Ministry of Transport
TE MANATŪ WAKA

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27 MAR 2015
Office Hon. Simon Bridges

BRIEFING

ELECTRIC VEHICLES: MEASURES TO ENCOURAGE UPTAKE

Reason for this briefing	This briefing responds to your request for advice by the end of March 2015 on measures that could form a package to encourage the uptake of electric vehicles in New Zealand in order to reduce greenhouse gas emissions.
Action required	Consider this paper and decide which measures should be progressed to form a package.
Deadline	N/A
Reason for Deadline	N/A

Contact for telephone discussion (if required)

Name	Position	Telephone Direct Line	Telephone After Hours	First Contact
[redacted]	Adviser	[redacted]		
	Adviser			
Erin Wynne	Manager, People and Environment		[redacted]	✓

MINISTER'S COMMENTS: Withheld under section 9(2)(a) of the Official Information Act 1982

Date:	26 March 2015	**Briefing Number:**	OC02885
Attention:	Hon Simon Bridges (Minister of Transport)	**Security level:**	In-Confidence

Minister of Transport's office actions

☐ *Noted* ☐ *Seen* ☐ *Approved*

☐ *Needs change* ☐ *Referred to*

☐ *Withdrawn* ☐ *Not seen by Minister* ☐ *Overtaken by events*

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Purpose of report

1. This briefing provides you with advice on a range of measures that could form a package to encourage the uptake of electric vehicles in New Zealand as a means to reduce greenhouse gas (GHG) emissions from transport.

2. We have provided a high-level analysis of each of the measures, designed to help you make a decision about which options you would like officials to progress.

3. In this briefing 'electric vehicles' refers to vehicles powered by electric batteries charged from an external source. This includes plug-in hybrid electric vehicles, but not conventional hybrids.[1]

Structure of this report

4. This briefing contains a range of measures that you can choose from, and includes our recommendations about which ones we consider could be progressed (pages 6–13), deferred (page 14), or not progressed (page 14).

5. Supporting information to this briefing is contained in:

   5.1. Appendix A on page 19, which provides a summary of our recommendations for measures that could be included in a package, including information about the target audience and costs

   5.2. Appendix B on page 20, which contains a qualitative impact analysis of the measures that could be pursued for inclusion in a package

   5.3. the attached *Report on possible government measures to encourage the uptake of electric vehicles* (the attached report), which contains context for the role of electric vehicles in reducing GHG emissions, and further analysis of each of the measures in this briefing.

Executive summary

6. This briefing follows on from our previous advice and discussions with you regarding climate change and electric vehicles, particularly our teleconference of 23 January 2015. We noted that any policies dependent on the turnover of the vehicle fleet (such as accelerating the uptake of electric vehicles) may be effective at reducing emissions over a very long-term, but are unlikely to make a significant contribution to New Zealand's 2020–2030 emissions reduction target.

7. You requested advice on a range of low-cost 'nudges' to encourage the uptake of electric vehicles, and measures to address the barriers to uptake. You asked officials not to submit advice on a specific package.

8. We recommend you instruct officials to progress the following three measures. These measures most clearly address identified market failures[2], and have the strongest case for government involvement based on our policy framework (see paragraph 43 of the attached report):

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[1] Conventional hybrid vehicles have an internal battery but cannot be directly plugged in, and must have petrol or diesel to run.
[2] Identified market failures in the context of electric vehicles include coordination problems, information problems, and trade barriers.

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8.1. a campaign by the Energy Efficiency and Conservation Authority (EECA) to provide new information and promotion

8.2. government support (through branding, promotion and information) for the development of electric vehicle charging infrastructure built by the private sector

8.3. a trial of electric vehicles in the government fleet and inclusion of an electric vehicle class in the all-of-government vehicle catalogue used by government fleet buyers.

9. The total cost of the package above is approximately $9 million over 5 years, but could be higher or lower depending on level of ambition assigned to the measure.

10. We consider that further investigation of the following measures is a lower priority as either the rationale for government involvement is less clear, or the scale of the underlying problem is not yet that significant. However, if requested officials could progress a selection of the following measures as part of a package:

10.1. a programme to co-fund electric vehicle initiatives with local government and businesses

10.2. enabling electric vehicles to use bus and transit lanes

10.3. amending the road user charges (RUC) exemption for light electric vehicles

10.4. reviewing the method for calculating fringe benefit tax for electric vehicles

10.5. inviting stakeholders to discuss with tax policy officials the case for having higher depreciation rates for electric vehicles.

11. We recommend that the following measures be deferred as they are low value and could be progressed as part of other work programmes:

11.1. amending ACC levies for plug-in hybrid electric vehicles (PHEVs)

11.2. setting a specific RUC rate for PHEVs

11.3. removing electric vehicle battery import duties.

12. We recommend that analysis of the following measures be progressed as part of the Ministry's wider Climate Change Work Programme, as the scope of these measures goes beyond that of electric vehicles[3]:

12.1. establishing a feebate scheme[4] to encourage the purchase of low emission vehicles

12.2. recognising alternative low emission vehicle designs.

13. Measures proposed by third parties that we do not consider there is value in progressing are:

13.1. lowering or removing registration and annual vehicle licensing fees for electric vehicles

13.2. exempting second-hand electric vehicles from GST.

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[3] While these measures do not focus specifically on electric vehicles, they would complement electric vehicles policies.
[4] Feebate schemes reward purchasers of low emissions vehicles with a rebate on the purchase cost while vehicles with higher emissions are charged a fee.

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14. To inform our future advice to you we have commissioned two pieces of research. This research is due to be completed by 30 June 2015. This research covers fleet buyer purchasing decisions, and trends and developments in the price and supply of new and used electric vehicles into New Zealand.

15. In developing our advice, it is our view that the greatest influence on uptake will be the purchase price of electric vehicles relative to petrol and diesel vehicles. If battery costs fall slowly, electric vehicle uptake will remain low despite government measures to encourage uptake. The research that we have commissioned will help to determine the scale of this risk.

