuels Roadmap". These are zero carbon fuels chemically identical to mineral fuels but derived from wood waste that can completely replace mineral fuels without vehicle adaption or blending with mineral fuels. Like all biofuels second generation biofuels do not inject *new* carbon into the atmosphere but simply take advantage of photosynthesis to recycle the carbon which is already there. The obvious attraction of second generation biofuels is that they could replace all liquid fuels in use in New Zealand including diesel for heavy vehicles and maritime and aircraft fuel making New Zealand self-sufficient in zero carbon fuel, with all the international trade advantages that would bring.

Second generation biofuels will almost certainly cost more than mineral fuels. However the higher the Emission Trading Scheme prices rise the more mineral fuels will cost. At some point they will reach parity. The uncertainty about future prices is however a major impediment to investment in second generation biofuels. A policy which provided a stable investment platform for investment in second generation biofuel research and development would make a significant difference to this sector.[xxii]

The AA makes this point in order to illustrate that the New Zealand government has more options than to rely on the supply of second-hand car technology from Japan in order to meet our climate change obligations.

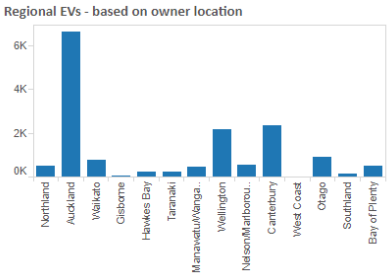
16. Equity Issues

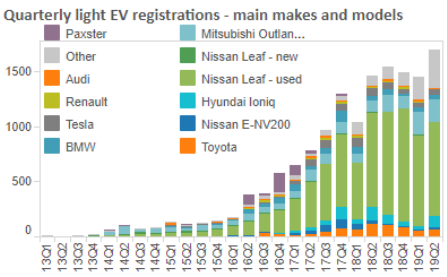
Both the fuel efficiency standard and the feebate scheme constitute a transfer of value from those who buy heavier or larger vehicles to those who buy smaller and especially electric vehicles.

The AA suggests there are a range of equity dimensions to be considered:

1. **Access to capital**. Ranging from Government which buys for its own fleet financed by taxes to private citizens unable to access finance for a vehicle. Who benefits most from this policy? The interim Social Impact Assessment suggests that the answer is essentially those who have reduced access to capital will be further disadvantaged.
2. **Net income**. The extent to which the policy costs some types of vehicle users compared to other types of vehicle users with respect to their ability to earn an income. For example farmers or tradies may need a larger new vehicle for their work but can afford it, while female shift workers must buy a more expensive used vehicle and can't.
3. **Tax equity**. To what extent does wealth change the effective rate of transport taxation and whether this policy is progressive or regressive. The impact on used vehicle prices is likely to mean it is regressive.
4. **Safety**. To what extent does this policy change access to safer vehicles. Does it mean, for example that working mothers end up in tiny, much less safe vehicles as a result of this policy?
5. **Gender**. Are women even further disadvantaged by the policy given their typically more fuel efficient trip profiles, reduced access to capital, tendency to operate smaller, less safe vehicles and earn 9.2% less than men.
6. **Geographical**. Does this policy advantage some geographical regions over others. Does Auckland benefit while the South Island pays the cost? This is certainly the suggestion in the Transport Costs Index.

As an example we note most EVs are bought by Aucklanders[14] because EVs better suit the limited range driving of metro life. By far the dominant brand of EV is the Nissan Leaf, but data on average prices paid for EVs is limited to TradeMe's Beta price guide.





The AA is not equipped to answer these questions in 35 working days, and indeed we believe asking the Ministry to carry out a similar analysis in a small multiple of that time is unreasonable. Once again we believe nothing substantive would be lost from delaying implementation to obtain better policy.

[14] https://www.transport.govt.nz/mot-resources/vehicle-fleet-statistics/monthly-electric-and-hbrid-light-vehicle-registration/

17. Other Issues Stimulated by the Proposed Policy

The government has never determined the value of automobility to the wider economy. While Statistics New Zealand can provide direct GDP values for the market prices and trade in vehicles, fuel and support services there is no marginal value for private motor vehicles as stimulators of trade, tourism, recreation and social activities. This becomes problematic when measures such as this may suppress vehicle purchases.

We note that the discussion document is silent on the question of GST with regards to both the penalty and the feebate. We have not included GST in any of our modelling but unless penalties are expressly excluded we would expect GST to increase costs even further.

The definition of a vehicle importer being someone who imports three or more vehicles in a year lends itself to obvious avoidance responses. Sites like Beforward[15] already provide New Zealanders with the option to buy vehicles in Japan and ship them to New Zealand as individual importers. This would avoid the scheme but expose New Zealanders to quality issues because our Consumer Guarantees Act does not apply in Japan.

Given that the price points which can be met by New Zealanders are fixed, price increases could lead to the importation of reduced quality vehicles. The safety trade off of this has not been explored by the Ministry as yet.

While the policy applies to vehicles up to 3.5 tonnes a Class One drivers licence applies to vehicles up to 5 tonnes. Those seeking very large vehicles may opt for even larger vehicles (probably diesel) in order to avoid penalty costs. Ford is examining the viability of introducing the new F-series to Australia in 2020. This would produce a regional supply of RH drive vehicles over the 3.5T limit.

