



October 16, 2023

The Honorable Serena McIlwain, Secretary
Maryland Department of the Environment
1800 Washington Blvd, Suite 705
Baltimore, MD 21230-172

RE: Maryland Climate Pathway Report

Secretary McIlwain:

The Mid-Atlantic Petroleum Distributors Association (MAPDA) is a regional trade association representing energy marketers throughout Maryland, Delaware, and the District of Columbia. MAPDA member companies supply motor and heating fuel products sold in the region including gasoline, diesel fuel and heating fuels. MAPDA members also own and operate Maryland, Delaware, and DC's gas stations and convenience stores.

The Mid-Atlantic Propane Gas Association (MAPGA) represents propane marketers, suppliers, distributors, and equipment manufacturers across Maryland. MAPGA members provide clean-burning energy to residential, commercial, agricultural, and industrial customers in the state. Members have more than 243,000 retail accounts, 80,000 primary home heating customers in Maryland, and generate more than \$794 million in economic activity annually.

MAPDA and MAPGA file these comments jointly in response to the *draft* Climate Pathway Report by the Maryland Department of the Environment. They are a follow-up to the list of questions submitted to the department on September 26, 2023 (attached).

We urge the Department to adopt a broad-based energy policy that recognizes the importance of affordable, reliable power while moving toward lower greenhouse gas emissions at a measured pace. *Not* a sole-source energy policy as suggested in the draft report. America's economic good fortune is directly linked to the availability of low-cost reliable power. For example, the national average electric rate is almost unchanged since 2008. However, states like Maryland, with its energy policies, have seen rates increase almost four times the national average rate, and are now 2 cents/KWh¹ above the national average adding \$1.2 billion a year to electric costs. Unfortunately, the Maryland Climate Pathway is moving toward adopting California policies where electric rates have almost doubled.



Some suggested policy guidelines to include as alternatives that follow states such as North Carolina and Virginia are:

- Flexible emission reduction goals that recognize the uncertainty involved in adopting new technologies;
- Consideration of comparative cost of adopting new technologies; and
- Incorporation of biofuels as a proven method of lowering greenhouse gas (GHG) emissions.

Renewable mandates

Despite a Maryland wind and solar mandate of 30% of demand by 2022, only 3% of demand was met by in-state wind and solar generation by 2022 according to US Energy Information Agency reports¹. Similarly, less than 2% of regional electric demand was met by wind and solar generated in the region according to PJM regional electric grid reports², despite many of the regional states also having significant mandates. Maryland mandates have been met by out of state energy credits meaning Maryland ratepayers are paying for projects in other states.

Because of the extra electricity needed to charge electric vehicles (EVs), and electrify buildings and industry, Maryland electric demand will almost double by 2045 according to the Climate Pathway Report, requiring more electricity imports. PJM has released a risk analysis, “Transition in PJM Resource, Retirements, Replacements and Risks.”³ The report states 45 Gigawatts - 24% of the 183 Gigawatts of existing baseload power plants, will close by 2030, with mostly unreliable solar and wind in the replacement queue. In PJM’s experience, only 5% of wind and solar in the queue are actually installed, and 3 Megawatts is needed to replace 1 Megawatt of base load power. This means 94 Megawatts in the PJM queue equals only 3 Megawatts of equivalent base load power capacity, but it is still intermittent requiring backup. PJM expects potential blackouts as early as 2026.

Between 2006 and 2022, Maryland reduced electric generation 24% (49 gigawatt-hours to 37) while electric demand fell less than 4 gigawatt-hours¹. Maryland has been depending on importing more power from the PJM grid, but that power may not be available in the future. Maryland’s remaining coal fired power plants are scheduled for closure by 2025 according to the Climate Pathway Report meaning more power will need to be imported. The report states grid stability with high renewables penetration will be a key challenge, even if state targets are not fully met. Addressing this challenge should be a priority for both the state and the wider PJM grid region. Maryland has little influence in maintaining reliable power in other regional states.