Background

Our previous advice on transport and climate change

16. In November 2014, we presented to you on environment issues in transport, including GHG emissions from vehicles. We advised that reducing GHG emissions from transport would require a range of measures. These could include encouraging uptake of electric vehicles, greater use of biofuels, research into alternative fuels, investment in public transport/active modes of travel, and intelligent transport systems.

17. In the short to medium-term, measures to improve the efficiency of the whole fleet (for example, fuel economy standards, feebates) are likely to be more effective than those that focus solely on electric vehicles. Such measures would encourage greater uptake of efficient petrol vehicles, hybrids, and electric vehicles.

18. On 28 November 2014, we provided you a briefing on a climate change work programme where a range of feasible options were considered. We will continue to progress the work set out in that programme.

Previous advice on electric vehicles

19. On 1 December 2014, the Ministry of Transport and the Ministry for the Environment provided you a briefing on options to encourage the uptake of electric/hybrid vehicles.

20. At our teleconference on 23 January 2015, you emphasised that we focus our analysis on low-cost 'nudges' and addressing barriers to the uptake of electric vehicles. You asked us to provide you with a list of measures to choose from, rather than recommending a set package. Accordingly, this briefing provides our advice and recommendations regarding individual measures, but not any specific package.

Engagement with the private sector

21. Officials met with Mighty River Power and the Sustainable Business Council on 12 February 2015 to hear their views on the barriers to electric vehicle uptake, and measures to help overcome them. Many of those measures are considered in more detail in this briefing.

Opportunities and barriers to increase the uptake of electric vehicles

22. Officials have previously advised you and the Minister for Climate Change Issues of the opportunities and challenges for increased uptake of electric vehicles in New Zealand (see paragraphs 33–39 of the attached report).

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23. We noted that any policies dependent on the turnover of the vehicle fleet (such as accelerating the uptake of electric vehicles) may be effective at reducing emissions over a very long-term, but are unlikely to make a significant contribution to New Zealand's 2020–2030 emissions reduction target.[5] Therefore adopting a package of measures to achieve higher electric vehicle uptake represents an investment for the long-term, and may assist in the achievement of longer-term emissions targets.

24. Government is limited in what it can directly do to address some of the barriers to the uptake of electric vehicles, such as their higher upfront purchase price, lack of model choices compared to other markets, and (travel) range limitations. These barriers are expected to reduce over time through cost reductions and improved battery technology, although the rate of change is uncertain.

25. There is a clearer role for government intervention to address market failures affecting uptake, such as in helping to resolve:

    25.1. coordination problems – for example, addressing any issues to ensure that the necessary infrastructure is in place ahead of demand in order to encourage uptake

    25.2. information problems – for example, lack of awareness and misconceptions about electric vehicles, and uncertainty about the total cost of ownership (including maintenance costs, battery life and residual values)

    25.3. trade barriers – for example, the removal of import duties on a broad range of environmental goods (which could include electric vehicles and batteries) in the context of the negotiations towards a global Environmental Goods Agreement in the World Trade Organisation (WTO).

26. As well, we have identified several instances of possible regulatory failure[6] (for example, ACC levies and road user changes for PHEVs). These regulatory failures are currently small in scale, but left unaddressed may 'nudge' motorists away from choosing electric vehicles.

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[5] Our modelling indicates that doubling the uptake rate of electric and hybrid vehicles over the next 25 years (compared to business-as-usual baseline) could result in emissions reductions of 7 percent in the transport sector by 2040.
[6] Regulatory failure in the context of this briefing refer to situations where government charges, taxes or levies inadvertently disadvantages electric vehicles relative to other vehicles.

Measures that we recommend be progressed

27. Below are short summaries of the three measures that we recommend are prioritised for further investigation. More detailed analysis of each measure can be found in the attached report, including an initial assessment of alternative ways in which these measures could be progressed. The attached report also identifies in more detail the potential risks associated with each measure.

28. Appendix B provides a qualitative impact analysis of the measures proposed in this paper. This analysis shows the advantages of the measures that we recommend pursuing, relative to others that could be adopted.

Measure 1: Energy Efficiency and Conservation Authority (EECA) information and promotion campaign

29. Through a campaign, EECA would target the market segments most likely to respond to information and promotion (for example, fleet owners and lease companies, large businesses, and government agencies). This could involve directly marketing to, and building long-term partnerships with corporate fleet managers.

Rationale for this measure

30. EECA's engagement with a number of light vehicle fleet owners has identified significant information barriers around electric vehicles. This included a lack of awareness about the availability of electric vehicles, a lack of information on the total cost of ownership, and misconceptions.

31. An information campaign would address these information barriers and also enhance the visibility of other measures to address barriers and incentivise the uptake of electric vehicles. Given that electric vehicles are a long-term option for reducing GHG emissions, we recommend pursuing a campaign that seeks long-term change.

Implementation considerations and costs

32. A long-term campaign would be around 5 years long and could require funding of up to $1.7 million per year depending on the nature of agreed measures and further work on their design and implementation. Officials would need to consider the impacts of different funding options (for example, a new budget bid or reprioritisation) before making final recommendations to you.[7] A campaign could be scaled to fit funding availability (that is, it could be delivered with a more limited reach at a lower cost or over fewer years).

33. EECA and the Ministry of Transport have commissioned market research to better understand what drives fleet buyers' decisions. This research is due to be completed by 30 June 2015, and will inform future advice to you and any information campaign by EECA.

Links to other measures

34. EECA advises that extending the RUC exemption, government fleet procurement, and reviewing fringe benefit tax and tax depreciation rates for electric vehicles, are important for its work with fleet buyers. Fleet buyers would be far more responsive to an EECA led information and promotion campaign if they see the Government taking clear steps to encourage uptake. EECA advises any campaign would be less effective in the absence of action on these issues.

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[7] EECA notes that reprioritising Crown funding for encouraging energy efficiency and conservation to cover the cost of an electric vehicle campaign would likely impact on the delivery of its other programmes and initiatives.

