



To: **Hon Simon Bridges, Minister of Transport**
Hon Tim Groser, Minister for Climate Change Issues

Opportunities to encourage the uptake of electric and hybrid vehicles

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Executive Summary

1. This briefing provides preliminary advice on potential policies to encourage the uptake of electric and hybrid vehicles in New Zealand. It has been prepared in response to requests from the Minister of Transport and the Minister for Climate Change Issues. It seeks your agreement to discuss the content of this briefing and depending on the outcome of this discussion, direct officials to undertake further work on a potential package of policies.
2. The transport sector is expected to play a role in helping New Zealand meet its emissions reduction commitments. Encouraging the uptake of electric/hybrid vehicles is just one of a number of measures being considered for reducing emissions in the sector.
3. New Zealand is well positioned to benefit from electric/hybrid vehicles. As well as reducing emissions, increased uptake can bring a range of benefits including reducing our reliance on imported fossil fuels, cost savings from fuel, enhancing the efficiency of renewable electricity networks and improving air quality.
4. New electric/hybrid vehicles are becoming increasingly cost-competitive in terms of total cost of ownership with some models already commercially viable. However, uptake in New Zealand has been low with electric/hybrid vehicles currently making up only 0.32% of the total vehicle fleet.

5. There are a number of barriers and market failures associated with this low uptake including high upfront costs, supply of used electric/hybrid vehicles being constrained by Japanese vehicle preferences and policies, and information barriers. The limited range of electric vehicles and lack of public recharging networks have also been identified as barriers.
6. We have identified the following categories of options to address these barriers:
 1. Information and promotion campaigns – to overcome information barriers and change perceptions.
 2. Government leads by example – encourage electric/hybrid vehicles in government fleets, and government funded “demonstration” charging infrastructure.
 3. Government partnering with industry – working with the Motor Industry Association to develop voluntary fuel economy targets for new vehicles.
 4. Reducing the upfront and operational costs – a package of policies could be implemented, including extending the Road User Charge exemption for electric vehicles/plug-in hybrid vehicles and removing financial disincentives.
5. Based on our preliminary analysis, we consider that a package of measures would be the most effective way to encourage the uptake of electric/hybrid vehicles in New Zealand. If agreed, we will undertake further analysis and will report back to you in April 2015 on:
 - initial advice regarding an extension or other adjustments to the Road User Charge exemption
 - the factors affecting fleet purchasing decisions, based on discussions with key stakeholders, such as the New Zealand Fleet Managers Association and the Sustainable Business Council
 - potential scope and costs of an information and promotion campaign
 - the feasibility of amending the all-of-government fleet procurement guidelines
 - the Government’s role in implementing a voluntary fuel economy standard
 - the process and timing for removing financial disincentives that currently exist.

Situation Analysis

7. This briefing provides preliminary advice on potential policies to encourage the uptake of electric and hybrid vehicles in New Zealand (Appendix 1 provides background information on these vehicles). It has been prepared in response to requests from the Minister of Transport and the Minister for Climate Change Issues.
8. The Ministry of Transport met with the Minister of Transport on 4 November 2014 to discuss transport and environment issues (OC02613). On 3 November, the Ministry for the Environment, in consultation with the Ministry of Transport, provided you with a memo on New Zealand’s transport fleet, with examples of policies used internationally to enhance the uptake of low emissions vehicles (14-B-01749 refers). This briefing builds on that information and recommends some areas for further investigation.

Transport greenhouse gas emissions

9. Transport accounts for almost 20% of New Zealand’s greenhouse gas emissions. Of this figure, 89% are from road transport, with the majority from the light passenger and commercial fleet (81%). Emissions from the sector are currently 60% above 1990 levels and are projected to be 75% above 1990 levels by 2020.
10. Reducing emissions from the sector will require a range of policies. These include encouraging uptake of electric vehicles, greater use of biofuels, research into alternative fuels, increased investment in public transport/active modes, and intelligent transport

systems. On 28 November, the Ministry of Transport provided a briefing to the Minister of Transport on a work programme where a range of feasible options were considered (OC02641 refers).

