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RE: Reducing carbon emissions, a better plan

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Delaware state agencies are amending the Low Emission Vehicle regulations to follow California in effectively banning gasoline powered vehicles over the next dozen years. They are also continuing to pursue carbon taxes and Renewable Portfolio Standards (RPS) to reduce carbon dioxide emissions. The electric vehicle mandate will mostly fail to meet goals because of the \$14,000 price vehicle premium, and a slow roll out of charging infrastructure that might require hundreds of millions in purchase subsidies and infrastructure cost¹. Carbon taxes simply moved electric generation out of state, and the RPS has led to only 2% in state wind and solar electric generation after 15 years of mandates and subsidies.

Gasoline/battery hybrids are being adopted at about the same rate as full battery electric vehicles (BEV) according to the US Energy Information Agency. No charging stations are needed, the vehicles have only about 20% the premium cost of BEVs so don't require price subsidies, and increase miles per gallon 47% (average of US available hybrids). The Low Emission Vehicle amendment, incredibly, would also ban these vehicles. BEVs are not zero emission vehicles as they use electricity powered by fossil fuels from Delaware and regional generators. Standard gasoline powered vehicles emit 34.4 metric tons over 100,000 miles (already down 9 metric tons since 2005) compared to 25.4 for BEVs for a savings of 9 metric tons per vehicle². Each hybrid vehicle might save about 13.7 metric tons, or 50% more than a BEV³.

This means fewer vehicles need to be bought to save the same amount of emissions. Delaware has set a target of saving 1,184,500 metric tons of CO₂ by 2030 from motor vehicles. Hybrid sales could do that with about 86,500 vehicle sales while BEV sales would have to total 118,500. While hybrids don't receive price subsidies now the state could start a modest, income based one to accelerate sales, and forgo amending the unpopular Low Emission Vehicle regulation.

Calpine has a large natural gas generating facility in Deer Park, TX being fitted with carbon capture equipment to capture 5 million metric tons a year for use at a neighboring chemical plant⁴. This technology could be used in Delaware where 97% of electric generation is from natural gas emitting 2.2 million tons/yr. according to RGGI, Inc⁵. Gas hybrids are available for rapid deployment and have the added incentive of avoiding \$13/ton in carbon taxes compared to Texas. Texas does not have a carbon reduction goal, and the project simply makes financial sense.

References:

- 1) Caesar Rodney Institute, "Public Comments on Alternative to proposed Amendments to 7 DE Admin. Code 1140, Delaware Low Emission Vehicle", [https://www.caesarrodney.org/pdfs/Public Comments to Proposed Amendment to Adopt California ACC II Low Emission Vehicle Standards.pdf](https://www.caesarrodney.org/pdfs/Public%20Comments%20to%20Proposed%20Amendment%20to%20Adopt%20California%20ACC%20II%20Low%20Emission%20Vehicle%20Standards.pdf)
- 2) Caesar Rodney Institute, "Electric Vehicles v. Internal Combustion Engines", <https://www.caesarrodney.org/crri-focus-area/Electric-Vehicles-v-Internal-Combustion-Engines.htm>
- 3) Author calculation based on Reference 2, Fifteen 2023 gas/battery hybrids average 44 miles/gallon and would use 2,262 gallons over 100,000 miles emitting 19.7 metric tons. The battery might emit



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another ton during manufacturing for a net hybrid emission of 20.7 metric tons. Hybrids are saving 13.7 metric tons over 100,000 miles compared to only 9 for BEVs.

- 4) Caesar Rodney Institute, "The case for carbon capture", https://www.caesarrodney.org/pdfs/The_case_for_carbon_capture_at_existing_power_plants.pdf
- 5) RGGI, Inc., "CO2 Allowance Tracking System", https://rggi-coats.org/eats/rggi/index.cfm?fuseaction=reportsv2.annual_emissions_rpt&clearfuseattrs=true