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Measure 2: Government support for charging infrastructure

35. The private sector is investing in charging infrastructure. The Electricity Networks Association has announced plans to study if a 'renewable highway' providing nationwide infrastructure for charging is possible. This is driven by Mighty River Power's plans to partner with other electricity industry players to invest in a 'renewable highway' of electric vehicle fast-charging stations. Other private sector parties (such as JuicePoint and the private equity group behind Charge.net.nz) are also looking to provide more charging infrastructure. This does not require Crown funding.

36. Government involvement in establishing this network would primarily be through branding and promotional support to facilitate a cohesive network. There is likely to be a role for Government in supporting independent players (for example, local governments, retailers, and motel owners) who are seeking advice about installation of charging infrastructure.[8]

37. The Government could also fund or co-fund the installation of fast charging stations in locations where it is not commercially viable for the market to do so[9], or at central or local government owned locations/buildings where charging facilities would support electric vehicle use.

Rationale for this measure

38. Government support for charging infrastructure would primarily address coordination problems. The private sector is looking to lead the development of the charging network. Government involvement would help maximise the value of private investment by ensuring that the network is visible and cohesive.

Implementation considerations and costs

39. Branding and information material to support the development of a network of charging infrastructure could be developed within 12 months.

40. More work would be required to establish the costs of providing this support. It is possible that branding, promotion and information support could be funded through reprioritisation. If the Government wanted to fund or co-fund the charging infrastructure itself, a budget bid would be required to request Crown funding.

Links to other measures

41. Branding, promotion and information could be funded through an EECA campaign (see measure 1 above) or as a stand-alone programme. Although it is not one of our preferred options, the Government could co-fund, charging infrastructure from the proposed electric vehicle programme (see measure 4 below), if that measure is progressed.

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[8] For example, providing advice on standards, any necessary consents, and health and safety issues.
[9] This would be more effective once we see if there are gaps in the network that the market cannot fill.

Measure 3: Government fleet procurement of electric vehicles

42. This measure could involve a trial of electric vehicles in the government vehicle fleet and establishing a specific class for electric and hybrid vehicles in the all-of-government vehicle catalogue (managed by the Ministry of Business, Innovation and Employment (MBIE)).

43. An indicative trial could be 1 to 3 years long and involve the Government covering the additional purchase costs of a number of electric vehicles in the fleet, as well as covering monitoring and reporting costs.

Rationale for this measure

44. A trial would greatly assist to fill information gaps around the whole-of-life cost associated with electric vehicles (identified as the key risk for fleet managers), and demonstrate their functionality in New Zealand fleets. This information would help reduce risk by informing Government and corporate fleet purchasers about key uncertainties, such as likely resale value, and maintenance and replacement costs. The NZ Transport Agency has offered to assist with disseminating this information if required.

45. The information obtained through a trial would help to inform future decisions around more ambitious measures to incentivise the uptake of electric vehicles in the government fleet.

46. While Mighty River Power has plans to incorporate electric vehicles in its fleet over the next 2 years, we consider that a government trial would provide impartial and additional information. It would also demonstrate government commitment to the uptake of electric vehicles in New Zealand, and lend credibility to any other government action on electric vehicles.

47. A dedicated vehicle class would make electric and hybrid vehicles more visible to fleet managers and ensure manufacturers of electric vehicles are included in the all-of-government contract, and are able to negotiate a lower price of supply.

Implementation considerations and costs

48. We estimate that a trial of 24 electric vehicles in four fleet locations around New Zealand could cost around $500,000 (for incremental costs[10] only). This would require a budget bid.

49. Including an additional vehicle class in the all-of-government catalogue may require MBIE to undertake an additional tender process for this component of the contract.

Links to other measures

50. We consider that action on government fleet procurement would enhance the effectiveness of any other measures by demonstrating the government's commitment to electric vehicles.

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[10] These are costs over and above what fleets would normally pay to procure their vehicles.

Measures that could be investigated further

51. Listed below are short summaries of measures which officials could investigate further, but recommend be given a lower priority as the rationale for government intervention is less clear.

Measure 4: An electric vehicle programme to co-fund initiatives with other parties

52. We could investigate establishing an electric vehicle programme. This programme would co-fund projects with either businesses or local communities, which seek to address market failures/barriers that are limiting the uptake of electric vehicles. This could include, for example, the installation of electric vehicle charging stations, electric vehicle trials, and demonstration days.

53. Auckland Transport's recent announcement of a Request for Proposal from car share operators to launch an electric vehicle scheme in Auckland is also an example of the type of project that could be co-funded by an electric vehicle programme. See paragraphs 89 of the attached report for further examples.

Rationale for this measure

54. An electric vehicle programme could potentially address some coordination problems, such as the need for charging infrastructure to be in place ahead of demand, and the lack of awareness and misconceptions around electric vehicles.

55. The advantage of this approach is that it would encourage innovation by giving local government and private sector organisations the flexibility to determine the types of projects that are most appropriate for particular market conditions and/or their local communities.

Implementation considerations and costs

56. An electric vehicle programme funded by the Crown would require a budget bid. The level of funding made available, and over what period, could vary depending on the level of ambition assigned to the programme. As an example, a programme in the order of $2 million over 2 years could be used to co-fund 8 to 10 trials, demonstrations or small infrastructure projects (for example, charging stations).

57. If you agreed to progress an electric vehicle programme, we would provide further advice on the design and implementation of this measure.

Links to other measures

58. The programme could also be used to co-fund some of the other potential measures discussed in this briefing, such as charging infrastructure (measure 2 above).

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Measure 5: Electric vehicles in bus and transit lanes

59. Consideration could be given to removing the regulatory barriers that prevent road controlling authorities (RCAs) from allowing electric vehicles into bus and transit lanes. This would require amending two land transport Rules and potentially the Land Transport Act 1998.

60. Under this option, RCAs would maintain the flexibility to choose which bus and transit lanes electric vehicles could access, allowing them to manage transport priorities along a corridor, including electric vehicle promotion and network efficiency.