11. The Ministry of Transport considers it unlikely that electric/hybrid vehicles will make a significant contribution to New Zealand's 2020-2030 emissions reduction target. Ministry of Transport modelling indicates that doubling the uptake rate of electric/hybrid vehicles over the next 25 years (compared to business-as-usual baseline) could result in emissions reductions of 7% in the transport sector by 2040¹.
12. The Ministry for the Environment consider that if supply limitations can be overcome there is potential to more than double uptake rates, resulting in even greater emissions reductions.

Benefits and opportunities of increased uptake of electric/hybrid vehicles

13. Replacing a conventional car with a comparable electric vehicle (and plug-in hybrid vehicles (PHEVs) running only on electricity) is estimated to reduce emissions by over two tonnes per year, if the electricity is generated from renewable sources. Conventional hybrid vehicles that are powered by a regular internal combustion engine are generally twice as efficient as petrol/diesel vehicles.
14. With more than three million light vehicles on the roads, at an average lifespan of 20 years, this presents an opportunity to reduce emissions over the long term.
15. Other benefits include greater energy security by reducing our reliance on imported fossil fuels², cost savings from fuel, enhancing the efficiency of renewable electricity networks, improving air quality and reducing noise pollution.
16. New Zealand is well positioned to benefit from electric vehicles/PHEVs because:
 - we have high levels of renewable electricity generation (currently 78%), with more than enough consented to meet future demand³
 - 95% of daily travel demand is for distances less than 120 kilometres, which is within range of electric vehicle/PHEV batteries (approximately 150 kilometres per charge)
 - we do not need major investment in infrastructure - domestic power supply is suitable for charging at home, and most homes have off-street parking.
17. The technology, performance and costs of new electric/hybrid vehicles are improving rapidly. In the last 12 months, the cost has decreased significantly. For example, the Nissan Leaf electric car currently sells at approximately \$40k (previously \$70k). By comparison a similar size Toyota Corolla sells at \$33-43k.

Barriers to the uptake of electric/hybrid vehicles in New Zealand

18. Commercial fleet purchases (70-80% of new vehicle registrations each year) and used imports from Japan (50% of total vehicle registrations each year) are the most significant sources of vehicles for New Zealand. Both these markets face barriers to uptake, which include:
 - *High upfront costs* – although some models are becoming cost-competitive, the average upfront cost of electric vehicles/PHEVs are generally higher than

¹ This reduction is equivalent to carbon dioxide emitted annually by electricity generation for hot water heating in every home in New Zealand today.

² In 2012 domestic transport accounted for 82% of national oil consumption.

³ Alongside the current market of about 43,000 GWh, there is a further 10,500 GWh of renewables already consented and ready to be built.

conventional vehicles, and consumers are not recognising their additional associated value.

- *Few electric/hybrid models available in New Zealand* – only a small range of models are offered in the New Zealand market currently.
 - *Supply of used imports is likely to be constrained in the foreseeable future* – uptake of electric vehicles/PHEVs in Japan is expected to be low out to the foreseeable future. Further, Japanese policies mean electric/hybrid vehicles do not depreciate as quickly⁴. These factors consequently limit the supply of used electric/hybrid vehicles in New Zealand.
 - *Limited range* – pure electric vehicles are not suited to long journeys (over 150km).
19. Government is limited in what it can directly do to address the above barriers. In some cases we may not need to intervene as these barriers may reduce themselves through cost reductions and improved battery technology over time.
20. There are also market failures that are limiting the uptake of electric/hybrid vehicles which we could have more direct influence over, including:
- *Coordination ('chicken and egg') problems* – new technologies, such as electric/hybrid vehicles, require simultaneous investment by producers and consumers, but few investors want to risk being first because if the other side of the market does not follow then they make a loss. For example, consumers are reluctant to purchase electric/hybrid vehicles without a recharging network but the private sector will not invest in a network until there is sufficient demand.
 - *Uncertainties and information barriers* – uncertainties about the total cost of ownership (particularly for fleet buyers) including the maintenance costs and resale value⁵, availability of recharging points, future regulatory settings, and cost of electricity and oil. There are also consumer misconceptions around vehicle performance (e.g. the range of an electric vehicle is not high enough to satisfy their needs and/or they lack power).

