

Comments from Graham King

Dear OUR EV Task Force,

Firstly, let me congratulate you on taking the initiative to advance electric vehicle adoption in Jamaica, and for putting together a well-considered proposal document.

As a Lecturer at UWI and Automotive Engineer (CEng), leading research into the Energy and Economics of EVs, I have just a few comments, having reviewed the document:

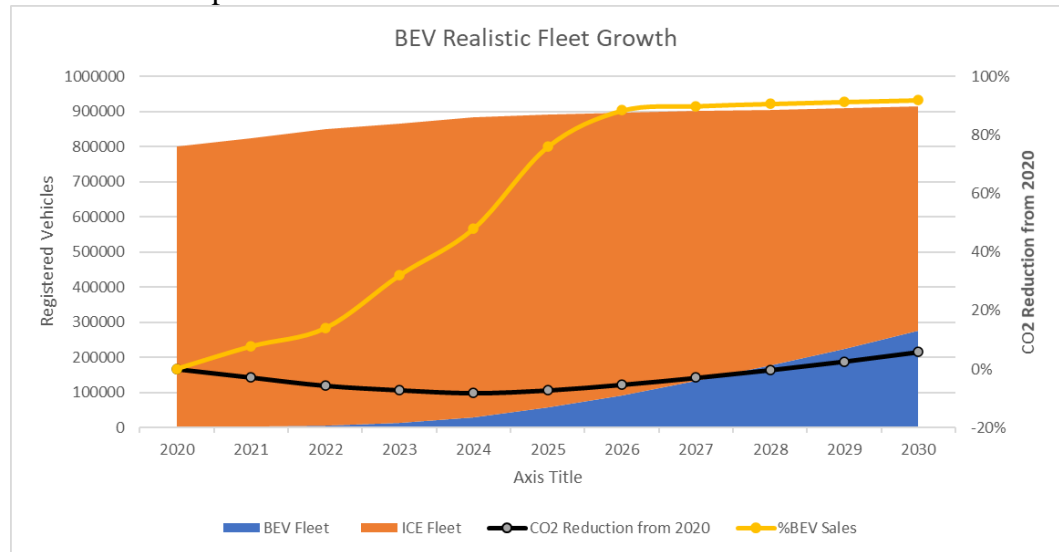
1. Fiscal incentives for EVs

- a. Focusing on reducing duties on EVs from the current rate of 30%, maybe all the way to 0% but with a staged ramp-up over a number of years based on anticipated EV penetration, is probably a more powerful incentive and likely more palatable to the GOJ Treasury than 'cash back' incentives administered through dealers. If the buying public knows that they are getting a good deal NOW but that the price of EVs will increase over the coming years, it will accelerate adoption.
- b. As a counter-point to 1(a) and in consideration of foreign exchange outflows, the duty relief could be limited to vehicles under a certain power output and/or CIF price. A recommended value for this is that vehicles under US\$60,000 be duty free but duties on more expensive vehicles being significantly higher or not relieved at all. This figure will allow duty-free access to the majority of EVs that are coming to the market but will reduce the opportunity for importing high luxury and very high power EVs without making a contribution to the national purse.

2. BEV Penetration Model

- a. It might be of value to include a clear description and analysis of the impact of different EV penetration scenarios. The assumption made in Section 9.2 that 30% of vehicles will be EVs by 2030 might be quite a stretch. It is certainly possible that nearly 100% of new vehicle *sales* will be EVs but I am not sure whether BEV sales growth rates and ICE scrappage rates have been taken into account? Calculations that I did for T&T indicate that with:
 - i. a modest total fleet growth rate of 15% by 2030 compared with 2020
 - ii. one ICE vehicle being scrapped for every new BEV that is sold
 - iii. ramping up of BEV sales market share to 90% by 2027 (very aggressive compared with global expectations)

then 30% BEV penetration would be achieved:



3. Technology evolution

- a. BEVs: price-parity due with ICE vehicles is likely to be achieved by most manufacturers by 2024 due to economies of scale in the production of Li-Ion batteries. This factors into the incentive structures and means that they need only be medium term before the competitive market takes over in driving BEV sales. However, if a strong initial BEV footprint is not established in the Caribbean through policy levers, it will become challenging for Dealers to obtain a sufficient and reliable supply of BEVs from manufacturers because our markets are so small. So... aggressive initial incentives will allow momentum to be established and an acceleration in the adoption of BEVs.
- b. As the Jamaican grid transitions over the coming years to incorporate a higher proportion of renewables and natural gas, every BEV on the road will have a smaller carbon footprint per km travelled. This should be highlighted more strongly in the proposal I think (I know it is implied for instance at the bottom of p 13).

4. Grid Impact

- a. Note that Level 1 charging runs off 110V and Level 2 runs off 220-240V. I think that the definition based on power might be a little confusing because there is some overlap between the two. I run off a 230V Level 2 charger that is limited to 10A hence 2.3kW.
- b. The starting point for assessing grid impact is not simply the number of BEVs on the road, but the number of kms travelled and the efficiency of the vehicles (thus the electrical energy consumption). Based on average daily mileage for JA BEV users, it might be shown that charging might only take place every 2-3 days.

Thus, although it is a worst-case scenario, having a model that assumes all vehicles charge at the same time is unrealistic and unnecessarily pessimistic.

- i. As an owner and user of a BEV in T&T, I average 50-60 km/day. I charge at 2.3 kW which gives me about 12 km/hour of charging. Therefore, I typically charge about 3 times per week for 10 hours at a time.
- ii. This charging load is equivalent to one 18000 BTU A/C unit running on its cooling cycle. At this demand level, even with a relatively high saturation of EVs in a neighbourhood, little special provision is required beyond the normal upgrades that are associated with anticipated increasing electrical loading from residences.

I do think that the calculations presented in the proposal present a very conservative/pessimistic view of potential grid impact, but I confess to being ignorant of the state of the grid in Jamaica.

- c. I fully agree with the proposal to actively encourage at-work charging and especially if that can be combined with small-scale Solar PV, solar parking shelters etc.

Congratulations again on the work and I hope that we can get something similar done for T&T in the near future.

Best regards,

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