Rationale for this measure

61. This relatively low cost measure would primarily act as an incentive. As an incentive, it is considered to be of high value to drivers relative to other common electric vehicle incentives.

Implementation considerations and costs

62. The NZ Transport Agency expects that RCAs are unlikely to be interested in granting electric vehicles access to bus and transit lanes. The NZ Transport Agency expects RCAs will share its reservations about the potentially negative impact on network efficiency of having electric vehicles in bus and transit lanes (that is, vehicle congestion and bus reliability). For this reason, it would be important to discuss this measure with RCAs prior to any announcement or decision.

63. We consider that there are practical, low-cost ways to assist with the identification of electric vehicles, and enforcement of this measure. We would discuss these issues further with the NZ Transport Agency and NZ Police should you choose to progress this measure.

64. This measure would add costs (the level of which is yet to be determined) to central and local government in terms of planning, monitoring, and implementing road marking and signage. We do not expect that identification of electric vehicles, or enforcement around lane use, would pose significant challenges or costs.

Links to other measures

65. This measure has no direct links to other measures included in this briefing.

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Measure 6: Road user charges (RUC) exemption for electric vehicles

66. If you wish to continue the RUC exemption as a subsidy for electric vehicles beyond 2020, we recommend consideration be given to introducing an exemption for light electric vehicles from the date each vehicle is registered in New Zealand, for a finite period (for example, 5 years). This option would require a change to the Road User Charges Act 2012.[11]

67. A RUC exemption for light electric vehicles would be from the date they are first registered. The finite period of time would help manage the cost of foregone revenue. It would also be more equitable than the current exemption (a blanket exemption to 2020) because owners of electric vehicles would begin contributing towards the development and operation of land transport system after the finite period ended.

68. If you wish to extend the RUC exemption but not make changes to the Road User Charges Act, you could amend the end date for the current RUC exemption (30 June 2020) by Order in Council (for example, to 30 June 2025). We would provide you with further advice on an appropriate end date should you choose to pursue this option.

Rationale for this measure

69. A RUC exemption would be an incentive to potential electric vehicle buyers. Based on current vehicle and fuel prices, the RUC exemption is an important factor in determining whether the total cost of ownership for electric vehicles is competitive with comparable petrol and hybrid vehicles.

70. In our meeting of 23 January 2015, you asked about extending the RUC exemption to heavy vehicles. We do not recommend extending a RUC exemption or discount to heavy electric vehicles. Heavy vehicles do significantly more damage to the roads than light vehicles, and therefore have a greater impact on maintenance costs. It would also be a further deviation from the user pays model, and is likely to face political resistance.

Implementation considerations and costs

71. The cost of an exemption from date of purchase would be relatively low in the context of total RUC revenue (but potentially much higher than many of the other measures in this briefing). The cost of exempting 1 percent of the light vehicle fleet from RUC is approximately $22 million per year out of approximately $3 billion (in 2015 figures). Currently, electric vehicles make up just 0.02 percent of the fleet and based on our modelling, we would expect to see 30,000 electric vehicles (or about 1 percent of the fleet) in the New Zealand fleet by 2033 under a 'status quo' scenario.

72. If you instruct officials to progress introducing a RUC exemption or discount for heavy vehicles, we would need to consult with industry to consider their views on the matter and the potential effect on uptake. This information would inform the likely costs of extending the RUC exemption to heavy vehicles. This option also would require a change to the Road User Charges Act 2012.

Links to other measures

73. EECA advises that continuation of the RUC exemption is important for its work with fleet buyers and would enhance the effectiveness of any information and promotion campaign.

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[11] Section 37 of the Road User Charges Act 2012 allows the Governor-General to, by Order in Council, specify the period during which road user charges are not payable in respect of light electric vehicles. An Order made under section 37 of the RUC Act must specify the date on which the exemption expires, and may, from time to time, be amended to provide for a later date.

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Measure 7: Fringe benefit tax on electric and hybrid vehicles

74. Electric and hybrid vehicles attract a higher amount of fringe benefit tax as their purchase prices are higher than those of equivalent conventional vehicles. For the purposes of fringe benefit tax, the annual taxable value of an employee's vehicle benefit is calculated as either 20 percent of a vehicle's cost price, or 36 percent of its book value. These proportions are proxy estimates of the fixed and running costs that the employee would bear if they owned the car themselves.

75. A potential issue with the fringe benefit tax regime could be the method for calculating the taxable value of the fringe benefit. Despite the expectation that the purchase price of electric vehicles will continue to fall over time, it is unlikely that the price will fall below that of conventional vehicles in the foreseeable future. This brings a risk that the tax calculation will not take into account the fact that electric vehicles may have lower running costs than conventional vehicles. Where this happens, the calculation will overvalue and therefore overtax the fringe benefit as the lower running costs of electric and hybrid vehicles will not be adequately recognised.

Rationale for this measure

76. To address this risk, we recommend that a review is conducted within the next 2 years of the basis for calculating the taxable value of the fringe benefit for electric vehicles. This review would ensure that the lower running costs of these vehicles are adequately recognised.

77. A review of the fringe benefit tax would identify the existence and scale of any regulatory failure whereby the tax calculation may overvalue and therefore overtax the fringe benefit of electric and hybrid vehicles.

78. The Sustainable Business Council and Business NZ also consider that exempting electric and conventional hybrid vehicles from fringe benefit tax would have a significant 'nudge' effect on the purchase decisions of fleet managers. Little is known, however, about the extent to which fleet purchase decisions are being influenced by fringe benefit tax as opposed to other barriers (such as the limited travel range of pure electric vehicles).

Implementation considerations and costs

79. There may be value in conducting a review sooner given stakeholders' views on the issue. We suggest discussing the timing of any review of fringe benefit tax for electric and hybrid vehicles with the Minister of Revenue, Hon Todd McClay. Tax policy officials are open to undertaking this review, but note that it would have to be prioritised against other items on the Government's tax policy work programme.

80. A review would not incur additional costs to the Government.

Links to other measures

81. EECA advises that addressing fringe benefit tax on electric vehicles is important for its work with fleet buyers, and would enhance the effectiveness of any information and promotion campaign.