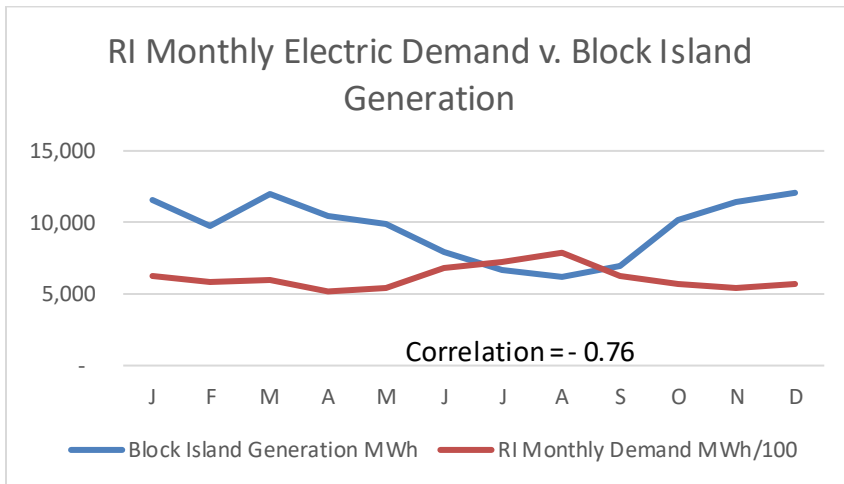


Cap and Trade

Electricity exporting states like Pennsylvania cut emissions as much, or more than Maryland without a cap-and-trade program. This observation is confirmed by a peer reviewed study⁴, and a study by the US Congressional Research Center. The reports show Regional Greenhouse Gas Initiative (RGGI) states increased electric imports from 5% to 17% and shifted 12.8 million megawatt-hours of industrial electric demand to other states.

The Maryland Climate Pathway Report doubles down on the RGGI program suggesting a new cap-and-trade program would be added for all sectors of the economy. According to the Report, the primary impact of the tax is the early closure of natural gas-powered plants by 2030 leaving only 15.5 Gigawatts of baseload power left in state, or 20% of demand - an unsustainable level with the expected decline in regional baseload power generation. The natural gas baseload generation will be replaced by offshore wind.

As shown below from actual experience of offshore wind at Block Island, RI, much of the power is produced in the spring and fall when electric demand is lowest. June, July, and August represent 30% of electric demand while only 17% comes from wind power generation.



Source: US Energy Information Agency Form 923

The Pathway report states it is unknown if the cap-and-trade legislation will even pass. The technical basis for the results of the cap-and-trade program is based on the report authors setting the modeling parameters to give the emissions reductions needed to meet the 2031 targets. The likely result will see shifts of emissions and jobs outside the state. This program is expected to reduce emissions by 4.8 million metric tons a year, but that is dependent on enactment by the Maryland General Assembly. Even if adopted, the program would fail.



The Climate Pathway Report does not provide economic data on the impact of a cap-and-trade program. Specifically, the cost implications for motor fuel, heat oil, or propane. It does, however, say it may follow similar programs in other states. For example, the Washington State program will have a minimum emission allowance cost of \$19.70/metric ton of CO₂ in 2023, and a maximum price of \$72.29 with each rising 5% per year plus the inflation rate for the past 12 months⁵. By 2031 the range may be \$36 to \$134/metric ton. Washington state's third quarterly cap-and-trade program auction in 2023 settled at \$63.03/metric ton, or three times the forecasted price, and 88% of the price cap. This will add \$0.50/gallon to gasoline prices and has resulted in Washington having the second highest gasoline prices in the country at \$4.98/gallon. The automatic inflator will raise the price cap more than six-fold by 2050 and could result in a gas tax of \$3.75/gallon.

The EPA provides emissions factors of 19.2 pounds of CO₂ per gallon of gasoline⁶ or 17.7 pounds with 10% ethanol. So, by 2031 gasoline prices might range between \$0.29 and \$1.07/gallon higher based on Washington's cap-and-trade program. With the average US family using 997 gallons per year⁷, their costs may rise \$290 to \$1065 per year for gasoline. Similar percentage increases for residential natural gas and propane use could add \$93 to \$370/year. The Report's proposed cap-and-trade program will impact low-income people more and will have negative environmental justice implications.

Emission reductions from current renewable mandates and carbon tax programs

Table 1 in the Technical Appendix of the Climate Pathway Report summarizes 2006 and 2020 emissions and claims a 30% reduction. It appears the 2020 data has not been corrected for an increase in imported power. Technical Appendix Figure 2.4 shows emissions of 10 million metric tons for imported power in 2020. Similarly, 2020 had a 17% reduction, or 5 million metric tons, in transportation emissions from the effects of the COVID pandemic (page 47). Correcting for imports and temporary COVID transportation reductions shows total emissions only fell 18%, not 30%. That lower rate is similar to reductions by PJM simply fuel switching from coal to natural gas for lower cost electric generation as seen in the Table below. It is not from climate policies.