Current policies to encourage the uptake of electric/hybrid vehicles

21. Measures have been implemented to promote the uptake of low emission vehicles generally, which have an impact on the uptake of electric/hybrid vehicles, including:
- the New Zealand Emissions Trading Scheme establishes a price on emissions that flows through to the cost on petrol (the current price signal is weak at less than 1 cent per litre)
 - fuel economy labelling scheme
 - electric vehicles/PHEVs are exempt from road user charges (RUC) until 2020 resulting in estimated savings of \$400- \$700 per year per vehicle.
22. To date, these initiatives have had limited impact. While the numbers of electric/hybrid vehicles are increasing, they currently make up 0.32% of the total vehicle fleet⁶.

Measures taken by private industry

23. Electricity companies are also starting to promote the uptake of electric vehicles/PHEVs. Northpower, Vector and Mighty River Power (MRP) have, or will soon have, electric

⁴ The precise reasons are complex, but previous subsidies, and public education and perceptions appear to be playing a role.

⁵ Lease and business fleets do not invest due to uncertainties about the difference between the purchase price and resale value which is a key factor in their lease rates and purchasing policies.

⁶ Electric vehicles/PHEVs only make up 0.02% of our total fleet.

vehicles as part of their fleet. Some companies also offer discounts for charging vehicles⁷. In May this year Northpower installed New Zealand's first electric vehicle rapid charger. We also understand that MRP is working with Auckland City Council to promote electric vehicles.

24. The Sustainable Business Council (SBC) has brought together fleet managers (including car manufacturers and 20 corporates) to identify opportunities for a more productive transport sector. This work has a broader focus than electric/hybrid vehicles. The SBC research has identified a wide range of options, in addition to promoting the use of electric/hybrid vehicles, many of which would require government input. The SBC is interested in discussing their findings with Ministers in the near future.

Advice

25. In the long term, we consider that electric/hybrid vehicles will help facilitate personal mobility and economic activity, while also contributing to reducing emissions from transport. To achieve this, electric/hybrid vehicles need to compete on at least an equal footing with conventional petrol vehicles. The barriers and market failures identified earlier are preventing this outcome in the short term.
26. We have identified the following options to address these barriers and to encourage the uptake of electric/hybrid vehicles in New Zealand:
1. Information and promotion campaigns – to overcome information barriers and change perceptions.
 2. Government leads by example – encourage electric/hybrid vehicles in government fleets, and government funded "demonstration" charging infrastructure.
 3. Government partnering with industry – working with the Motor Industry Association (MIA) to develop voluntary fuel economy targets for new vehicles.
 4. Reducing the upfront and operational costs – a number of policies could be implemented, including extending the RUC exemption for electric vehicles/PHEVs and removing financial disincentives.
27. Appendix 2 provides a table with our detailed preliminary analysis of the specific options, including their effectiveness, indicative cost and implementation requirements.

Information and promotion campaigns

28. An information campaign can help overcome information barriers and dispel misconceptions⁸; provide credibility to consumers and confidence to industry partners to promote electric/hybrid vehicles. It is likely to play an important role within a suite of measures to promote uptake. The most benefit is expected to be gained by targeting fleet owners, as they are responsible for over two-thirds of new vehicle purchases.
29. An information and promotional campaign could include:
- influencing fleet buyers through targeted events and markets⁹
 - online information and tools for fleet managers, such as the total cost of ownership calculators and business case examples

⁷ MRP offers residential customers 30% cheaper rates for charging cars after 11pm.

⁸ Common myths are "special infrastructure is needed for me to use an EV"; "the range is too short to be practical"; "the batteries will need to be replaced often and are environmentally unfriendly to dispose of".

⁹ EECA is already working with the NZ Fleet Managers Association, Company Vehicle Magazine and Drive Electric (the EV promotion group) on an event for fleet managers in Auckland late March 2015 which could be scaled up to more events across the country.

- advertising on television to reach a wide audience
 - joint initiatives with private sector companies and local government
 - installation of 'demonstration' vehicle charging infrastructure at highly visible locations nationwide¹⁰.
30. The design of any campaign would be supported by research to ensure that it is targeted at the right people on the right issues. This would consider research currently being undertaken by Otago University on the policy barriers for electric vehicle uptake, and by the SBC on improving transport productivity.
31. Based on other Energy Efficiency Conservation Authority (EECA) campaigns, the cost is likely to range from a minimum of \$400,000 per year over two years to \$1.7 million per year over five years (depending on scope). To secure funding in Budget 2015/16 a budget bid will need be prepared by 12 December 2014.