The AA suggests the reliance on hard boundaries in the draft policy (e.g. the definition of new for the feebate including vehicles up to 3 years, the $80,000 limit for feebates etc) provides ample opportunities for gaming and policy leakage which should be thoroughly explored and analysed.

[15] https://www.beforward.jp/beforward_newzealand

As noted previously there is a clear incentive for importers to bring in high emitting vehicles before the penalties take effect. This may smooth the penalty price increases in the initial years of the policy but it will also greatly diminish the effectiveness of the policy as a carbon reduction tool.

18. Conclusions

The AA believes the government has gravely underestimated the complexities which this policy proposal exposes. As stated from the outset we believe there are more fruitful opportunities for meeting our 2030 Paris Obligations through a serious pursuit of second generation biofuel technology.

As drafted we believe the proposed policies run a considerable risk of low policy effectiveness based on current settings. This means high costs, low achievement of carbon abatement and significant equity issues.

The trade off between efficiency and safety has not been adequately explored. While there are frontal impact and Electronic Stability Control standards the quality of used cars entering the fleet could be degraded over time to meet price points which the public demand. The trend internationally in vehicle design has been towards heavier, safer vehicles. These are inherently less fuel efficient unless electric hybrid or engine technology is employed. However such technologies affect prices and may be out of reach of New Zealanders who will find other means to achieve their mobility objectives. This needs to be thoroughly explored.

The differential between BAU used vehicle performance and the target will effectively be regarded as an attack on the used vehicle market. Given the policy as drafted would constitute an existential threat we assess that it is likely the used car industry will respond on multiple levels. It is almost certain that the used car industry will find loopholes in any quickly developed policy and we suggest the likelihood of high policy effectiveness will be reduced.

In the name of greater policy effectiveness we therefore strongly suggest that the government adopt a more conciliatory approach and a less combative time frame for policy development and implementation.

We believe there are serious issues relating to the central measure of this policy (manufacturer test reported grams per kilometre) which could well result in difficult legal problems if implemented. Given the WLTP measurement change introduces serious disruption to the way the policy is implemented we again recommend a slow and steady approach to developing policy.

We believe there is substantial potential for policy leakage which once again would mean high costs for low carbon abatement. Again an inclusive and thorough policy development process is likely to produce better effectiveness than a rushed one.

In short we recommend a more considered policy development process in partnership with interested parties rather than a 35-day, one time consultation.

19. Summary of AA District Feedback

The Automobile Association is structured into 17 districts around New Zealand. The timeframe for response meant that only a few had time to hold meetings and form a view on the proposals. However here is a summary of their views.

The goal of becoming a world-leader in lowering GHGs, while laudable, will be of negligible global consequence. NZ ranks 76th in the world for CO_2 emissions. As a prospective 'world leader', do we see ourselves as a 2019 version of "The Mouse that Roared" in challenging the super-powers / super-emitters? Any initiative that only serves to compromise our economy or disadvantage a sector of our population, for no appreciable global benefit, warrants a serious cost-benefit analysis, with the benefit being considered from a global perspective, not just from the viewpoint of meeting NZ's Paris Agreement obligations. – ***AA Northland***

Our Council supports the view that the rate of change proposed is unsustainable without some other form of incentive and believes that the burden of the costs of the scheme will fall on the owners of older less fuel efficient vehicles and who are likely to be of less affluent social groups.

There are environment concerns related to battery life, maintenance, and recyclability options for old batteries.

– ***AA Marlborough***.

We agree with the call for more detailed work for numerous reasons, namely:

• The unworkable timeframes proposed,

• The lack of reliability with manufacturer based data,

• The need to consider taking a 'whole of life' approach to any analysis,

• The social impacts on various groups in our society that require further evaluation and consideration, and

• The safety impacts of such changes to the vehicle fleet also need further evaluation and consideration.

We overall are sympathetic to the rationale behind the proposed scheme(s) however note that rushed policy will inevitably result in poor policy, and the risk of 'unintended consequences' that will need addressed remedially. – ***AA Southland***

We are concerned about the social impact for rural residents as EV's do not suit the lifestyle of NZ. They are OK in the city, but not for rural residents, who tend to travel greater distances which will often exceed the battery charge. Many rural residents and particularly farmers need to be able to tow a trailer and EV's are not tow friendly due to the low power rating and the amount of charge towing would draw off the battery.

In the South Island, many residents are required to travel to Christchurch for medical appointments and services, with the distance being outside of the EV range, which would mean several lengthy stops for charging on the way. We are concerned that the social impact on living lives could be seriously affected. – ***AA South Canterbury***

Motor vehicles for a percentage of the population are a major financial component of their budget. In small urban/rural areas (outside the large metro cities with good public transport the motor vehicle is the prime mover of

the family for work, moving children to and from school. People who have a limited budget can only afford vehicles within their budget. Any car can be poorly maintained and may end up with poor fuel economy. More analysis is required. – ***AA Nelson***

We would say that either or both of these schemes will hit the average and less well-off very hard. Most of the business and trades vehicles will end up paying heavily, just increasing costs to anyone who employs tradesmen. We can be sure that the costs will be passed on down the line to the lowest common denominator. – ***AA Bay of Plenty***

Consideration and allowance needs to be made for rural residents who because of their distance of travel and farming demands need larger double cab type vehicles to maintain the necessities of rural life/business. They do not need to be saddled with extra financial burdens when no suitable EV vehicle is available. – ***AA Wairarapa***

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