

Caiazza Personal Comment on Electric Vehicle Costs

Summary

I prepared this comment because I thought that a concern Ms. Arbetter brought up in a recent [interview](#) was appropriate for a comment. In particular, the Integration Analysis vehicle cost projections rely on a single vehicle type for light-duty vehicles. In the first place the value for regular vehicles seems high and, relative to all electric-vehicle prices last fall, the battery-electric costs seem low. The Climate Action Council should consider updating the Integration Analysis to better represent the types of vehicles used. The Council should also consider whether the costs of used cars should be incorporated into the analysis particularly because low and middle-income households purchase used cars rather than new cars. Finally, I question the optimistic rate of battery-electric cost price decreases used in the Integration Analysis. Of particular note is that there is no difference between the low-technology trajectory and the reference trajectory in the Integration Analysis spreadsheet IA-Tech-Supplement-Annex-1-Input-Assumptions

Introduction

On June 10, 2022 I was [interviewed](#) for a segment on the electric vehicle component of the Climate Act on Spectrum Cable's [Capital Tonight](#) program hosted by [Susan Arbetter](#). She asked me what the costs for Zero-Emissions Vehicles were in the Draft Scoping Plan. When I told her the numbers for 2022 in the Integration Analysis spreadsheet she said: "That is a lot more than a gas-powered car". Later in the interview she asked what I would recommend people should write in about. I said that people should send comments to the Council about anything that impacts them directly. I used the example about her question about the car prices as an appropriate question. This comment specifically addresses that concern and a couple of others we did not discuss due to time constraints.

Integration Analysis Vehicle Costs

Ms. Arbetter asked me to talk about the Draft Scoping Plan costs because she knows that I have dug into the Integration Analysis enough to be able to give her specific answers. I based the numbers I presented on the Integration Analysis spreadsheet IA-Tech-Supplement-Annex-1-Input-Assumptions. In the Trans_Device Cost table (excerpt below) the 2022 diesel/gas vehicle cost is \$31,787 and battery electric vehicle cost is \$41,646. The following [table](#) from [Inside EVs](#) lists the costs of battery electric vehicles on September 18, 2021. There are 63 car models listed and there are only 13 models less than the Integration Analysis estimate.