Emission Reductions in PJM from Coal-Oil/NG Switch

Fuel	2010 Thousands MWh	2022 Thousands MWh
Coal	66,211	44,293
Oil	10, 854	6,424
Natural Gas	<u>48,976</u>	<u>86,212</u>



Total	126,041	136,929
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Source: PJM Market Reports

Climate Pathway reliance on federal programs

Maryland is relying on federal support for renewable energy projects from the Inflation Reduction Act, and California’s Section 177 waiver to allow mandates for the switch to electric vehicles. Lawsuits are challenging the Constitutionality of fuel bans, the California waiver, and new proposed EPA emission regulations⁸. Future election results could overturn the IRA legislation. The Climate Pathway Report needs alternatives that do not rely on federal programs.

Gas bans in residential and commercial buildings

The zero-emission appliance standard, which covers space and water heating appliances in residential and commercial buildings, begins in 2027 and takes full effect by 2030. Direct use of natural gas and propane is more efficient than using the same fuels to generate electricity and then transmit it across long distances. Replacing heating and hot water equipment, and the operational cost with all electric may be more costly, and actually result in more CO2 emissions based on the electric grid systems mix. The switch to electric heat pumps was mandated in the United Kingdom and many homeowners are now complaining they cannot get their homes warm enough in winter⁹.

Propane is commonly used in rural homes with fewer alternative options. Propane residence in air is lower than natural gas yielding lower climate impacts. Propane has lower CO2 and air pollution impacts in transportation applications as well and is now widely used in buses. Net zero homes and buildings often combine solar PV with propane and energy efficiency. Yet the Climate Pathway report ignores these options for affordable paths to lower emissions.

Biofuel replacements are being developed for natural gas, heat oil, and propane, but are not included in the Climate Pathway as viable alternatives. The home heating oil industry is testing products that are 100% renewable with the national standards in development. A leading manufacturer of oil burners announced in January of this year their B100 residential burner was entering production¹⁰.

The declining use of natural gas means eventually costs will rise as capital costs are spread over fewer customers, and the Climate Pathway plan admits more study is needed. This is likely to primarily impact lower-income customers and needs to be considered for its negative environmental justice impacts.



Electric vehicle adoption goals

The Climate Pathway assumes 25% of vehicles on the road will be electric by 2031 simply by requiring auto dealers to stock an ever-increasing percentage of EVs. According to research conducted for the second quarter of 2023, electric vehicles are now sitting on dealer lots 92 days, about double that of conventional vehicles¹¹. Given Maryland's proximity to its neighboring states, car buyers will have the ability to simply circumvent Maryland dealers, purchase online, or buy in another state.

The Climate Pathway estimates annual Vehicle Miles Traveled will only increase 6% by 2030 compared to 22% growth based on historic trends of Americans vastly preferring the freedom to drive. There does not seem to be any technical basis for the report's estimate other than it was chosen for the planning model.

Mining materials and building the batteries for EVs emit more CO₂ than conventional vehicle materials leading to high cradle-to-grave emissions. Gas hybrid vehicles emit half the emissions over their life yet are excluded from the current plan¹². The state is also in the midst of promulgating regulations to adopt California's Advanced Clean Trucks (ACT) program. Large, full battery EV trucks have not demonstrated the range needed to haul heavy loads and this issue will restrict sales. Mandating them as ACT does only jeopardizes the businesses, customers, and clients who depend on heavy-duty vehicles to deliver the food, medicine, and supplies the public needs.

The EV mandate falls heavily on low-income communities. Many low-income and urban residences have no dedicated parking spaces to place a charger and most charging is done overnight at home as it is up to one-third less expensive than public charging. The Climate Pathway states if the switch to EVs fails then requirements for smaller vehicles, and a switch to public transportation, and bicycles would be required. Such mandates would only add to the cost and logistical issues created by the report's implementation.

Economic modeling

Average estimated job creation in Climate Pathway modeling is 6,600 jobs by 2031. The economic benefit analysis assumes jobs in the solar and wind industry will have a higher average wage than in the base load power industry. Federal reports show fossil fuel and nuclear jobs average \$28.69 to \$39.19/hour while wind is at \$25.95 and solar \$24.48¹³. Most wind and solar jobs are temporary in initial construction while fossil fuel jobs tend to be permanent. A federal model shows the impacts of reaching 50% net zero¹⁴. Prorating for the population of Maryland, the model estimates \$146 billion in lost GDP, 22,800 lost jobs, and \$840/year in higher energy costs for the average household.