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Measure 8: Tax depreciation rates for electric vehicles

82. You could consider inviting relevant industry groups (for example, Drive Electric and electric vehicle manufacturers) to discuss with tax policy officials the case for having higher depreciation rates for electric vehicles. We could facilitate these discussions. It would be expected that the industry would prepare an economic case to support its arguments for a higher rate of depreciation.

83. Currently, the depreciation rate for passenger vehicles is the same for conventional and electric vehicles. However, we understand companies that calculate residual vehicle values are making low estimates for electric vehicles' residual value due to the uncertainty around resale. This acts as a disincentive to fleet buyers. Buyers perceive that the total cost of ownership over a 5 year period will be higher for electric vehicles than for fuel efficient conventional vehicles, but they are unable to deduct the tax on the additional cost from their annual taxable earnings.

Rationale for this measure

84. The policy principle behind tax depreciation is that the deduction should match the economic life of the asset. Within these parameters, and keeping in mind the principles of New Zealand tax system, there may be a case to consider whether the current tax depreciation rate that applies to the entire New Zealand passenger vehicle fleet is appropriate for electric passenger vehicles.

85. The concern identified by relevant industry groups is a question about the timing and value of depreciation deductions rather than a permanent tax effect. When the asset is disposed of, the Income Tax Act 2007 requires a wash-up to calculate if the relevant tax depreciation rate has correctly spread the cost of the asset over its economic life.

86. Tax policy officials advise that proposals for accelerated depreciation would be inconsistent with the Government's revenue strategy, which supports a broad-base, low-rate tax system and generally eschews tax concessions.

Implementation considerations and costs

87. Depreciation rates for electric passenger vehicles are not administratively determined by Inland Revenue and any work on this issue would need to be prioritised against other items on the Government's tax policy work programme.

88. Further investigation of this issue would not incur additional costs to the Government.

Links to other measures

89. EECA advises that addressing tax depreciation rates on electric vehicles is important for its work with fleet buyers, and would enhance the effectiveness of any information and promotion campaign.

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Measures to be progressed outside of the package

90. We have assessed the following measures as having merit, but being more suitable to be progressed as either part of policy work scheduled for 2015, or part of wider reviews undertaken by the Ministry of Transport or other departments over the next couple of years.

    90.1. Amending ACC levies for PHEVs to remove the overcharge.

    90.2. A specific RUC rate for PHEVs.

    90.3. Removing battery import duties.

    90.4. A feebate[12] scheme to encourage the purchase of low emission vehicles.

    90.5. Recognition of alternative low emission vehicle designs.

91. These measures are discussed further in the attached report.

Measures proposed by third parties that we do not consider worth progressing

92. We consider that the following measures to incentivise the uptake of electric vehicles are not worth progressing:

    92.1. lowering registration and annual vehicle licensing fees for electric vehicles – this measure would not provide sufficient economic value to act as an incentive and does not address any specific market or regulatory failure.

    92.2. exempting second-hand electric vehicles from GST – this measure is likely to be politically difficult to progress, and would undermine the principles of New Zealand tax system without addressing any specific market or regulatory failure.

Relevant research underway

93. Several pieces of research currently underway will help to inform further advice around electric vehicle and options for reducing transport emissions.

Research focus	Owner	Findings due
Trends and developments in the price and supply of new and used electric vehicles into New Zealand – implications for uptake	Ministry of Transport	30 June 2015
The factors influencing fleet buyers' vehicle purchase decisions	EECA and Ministry of Transport	30 June 2015
The future of transport – examining habitual patterns, and what needs to change to support changes in transport behaviour	University of Otago	September 2016
Reducing fossil fuel consumption in the light vehicle fleet (contestable funding – research beginning 2015)	MBIE	2017 to 2019

94. The Ministry of Transport and EECA research should enable us to better forecast electric vehicle uptake, and thus assess the potential impact government measures or interventions might have. The research will also inform the design and implementation of measures adopted to encourage uptake of electric vehicles.

[12] Under a feebate scheme, a fee is charged or a rebate is provided on purchase of a new vehicles depending on the vehicle's level of fuel efficiency.

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Risks

95. The purchase price of light electric vehicles relative to petrol and diesel vehicles has the greatest influence on electric vehicle uptake. If battery costs come down, we expect the relative cost of electric vehicles to fall and the rate of uptake to increase.

96. Experts generally agree that battery prices will continue to fall, but disagree on how much and how quickly. If battery costs fall slowly, electric vehicle uptake will remain low despite government measures to encourage uptake.

97. We have commissioned research that will help us to better understand this risk, and quantify the likely costs and benefits of government measures with greater precision. We consider that the analysis in this briefing is sufficient to make a decision about which options to investigate further. However, we caution against making a final decision on a package of measures until the results of this research have been considered.

98. Promotion of electric vehicles alone could attract perceptions of unfairness from producers and consumers of other products that help to reduce transport GHG emissions (for example, producers of hydrogen fuel cell vehicles and electric bikes).

99. We can provide you with key messages to mitigate this and other risks once we know which measures you wish to pursue as part of a package to encourage uptake of electric vehicles.

Consultation

100. We have consulted EECA, the NZ Transport Agency, Treasury, MBIE, MfE, the Ministry of Foreign Affairs and Trade, the New Zealand Customs Service and the Inland Revenue Department on this briefing.

101. MFAT advises that, based on the available information, some of the proposed measures (for example, financial incentives, some government procurement initiatives) may impact on New Zealand's international obligations under the WTO *Agreement on Subsidies and Countervailing Measures* (SCM Agreement). While no proposal appears to be a 'prohibited subsidy' under the SCM Agreement, they may be a 'notifiable subsidy' and would therefore require New Zealand to include them in annual reporting to the WTO. If a subsidy causes adverse effects on the interest of another WTO member, the subsidy could be subject to challenge under the SCM Agreement (that is, an 'actionable subsidy').

