

ELECTRIC VEHICLES: UPDATE ON DEVELOPMENT OF PACKAGE TO ENCOURAGE UPTAKE

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| Reason for this briefing | Over the past month you have had several discussions with transport officials about electric vehicles (EVs) issues. This paper summarises those discussions and sets out the way we will progress these issues. |
| Action required | Note that we will engage stakeholders to develop a joined-up EV package. Confirm that your March decisions on an EV package still stand. Agree which options you would like further advice on for funding electric vehicle (EV) charging infrastructure. Agree that we provide you with a draft Cabinet paper in October. |
| Deadline | 24 August 2015 |
| Reason for deadline | To provide direction for progressing an EV package Cabinet paper. |

Contact for telephone discussion (if required)

| Name | Position | Telephone | | First contact |
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MINISTER'S COMMENTS: Withheld under section 9(2)(a) of the Official Information Act 1982

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| Date: | 14 August 2015 | Briefing number: | OC03334 |
| Attention: | Hon Simon Bridges | Security level: | In-Confidence |

Minister of Transport's office actions

- | | | |
|--|--|---|
| <input type="checkbox"/> <i>Noted</i> | <input type="checkbox"/> <i>Seen</i> | <input type="checkbox"/> <i>Approved</i> |
| <input type="checkbox"/> <i>Needs change</i> | <input type="checkbox"/> <i>Referred to</i> | |
| <input type="checkbox"/> <i>Withdrawn</i> | <input type="checkbox"/> <i>Not seen by Minister</i> | <input type="checkbox"/> <i>Overtaken by events</i> |

Purpose of report

1. This briefing reports back on the following issues related to an electric vehicle (EV) package:
 - 1.1. the engagement process we will follow to develop a package (Part 1)
 - 1.2. charging infrastructure issues (Part 2)
 - 1.3. confirmation of EV measures that you agreed to in April 2015 (Part 3)
 - 1.4. EV car sharing (Part 4)
 - 1.5. tax certainty for purchasers of EVs (Part 4).
2. This briefing builds on the advice we provided in March 2015 regarding measures to encourage the uptake of EVs (OC02885 refers).

Background

3. In April 2015, you agreed that a package of measures to encourage EV uptake should include:
 - 3.1. an information campaign by the Energy Efficiency and Conservation Authority (EECA)
 - 3.2. government branding, promotion and information support for public charging infrastructure
 - 3.3. a trial of EVs in government fleets.
4. At a subsequent meeting on 27 July 2015, you asked officials to:
 - 4.1. work with local government and industry to 'co-create' a package of measures to encourage the uptake of EVs
 - 4.2. investigate options to fund EV charging infrastructure from the National Land Transport Fund (NLTF)
 - 4.3. consider the potential for scaling up an EV car sharing scheme
 - 4.4. consider options to give greater tax certainty to purchasers of EVs.
5. This paper addresses the matters above and seeks confirmation of your decisions regarding an EV package in April 2015.

Part 1: The engagement process we will follow to develop a package

6. We have discussed with you options to develop an EV package (through a 'co-creation' process) with other government departments, local government and industry.
7. At a Natural Resource Sector Chief Executives meeting on 13 August 2015, Martin Matthews spoke to Fraser Whineray (Chief Executive of Mighty River Power) and Penny Nelson (Executive Director of the Sustainable Business Council) about the co-creation of a package of measures to encourage EV uptake. He proposed a meeting of chief executives from a range of organisation to initiate the process. We plan to hold this meeting in the next fortnight.
8. Along with Mr Whineray and Ms Nelson, the chief executives from Local Government NZ, the Ministry for the Environment (MfE), the Ministry of Business, Innovation and Employment (MBIE), EECA, the NZ Transport Agency, and Drive Electric will be invited to the meeting. It is anticipated that these stakeholders could act as intermediaries with industry to manage the potential risks discussed later in this briefing.
9. Focused one-on-one and small group meetings with a wider group of stakeholders, such as those listed in Table 1 below, would follow. The purpose of these discussions is to develop a EV package that creates synergies between the EV initiatives of each party. This includes leveraging funding, information, services or access to land and other property.

Table 1: List of the stakeholders that we will seek to engage with

| Central Government | Local Government | Industry |
|--|--|---|
| <ul style="list-style-type: none">• NZ Transport Agency• EECA• MBIE• MfE• Treasury | <ul style="list-style-type: none">• Local Government NZ• Auckland Transport | <ul style="list-style-type: none">• Sustainable Business Council• Electricity Networks Association• Drive Electric• Mighty River Power, Contact Energy, Vector, Z Energy and potentially other energy companies• Automobile Association• Fleet Manager's Association |

10. We have already been working with a number of these organisations to develop our advice on EVs, and have existing relationships on which to base an engagement process.

