AUTHOR COPY. ACCEPTED BY NEW ZEALAND LAW JOURNAL MAY 2016.

Electric vehicles policy announcement

Barry Barton, University of Waikato

On 5 May 2016 the Government announced a policy package on electric vehicles: Ministry of Transport "Electric Vehicles: Driving an EV Future" and, S Bridges "Govt driving the switch to electric vehicles" (press release, 5 May 2016). This short note is to comment on the package, drawing on insights from international research and experience with laws to promote electric vehicles (EVs), as identified in my article in the Journal with Peter Schütte, "Electric Vehicles: Promoting Improvements in Transport" [2016] NZLJ 6. For the sake of convenience I use most of the same headings as the government's paper, before reflecting on the main points.

The Package

Target. The Government has set a target of doubling the number of EVs in New Zealand every year, to reach approximately 64,000 by 2021, about two percent of the light vehicle fleet. There are about 1,000 EVs in New Zealand at the moment, so this hope for exponential growth is ambitious. The announcement says, without explanation, that the target was set by the Government together with industry and local government.

Extending the road user charges exemption for light electric vehicles. The existing RUC exemption was due to expire in 2020, so this is a minor adjustment to align with the 2021 target. (The benefit is $600 - $800 per annum for many drivers depending on how much driving they do.) The limited term of the exemption may be fiscally prudent but it weakens the incentive to buy EVs. This incentive can be properly be classified as a subsidy, because RUCs are used to construct and maintain roads, and EV users use roads as much as anyone else. Plug-in hybrids that use both electricity and petrol as energy sources are a complication, in that without an exemption they would be paying both RUC and fuel excise, but there no real reason why non-hybrid EVs should be exempt. (Plug-in hybrids risk being a loophole if they are run mostly on petrol but taking the exemption just the same.) The exemption is simply an incentive, or subsidy, providing value support for EVs.

New road user charges exemption for heavy electric vehicles. This is new. The exemption will be in place until two percent of the heavy vehicle fleet is electric or 31 December 2025, whichever is reached first. In December 2014, New Zealand had 68 electric buses, most of which would have been Wellington's trolley buses, and one – one – electric truck. (Ministry of Transport, Annual Fleet Statistics 2014, p 47.) So two per cent of the heavy vehicle fleet is a remote prospect, even fanciful. The exemption may reflect recent interest in electric drive-train buses that use batteries and a gas turbine generator. There may be other viable EV niches for stop-start services like local delivery and rubbish collection. But battery power is problematic for long-haul trucks and buses with high daily operating range and high energy consumption: E den Boer, S Aarnink, F Kleiner, J Pagenkopf, *Zero Emissions Trucks: An Overview of State-of-the-Art Technologies and their Potential* (Delft, CE Delft, 2013) p 21. However the encouragement of electric urban buses and delivery vehicles is valuable in tackling city air pollution.

Work on bulk purchasing of EVs. Bulk buying is proposed in order to increase the supply of EVs and reduce costs. There are few EV models being offered for sale in New Zealand, so efforts to increase the range are desirable, with positive effects on price and numbers of units as well. The package is that the government will start investigating bulk purchases across public and private sector fleets. It is at a very preliminary stage.

Public charging infrastructure. The package does not include investment in public EV charging stations. This is sensible; the private sector is already installing high-speed charging stations at a pace that shows a willingness to lead the market ahead of the current low levels of demand. Most stations are being built on private land owned by a shopping centre or a power company. The government package recognizes the need for signage for on-street EV facilities. Changes to the Land Transport Rules under the Land Transport Act 1998 are required to empower road controlling authorities to designate EV charging parking spaces. The package also identifies government roles in clarifying the regulatory framework for charging infrastructure, and ensuring

that the infrastructure is developed in a cohesive manner. Just what regulation and cohesion is needed is not explained.

A nation-wide electric vehicle information and promotion campaign. The Energy Efficiency and Conservation Authority will carry out information and promotion activities. This is desirable, in addressing market barriers caused by uncertainty and lack of information. Carefully-designed information measures can build on existing high levels of interest in EVs in New Zealand and increase receptivity and uptake.

A contestable fund to support innovation. No details about this fund are available; criteria are yet to be developed. Just who might apply for this money, up to $6 million a year, and what public purpose it might meet, remains to be seen.

Access to bus and high occupancy vehicle lanes. Giving EVs access to these lanes will entail more amendments to the Land Transport Act 1998 and the Land Transport Rules. It is a measure that has been used in a number of jurisdictions overseas, as a 'perk' for EVs that does not come out of government coffers. It is an incentive and it promotes awareness of EVs.

Tax and ACC levy review. The government has ordered Inland Revenue to review depreciation and the method of calculating fringe benefit taxes on EVs, and has ordered ACC to review levies on plug-in hybrid vehicles, to remove any unfair treatment of EVs.

Electric Vehicles Leadership Group. No details are available yet about this co-ordinating group, or exactly what need it will meet.

Strengths and Weaknesses of the Package

What evaluation can we make of this package, based on existing international evidence of the efficacy of different policy measures?