Treasury comment

102. You asked us to work with the Treasury on providing advice on electric vehicles, and to consider the possibility of providing joint advice.

103. Treasury recommends that any package of interventions to encourage electric vehicles uptake focuses on an information and promotion campaign through EECA. It recommends that funding for this should be reprioritised from the $16.6 million per annum the Crown currently spends encouraging energy efficiency and conservation.

104. It is promising that the private sector will establish a 'renewable highway' of fast-charging without government intervention. Providing branding and promotional support to the project through EECA could be a useful contribution from the Government.

105. Treasury supports encouraging regional authorities to consider allowing electric vehicles into bus and transit lanes. However, it notes that this involves a trade-off with transport network efficiency that authorities would need to assess. It agrees that tax issues around electric vehicles should be explored further to ensure the tax treatment of electric vehicles is appropriate.

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106. Treasury does not recommend that a package include the other options explored in this paper, for the following reasons:

106.1. An electric vehicle programme would add complexity and administrative costs. Instead, significant new proposals that arise could be considered on a case-by-case basis.

106.2. A trial of electric vehicles in the government vehicle fleet does not appear necessary, because Mighty River Power's electric vehicle trial should fill information gaps about using electric vehicles in New Zealand fleets. EECA's campaign could ensure that any lessons learnt from Mighty River Power are communicated widely. It may also be useful to ensure that the government procurement process has the right information to consider electric vehicle fleet options, and is not overly risk averse.

106.3. A time-limited RUC exemption for new electric vehicles would not address the information and coordination problems that the Ministry of Transport identifies. Also, the cost per vehicle exempted is high and most of the benefits go to high income households.

Next steps

107. The Ministry of Transport will continue to engage with other departments and stakeholders (such as Mighty River Power, the Sustainable Business Council, and Drive Electric) on electric vehicles while we await your decision on which measures to include in a package.

108. Cabinet has requested that financial matters not be considered outside the budget cycle unless urgent. If your agreed package of measures has financial implications, these will need to be included in the Ministry of Transport's four year plan by the end of October 2015.

109. Once you have made a decision about which measures you would like officials to progress, we will provide further advice. This is expected to involve seeking Cabinet decisions on the necessary policy and financial issues prior to the finalisation of the Ministry of Transport's four year plan. We will discuss the timing of this paper with you.

110. The Minister for Climate Change Issues, Hon Tim Groser, has expressed an interest in electric vehicles and has previously received advice on their role in reducing GHG emissions. We recommend that you forward a copy of this briefing to Hon Groser for his information. You may also wish to forward this briefing to the following Ministers because of the potential implications for their portfolios:

110.1. Minister of Commerce and Consumer Affairs, Hon Paul Goldsmith (battery tariffs)

110.2. Minister of Customs, Hon Nicky Wagner (battery tariffs)

110.3. Minister for ACC, Hon Nikki Kaye (ACC levies for PHEVs)

110.4. Minister of Revenue, Hon Todd McClay (fringe benefit tax and depreciation).

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Recommendations

111. The recommendations are that you:

(a) **note** that policies seeking to increase the uptake of electric vehicles as a means to reduce greenhouse gas emissions ultimately depend on the turnover of the vehicle fleet, and although they are likely to be effective over a very long-term, they are unlikely to make a significant contribution to New Zealand's 2020–2030 emissions reduction target

(b) **direct** officials to prepare a Cabinet paper on the following measures:

1. an Energy Efficiency and Conservation Authority (EECA) information and promotion campaign — Yes/No
2. government branding, promotion and information support for public charging infrastructure — Yes/No
3. a trial of electric vehicles in the government fleet, and the inclusion of specific class for electric and hybrid vehicles in the all-of-government vehicle catalogue — Yes/No

(c) **consider** the other five measures that we advise be given lower priority and indicate which, if any, you would like officials to include in the Cabinet paper:

1. an electric vehicle programme to co-fund initiatives with local government and businesses — Yes/No
2. enabling electric vehicles to use bus and transit lanes — Yes/No
3. amending the road user charges (RUC) exemption for light electric vehicles — Yes/No
4. reviewing the basis for calculating fringe benefit tax for electric vehicles — Yes/No
5. inviting stakeholders to discuss with tax policy officials the case for having higher tax depreciation rates for electric vehicles — Yes/No

(d) **note** that we will provide you with further advice by 31 August 2015 to enable any financial implications from your decisions to be included in the Ministry of Transport's four year plan and if necessary considered as part of Budget 2016

(e) **note** that the following measures will be progressed outside of a package for electric vehicles: further investigation into amending ACC levies for plug-in hybrid electric vehicles (PHEVs), setting a RUC rate for PHEVs, removing battery import duties, a feebate scheme, and recognition of alternative low emission vehicle designs

(f) **agree** that the Ministry of Transport consult with transport and energy industry stakeholders to further investigate the measures you selected in (b) and (c) — Yes/No

(g) **agree** that lowering registration and annual vehicle licensing fees for electric vehicles, and exempting second-hand electric vehicles from GST not be progressed — Yes/No

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(h) **agree** to forward a copy of this briefing to:

1. the Minister for Climate Change Issues — Yes/No
2. the Minister of Commerce and Consumer Affairs (battery tariffs) — Yes/No
3. the Minister of Customs (battery tariffs) — Yes/No
4. the Minister for ACC (ACC levies for PHEVs) — Yes/No
5. the Minister of Revenue (fringe benefit tax and depreciation). — Yes/No

[redacted]

Erin Wynne
Manager, People and Environment

Adviser **Adviser**

Withheld under section 9(2)(a) of the Official Information Act 1982

MINISTER'S SIGNATURE:

DATE: 27/4/15

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Appendix A – Summary of key information on each measure