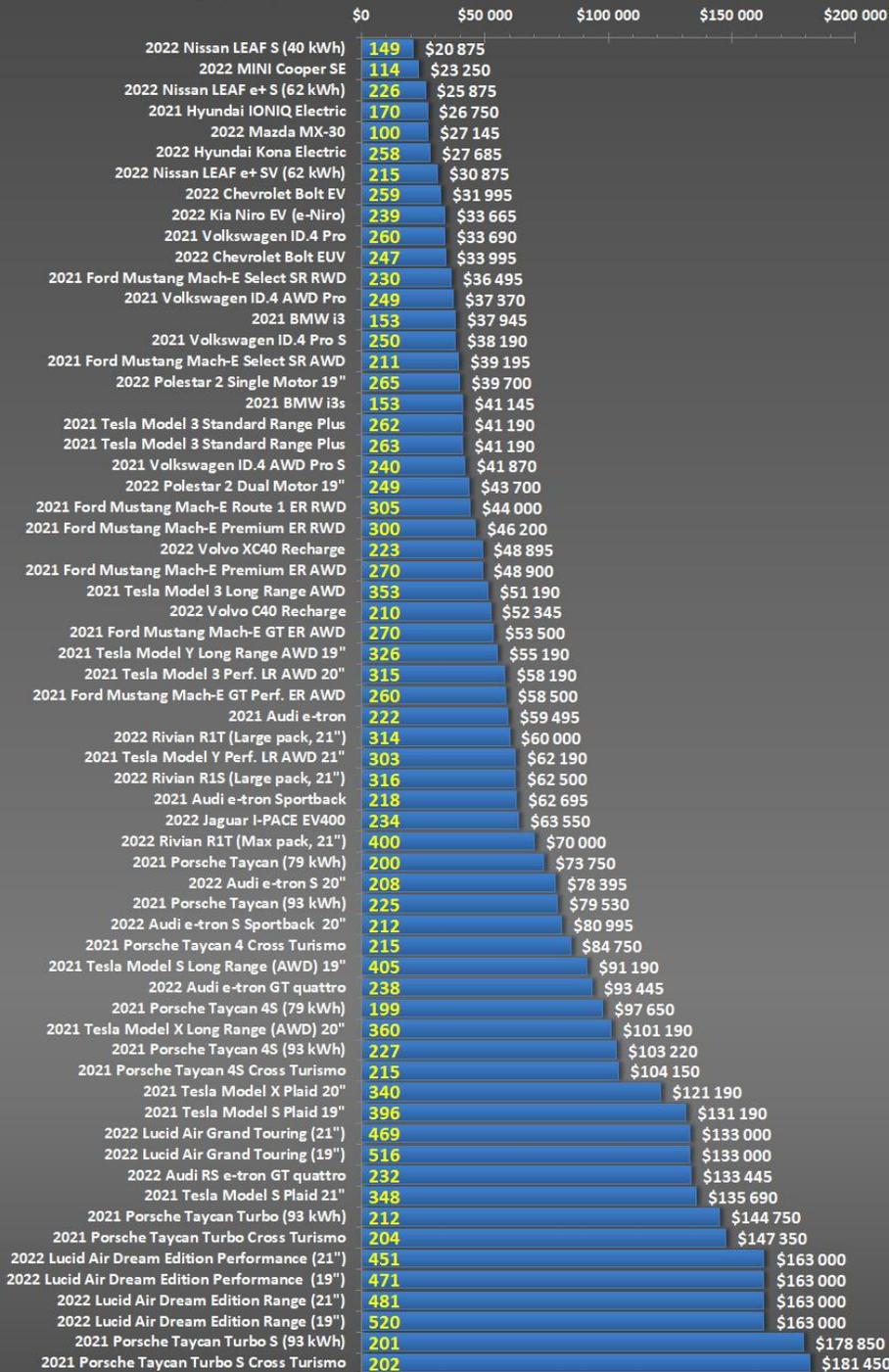
Transportation - Vehicle Cost by Technology: Reference Trajectory						
Subsector	Technology	2022	2025	2028	2030	2035
Transportation Light Duty Vehicles _ Cars	Gasoline	\$ 31,787	\$ 32,150	\$ 32,514	\$ 32,757	\$ 32,343
Transportation Light Duty Vehicles _ Cars	Diesel	\$ 31,787	\$ 32,150	\$ 32,514	\$ 32,757	\$ 32,343
Transportation Light Duty Vehicles _ Cars	CNG	\$ 31,787	\$ 32,150	\$ 32,514	\$ 32,757	\$ 32,343
Transportation Light Duty Vehicles _ Cars	Plug in Hybrid Electric	\$ 33,897	\$ 34,285	\$ 34,673	\$ 34,931	\$ 34,490
Transportation Light Duty Vehicles _ Cars	Battery Electric	\$ 41,646	\$ 36,115	\$ 31,951	\$ 29,936	\$ 27,983
Transportation Light Duty Vehicles _ Cars	Hydrogen Fuel Cell	\$ 55,545	\$ 47,229	\$ 39,754	\$ 35,477	\$ 28,521

All-Electric Vehicle Comparison - U.S.



Base price (MSRP + DST and after Tax Credit)

All-electric range (EPA)



Source: <https://insideevs.com/news/534027/electric-car-prices-us-20210918/>

Given the relative importance of future light-duty vehicle costs to New Yorkers I think that this analysis of vehicle costs needs to be refined. A single category for light-duty vehicles is unacceptable. A quick search for rental cars finds the following vehicle types: full-size, economy/sub-compact, compact, intermediate, standard, standard sport, intermediate SUV, standard SUV, premium, and luxury. Kelly Blue Book's [buying guide for electric vehicles](#) has another list of vehicle types. Somewhere, someone must have compared different vehicle types to come up with a single number.

