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Commerce Committee
Online submission

Submission on the Energy Innovation (Electric Vehicles and Other Matters) Amendment Bill

Thank you for giving Auckland Regional Public Health Service (ARPHS) this opportunity to provide a submission on the Energy Innovation (Electric Vehicles and Other Matters) Amendment Bill.

The following submission represents the views of ARPHS and does not necessarily reflect the views of the three district health boards it serves. Please refer to Appendix 1 for more information on ARPHS.

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Scope of submission and recommendations

1. Part of the omnibus Energy Innovation (Electric Vehicles and Other Matters) Amendment Bill (the Bill) introduces measures to encourage the uptake of electric vehicles (EVs). These comments from Auckland Regional Public Health Service (ARPHS) relate to the proposal to amend section 22AB(1)(r) of the Land Transport Act 1998 so that road controlling authorities can make bylaws allowing EVs to access special vehicle lanes i.e. bus and high-occupancy vehicle lanes.
2. The following represents ARPHS's position on this matter:
    - ARPHS supports the intent of the Bill to encourage the uptake of EVs.
    - However, ARPHS does not support the policy of allowing EVs to access special vehicle lanes as this would adversely affect the efficiency of existing transport networks and strategies designed to enhance overall mobility.
    - Therefore, ARPHS **recommends** the Committee removes this proposal from the omnibus bill, and considers other incentives to increase EV uptake in New Zealand.

Support for the Bill's intent

3. ARPHS supports the Bill's intent to introduce incentives to encourage the uptake of EVs. More precisely, ARPHS supports measures that will help New Zealand transition to an EV vehicle fleet without increasing the per capita vehicle ownership rate.
4. An all-electric fleet would have a number of benefits, including the reduction in noise pollution and greenhouse gas (GHG) emissions.
5. Improving air quality would be a key public health benefit. Transport is a major contributor to air pollution emissions in Auckland, especially in summer, and results in approximately three tonnes of PM_{10} emissions per day.[1] There is substantial evidence that vehicle emissions cause a great deal of premature mortality, primarily from respiratory disease[2], but also from cardiovascular disease, strokes, hastening the onset of dementia and prevention of physical activity. In contrast, EVs generate no tailpipe emissions, and therefore provide an opportunity to reduce the rate of transport emissions in Auckland.

[1] Auckland Council (2017). *2016 Air Quality Report Card – Auckland Reporting Area*. Retrieved from http://stateofauckland.aucklandcouncil.govt.nz/air-quality-report-card/auckland-reporting-area-2016/

[2] http://www.hapinz.org.nz/HAPINZ%20Update_Vol%201%20Summary%20Report.pdf

Unintended consequences of EVs in special vehicle lanes

6. Despite the stated benefits of EV uptake, ARPHS is concerned that allowing EVs to access special vehicle lanes will have a negative effect on the efficiency of Auckland's transport network. It could also disrupt other transport initiatives designed to promote sustainable mobility.
7. In particular, allowing EVs in special vehicle lanes would have the following negative outcomes:
    - Disincentivise public or active transport for EV owners, resulting in more cars on the road and increased congestion.
    - Increased congestion due to disruption of bus lanes and vehicle flow (due to merging manoeuvres).
    - It would increase transportation inequities.

Decrease in public transport usage

8. Norway has introduced a number of incentives and subsidies to increase the uptake of EVs, including allowing EVs to use bus and collective traffic lanes. This measure has been in place since 2005. Other measures include exemption from toll road charges, free battery charging and value-added tax (VAT) exemption.
9. Instead of EVs replacing conventional cars, EVs in Norway have become additional cars in many prosperous households. The policy effectively rewards families for buying a second car.[3]
10. Furthermore, Halvorsen and Froyen's (2009) study found that EV owners driving patterns changed after acquiring an EV.[4] They are less likely to use public and active transport modes. In Oslo, only 14% of EV owners regularly used public transportation, compared with 50% of comparable internal combustion engine vehicle owners.
11. ARPHS is concerned that allowing EVs to access special vehicle lanes in Auckland will lead to similar outcomes that increase, rather than decrease, congestion. In particular, the policy (if implemented by Auckland Transport/NZTA) may incentivise those that live close to special vehicle lanes to switch from public transport and active transport modes to using EVs due to the potential travel time savings. While this may benefit the EV user, it would increase the number of vehicles on the road, increasing congestion.
12. Increased congestion will have negative health effects. It will increase travel times for the majority of drivers, thus increasing physical inactivity, commuting-related mental

[3] Holtsmark, B. & Skonhoft, A. (2014). *The Norwegian support and subsidy policy of electric cars. Should it be adopted by other countries?* Environmental Science & Policy, 42, 160-168.
[4] Halvorsen, B., and Y. Frøyen. "Trafikk i kollektivfelt." Kapasitet og avvikling. Elbilens rolle.(Traffic in Public Lanes. Capacity and Handling. The Role of Electric Cars). Report from Asplan Viak (2009).

health disorders and stress.[5] It will also increase the total energy consumption of the road transport system, the majority of which is derived from oil, thereby increasing total GHG emissions, and the time commuters spend in and among those emitting vehicles.

13. Switching from public transport to private motor transport is associated with a 0.3kg/m^2 increase in body mass index (BMI).[6]

Bus lane congestion

14. The proposal to allow EVs to use bus lanes is a particularly congestion-causing prospect. An Auckland Transport study that focused on allowing cars with two or three occupants in bus lanes found a 4% increase in traffic and an increase of 30% in travel time for all other traffic. This is because the T2/T3 drivers would use the bus lane until the bus stopped to pick up or drop off passengers, then they would force themselves into the general traffic lane to pass the bus, slowing down the entire traffic flow. As an example, the Northern Busway carries about 40% of all people entering the city centre from the North Shore at the morning peak. Allowing EVs in this lane could significantly slow the buses, thus impairing a major source of transit for the benefit of a few.[7]
15. ARPHS notes that two electric buses will be tested in Auckland later this year. ARPHS considers the only EVs that should be in bus lanes are electric buses.