Measure	Target audience	Summary of advice	Implementation considerations	Costs
Measures that we recommend be investigated further				
EECA information and promotion campaign	Fleet owners, lease companies, large businesses, and government bodies.	We recommend that any package should include an information and promotion campaign by EECA as a central component. A campaign would address information barriers and enhance the visibility of other measures to address barriers to uptake. Given that electric vehicles are a long-term option for reducing GHG emissions, we recommend pursuing a campaign that seeks long-term change.	Relatively easy and quick (less than 6 months) to implement once funding is confirmed.	Possible range: $800,000 over 2 years for 'quick wins', to $8.5 million over 5 years for a campaign that seeks long-term change.
Government support for charging infrastructure	Fleet buyers and motoring public.	We recommend that government support the private sector to establish a network of fast-charging stations by offering branding, information and promotion support as part of a campaign by EECA or as part of an electric vehicle programme (if you agree to pursue this measure).	Relatively easy and quick (less than 6 months) to implement once funding is confirmed.	Costs would be covered by information and promotion campaign and/or electric vehicle programme if those options were pursued.
Government fleet procurement	Central government in the first instance, but also fleet buyers generally.	We recommend trialling electric vehicles in the government fleet. An electric vehicle trial would provide valuable information to government and private fleet buyers, and enhance the credibility of any other government action on electric vehicles. More aggressive options for government fleet procurement would be revisited following a trial. We also recommend a new electric and hybrid vehicle class be included in the all-of-government vehicle fleet catalogue. This would lift the profile of electric vehicles to fleet managers and ensure that manufacturers of electric vehicles are included in the all-of-government contract, and are able to negotiate a lower price of supply.	Moderate effort to implement once funding is confirmed. Could be established within 6-12 months.	To be confirmed. $500,000 is estimated to cover the incremental cost of 24 vehicles in four government fleet locations.
Measures that could be investigated further				
An electric vehicle programme to co-fund initiatives with local government and businesses	Local authorities and businesses (chiefly in the transport, energy and tourism sectors)	We recommend that consideration be given to an electric vehicle programme or fund (modelled on the Urban Cycleways Programme) that would to co-fund projects that encouraged the uptake of electric vehicles. This option would encourage the market and local communities to develop innovative projects to address the market failures/barriers that are limiting the uptake of electric vehicles.	Moderate effort to implement once funding is confirmed. Could be established within 6-12 months.	Depends on level of ambition. We consider that $2 million over 2 years could co-fund 8 to 10 trials, demonstrations or small infrastructure projects.
Electric vehicles in priority lanes	Fleet buyers and motoring public	Consideration could be given to removing the regulatory barrier preventing road controlling authorities from allowing electric vehicles in bus and transit lanes. This option would give road controlling authorities the flexibility to allow electric vehicles in priority lanes, while minimising the risk that doing so undermines network efficiency.	Advice on Rule changes would take approximately 9 months (includes consultation). Effort required to implement would depend on uptake by road controlling authorities.	Costs to local and central government would involve: • infrastructure (road marking and signage) • communications • planning and monitoring costs. There is also the risk of costs from any loss of network efficiency.
Exemption or discount from road user charges (RUC) for electric vehicles	Fleet buyers and motoring public.	A RUC exemption for electric vehicles does not address an identified market or government failure. It is an indirect subsidy. Any exemption raises a variety of equity concerns and carries the risk that the overall cost cannot be defined accurately (essentially it will be demand driven). If the Government is open to pursuing an amendment to the Road User Charges Act 2012, we recommend that consideration is given to introducing a RUC exemption for light electric vehicles from date of first registration in New Zealand, for a specific period of time (for example, 5 years). If the Government does not want to pursue changes to its policy and the Road User Charges Act 2012, we recommend that consideration is given to extending the RUC exemption for light electric vehicles to a date beyond 30 June 2020. Note that officials will investigate setting a RUC rate for plug-in hybrid electric vehicles shortly before any exemption is due to end.	Any option that requires an amendment to the Road User Charges Act 2012 would require a relatively high level of effort to implement. Extending the date of the exemption by Order in Council would be relatively easy and quick (within less than 6 months) to implement.	Revenue foregone under the current RUC exemption is $230,000*. At 1 percent of the light vehicle fleet (~30,000 vehicles), the implied revenue loss is more than $20 million at current RUC rates. *No data is available on the actual amount of travel that electric vehicles do on roads or how much they weigh so costs have been estimated.
Review of the method for calculating fringe benefit tax	Fleet buyers.	We recommend that a review be conducted within the next 2 years of the basis for calculating the taxable value of the fringe benefit for electric/hybrid vehicles. This review would ensure that the lower running costs of these vehicles are adequately recognised in the calculation	Moderate effort to undertake review and implement any necessary changes.	Would depend on outcome of review, but cost likely to be relatively low.
Providing for higher tax depreciation rates for electric vehicles	Fleet buyers.	We recommend that you consider inviting relevant industry groups (for example, Drive Electric, electric vehicle manufacturers) to discuss with tax policy officials the case for having higher depreciation rates for electric vehicles. It would be expected that prior to the discussions the industry would prepare an economic case to support its arguments for a higher rate of depreciation.	Depends on the robustness of the economic case submitted by industry. Likely to involve moderate effort.	Too early to estimate.
Measures for progression outside of a package				
Removing battery import duties	Motoring public.	We recommend that this issue be considered in the context of New Zealand's participation in the Environmental Goods Agreement negotiations at the World Trade Organisation. We will continue to work with the MFAT, MBIE and the New Zealand Customs Service to establish the impact of any future changes to the tariffs on electric vehicle batteries.	International negotiations already underway.	Depends on outcome of the final Environmental Goods Agreement.
Amending ACC levies for plug-in hybrid electric vehicles (PHEVs)	Fleet buyers and motoring public.	We recommend that this issue be deferred until there is a wider review of the NZ Transport Agency's annual vehicle licensing classification system (which determines how much ACC is paid by different vehicle types). By itself the cost of a review for PHEVs would far exceed the benefit to be gained by PHEV owners (We estimate that PHEV owners are individually paying an excess of $18 per annum in ACC levies, or collectively approximately $4,000 based on current uptake levels).	Would be relatively easy if undertaken as part of a wider review.	It would cost government agencies between $0.5 million to $1.4 million to resolve this anomaly.
Introduce a new RUC rate for PHEVs	Fleet buyers and motoring public.	We recommend that this issue be addressed shortly before any RUC exemption for electric vehicles ends.	Would be relatively easy if undertaken at the appropriate point in time.	Cost neutral.
Feebates	Fleet buyers and motoring public.	We recommend that feebates not be pursued as a measure for encouraging the uptake of electric vehicles. Instead, feebates should be further investigated as a mechanism for reducing GHG emissions across the vehicle fleet as a whole.	Further investigation would require low to moderate effort.	If appropriately designed, would be cost neutral to the Government.
Recognition of alternative low emission vehicle designs	Fleet buyers and motoring public.	We recommend that changes to the regulatory framework for recognising alternative vehicle designs not be pursued as a measure for encouraging the uptake of electric vehicles. Instead, this measure should be further investigated as a mechanism for reducing GHG emissions across the vehicle fleet as a whole.	Further investigation would require low to moderate effort.	Will be explored as part of further work.
Measures that were not considered worth progressing				
Lower registration and annual vehicle licensing fees for electric vehicles	Motoring public.	We recommend no change to registration fees as first registration fees are currently differentiated on motor size. We also recommend that annual licensing fees not be differentiated to favour better performing vehicles as adjustments to existing fees would not provide sufficient economic value to act as an incentive (the fee is currently $43.50 excluding GST per year).	Would require high level of effort to investigate and implement.	Not explored.
Second hand electric vehicles GST exemption	Motoring public.	We do not recommend further consideration of a GST exemption for electric vehicles. This measure would amount to a subsidy and would be difficult to implement.	Would require high level of effort to investigate and implement.	Not explored.