Risks around engagement and deliverables

11. Stakeholders have divergent interests in some areas and we are aware of a number of tensions between them. As noted above, we expect that the group of chief executives that we convene will also discuss how to manage these tensions in the development of an EV package.

12. Engaging a limited group of stakeholders poses a risk that parties not included in the process feel their potential contribution is not being recognised. We can manage this risk by emphasising that the delivery agencies for an EV package will engage with interested parties as they implement the package. If there is appetite for it, we could consider establishing an industry-government group (similar to the Smart Grid Forum) to progress a joint work programme on transport and environment issues, which includes encouraging uptake of EVs. We can test stakeholders' appetite for such a group during engagement on the EV project.
13. We previously agreed to provide you with a draft Cabinet paper seeking agreement to an EV package in September 2015. We now intend to engage with stakeholders over August and September, and will be in a position to provide you with a draft Cabinet paper in October. A draft Cabinet paper in October would include information on local government and/or industry's contribution to the package. If you prefer to receive a draft Cabinet paper in September, we could draft it to seek agreement only to the Government's contribution to an EV package.

Part 2: Charging infrastructure

14. On 27 July 2015, you asked for initial advice on:
 - 14.1. the cost implications of charging EVs
 - 14.2. the regulatory issues surrounding EV charging infrastructure
 - 14.3. the potential to fund EV charging infrastructure from the NLTF.

EV cost implications for households and businesses

15. Evidence from countries such as the UK shows that most EV charging takes place at the home or workplace, but there will also be a role for public charging infrastructure to help alleviate range anxiety, facilitate longer distance travel, and enhance the value of EVs.
16. The high rates of off-street parking in New Zealand and our 230 volt power supply, are both ideal for charging EVs at home, or at the workplace, and therefore do not pose additional infrastructure costs. A benefit of home charging, is that there is an opportunity to use off-peak electricity capacity. Electricity retailers are already looking at this issue, and some (such as Mercury Energy) already offer off-peak rates for charging EVs, which are 30 percent cheaper than standard rates.¹
17. If businesses want to install purpose-built chargers, there would be a one off installation cost. These costs vary between \$1,500 and \$5,000 depending on the type of charger (single or dual). Rapid charges cost significantly more. Juicepoint advised that their rapid charger is \$30,000 and installation is a further \$10,000 (both figures are GST exclusive). ABB, another EV charging station retailer, states that its rapid charger costs approximately \$45,000, but that the per-unit cost would be less for bulk purchases.
18. EV owners who do not have access to off-street parking would likely require access to public EV charging stations. Local authorities would need facilitate the provision of local roadside charging if considered necessary for residences without off-street parking.

¹ The cost of charging an EV is the equivalent of paying approximately 26 cents per litre of petrol, or less if they make use of off-peak charging rates.

Regulatory issues with installation of EV charging infrastructure

19. Different issues arise depending on whether EV charging infrastructure is to be installed on private land or public land.

Private land

20. WorkSafe NZ is responsible for electrical safety. EECA advise that charging on private property is accommodated under a WorkSafe NZ approach. This simply requires the equipment and installation involved to be safe, which includes adherence to codes of practice where applicable.

Public land

21. We have not yet identified all the regulatory issues related to EV charging infrastructure on public land. It is likely that councils have different bylaws that may apply to the installation and use of charging infrastructure on public land.
22. EECA officials are currently drafting a proposal to address identified knowledge gaps in this area. This includes knowledge about the regulatory framework for establishing charging infrastructure. A range of government departments, local government and industry may hold the information to fill in knowledge gaps and will work together on this issue. The proposed work is unlikely to be completed before the end of September 2015.
23. Local regulatory issues have recently come to the fore in Auckland. It took Vector many months to gain approval to install a roadside charging station outside its headquarters in Auckland. We understand that Vector eventually resolved this issue through the precedent set by its installation of other electricity distribution equipment on public property. We have yet to fully assess the barriers in this case but we are investigating further.
24. One identified regulatory issue, is that the parking space is located on a local road and cannot be designated as an EV-only parking space (because no such designation exists). This means that any vehicle could park in the space, thus preventing an EV owner from using the charging station. We will need to consult with the NZ Transport Agency and local authorities to determine the best way to resolve this issue. We will keep you updated on this work via the weekly report.

Previous advice regarding EV charging infrastructure

25. In March 2015, we advised of two market failures relevant to the provision of EV charging infrastructure:
- 25.1. coordination problems – motorists may be reluctant to purchase EVs without widespread access to public charging infrastructure, but the private sector may be reluctant to invest in infrastructure until there is widespread uptake of EVs
 - 25.2. information problems – for example, a recent survey of New Zealand fleet managers and drivers showed that many do not know where they would be able to charge an EV.
26. In the short term, these issues can be addressed by providing information to motorists about their options for charging EVs, and the development of visible charging infrastructure. The private sector is beginning to invest in charging infrastructure. For instance, industry stakeholders have been clear that the 'renewables highway' being scoped by the Electricity Networks Association will not require funding from the Government. Individual companies such as Vector, Z Energy and Gull have also indicated plans to install public charging

infrastructure. The first public charging stations in downtown Auckland have also recently been installed, through a partnership between Auckland Transport and Mighty River Power.