I have the following recommendations for this aspect of the Scoping Plan. At an absolute minimum, the rationale used for the single value must be documented. If it was a weighted average, then the assumptions should be shown. However, I think it would be more appropriate to incorporate more vehicle categories in the analysis that encompass a broader range of vehicles used. While the more categories the better, why not at least provide costs for compact, intermediate, full-size in both regular and SUV models? I am sure a more refined analysis would improve the value of these cost estimates. Ms. Arbetter and I agreed that the costs listed were out of our price ranges. If more categories were listed then we maybe we could find a car that is more in line with our budgets.

Used Cars

Due to time constraints, I was not able to make the point that the Draft Scoping Plan EV cost analysis only considers new cars. With all the emphasis on equity for low and middle-income New Yorkers, the document is ignoring those who cannot afford a new vehicle and that is a major flaw in the EV analysis.

According to [EDF Energy](#):

The battery on an electric car is a proven technology that will last for many years. In fact, EV manufacturers guarantee it. [Nissan warrants that its electric car batteries will last eight years or 100,000 miles](#), for example and [Tesla offers a similar guarantee](#).

My point is that many low-income car buyers purchase cars that exceed eight years and 100,000 miles. Because the cost of replacement batteries is a major consideration battery pack replacement costs should be included in the device costs and projections for the cost of used cars also added.

The Climate Action Council should also address the low and middle-income consumer concerns expressed by Robert Bryce in [testimony](#) before the House Select Committee on the Climate Crisis:

“EVs ... impose ... societal costs that are likely to exacerbate inequality and lead to more energy poverty,” Bryce continued. “Those costs include taxpayer-funded subsidies given to EV buyers, publicly funded charging stations, and the grid upgrades that will be needed to support the electrification of light and heavy-duty vehicles. Those costs will impose a significant cost burden on low and middle-income consumers, even though those consumers are unlikely to purchase EVs.”

Future Costs

During the interview I also noted that the Draft Scoping Plan predicts that costs for battery-electric vehicles will be less than regular vehicles by 2028. Specifically, the Integration Analysis spreadsheet projects that battery electric vehicles will be cheaper than gas/diesel by 2028: diesel/gas cost is \$32,514 and battery electric is \$31,951. That is an optimistic ~5% per year decrease in costs. Although I concede that many reports support similar cost reduction trajectories many of those reports are biased because

they are from organizations with a financial stake in electric vehicle adoption and/or written by authors whose career is dependent upon the clean energy transition.

My primary future cost concern is the cost of battery raw materials. [PWC](#) describes the automotive supply chain and [notes that](#):

The lithium-ion battery pack alone can account for up to 50% of the value of today's EVs.

Battery prices have fallen steadily in recent years and that share will likely be much lower over time. But even so, these batteries are primarily made by companies outside the traditional auto supply chain, creating new competition for legacy suppliers.

I believe that the Climate Action Council should address New York's ZEV plans in the context of other similar plans in other jurisdictions particularly in regards to the world's supply of lithium.

Finally, there is an issue with the "low technology trajectory" section of the Trans_Device Cost table in the spreadsheet IA-Tech-Supplement-Annex-1-Input-Assumptions. In particular, the numbers in that section of the table are identical to the "reference trajectory" section. I believe that the low technology trajectory might have addressed my concerns about the cost trajectories. Why are the numbers the same?

I prepared this comment because I thought that the concern Ms. Arbetter brought up in a recent interview was appropriate for a comment. I have [written extensively](#) on implementation of the Climate Act because I believe the ambitions for a zero-emissions economy outstrip available renewable technology such that it will adversely affect [reliability](#) and [affordability, risk safety, affect lifestyles](#), will have [worse impacts on the environment](#) than the purported effects of climate change in New York, and [cannot measurably affect global warming](#) when implemented. The opinions expressed in this document do not reflect the position of any of my previous employers or any other company I have been associated with, these comments are mine alone.

Roger Caiazza

[Pragmatic Environmentalist of New York](#)

NYpragmaticenvironmentalist@gmail.com

Liverpool, NY