

Townsend, Erle

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To: DEP Rule Comments
Subject: Comment on Chapter 127-A: Advanced Clean Cars II Program

Categories: Red Category

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In my first two submissions, I focused on the economic and logistical risks of EVs. In this submission, I am going to focus on environmental factors, which I expect are more aligned with your charter.

The sources of my information is a report from the International Energy Agency (IEA). I will quote some data points from their report entitled: The Role of Critical Minerals in Clean Energy Transitions from May of 2021.

- A single electric vehicle requires 4,000 pounds of copper, lithium, nickel, manganese, cobalt, graphite, and rare earth metals, according to the IEA. See chart below for the data from the report

Source: IEA. Licence: CC BY 4.0									
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Units: kg/vehicle									
	Copper	Lithium	Nickel	Manganese	Cobalt	Graphite	Zinc	Rare earths	Others
Electric car	53.2	8.9	39.9	24.5	13.3	66.3	0.1	0.5	0.31
Conventional car	22.3	0	0	11.2	0	0	0.1	0	0.30

Here is a link to the IEA report - at least please review the executive summary.

<https://www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions/executive-summary>

I expect you all are much more informed about the challenges of mining copper. A few highlights from a summary article:

- According to Energyminute, to reach net zero goals by 2050, [the world will need 1.4 billion tonnes of new copper](#). That's twice the amount of copper that's been mined in all of human history.
- Economically viable deposits are hard to find, and developing the resources are high-risk investments
- copper prices will need to be much higher to sustain the investment.
- Not surprising, environmentalists have argued against the mining of these minerals

So if mining copper today is a high risk expensive proposition, common sense would say that viability timelines and cost projections of EVs are significantly understated. My conclusion is that laying down an EV mandate will drive up consumer costs, frustration, and risk, without the net environmental gain (offset by mining rare earth minerals) that is presently assumed.

regards,
Ralph Cadman

