

Comments on Agency of Natural Resources Advanced Clean Cars II Plan

Vermont's effort to launch an at-scale plan to shift Vermont drivers to EVs must be comprehensive. There can be no negative impacts for it to achieve its goal

Vermont has 400,000 registered vehicles. The U.S. has 400 million and the world has 4 billion. There is no remedy to global warming if the shift to electric vehicles is not achieved.

Vermont's approach must focus on each component needed to achieve the shift to assure it succeeds. Failure of one component could hinder public purchase of the new EVs. That will cause dealers to file for bankruptcy if they are unable to sell their increasingly large and expensive inventory. A particular concern should be given those eager buyers with a bad or no credit history. Yes, some will qualify for the purchase incentive and benefit from the tax credit; but only those who pay an adequate amount of federal will be able to write off the purchase. For those individuals, their bank loan is an up-front expense with high interest rates that makes the actual cost higher than a high income buyer.

Vermont dealers serving EV customers know the State or federal is going to lower their debt and take advantage by increasing the sticker price. The Attorney General should investigate this practice and demand the dealers use honest accounting.

Our rural State has many transit challenges, from vehicle dependence, weather, road conditions, family credit strength and its aging population. The potential buyers must have confidence the shift will be affordable and risk free. State, credit unions, utility and federal incentives are essential and must be available throughout the proposed ten year plan and beyond. Well planned, carefully deployed, monitored and maintained charging stations are key to customer comfort levels.

The Energy Action Network identified new passenger car, SUV and light truck sales in 2018 at 41,000. In 2022, there are 6,585 plug-in electric vehicles registered in Vermont, 51% (3,358) of which are all-electric vehicles powered solely by a battery. Plug-in hybrid models are the remaining 49%.

The number of EVs in the state increased by 2,225 vehicles; 51% over the past year.

According to the Vermont Vehicle and Automotive Distributors Association (VVADA), plug-in electric vehicles were 5.4% of all new light duty vehicle sales in 2021.

According to the proposed plan (and assuming new vehicle sales remain about the same), in 2026, 25% of new cars, SUVs and light trucks delivered must be EVs. That is 10,250 new EVs. By 2035, that number could exceed or approximate 41,000. This does not account for the known increase of new immigrants coming to Vermont for reasons of safety or as climate refugees. Residents of Southeast U.S. may already be thinking to relocate north. The cumulative total of new EVs, in one decade, according to the proposal could exceed 280,000.

Charging stations are the fundamental key to this plan's success.

There are now 321 locations with public charging for electric vehicles across the state. Vermont has 32 DC Fast Chargers available for EVs equipped with this technology to quickly recharge in about 30-60 minutes for longer trips. Again, the VVADA reported EVs were about 6 percent of total car sales. That begs the question of how many more charging stations (and where) will be needed to accommodate the anticipated 10,250 new EVs in 2026 or 280,000 by 2036.

Locating fast charging stations in safe areas such as 24 hour restaurants, fire and police stations, hospitals, shopping malls, fast food carry-outs,

grocery and hardware stores and along interstate highways should be considered by the Agency for Transportation. Owners of business establishments can attract customers and providing that public service compensation should be considered.

According to Future Energy, a Level One, or residential chargers, cost about \$600 for a dedicated 120-volt circuit. However, a home charger is not adequate for commercial enterprises, which need level-two or level-three chargers to handle the load.

A level two electric vehicle charging station costs around \$2,500 for a non public facing and \$5,500 for a public facing dual-port station—it can charge two cars simultaneously in eight to 10 hours.

The highest specification for a commercial EV charging station is level three, or direct current fast charge (DCFC). Level three stations can charge a vehicle in an hour with 480-volt direct current. Level three stations cost around \$40,000 for a single port.

Given Vermont's 321 public charging stations and 32 DC Fast Chargers, how many chargers will be needed for ten times the number of new EVs? More immediately, if EV sales increase rapidly, Agency for Transportation will have to respond quickly to issue several RFP's requesting bids for hundreds of chargers throughout the State, including East of Montpelier. Even the camp at Lake Willoughby should have chargers. Tourists driving EVs will also compete for access to those chargers. It will be the State's responsibility to spend millions of dollars to assure public safety.