27. In our March 2015 advice we suggested that government involvement in establishing EV charging infrastructure should primarily be through guidance², branding, and promotional support to facilitate a cohesive network. We also suggested that the Government could fund, or co-fund, the installation of EV charging stations in locations where it is not commercially viable for the market to do so³, or at central government-owned locations/buildings.

Options for funding EV charging infrastructure from the National Land Transport Fund (NLTF)

28. You asked us to explore options for funding EV charging infrastructure from the NLTF. As charging stations for EVs are a land transport service, they are eligible for funding from the NLTF.
29. The options for funding EV charging infrastructure from the NLTF are summarised and assessed in Table 2 below. All of the options could involve NLTF funding in the standard form of grants (as almost all transport projects are funded), or through a loan from the NLTF or similar mechanism (which has only been used on rare occasions in the past, such as the Christchurch rebuild).

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² For example, providing advice on standards, any necessary consents, and health and safety issues.

³ This would be more effective once we see if there are gaps in the network that the market cannot fill.

Table 2: Options to fund EV charging infrastructure from the NLTF

| Option | Description | Issues |
|--------|---|---|
| 1 | Amend the GPS to include a new activity class from which EV charging infrastructure can be funded. For example, establishing an “electric vehicles” or “transport technology” activity class. | <p>Under this option:</p> <ul style="list-style-type: none"> • EV infrastructure projects would not have to compete with a wide range of other land transport projects • the funding assistance rate could also be set at a higher rate, lowering the required contribution from local authorities • be assessed on the same basis as other land transport projects, meaning that they would need to achieve a cost-benefit ratio of at least 1 (which, given low uptake of EVs, is unlikely). <p>If this option is pursued we suggest it be considered within the development of GPS 2018. While GPS 2015 could be amended, GPS 2015 has only just come into force, and amending it and regional and national land transport plans would be a considerable undertaking.</p> |
| 2 | Amend the GPS to provide funding for EV charging infrastructure from an existing activity class. For example, this would involve amending the GPS to clarify that EV charging infrastructure falls within the scope of ‘local road improvements’. | <p>Under this option EV infrastructure projects would:</p> <ul style="list-style-type: none"> • have to compete for funding with other projects in that activity class, and therefore there is no guarantee that they will be funded • have to receive a local share of at least 51 percent of the funding • EVs charging infrastructure projects would still need to achieve a cost-benefit ratio of at least 1. <p>If this option is pursued we suggest it be considered within the development of GPS 2018 for the same reasons above.</p> |
| 3 | Funding EV charging infrastructure from the NLTF ⁴ , but outside of the GPS. A small number of activities are funded in this way, such as search and rescue. | This option would require legislative change, as activities that are funded this way are specified in the Land Transport Management Act 2003. The currently specified activities have a strong user-pays link to the funds. For instance, boaties pay petrol excise duty and receive the benefit of search and rescue services. |

Risk of crowding out private sector investment

30. To prevent crowding out of private investment we recommend adopting a co-investment approach regardless of which funding option is chosen. This could involve mobilising funding from the NLTF, the Crown, and other parties, or funding from the NLTF/Crown with other parties providing land and/or other resources. We will be able to determine what each party can offer in this space once we engage with them.
31. It is also likely that as EV adoption becomes more widespread, more companies will want to begin charging a fee for the use of public charging infrastructure. We will need to consider how this transition will occur alongside local authorities and industry to ensure that investments we make in the short term do not create issues for the market later.

⁴ Though the funding comes from petrol excise duty, technically the money is taken prior to going into the NLTF.

Part 3: Confirming EV measures that you agreed to in April 2015

Progressing other measures agreed to

32. In addition to government support for public charging infrastructure, you also agreed that the EV package should include funding for an information campaign by EECA and a trial of EVs in government fleets (OC02885). We still recommend that the EV package include these measures.
33. In our March 2015 advice, we recommended an EV information campaign as a measure to help overcome information barriers. Research commissioned by the Ministry and EECA has confirmed that there are significant gaps in the knowledge of fleet managers and fleet vehicle drivers with regard to EVs. We have asked EECA to provide further details about the scope and cost of an EV information campaign for a Cabinet paper on the EV package. In particular, options for the sources of funding for a campaign will be explored.
34. Since the new All-of-Government vehicle procurement solution was announced in June 2015, we have been working with the MBIE and EECA to scope a trial, including discussing governance arrangements for a trial. This will allow us to provide further information about the design of the trial and costings as part of a Cabinet paper on the EV package. Crown funding for this will likely need to be sought and we expect it to be in the order of \$500,000.