Government leads by example

32. The Government could set an example by promoting the use of electric/hybrid vehicles in its own fleet. This would:
- overcome the 'chicken and egg' issues and information barriers by providing real world information to other fleet buyers around the whole of life costs (e.g. maintenance costs and resale value)
 - enhance the credibility of a public information and promotion campaign
 - support the flow of electric/hybrid vehicles into the second hand market where there may be latent demand.
33. Promoting uptake within Government could be pursued by:
- including a CO₂ emissions target or proportion of electric/hybrid vehicle target in procurement rules
 - all-of-government fleet procurement guidelines gives greater prominence to electric/hybrid vehicles (due to be updated in mid-2015)
 - running test drives and demonstrations for fleet managers.
34. The cost may be relatively low because there are already commercially competitive electric/hybrid models on the market, and initial data suggests whole of life costs are comparable to conventional petrol vehicles. However, this depends on whether cost-effective models are available in the vehicle classes required. A detailed analysis of the costs will need to be investigated with MBIE.

Government partnering with external organisation

35. There is an opportunity to establish a voluntary fuel economy target with the MIA. The MIA represents the official importers and distributors of new cars, trucks and motorcycles in New Zealand.
36. The key benefit of this option is that it gives industry the freedom to determine how it will contribute to improving the fuel economy (and thereby reduce emissions) of the fleet over time. It would have minimal implementation costs. While the standards are not specific to the uptake of hybrid/electric vehicles, it can indirectly promote them. The effectiveness of this option is dependent on the level of the standard and the rate of voluntary uptake.
37. A meeting is scheduled between the Chief Executive of MIA and the Minister of Transport on 8 December where this opportunity could be raised (OC02678 refers).

¹⁰ Small number of installations estimated at a one-off total cost at \$100k - \$200k.

38. In addition to this, work is being done on a number of fronts by industry to promote electric/hybrid vehicles, particularly by electricity companies such as MRP, and the SBC. There is value in the Government engaging with these groups and leveraging off their work (e.g. partnering with electricity companies to promote widespread time of day charging or with local government to promote free parking for electric/hybrid vehicles).

Reducing the upfront and operational costs

39. Upfront costs are a key barrier for the uptake of electric/hybrid vehicles in New Zealand. While this briefing does not cover direct subsidies, which we understand Ministers do not want to consider, there are a range of other financial measures that could be taken to reduce the capital and operational costs.

Extend the road user charge (RUC) exemption

40. Electric vehicles/PHEVs are currently exempt from paying RUC until 2020¹¹. We could consider extending the RUC exemption to a later date to continue to recognise the role that these vehicles could play in reducing CO₂ emissions. When the exemption was first introduced, Cabinet approved the exemption until electric vehicles/PHEVs made up 1% of the total fleet [EGI Min (09) 10/7 refers]. Under the current trajectory we are very unlikely to reach this threshold by 2020.
41. The exemption is estimated to result in annual savings of \$400 to \$700 per vehicle, which helps make them operationally cost-competitive, and can mitigate any first-mover disadvantages. It would also provide greater certainty on electric vehicle/PHEV resale values. The SBC has advised that businesses consider the exemption to the RUC as critical to the business case for electric vehicles/PHEVs. The Ministry of Transport has not undertaken a formal evaluation of the RUC exemption.
42. An exemption that applies to 1% of electric vehicle/PHEVs in the fleet would forgo estimated revenue from RUC of \$22 million per annum. This would need to be considered in the broader context of overall land transport revenue. An amendment to change the expiry date of the RUC exemption would require an Order in Council and could be implemented within six months.
43. Other adjustments could be made to the RUC exemption to further incentivise the uptake of electric vehicles/PHEVs. An overview is provided in Appendix 2. These adjustments would require an amendment to the Road User Charges Act 2012.