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Appendix B – Qualitative analysis of effectiveness of measures in reducing market or regulatory barrier to electric vehicles

		Measures								
		EECA information campaign	Support for charging infrastructure	Government procurement (trial and special class)	Electric vehicle programme or fund	RUC exemption	Review method for calculating fringe benefit tax	Access to bus and transit lanes	Review tax depreciation rates	Remove ACC double payment
Market and regulatory barriers to public and private investment in electric vehicles	Misconceptions about cost, range, climate impact	Addresses misconceptions by targeting fleet managers and public		Trial experience may help address these concerns among fleet managers	Potential to co-fund projects targeting misconceptions					
	Lack of awareness that electric vehicles are available	Raises electric vehicle visibility by targeting fleet managers and public	Infrastructure branding and roadside signage will increase electric vehicle visibility	Raises awareness with government and industry fleet managers and public	Potential to co-fund awareness raising projects			Media and signage raise profile of electric vehicles		
	Coordination issues • Lack of charging infrastructure • Lack of suitable vehicle choices		Government support incentivises the private sector to invest in charging infrastructure. Branding and completing the network lifts value.	Government demand may encourage suppliers to make available a greater range of vehicle models	Potential to co-fund some charging infrastructure investment, and grow the charging network	Government decision may encourage suppliers to make available a greater range of vehicle models				
	Regulatory barriers (fees, levies, taxes) disadvantage electric vehicles					Helps offset the current benefit that the FED/RUC/ACC charging regimes give to fuel efficient petrol vehicles	Will ensure that the fringe benefit tax regime is not distorting the vehicle choices made by fleet buyers		Removes a disincentive to purchasing electric over conventional vehicles	Removes minor inequity in the levy on PHEVs
	Market uncertainty	Highlights government confidence in electric vehicles	Provides certainty to fleet owners that infrastructure will be available	Provides fleet owners with information about residual value and other lifetime costs. Emphasises government confidence in electric vehicles.	Investment highlights government confidence in electric vehicles	A decision provides certainty around the whole-of-life costs/value				
'Nudge'/low cost incentive		Campaign would be a useful tool for highlighting the range of incentives on offer				Provides $400-$700 saving in on-road costs to electric vehicle owners		Identified as the most effective (non-subsidy) incentive in several jurisdictions		
Cost		Could range from $800,000 over 2 years for 'quick wins', **or** up to $8.5 million over 5 years for long-term change focus.	Costs would be covered by an information and promotion campaign and/or electric vehicle programme if these options are pursued.	To be confirmed. $500,000 is estimated to cover the incremental cost of 24 vehicles in four Government fleet locations.	Depends on level of ambition. $2 million could co-fund 8 to 10 trials, demos, or small infrastructure projects.	Current RUC exemption costs $230,000 in foregone revenue. At 1% of the light vehicle fleet, the revenue loss is more than $20 million (at current RUC rates).	Unknown	Minor costs to central and local government (signage, monitoring, enforcement, and rule changes).	Unknown negative fiscal impact	Unknown

Key	
Material impact	**Minor impact**

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MEMO TO HON SIMON BRIDGES

Date: Tuesday 31 March 2015

From: [redacted] Withheld under section 9(2)(a) of the Official Information Act 1982

Subject **Electric Vehicles paper**

Minister,

Since this briefing was provided, MBIE has contacted the Ministry of Transport with a revised position towards including an electric vehicle class in the all-of-government procurement contract. They have commented that:

"MBIE notes that hybrid vehicles are already included in the vehicles all-of-government contract. Vehicles are promoted to government agencies based on class and total cost of ownership. There is currently a lack of data around the total-cost-of-ownership of electric vehicles, particularly around maintenance and servicing costs, as well as on-sale value. These unknowns mean total cost of ownership for electric vehicles is considered high relative to similar petrol vehicles. MBIE's preference is to first run a trial to better assess the costs and benefits of electric vehicles and inform the promotion and inclusion of electric vehicles into an all-of-government solution. MBIE notes that it is possible, with MBIE's prior agreement, for agencies to buy electric vehicles and negotiate a discount, particularly for a pilot project that would potentially highlight the benefits of using electric vehicles."

The Ministry of Transport has suggested that you also provide a copy of the briefing to Hon Steven Joyce as the Minister of Economic Development (responsible for government fleet procurement).

Noted:

Hon Simon Bridges
Minister of Transport

Date: 27 / 4 / 15

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