Part 4: Other measures discussed – EV car sharing and tax certainty

EV car sharing in Auckland

35. On 27 July 2015, we discussed with you the potential to scale up the EV car sharing scheme currently being investigated by Auckland Transport. Auckland Transport will issue an open Request for Proposal document to companies interested in establishing the scheme. The proposed scheme would have an initial fleet of 200 – 300 vehicles supported by around 350 charging stations across the city.
36. Other car sharing schemes that use EVs, such as DriveNow which you recently visited in San Francisco, have been established without direct government support. For instance, DriveNow was established as a joint venture between BMW and a car rental company. However, government may need to address barriers to private sector investment in these types of businesses.
37. We had informal discussions with officials from Auckland Transport at the Smart Transport Forum on 6 August 2015. They were positive about the scope for central and local government to work together to progress EV initiatives and have expertise (including lessons learned) from the roll out of EV initiatives in the UK that they are eager to share. We have yet to formally engage with Auckland Transport on this work.

City Hop's concern about access to charging infrastructure

38. At your meeting with officials on 10 August 2015, you raised City Hop's concerns regarding Auckland Transport Request for Proposal and access to EV charging infrastructure. In particular, it considers that Auckland Transport could achieve a better outcome by collaborating with existing market players. We will investigate this issue and report back to you.

Providing greater certainty to companies regarding the tax position of EVs

39. In our March advice, we suggested that you consider the following measures:
- 39.1. reviewing the method for calculating fringe benefit tax for EVs
 - 39.2. inviting stakeholders to discuss with tax policy officials the case for having higher depreciation rates for EVs.
40. Since the March 2015 paper, we have found further evidence that EVs are depreciating more quickly than petrol/diesel vehicles. In Japan for instance, it appears that EVs are losing between a third and half of their value in the first year. It is unclear exactly why this is, but uncertainty about battery performance and the superior performance of newer EV models may play a role.
41. Given the continued uncertainty about the depreciation rate and resale value of EVs, there is a question as to whether the tax system should favour the Crown or favour the taxpayer. For example, if the tax depreciation rate for an EV is 20 percent in year 1, but actual depreciation is 30 percent, businesses are unable to recognise that loss as it occurs.
42. We consider that a review of the tax treatment of EVs would help identify whether the amending the tax treatment of EVs is appropriate. Tax officials would have to lead this review. Based on our earlier engagement with tax officials on the issues of fringe benefit tax and depreciation rates for EVs, we understand that they are open to such a review but would need a clear mandate from Ministers to undertake this work. The Cabinet paper on an EV package could seek such a mandate.
43. We will also explore the option of establishing a grant for EV purchases. While you have stated that an EV package is unlikely to include direct subsidies, a grant may be justified on the basis that it offsets any potential tax disadvantage or risk faced by businesses or individuals that wish to purchase an EV.

Recommendations

44. The recommendations are that you:
- (a) **note** that in April 2015 you directed officials to prepare a Cabinet paper on the following measures:
 1. an information and promotion campaign by EECA
 2. government branding, promotion and information support for public charging infrastructure
 3. a trial of electric vehicles in government fleets
 - (b) **note** that these additional measures were discussed at your meeting with officials on 27 July 2015:
 1. government funding for an EV car sharing scheme
 2. options to provide greater certainty to businesses regarding the tax position of EVs, including the possibility of a grant
 - (c) **note** that we will convene the chief executives of key stakeholders with an interest in EV within the next fortnight to initiate engagement on an EV

package

- (d) **note** that we will discuss the measures in (a) and (b) with stakeholders as part of our work to develop an EV package
- (e) **confirm** that we prepare a Cabinet paper seeking agreement to:
1. an EV information campaign by EECA Yes/No
 2. government support for public charging infrastructure Yes/No
 3. a trial of EVs in government fleets Yes/No
 4. any other measures that you agree to following stakeholder engagement Yes/No
- (f) **agree** that we provide further advice on the following option(s) for funding EV charging infrastructure from the NLTF:
1. amend the GPS to create a new activity class from which EV charging infrastructure can be funded Yes/No
 2. amend the GPS to allow for the funding of EV charging infrastructure from an existing activity class Yes/No
 3. funding EV charging infrastructure from the NLTF but outside of the GPS Yes/No
- (g) **agree** that we provide you with a draft Cabinet paper on an EV package in October, with a view to taking a final paper to Cabinet in November. Yes/No


Adviser

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Erin Wynne
Manager, People and Environment

MINISTER'S SIGNATURE:

DATE: