

Area of Interest – Electric Vehicles

This submission discusses the implications of electrifying the light vehicle fleet, as this is an area I have a level of experience and understanding. This submission is from an individual and not on the basis of my position as an employee of an automotive distributor, it's membership of the MIA or any other special interest group. My automotive experience is 25 years, including wholesale and retail. Currently employed by a wholesale distributor of light and medium duty passenger and commercial vehicles including ICE, hybrid, EV and PHEV vehicles.

Consumer Education

There are still a number of myths around the cradle to grave total life emissions of ICE (Internal Combustion Engines) vehicles versus full electric. There is now overwhelming evidence that the total life carbon emissions are much lower than ICE (1) - it is therefore important that this information is well understood so that opposers are not using misinformation to slow the uptake. EECAs in this respect are doing a great job on the education front, supported by the likes of various EV owners groups around the country. A key success indicator is getting potential consumers into vehicles to experience the difference.

PHEV – a blind alley

There is much talk and emphasis around including PHEV electric vehicles in EV discussions - recent evidence out of Europe is that these vehicles have a worse carbon footprint than diesel (2). They are a distraction to the conversation and do not add to the outcome. The effort required to deliver on the publicised fuel economy numbers are typically beyond the reach of most consumers let alone the fleets that run them. Real world fuel economy of PHEV is typically 5-6 times that indicated by standardised testing. ICE vehicle real world fuel economy typically sits around the 1.0-1.5 times (which is still a poor 50% increase in 'expected' fuel economy).

Real world impact on Emissions

Another issue with EVs is that they typically replace the lower mileage ICE vehicles, due to their range capabilities and the reasons for purchases (second car, urban use). So while the government has a target of 2% of the fleet by 2021 it will not achieve impact on 2% of emissions for this reason, the high mileage high emitters will continue unabated. This highlights the real challenge is much harder than that indicated.

Key barrier to establishment

The economic viability of new EVs is impacted by their high capital cost (around 2 times ICE equivalent), high FBT costs, infrastructure investment, lack of experience with EVs, limited range of EVs (typically small and light vehicles only) and limited vehicle range. The costs are expected to flatten to be compatible with ICE by 2025-2027, so in this meantime meaningful uptake is limited. Currently EV uptake is focused around used imports from Japan and the UK, effectively funded by domestic subsidies in these markets. The scope for growth in these imports are dependent on availability for export and the continuing availability of those subsidies available for exportable vehicles. New vehicle sales are growing, but not at the same level of used – reflecting the affordability issues. Fleets have the double whammy of

high capital costs of the vehicles plus the initial infrastructure costs – as well as dealing with the electrical infrastructure itself around the parking / charging of those vehicles including understanding peak electrical demands and capacities for charging those vehicles. Logistically challenging.

Financial assistance

A feebate system makes the most sense to reduce the impact of cost on the consumer. A fee added to initial registration (say \$200) would produce a fund to reduce the cost of EVs in the market of around \$32 million based in 2017 sales projections for new vehicles. Given the number of new EV vehicles likely to be registered in 2017 to be around 1500, there would be a \$21,000, more than enough to lift the uptake without materially impacting on the sale of ICE. As the number of EVs lifted, say to the 32000 level that the government has targeted in 2021, the subsidy would be just \$1000, by which time the actual price difference will have closed from the current 100% premium.

Supply

World supply is ramping up, as is demand. It is not clear whether the anticipated NZ demand would be met by supply- for example Hyundai production for the Ioniq EV is 1800 per month for the world, with 900 allocated for domestic Korean supply (3). Even the v small NZ market is running at an average of 13000 units per month, which means the best possible supply is at best constrained. Further complicating the supply situation is the profitability of these models is poor at best and supply is going to those markets that provide the best return, NZ is typically not one of those. Profitability of EVs vs ICE is also lower from reports like those from Daimler (4) which will impact of the appetite for change.

Government supports

The current government supports have had only a minor impact on increasing the uptake, as can be seen from the slow growth in new EVs (without the benefit of financial incentives) with that of used EVs, which benefit from incentives from the source country. There is no financial rationale for the purchase of new EVs over new ICE, and in fact there is a major disincentive with higher capital costs (both for the vehicle and the required charging infrastructure) , higher FBT, increased level of training and fleet management while slightly offset by much lower running costs. Those fleets and consumers that are currently purchasing these vehicles are doing so for non financial reasons.

Conclusion

EVs are a great opportunity to decrease the independence of New Zealand on fossil fuels and improve its carbon footprint. However the impact is lower than one would expect from reaching the 2% Government target, and harder to achieve this result due to the high cost and low impact of current Government initiatives. There is considerable interest, support and enthusiasm for EVs and their adoption – however the bottom line is currently new EVs are not an affordable option, and there has not been yet been a successful launch of EVs into market without some form of substantial financial incentive.

Conrad Healy

References:

- (1) <http://www.ucsusa.org/clean-vehicles/electric-vehicles/life-cycle-ev-emissions#.VkVBJnarRD8>
- (2) <http://autotalk.co.nz/news/phevs-emit-co2-diesels-report>
- (3) <http://pushevs.com/2017/06/07/hyundai-ioniq-electric-production-increase-50/>
- (4) <https://www.cnn.com/2017/09/11/electric-cars-only-half-as-profitable-at-first-daimler.html>