The Price Issue. In our February article we recorded the substantial evidence that price does matter; the price differential between EVs and ordinary vehicles is a major barrier to uptake. The package tackles the price problem with a subsidy in the form of the RUC exemptions. However the international analysis tells us that to be successful a subsidy needs to be substantial and it needs to be immediate; benefits over time are much less effective in influencing purchaser decisions: K Gallagher and E Muehlegger, 'Giving Green to Get Green: Incentives and Consumer Adoption of Hybrid Vehicle Technology' (2011) 61 J Env Ecs & Management 1. Bulk buying may reduce price, but there may not be much market power to be exercised that way. Even though prices are falling globally, EVs are expensive because they (and especially their batteries) are expensive to manufacture. The international evidence suggests that New Zealand's package is unlikely to get over the price barrier and effect real change.

The RUC exemption raises an equity issue. The extra price of EVs, and the small number of second-hand EVs in the market, present the possibility that EV buyers will be persons with more disposable wealth than average. In addition, the design of the exemption, reducing the operating cost rather than capital cost, helps the person with capital to deploy efficiently over time, rather than the person who is short of capital. So the challenge for the government will be to show that the exemption has benefitted society as a whole by getting EVs onto the road that would otherwise not have got there, and has not produced a private benefit that is only available to the well-to-do. Socio-economic research will be able to provide answers in due course.

The Fuel Efficiency Issue. Referring again to the international context, we see that apart from Australia and New Zealand there are few developed countries that are attempting to promote EVs without measures to promote fuel efficiency in the vehicle fleet as a whole. This policy package says nothing about fuel efficiency measures, such as fleet average performance standards or a feebate system. Without them, there is no pressure on the adverse characteristics of internal combustion vehicles, with the consequence that the advantages of EVs do not stand out in contrast. This is all the more evident in the heavy vehicle fleet where diesels are likely to be with us for a long time; we should regulate to produce continuous improvement in the efficiency and cleanliness of all diesel engine vehicles. We will get better results that way than offering modest subsidies to niche heavy vehicles. Thus, EV policy is vehicle policy; it does not stand apart from transport and climate change policy generally.

Non-Financial Benefits. Giving access to bus lanes and high-occupancy lanes will certainly increase public awareness of EVs, and that may turn out to have positive effects on attitudes and motivation towards EVs. However there is an alternative possibility; that attitudes towards EVs turn negative, into a perception that EV perks and privileges are won only by the affluent and are interfering with the original intent of dedicated lanes. If public opinion concludes that EVs are beyond the reach of ordinary

car purchasers, and that the government is not helping them, then EV envy could be a nasty thing. The same goes for a perception that EVs are hampering bus travel. Again, suitable research will be able to determine whether the non-financial benefits for EVs are a producing positive results.

Analysis to Back up Policy. Two important general points arise out of the policy package. The first is whether it will be effective. If we reach the target of 64,000 EVs by 2021, we would reduce greenhouse gas emissions by about 151 kt, which is about 1.1% of projected total national transport sector emissions, and about 0.28% of New Zealand's total net emissions in 2013. (These are very rough estimates for which I thank Associate Professor Jonathan Leaver of Unitec.) This is a very small contribution to reducing emissions. That should not deter us from looking favourably on EVs, but it does show that if we are serious about reducing our emissions we need to make efforts in dozens of different sectors. There are other benefits from EVs, of course, especially in energy efficiency and energy security. (However air pollution benefits are not major; the worst polluting vehicles are diesels, which are mainly heavy vehicles, less likely to be displaced by EVs; and there is recent evidence that EVs are no better than well-regulated light vehicles in respect of particulate emissions: V Timmers and P Achten, "Non-exhaust PM Emissions from Electric Vehicles" (2016) 134 Atmospheric Environment 10.)

The second point about the package is that it does not include the analysis that would make it cogent. Why a target of doubling year on year to reach 64,000? Why not 25,000 vehicles, or 100,000? As to the effect of the target on greenhouse gas emissions, it is surprising that the government did not produce a calculation. It would also be good to know if the policy actions in the package are likely to reach the target. We can look to the RMA for an analogy; section 32 requires councils to produce an evaluation of how appropriate policy actions are to achieve an objective, with regard to efficiency and effectiveness. There is no such evaluation here. The announcement document is only four pages long, even though it has taken 14 months to produce and so much of it is preliminary.

These shortcomings are symptomatic of a more general weakness in how we make climate change law and policy in New Zealand. Publicly available data for producing emissions and mitigation pathways are extremely limited, and this hampers analysis and effective policy formation: R Sims et al, *Transition to a Low-Carbon Economy for New Zealand* (Royal Society of New Zealand, April 2016) p 22. For example (focussing on the transport sector) we could ask what role we expect for biofuels. Z Energy will soon open a biofuel plant that will produce 20 million litres of biofuel and reduce greenhouse emissions by 37 kt a year: New Zealand Herald, 21 May 2016. Active transport (cycling and walking), public transport can also produce reductions. So – immediately and on a large scale – would the introduction of fuel efficiency standards for motor vehicles. What role could action in each of these fronts play? How many kilotonnes of greenhouse gas emissions could be avoided, and what return on investment would different measures produce? The Minister says that the package could be worth $100 million (Interview with S Bridges, K Ryan, RNZ National, 6 May 2016), so it would be nice to know that we are making the right choices.

In all, we can welcome this package of law changes and other policy initiatives, even if the international evidence suggests that key elements are missing. EVs represent one of a number of opportunities to decarbonize our transport system. We need to seize all such opportunities with urgency and ambition.