Dear Board Members,

I urge you to vote against the implementation of the Advanced Clean Cars II Program rules, or, at the very minimum, postpone and revisit them in the future with reasonable timelines and expectations after considering market conditions.

While this mandate may be appropriate for a subset of Mainers, mainly those in District 1, it is out of touch with most of us who live in District 2. This is a classic example of 'Portland Solutions for all of Maine'. The State of Maine is making progress toward electrification and it's a step in the right direction but removing the choice of something as important as a reliable and affordable vehicle is concerning to say the least. Statements insinuating that a consumer's choice is not being compromised and that residents can purchase used ICE vehicles is not a compelling argument for choice as some may want to purchase a new vehicle. With a fraction of the supply, the cost of ICE vehicles could increase if this mandate were implemented. We would then have the choice of an expensive ZEV that most of us don't want, or an expensive ICE vehicle that could be hard to come by. Rural Maine is economically depressed, and many can't afford, let alone rely on a ZEV, in Maine's remote and cold north. Mainers should have the right to make choices that best align with our lifestyle and socioeconomic situation.

A few well-documented concerns surrounding ZEVs follow:

1. Weight – ZEVs weigh 30% to nearly 100% as much as ICE vehicles. Many of us in colder climates choose SUVs and trucks, especially in northern Maine where those types of vehicles are required for one's profession or safety. The weight disparity between the two types of vehicles skyrockets with larger vehicles. Consider the carbon footprint of replacing asphalt and tires twice as often. Will upgrades to parking garages, bridges and other infrastructure come from our tax dollars?
2. Collisions – The National Bureau of Economic Research estimates that every extra 1,000 pounds of weight increases the 'baseline fatality probability' by nearly 50% in vehicle crashes[1]. This is concerning for any type of ZEV collision with another vehicle, pedestrian, or stationary object.
3. Fire & Water – ZEV fires can be nearly impossible to extinguish due to 'thermal runaway' in the battery pack, which require tremendous amounts of water to even suppress, approximately 10 times as much water as an ICE vehicle fire would require[2]. A Tesla crash late last year in Alabama required over 35,000 gallons of water to extinguish[3], which is 5,000 gallons more than a single American would use in one year[4]. Two Teslas recently caught on fire in Florida after the battery packs were saturated with saltwater[5]. EV battery pack fires are known to reignite hours after being seemingly extinguished.
4. Environmental – Aside from the unimaginable amounts of water required to suppress EV fires, gases emitted from a battery pack fire form hydrofluoric acid when combined with water, which freely flows into the environment. Compared to ICE vehicles, residual soot from Li-ion battery EV fires contains 'dramatically higher' levels of nickel, cobalt, managanese, lithium, aluminum, and copper than ICE fires[6]. In addition to chemical and metallic runoff, PFAS are essential for production of Li-ion batteries and the environmental implications and practicability of recycling the gigantic battery packs are not known[7]. Lastly, the 60-pound, single-use fire suppressing blankets that are making their way onto firetrucks for EV fires are loaded with PFAS. How do these concerns align with Maine's PFAS ban?
5. Safety – After the recent double-decker bus fire in London, a former firefighter who is working to develop an EV containment unit, stated: "The problem is that millions of electric vehicles are due to be sold with lithium batteries. The way to prevent this is investment in new technologies to replace these highly flammable batteries. Right now toxic gases are highly dangerous to the health and safety of firefighters on the ground as well. These fires are virtually impossible to stop and until then we face an increase and likelihood of more." [8]

In addition to the socioeconomic and safety concerns of this mandate, Maine's new ZEV sales cannot realistically increase by over 75% in the next eight years without doing irreversible damage to our economy and planet. The demand is simply not there, and the raw material supply is not readily available. The expansion of the mining industry needed to meet these worldwide mandates would be unprecedented. It has been estimated by those within the industry that it would take several decades to a century to ramp up production to meet the full ZEV transition, assuming new mines get permitted. KoBold Minerals, backed by Bill Gates and Jeff Bezos, estimates that over 12 trillion dollars of new critical mineral deposits must be discovered to meet current climate change goals[9].