Reducing financial disincentives

44. A number of anomalies exist that act as financial disincentives for choosing electric/hybrid vehicles. These include:
- *PHEVs paying Accident Compensation Corporation (ACC) levies twice for some of their travel* – owners of PHEVs pay ACC levies as part of their annual licence fee (at the rate charged for diesel vehicles), as well as on a per litre basis when they fill up with petrol. While this is only estimated as an additional \$20 to \$40 in taxes per year, it has been perceived as unfair by some consumers. To address this, the ACC levy component of the annual vehicle licence fee for PHEVs could be reduced.
 - *Unnecessary import duty on replacement batteries* – replacement batteries for electric/hybrid vehicles are subject to a 5% import duty which we understand is a result of historical protection of a domestic producer which no longer exists. This can add between \$100 and \$500 to battery replacement costs for electric/hybrid vehicle owners. It can be addressed by removing the import duty on batteries.

¹¹ Conventional hybrid vehicles that are powered by a regular internal combustion engine are not subject to a RUC exemption because they pay fuel excise duty on petrol.

- *Fringe benefit tax acts as a disincentive to choose electric/hybrid vehicles* – if an employee chooses an electric/hybrid vehicle for their company car, the employer benefits from reduced fuel costs, but the employee pays a higher rate of fringe benefit tax due to the higher upfront cost of the vehicle. The level of fringe benefit tax charged on the capital cost of electric/hybrid vehicles could be reduced.
45. While these measures are discrete and expected to make minimal difference to the total cost of ownership of electric/hybrid vehicles, they are disincentives and in some cases are unintended costs. We recommend that further work is undertaken with the ACC, Inland Revenue and MBIE to determine the most efficient process and time for addressing these anomalies. Note that these issues have not been raised with ACC and Inland Revenue at this stage.

Financial incentives

46. Aside from direct subsidies, feebates are another financial incentive used internationally to encourage the uptake of low emission vehicles. Under a feebate scheme a fee is charged or a rebate is provided (for example, up to \$1,000) on purchase of a new vehicle depending on the vehicle's level of fuel efficiency. Pure electric vehicles would attract the highest level of rebate. As rebates are funded by purchasers of high-emitting vehicles, there is zero impact on government revenue (assuming the system is designed well).
47. Feebate schemes have been recognised as an effective measure for reducing emissions from land transport, and are common practice in Europe (on the scale of €1,000 per vehicle) and California (up to \$2,500 US). This option is a significant change in policy and would require considerable work to design and implement.

Preferred options for further work

48. Based on our preliminary analysis, we consider that a package of measures would be the most effective way to encourage the uptake of electric/hybrid vehicles in New Zealand.
49. The following measures appear to have potential and could be further analysed. If agreed, we will provide you with further advice on:
- an extension or other adjustments to the RUC exemption
 - the factors affecting fleet purchasing decisions, based on discussions with key stakeholders, such as the New Zealand Fleet Managers Association and the SBC
 - potential scope and costs of an information and promotion campaign by EECA in partnership with industry
 - the feasibility of amending the all-of-government fleet procurement guidelines
 - the Government's role in implementing a voluntary fuel economy standard
 - addressing financial disincentives relating to ACC levies, battery import duties and fringe benefit tax.
50. We also consider that there is value in investigating and providing advice on financial incentives. This will have to be undertaken over a longer time frame. We would ask that you indicate whether you would like us to do any further work in this area.
51. Should you agree to further work being undertaken, we will report back to you in April 2015 on progress.

Risks and Mitigations

52. At this stage we do not consider that there is significant risk in investigating and providing advice on potential options to encourage the uptake of electric/hybrid vehicles.
53. We will outline any specific risks and mitigations associated with the options in further advice. The Ministry of Transport notes that the speed with which it can progress further

analysis in this area is influenced by other transport priorities as indicated by the Minister of Transport.

