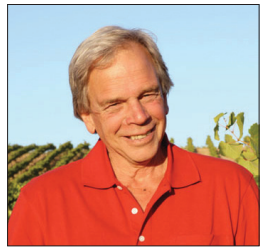


COMMENTARY



Just the Facts



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There is an old saying, ‘Don’t put your cart before the horse’. That is pretty much what is going on with this big push for electric vehicles and replacing fossil fuels with renewable energy. Our Governor, part of “Going Green,” has mandated a plan that only new passenger cars and light trucks (pickups) with zero emissions can be sold within 13 years (2035). In just four years, 35% of all new sales to be ZEVs (zero-emission vehicles).

From what I can dig up, and much of all the following in this article is picked from many reputable sources and too many to list, right now, there are around a million ZEVs on the road in California out of around a total of 15 million all types of cars, SUVs, pickups in 2021. Doing the math, that is less than 7% of the total cars on our highways are ZEVs. That is a long way to go meet the goal of eliminating gas-powered vehicles in the immediate future. Eventually, heavy-duty trucks, airplanes, military vehicles, farm equipment, and others are next — hate to be looking for an electric plug in the middle of a field miles from the shop for my tractor or harvester! A hearing will be

held in June, and the California Resources Board is expected to vote in August. Note – bypassing the State Legislature and decided by a handpick state board.

There is a cost of “Going Green.” Batteries do not produce electricity. They are a storage mechanism. Electricity is made in California mostly by natural gas plants (37%), uranium (9.3%) – Diablo Canyon and we are going to lose this baby soon, hydroelectric (14%) – dams where power generation has plummeted by 60% because of recent droughts, dirty backup diesel generators, wind turbines (11%), and solar (12%). Two-thirds of the power is generated by non-renewable and unspecified energy, and the other third in all types of renewables. In the United States, 40 percent of all the electricity is from coal-fired plants, so it stands to reason that 30 to 40 percent of the ZEVs in the nation are coal-powered. California imports a quarter to a third of its power annually from other states, generated mostly from coal, natural gas, diesel, and some wind and solar. During the summer black and brownouts, this power does not come cheap; gouging would be a better word and not much of it from renewables.

The wet battery in your electric car weighs around a thousand pounds (one-half ton) versus an average of 40 pounds for a fossil fuel car battery. It has 25 pounds of lithium, 60 pounds of nickel, 44 pounds of manganese, 30 pounds of cobalt, 200 pounds of copper, and 400 pounds of aluminum, steel, and plastic to wrap it all up. All these materials come from

mining – lots of big holes in the earth and more coming. For that one battery of stored electricity in your ZEV, you must process 25,000 pounds — 12.5 tons, larger legally to fill a dump truck of brine for the lithium, 30,000 pounds or 15 tons for a set of truck double trailers for the ore for the cobalt, 5,000 pounds, a large SUV, for the ore for the nickel, and another 25,000 pounds of the ore for the copper. These batteries are considered hazardous waste and can only partially be recycled and, if stored or put in the dump, will probably eventually leak like all batteries. ZEVs batteries generally have a life span of 10 to 20+ years and cost \$7,000 to \$14,000 to replace, depending on the manufacturer. So, a question, how many years and driven miles would a single ZEV have to go to offset all the non-renewable electrical energy to build the battery and drive the car, fossil fuels for the mining, associated equipment, and processing, transportation between the mines, processors, and to the car manufacturers, plus all the many other embedded costs on top of the air pollution and environmental damage to the earth’s crust for that one car to be truly zero-emission?

The cobalt, 68 percent, comes from the Congo with no pollution controls and a lot of child labor where too many die from this toxic material. It is fair to say that this tragedy must be added to the cost of the battery?

Lithium is currently the main used energy source storage for electric cars, phones, tablets, and laptops. There is a bunch of

it, 43 million tons on earth, but only a third of it is in a form that can be mined, and 87% of that is in brine waters, mostly in South America, referred to as the “Lithium Triangle” along the coasts of Argentina, Bolivia, and Chile. The process for lithium carbonate takes drilling holes in salt flats and pumping the salty, mineral-rich brine to the surface and left to evaporate; then the leftover salt is filtered for the lithium carbonate. Simple, but uses large amounts of water and takes time — one and a half to two years for the final product. One of the largest deposits of lithium in the U.S. is in an isolated part of northwest Nevada called Thacker Pass. Mining companies have been trying to get permits for the last fifteen years but are tied up by a bunch of environmentalists and tribal activists. Same problem for drilling permits for possible sites in Death Valley and near other national and state parks. A large deposit of lithium is in the Salton Sea, and companies are starting test drilling.

In the past two years, Lithium prices have gone up 1,000%, copper up 200%, nickel up 300%, and aluminum, the second most used metal on earth after iron ore, is up 300%. Doubling the aluminum price would wipe out most of the manufacturer’s profit margin for cars, SUVs, and pickups, so those vehicles will inevitably see higher prices. Tesla and China’s largest ZEV manufacturer, BYD, have just raised prices on their electric vehicles. So, how can California and the Federal Governments who are touting that lower prices

of electric vehicles will happen, and many will be able to afford one soon, explain the fact that the opposite thing is happening? There aren’t enough precious metals available now to meet the demand and mandates to make prices come down. Plus, the fact that most of these minerals are mined and/or processed by countries that are not our friends. Just in, warning in the WSJ that there is under 10% of the world’s combined cell production for ZEVs of what is needed in 10 years. Meaning, that 90% of the supply chain does not exist and will be a problem for the next 20 years. Be sure China and others will cover their “you know what’s” for what they need first. Doesn’t look good for mandates.

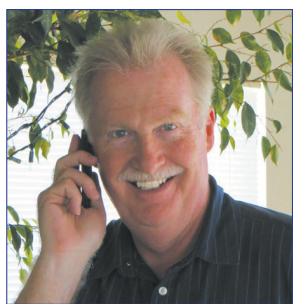
For the time being, we need to get our ducks in a row and come up with a sensible Federal Energy Transitional Plan, so energy suppliers can make long-term decisions instead of trying to guess the changeable whims of government policies, back off on the mandates, especially those done by single man federal and state executive orders (what happened to representative government?), allow much more fossil fuel drilling, make it possible and easier to develop our own mineral resources and make peace with some of the problem supply/processing countries – where possible. To be continued – wind, solar, nuclear, and emerging technologies.

“Just the facts, ma’am” – Detective Joe Friday in Dragnet
John Salisbury is an independent columnist for Morro Bay Life, a local farmer and winery owner.

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