President Biden's American Jobs Plan and other infrastructure and clean energy programs call for adding a half million stations. But, this is a onetime appropriation and Congressional politics is not trending towards a shift to EVs.

Another element of the plan must take into account the effect the massive increase of EVs will have on gas stations.

Chittenden County has the most EVs registered (2,404) and highest rate of EV ownership with about 1 EV for every 70 people. Counties west of Montpelier also have high EV ownership compared to Eastern Counties. Aside from avoided gas tax for road and bridge maintenance will be gas station closures as more EVs flood those markets and lost tax base and wages. Will that create new hardships for Vermonters who cannot or will not buy an EV?

These concerns fall upon the State legislators and the annual budget. Designers of the plan must face the economic realities of this essential, absolutely necessary shift to EVs.

How many chargers are located at rental homes and apartments?

The Agency of Commerce and Community Development identifies 75,784 rental properties; about 29% of the State's housing stock. That may not be a limiting factor for a prospective buyer, if the land owner agrees to install one or several chargers but this is a logical negative. Renters would have to utilize public chargers, if none are available on the property.

The plan must demand standardization to assure all new EVs are equipment with connectors that fit all chargers. This should be priority #1. Coordinating with vehicle and charging station manufactures can reduce the annoyance and danger to distressed drivers not able to utilize a charger because of equipment incompatibility or payment systems.

Another element is how the State will monitor charger maintenance. There is increasing evidence that chargers are being vandalized or cease operation. The State must make in-State monitoring and broadcasting of

the working conditions of chargers more robust so the on-board GPS of the new EVs can warn drivers of non-functioning or utilized chargers.

All-wheel drive EVs are essential for Vermonters used to severe driving conditions in winter storms and muddy, icy gravel roads.

Finally, the ANR must coordinate with the Climate Council to raise some of these huge challenges noted above. The Council and citizens have a legislative charge to launch litigation to force the State authorities to comply with the CO2 reductions mandates. In a spirit of cooperation, these entities must consider the impact on ANR's final rule making and implementation, if a court rules an injunction or otherwise force the State to pay a non-compliance penalty.

The magnitude of this plan must be evaluated on can-do bases not a must-do basis.

An example is the realistic impracticality of the start date and percentage of replacement of IGEs. If 2026 is the baseline start date, the number of EVs being delivered each year can be correlated with the number of sales actually occurring in that year.

If sales are not materializing and inventory builds rapidly, there must be an off-ramp to give dealers time to clear the inventory.

This plan will inevitably increase the State's electric load and likely at hours when solar energy will not be available unless a huge increase in excess power is stored in batteries. That will be an expensive and time consuming investment. Who will pay for these expensive battery stations?

The Climate Council and EAN project huge new EV purchases and heat pump installations to achieve the mandated CO2 reduction. It estimates a need for 40,000 heat pumps all operating on the coldest winter nights

as the at-home chargers are operating. The combined load increase is estimated at 100 megawatts.

Where will that increased power originate?

This plan is being formed at the same time the General Assembly, Public Service Department and the Public Utility Commission and power utilities are mandating and planning for Vermont's renewable energy sources to achieve rapid growth. This, in a State-wide challenge solar and wind developers face applying for and being granted a permit. It is certain; in-State wind towers are not going to be a part of the equation. That leaves ISO-New England and Hydro-Quebec as default providers. Their power resources will all be challenged as New England States are rapidly shifting to electrification as is Vermont. Rates will rise as will use of the natural gas fired generators delivering carbon dioxide in greater amounts than the ANR's plan anticipates reducing.

All of the above is not my opposition to the plan. Rather it begs the obvious. If it succeeds, Vermont will have constructed the transportation infrastructure our children must have to survive what awaits them. This is the time Vermonters have to invest in their children's' ability to adapt to a climate in chaos.

There are many tangents that must be addressed to assure the public and the Council it was designed taking into account all of those limitations, unrealistic timelines and State costs to build the infrastructure and implementation of State government mandates and operations.

If it is not COMPREHENSIVE, this plan won't fly.

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