Consultation

54. We have consulted with EECA, MBIE, and the Treasury on the drafting of this briefing note.

Next steps

55. If you agree, we will report back to you with a progress report in April 2015.

Recommendations

We recommend that you:

- a) **Agree** that Ministers meet to discuss this paper and whether this should translate into budget priorities for 2015/16
meetings occurred internally already Yes / No
- b) **Agree** that the Minister of Transport advise the Minister for Climate Change of his decisions regarding the Ministry of Transport's transport and the environment work programme (OC02641)
 Yes / No
- c) **Note** that subject to the outcome of that discussion, Ministers direct officials to progress work on a potential package of measures to encourage the uptake of electric/hybrid vehicles, which will include advice on:
- a. An extension or other adjustments to the RUC exemption for electric vehicles/PHEVs
 - b. The factors affecting fleet purchasing decisions, based on discussions with key stakeholders, such as the New Zealand Fleet Managers Association
 - c. Potential scope and costs of an information and promotion campaign led by EECA in partnership with industry
 - d. The feasibility of amending the all-of-government fleet procurement guidelines
 - e. The Government's role in implementing a voluntary fuel economy standard
 - f. Removing financial disincentives relating to ACC levies, battery import duties and fringe benefit tax

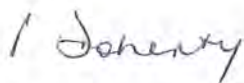
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- d) **Note** that, if you agree, we will report back to you in April 2015 on progress on the potential package of measures.



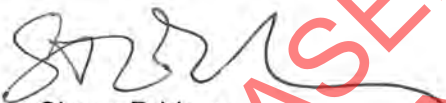
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Date 1 December 2014



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Date 1 December 2014



Hon Simon Bridges
Minister of Transport

Date 23 Jan. 15

Hon Tim Groser
Minister for Climate Change Issues

Date

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Appendix 1: Electric and hybrid vehicles

1. There are four categories of electric and hybrid vehicles:
 - 1.1. **Battery electric vehicles (EVs)**, which are wholly powered by batteries charged from external electricity supplies. The Nissan Leaf and Tesla S are examples of EVs.
 - 1.2. **Range extended electric vehicles:** vehicles that use an on-board petrol engine to charge the batteries, rather than to power the wheels directly.
 - 1.3. **Plug-in hybrid electric vehicles (PHEVs)**, which can run on either batteries or an internal combustion engine, or both. Importantly, they can travel on battery-power alone for a limited distance. The batteries in a PHEV can be charged from external electricity supplies and also by their on-board internal combustion engine (which is itself fuelled by petrol or diesel). Mitsubishi Outlander PHEV and Holden Volt are examples of PHEV.
 - 1.4. **Hybrid vehicles:** these vehicles have an internal battery but cannot be directly plugged in, and must have petrol or diesel to run.
2. Conventional hybrid vehicles (such as the Toyota Prius) are powered by a regular internal combustion engine (which is fuelled by petrol or diesel) but they do have batteries to provide assistance. Importantly however, their batteries are only charged from re-capturing energy when braking (called 'regenerative braking') and they cannot be charged by plugging-in.
3. Hybrid vehicles typically use half as much fuel as their petrol and diesel equivalents. They are particularly efficient for city traffic where there are frequent stops, coasting and idling periods.¹² This has made them particularly attractive to taxi operators.
4. Pure electric vehicles are four times more efficient than internal combustion engine vehicles. As at September 2014, there were about 350 electric and plug-in hybrid vehicles in the light vehicle fleet.
5. The cost to run an electric vehicle/PHEV is much lower than petrol vehicles, which is equivalent to buying petrol at 25 cents per litre (household prices for electricity).

¹² Hybrid vehicles are less effective at reducing emissions when used for continuous high speed driving (e.g. highways and motorways).