A key assumption in the Technical Appendix is that the cost of wind and solar goes down through 2030. Recent reports show solar installation costs rising 78% since 2020, onshore wind up 120%, and offshore wind up as high as 57% - not counting transmission costs to connect remote projects to the electric grid¹⁵. Wind and solar projects are expected to have a life of 20 to 25 years while fossil fuel plants may last 50 to 65 years. Early closure of fossil fuel power plants results in decommissioning cost being shifted from stockholders to electric consumers.

The Climate Pathway aims to end fossil fuel electric generation by 2031, and to eventually eliminate fossil fuel use in homes and commercial buildings. Propane services account for nearly \$800 million a year in GDP and provide over 1,000 jobs in Maryland¹⁶.

Conclusions

The Climate Pathway Report assumptions and conclusions are predicated on questionable modeling and ignore other technologies and their roles in meeting the state's GHG goals. Our members believe in the importance and critical need of a diversified energy portfolio that is not reliant on a sole source. Our industry continues to invest in energy efficiency and improve our environmental impact. Considering industry assets and investments as negligible would be a monumental oversight. Worse, it would put Marylanders at an unnecessary and costly risk. We encourage the Department to build upon the success of these industry investments and advancements by including them as viable and proven methods to reduce greenhouse gas emissions.

The proposed report contains recommendations that ban customer choice. Homeowners will no longer get to choose how they heat their homes or cook their meals. The driving public will have their choice of vehicles limited when they go to purchase one. Businesses will be forced into costly decisions on energy, shipping, and manufacturing.

References:

- 1) US Energy Information Agency, Form 923, <https://www.eia.gov/electricity/monthly/> which has current data and a link to historic data
- 2) PJM RTO, Systems mix, <https://gats.pjm-eis.com/gats2/PublicReports/PJMSystemMix>
- 3) PJM, "Transition in PJM Resource, Retirements, Replacements and Risks", <https://insidelines.pjm.com/pjm-details-resource-retirements-replacements-and-risks/#:~:text=Energy%20Transition%20in%20PJM%3A%20Resource%20Retirements%2C%20Replacements%20and,across%2013%20states%20and%20the%20District%20of%20Columbia>.
- 4) Congressional Research Service, "The Regional Greenhouse Gas Initiative: Lessons Learned and Issues for Congress", Jonathan L. Ramseur, May 16, 2017, <https://fas.org/sgp/crs/misc/R41836.pdf> , Cato Journal, "A review of the Regional Greenhouse



- Gas Initiative”, : <https://object.cato.org/sites/cato.org/files/serials/files/cato-journal/2018/2/cato-journal-v38n1-chapter-11.pdf>
- 5) Washington State Ecology, “Cap and invest program rules”,
<https://ecology.wa.gov/getattachment/26a23125-3016-4416-99b7-5361c30ac343/OTS-3614-7-For-Filing.pdf> Third auction summary report,
<https://apps.ecology.wa.gov/publications/documents/2302061.pdf>
 - 6) U.S. EIA, “How much carbon dioxide is produced from burning gasoline and diesel fuel?”,
<https://www.eia.gov/tools/faqs/faq.php?id=307&t=11>
 - 7) Money Geek, “Average car miles driven per year -13,476”,
<https://www.moneygeek.com/insurance/auto/average-mileage-driven-per-year/> , Policy Advice, “How many cars average per family -1.88”,
<https://policyadvice.net/insurance/insights/how-many-americans-own-cars/#:~:text=In%20the%20US%2C%20the%20average%20number%20of%20cars,more%20or%20less%20constant%20since%20the%20late%201990s.> , EPA, “Average cars reach record fuel economy -25.4 MPG”, <https://www.epa.gov/newsreleases/epa-report-us-cars-achieve-record-high-fuel-economy-and-low-emission-levels-companies>
 - 8) Wall Street Journal, “Agency Power to be Focus of Court Term”, 10/2/23
 - 9) Daily Mail, “Heat Pumps are one of the biggest cons”,
<https://www.dailymail.co.uk/debate/article-10109299/ROGER-BISBY-Heat-pumps-one-biggest-cons-lve-seen-building-trade.html>
 - 10) CommonWealth, “Unjamming the heating oil industry’s road to carbon neutrality”, 9/9/2023,
<https://commonwealthmagazine.org/opinion/unjamming-the-heating-oil-industrys-road-to-carbon-neutrality/>
 - 11) Carscoops, “EV Inventory at American Dealers surpasses ICE vehicle inventory”,
<https://www.carscoops.com/2023/07/ev-inventory-at-american-dealers-surpasses-ice-vehicle-inventory/>
 - 12) Caesar Rodney Institute, “Reducing carbon emissions a better plan”,
https://www.caesarrodney.org/pdfs/Reducing_carbon_emissions_abetter_plan.pdf
 - 13) Reuters, “Nuclear, coal and oil jobs pay more than wind and solar”,
<https://www.reuters.com/article/us-usa-energy-jobs-idUSKBN2BT2OT>
 - 14) Institute for Energy Research, “The challenges and costs of net zero and the future of energy”,
<https://www.instituteforenergyresearch.org/the-grid/the-challenges-and-costs-of-net-zero-and-the-future-of-energy/#:~:text=To%20reach%20a%20net%2Dzero,that%20we%20rely%20on%20today.>
 - 15) Wall Street Journal, “Green Power Gets Pricier After Years of Declines”, 8/13/23
<https://www.wsj.com/articles/green-power-gets-pricier-after-years-of-declines-87d71d5f>
 - 16) The Propane Education & Research Council, “The Economic Impact of Propane – Maryland”,
<https://propane.com/about-propane/economic-impact-of-propane/>.