Transportation inequity

16. EVs will still be expensive with this policy. The cheapest new EV in New Zealand's market is the $55,000 Mitsubishi Outlander, while the average used Nissan Leaf costs $18,000. Thus, the richest car buyers are the ones likely to benefit most from road user charge exemptions and other benefits. People on the lowest incomes drive the oldest cars, which emit higher volumes of GHGs per VKT. From a social point of view, incentivising the purchase of EVs and then allowing them in bus lanes is essentially subsidising the rich to own expensive cars and bypass traffic at the expense of everyone else i.e. it is not even a user-pays/tolled system.

[5] Ding, D., Gebel, K., Phongsavan, P., Bauman, A. E., & Merom, D. (2014). Driving: A Road to Unhealthy Lifestyles and Poor Health Outcomes. PLoS ONE, 9(6), e94602. http://doi.org/10.1371/journal.pone.0094602

[6] Martin, A., Panter, J., Suhrcke, M. & Ogilvie, D. (2015). *Impact of changes in mode of travel to work on changes in body mass index: evidence from the British Household Panel Survey,* Journal of Epidemiology and Community Health, 69(8):753-61. doi: 10.1136/jech-2014-205211,

[7] http://transportblog.co.nz/2016/05/06/government-neuter-bus-lanes/

Alternative incentives

17. ARPHS believes alternative incentives should be adopted to encourage the uptake of EVs.
18. A US study by Egbue and Long found that although the sustainability and environmental benefits of EVs influence EV adoption, potential buyers ranked these benefits behind cost and performance.[8]
19. The comparative analysis carried out for the United States by Jin, Searle and Lutsey (2014) indicates purchase incentives are the most pertinent and the most effective tools in promoting EV sales.[9]
20. From ARPHS's experience, constrained budgets coupled with the initial outlay costs make transitioning to an EV fleet unaffordable, even with existing contestable funds available. Therefore additional consideration needs to be given to providing extra financial incentives to make such a transition financially viable.
21. ARPHS considers there are several benefits for augmenting incentives that allow government and private organisations to replace their existing conventional vehicle fleets with EVs. Uptake of EVs in government/private fleets will have the additional benefit of expanding the second-hand availability of EVs when those fleet vehicles are sold off and replaced. Uptake of EVs by large established organisations may also provide some certainty and support to infrastructure providers when it comes to knowing where to locate infrastructure such as charging stations.
22. Another advantage is that government/private fleets would be highly visible to the public, and provide a strong lead by example message. Aiming the incentives at business sectors that find it necessary to travel by car due to logistical reasons (i.e. community nurses visiting patients), will help to increase the number of EVs as a proportion of the national fleet, rather than increase the per capita vehicle ownership rate.
23. In terms of private household uptake of EVs, an incentive provided for one-car families in the lowest incomes brackets would also be beneficial as this sector is likely to be driving the oldest cars. As an example, ARPHS notes the state of California has introduced a number of financial incentives in an attempt to have more low to middle income households purchase EVs.[10] [11]

[8] Egbue, O. Long, S (2012) Barriers to widespread adoption of electric vehicles: An analysis of consumer attitudes and perceptions retrieved from http://dx.doi.org/10.1016/j.enpol.2012.06.009
[9] https://www.iea.org/publications/freepublications/publication/Global_EV_Outlook_2016.pdf
[10] https://cleantechnica.com/2015/06/18/incentives-12000-california-get-low-income-people-upgrade-fuel-efficient-cars-gas-hogs/
[11] https://electrek.co/2016/10/18/california-increases-ev-rebate-by-500-for-lower-income-buyers-makes-earners-over-150k-ineligible/

Auckland EV Trial Bylaw 2017

24. ARPHS notes the government's intention is to double the number of EVs on the road each year until the target of 64,000 vehicles is reached by 2021. ARPHS further notes an Auckland EV Trial Bylaw 2017, proposed from 6 to 20 March 2017, will allow participating EVs access to six specified priority bypass lanes on motorway onramps. Given the short length of road encompassed in the trial, and the limited number of EVs currently on Auckland's roads, ARPHS has concerns that this snapshot trial will not produce enough data to reliably inform road controlling authorities of the future impact of EVs in special vehicle lanes on traffic congestion.

Conclusion

25. Thank you for the opportunity to submit on this Bill.

Appendix 1 - Auckland Regional Public Health Service

Auckland Regional Public Health Service (ARPHS) provides public health services for the three district health boards (DHBs) in the Auckland region (Counties Manukau Health and Auckland and Waitemata district health boards).

ARPHS has a statutory obligation under the New Zealand Public Health and Disability Act 2000 to improve, promote and protect the health of people and communities in the Auckland region. The Medical Officer of Health has an enforcement and regulatory role under the Health Act 1956 and other legislative designations to protect the health of the community.

ARPHS' primary role is to improve population health. It actively seeks to influence any initiatives or proposals that may affect population health in the Auckland region to maximise their positive impact and minimise possible negative effects on population health.

The Auckland region faces a number of public health challenges through changing demographics, increasingly diverse communities, increasing incidence of lifestyle-related health conditions such as obesity and type 2 diabetes, infrastructure requirements, the balancing of transport needs, and the reconciliation of urban design and urban intensification issues.