Appendix 2: Potential policies to encourage uptake of electric/hybrid vehicles

Potential option	Explanation	Effectiveness	Cost (estimate)	Implementation
<i>Information and promotion</i>				
Information campaign	Information campaign to overcome information barriers. A key audience would be fleet owners. We would undertake market research to ensure the campaign targets the right people on the right issues. Matched investment from industry through partnerships would be secured for marketing campaigns extending their reach.	The involvement of the government in the promotion of technology has been proven to encourage industry partners to join in with their own funding and marketing, and change behaviour.	Small scale = \$400k per year over two years, indicative target 3,000 electric vehicles/PHEVs in NZ by end of 2016/17. Large scale = \$1.7M per year over five years, indicative target 15,000 electric vehicles/PHEVs in NZ fleet by end 2019/2020.	Led by EECA in partnership with industry
Government support of vehicle charging infrastructure	Government to fund installation of 'demonstration' vehicle charging infrastructure at highly visible locations nationwide.	Low cost option with high visibility. Helps address concerns about practicality of electric vehicles for longer distance travel. May incentivise private installation of charging infrastructure (e.g. supermarkets, shopping malls, park and ride facilities).	Small number of installations with total one-off cost estimated at \$100,000-200,000.	MOT and EECA
<i>Government 'leading by example'</i>				
Amend rules/guidelines for government procurement of	The government fleet includes over 20,000 vehicles, and about 3,500 to 4,000 are purchased new each year.	Provides evidence to the market for long term resale value and cost-effectiveness of electric/hybrid vehicles.	Comparable to cost of vehicles under current procurement rules in some vehicle ranges on total cost of ownership (e.g. cost of	Amendments to government procurement rules, guidelines and Fleet Strategy. MBIE with support from MOT , MfE

Potential option	Explanation	Effectiveness	Cost (estimate)	Implementation
vehicles	<p>Include in procurement guidelines:</p> <ol style="list-style-type: none"> 1. CO₂ emission targets set at level lower than average for the class of vehicle being purchased. 2. A set percentage of the vehicles purchased through the all-of-government contracts are to be electric/hybrid vehicles. 	Proven to support import of new low emission vehicles into the New Zealand market for general purchase and flow on effect on the second-hand market over time (and should have the same effect for electric/hybrid vehicles).	<p>Nissan Leaf comparable to Toyota Corolla).</p> <p>May increase procurement costs in some vehicle ranges.</p> <p>Reduction in annual running costs of government vehicle fleet.</p>	and EECA
Demonstrations and trials	Providing government fleet owners and drivers with the opportunity to trial run electric vehicles.	It has already been done in Christchurch by EECA, and was shown to improve perceptions of electric vehicles and increase levels of uptake.	In the Christchurch trial the electric vehicles were provided free of charge by Mitsubishi via a partnership. There were some administrative costs associated, but these were relatively small.	EECA to implement in collaboration with central and regional government agencies and State Owned Enterprises
Government partnering with external organisations				
Voluntary fuel economy target (Note: impact across whole vehicle fleet not only electric/hybrid vehicles.)	Working with the Motor Industry Association to develop voluntary fuel efficiency target for the new vehicle industry	<p>Impact across whole vehicle fleet.</p> <p>Gradual improvement of efficiency and emissions reduction for new vehicles.</p> <p>Low effectiveness but more benefit than status quo.</p>	<p>Minimal implementation cost for government.</p> <p>May be small cost to new vehicle buyers but this is likely to be minimised under a voluntary scheme.</p>	MOT to facilitate (Minister of Transport meeting with MIA scheduled for 8 December 2014)
Reducing disincentives				
Adjust ACC levy	Remove anomaly whereby PHEVs	Removes anomaly resulting in	Slightly reduced revenue for	Will require regulatory and legislative

Potential option	Explanation	Effectiveness	Cost (estimate)	Implementation
component of annual licence fee for plug-in hybrid vehicles (PHEVs)	<p>pay ACC levies twice - through petrol purchases (9.9c/l) and annual licence fee (as if a diesel vehicle which has no ACC levy built into price).</p> <p>Reduce level of ACC levy payable by PHEVs at annual licensing in recognition that plug-in hybrids pay ACC levies at the petrol pump for around half their travel (estimated at around \$20-\$40 per year).</p>	<p>equitable ACC charging for PHEVs.</p> <p>Low value, so unlikely to be a strong incentive for purchasers.</p> <p>Effective "nudge" promotional tool as part of package of financial incentives.</p>	ACC, balanced by current low number of PHEVs in fleet.	<p>amendment. Likely to be technically difficult/time consuming.</p> <p>MOT responsibility, working with ACC</p>
Adjust fringe benefit tax	<p>Reduce level of fringe benefit tax applied to capital cost of electric/hybrid vehicles provided to employees by organisations.</p> <p>(Currently the individual driver is taxed at the same rate as a conventional vehicle but the benefit of greater fuel efficiency accrues to the vehicle owner (lower fuel costs) and society (lower emissions).</p>	<p>Incentive for commercial fleets to invest in electric/hybrid vehicles which may have a higher capital cost than conventional vehicles (benefits to both employee and organisation).</p> <p>Note: commercial fleets currently purchase 70-80% of new vehicles in New Zealand.</p>	Not costed - further work required.	<p>Will require changes to income tax rules (IRD legislation). Likely to be time consuming.</p> <p>MOT responsibility, working with IRD</p>
Adjust depreciation rates on electric/hybrid vehicles	<p>Enable electric/hybrid vehicles to depreciate more quickly to reflect unknown resale value and maintenance costs (so depreciation rates for conventional vehicles may not be a good guide).</p>	<p>Unknown, but may remove the risk of purchasing electric vehicles for commercial fleets (70-80% of new vehicle purchases in New Zealand).</p>	Not costed - further work required.	Likely to be technically difficult/time consuming.
Adjust or remove import duties on batteries compatible	<p>Adjust or remove the 5% import duties on electric/hybrid vehicle</p>	<p>Reduces cost of replacement batteries resulting in lower</p>	Not costed - further work required.	MOT to work with MBIE and Customs