It can take decades to identify a new mineral target, explore it, delineate it, permit it, construct a mine, produce the material, and refine the material. A full transition to ZEVs could require mining more metals over the next 30 years than have ever been mined[10]. ZEVs, let alone their charging infrastructure, require about 5 times the amount of copper as ICE vehicles[10]. Most of the copper mined today is from deposits that were known decades or centuries ago while many new or restart projects are fought and litigated to death. This results in larger, lower-grade deposits being mined in poor countries that have greater environmental impact. Large tonnage porphyry copper deposits can be some of the most environmentally hazardous to mine and process. So, where is the copper going to come from if new mines are challenged? And where is the workforce, equipment, and infrastructure going to come from? What will be the environmental impact of building all these new mines and refineries? What about the billions of tons of tailings? Robert Friedland, Founder of Ivanhoe Mines, states that the world would need 10 to 20 more large copper mines just to maintain a small economic growth, not considering electrification needs[10]. These unachievable mandates will simply displace environmental damage to other countries and vastly increase the global carbon footprint for decades. Mines are incorporating more green energy in their operations, but we are still a long way from achieving independence from petroleum products in the mining industry. Is this acceptable because here in Maine we don't have to see it with our own eyes? As long as it's Gates and Bezos ramping up copper mines in Zambia, cobalt in the DRC, and nickel in Greenland it's applauded for the good of the climate?

The United States (and particularly New England) already heavily shoulders the burden of all stages of the mining and refining process on other countries; we are purely consumers. Who are we to ask the children in the DRC to 'pick up the pace' and mine more cobalt for our new toys? Maine has deposits containing the raw material required for electrification, including copper, manganese, nickel, cobalt, lithium, and rare earth elements along with some of the most responsible regulations in the world. Why don't we first evaluate what we can do at home to assist with the electrification of our world and make a realistic plan that doesn't tank our vehicle manufacturing market while continuing to line China's pockets?

Vehicle manufacturer production and metal markets are the best indicators of consumer habits and demand for ZEVs. Ford and GM have announced cutbacks in their production of ZEVs due to the lack of demand[11] and Toyota is refocusing on hybrid production[12]. Volkswagen stated that 2023 ZEV orders were down 50% in Europe compared to 2022[13]. Panasonic's automotive battery production in Japan was reduced 60% over the last year[14]. Hertz just announced that it's selling a third of its EV fleet, approximately 20,000 vehicles, in favor of gas-powered vehicles[15]. The price of lithium is crashing (more than 80% over the last year) and has been forecasted to continue falling due to a surplus of supply. Nickel and cobalt are also crashing. The decreasing price of lithium will slow investment into new (and necessary battery mineral) mining projects, resulting in additional delays in the energy transition[16], especially as we near 2030 – the point at which demand is projected to skyrocket. We are seeing this happen already with the world's largest lithium miner, Albemarle, delaying expansion and laying off employees[17]. "Lithium's pullback has been driven by a rapid expansion of production, especially from relatively low-grade mines in China that have surprised the market with their rapid growth."[18] Along with metal

prices crashing, market capitalizations of ZEV manufacturers took a massive hit last year with Tesla's market value dropping by 138 billion[19].

I ask that you consider our District 2 Congressman's comments on this concerning mandate. "Demanding that manufacturers and dealership owners in Maine go against market forces and limit the sale of cars that Mainers depend upon, in favor of vehicles that we don't currently have technology or the necessary infrastructure to support, is unwise."[20]

The 'bubble' has burst, and 150 signatures from southern Mainers who refuse to believe it should not be the basis for this irresponsible mandate being imposed on the rest of us. The market trends are telling us that an energy transition of this magnitude in such a short amount of time will be economically and environmentally disastrous. Please, do not adopt these rules for our state at this time.

Sincerely,

Leah Page, P.Geo.
Patten, ME

Citations

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