Low Emission Vehicle Amendment

John Fannan <johnfannan@hotmail.com> Sun 11/13/2022 11:36 AM To: Krall, Kyle (DNREC) <Kyle.Krall@delaware.gov>

EV automobiles need a reliable and cost-effective supply chain of lithium for the batteries, and a method to transport them to America safely and cost effectively.

There are a couple of dark clouds hanging over the optimistic growth of electric vehicles (EV's) that may decimate the supply chain of lithium to make the EV batteries, and how to safely transport EV's across wide oceans.

1 The European Chemicals Agency (ECHA) is expected to classify lithium carbonate, chloride, and hydroxide as dangerous for human health. The decision is expected to be reached by early next year.

2 The recent (March 2022) sinking of a cargo ship with 4,000 vehicles, from a fire where electric-vehicle batteries were part of the reason, may be imposing an insurmountable insurance problem to bring those foreign made vehicles to America

https://www.heartland.org/news-opinion/news/dark-clouds-on-the-horizon-for-electric-vehicles

Dark Clouds on the Horizon for Electric Vehicles
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Demands that hydrocarbons no longer be used—to generate electricity, heat homes, power factories, or transport people and goods from one place to another—emerge from climate-focused objectives. Observations that they aren't being replaced and can't be in any meaningful time frame evoke specious claims of "climate denialism" or the equivalent. But the realities of the physics, engineering, and

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economics of energy systems are not dependent on any facts or beliefs about climate change.

The lithium battery is what made it possible to build useful EVs. Even so, today it still costs at least 50%–70% more to buy an EV instead of a comparable standard car. Purchase price aside, conventional wisdom has it that consumer reluctance to embrace EVs also arises from so-called range anxiety, which, it is argued, is solved with lots of charging stations. Yet most EVs already have a range equivalent to gasoline-powered cars, 200–400 miles. The issue isn't range; it's the time it takes to refuel a battery.

A standard gasoline station pump can fill a fuel tank in about five minutes. It takes about 10 hours to charge an EV with the standard Level 2 charger used for homes and at many public locations.[<u>39</u>] While a so-called supercharger can drop that to 30–40 minutes, both the supercharger hardware and the longer fueling times have dramatic cost implications. A longer time to fuel an EV means that a filling station will need many more fueling "pumps" to support the same number of customers at peak times. And that increased number not only requires far more (expensive) land but also comes with a per-unit capital cost of a supercharger roughly double the cost of a gasoline pump.

The combination of these factors translates into 10 to 20 times the costs of the fueling infrastructure to provide the same functional utility. This doesn't include the incremental costs to upgrade local electrical distribution infrastructures to handle the higher power levels needed for fast charging. A single supercharger requires electrical infrastructure equivalent to that needed for 10 homes.

https://www.manhattan-institute.org/the-energy-transition-delusion

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Global economies are facing a potential energy shock. The crucial question now is whether America has the political will to face the new geopolitical landscape. www.manhattan-institute.org

Regards, John Fannan Wilmington DE 19810