Potential option	Explanation	Effectiveness	Cost (estimate)	Implementation
with electric/hybrid vehicles	batteries Batteries continue to attract an import duty, likely as a result of historical protection of a domestic producer which no longer exists.	ongoing maintenance costs. Helps address concerns about reliability of battery packs (i.e. costs if battery pack failure requires full replacement) and therefore resale value.		
Financial incentives				
Extend Road User Charge (RUC) exemption	Extend RUC exemption date for light electric vehicles to continue to recognise the role that these vehicles could play in reducing CO ₂ emissions. Timing of any extension to exemption date requires further consideration. Exemption date has been extended once (to June 2020) since first set at 2013.	Assists current owners who on-sell after 2020. Provides average of \$400-\$700 savings in RUC per vehicle per year. May require further promotion to impact on sales of electric vehicles.	The original intention of the RUC exemption was it would only apply to up to 1% of the vehicle fleet. The estimate cost of exempting 1% of the light fleet from RUC is \$22 million per annum. In real terms the marginal cost (in terms of damage to roads) of exempting a light vehicle from RUC may be lower.	Cabinet approved RUC exemption in May 2009, intended to apply until 1% of the light vehicle fleet is electric. Also approved ability to reassess the percentage of electric vehicles in the fleet and extend the exemption. Order in Council required to extend exemption date. Relatively quick to implement (approx. 6 months). MOT responsibility
Other options for adjusting RUC	Other potential options include: 1. Graduated RUC once exemption expires (e.g. year 1 after exemption electric vehicles liable for 25% of RUC; year 2, 50%; year 3, 75%). 2. Lifetime exemption from RUC for electric vehicles first registered before a set date. 3. Lower rate of RUC for PHEVs	Option 1 softens impact of annual cost to run electric vehicles once exemption period expires. All options provide more certainty about resale values (assists commercial fleets with depreciation). Incentivises 'early adopters' as highest savings occur in the short	Not costed - further work required.	Amendment to Road User Charges Act 2012 required MOT responsibility.

Potential option	Explanation	Effectiveness	Cost (estimate)	Implementation
	<p>from 2020 to offset any Fuel Excise Duty on petrol used.</p> <p>4. Extend RUC exemption to cover heavy electric vehicles.</p>	<p>term.</p>		
<p>Feebates</p> <p>(Note: applies across the vehicle fleet, not only electric/hybrid vehicles)</p>	<p>On purchase of a vehicle a substantial fee is charged or a rebate provided (e.g. up to \$1,000), depending on the vehicle's level of CO₂ emissions</p> <p>Electric vehicles would attract highest level of rebate.</p>	<p>Strong incentive to purchase fuel efficient vehicles.</p> <p>Very effective, would need to consider impacts on key economic sectors that use relatively inefficient vehicles (e.g. commercial, farming sectors)</p>	<p>As rebates are funded by the fee paid by purchasers of inefficient vehicles, there is zero impact on government revenue (assuming the system is well designed).</p> <p>However, some uncertainty about government revenue if uptake is higher than expected.</p>	<p>Very complex to develop.</p> <p>Major new policy, would require considerable work.</p> <p>MOT responsibility</p>