ATTACHMENT

Maryland Climate Pathway Report

Public Comment Request for Written Response

Submitted by: Mike O'Halloran, on behalf of MAPDA – mike@mapa.com

Assumptions in the report and the accompanying Technical Appendix lead to very questionable conclusions.

Below are a series of questions submitted for public comment and response.

- 1) **OBSERVATION:** Despite a Maryland wind and solar mandate of 30% of demand by 2022, only 3% of demand was met by wind and solar by 2022. Similarly, less than 2% of regional electric demand was met by wind and solar generated in the region.
QUESTION: Doesn't this show renewable energy mandates have not worked?
- 2) **OBSERVATION:** Electricity exporting states like Pennsylvania cut emissions as much, or more than Maryland without a cap-and-trade program. This observation is confirmed by a peer reviewed study, and a study by the US Congressional Research Center.
QUESTION: Doesn't this prove cap and trade programs are not working?
- 3) **QUESTION: What % of emission savings depends on fuel bans in vehicles and buildings?**
- 4) **QUESTION: Has the total energy use for switching to all electric heating and hot water been calculated?**
- 5) **QUESTION: Has the cost and climate impact of switching to all electric appliances been calculated in the plan?**
- 6) **QUESTION: Has the discomfort and potential health problems of unreliable heat pumps been considered?**
- 7) **QUESTION: Have the cost impacts of banning propane use in rural buildings been separately calculated? What is the cost to consumers of converting propane to electric in these areas?**
- 8) **QUESTION: Has the economic impact (jobs and GDP) of banning propane in Maryland been separately calculated?**



- 9) **QUESTION: Has a switch to propane for buses been considered as a transitional Climate Pathway step?**
- 10) **QUESTION: Has solar PV with a propane option been considered in the Climate Pathway?**
- 11) **QUESTION: What is the plan moving forward with inadequate information on the cost impacts of declining natural gas sales volume? Has the cost of transitioning to all electric by lower income residents been calculated?**
- 12) **QUESTION: Has that cost of the cap-and-trade program been calculated? Will costs to consumers vary based on geography/income/etc.?**
- 13) **QUESTION: Has the rebound effect been considered in the Climate Pathway plan? What is the Department's plan to respond to this? Energy savings mandates?**
- 14) **QUESTION: Have biogas versions of natural gas and propane been considered in the plan?**
- 15) **QUESTION: Why is Maryland assuming the regional grid will solve its reliability problem when the state has no control over regional policy and Maryland is pursuing only renewable energy construction?**
- 16) **QUESTION: Has the increase of premium costs in electric rates due to offshore wind replacing fossil fuel generation been considered in the economic analysis?**
- 17) **QUESTION: Have lost jobs from higher electric prices been calculated properly?**
- 18) **OBSERVATION: A key assumption in the Technical Appendix is that the cost of wind and solar goes down through 2030. Recent reports show solar installation cost rising 78% since 2020, onshore wind up 120% and offshore wind up as high as 57% not counting transmission costs to connect often remote projects to the electric grid.**
QUESTION: Shouldn't the dramatic rising renewable energy project cost be included in your cost analysis?
- 19) **OBSERVATION: The economic benefit analysis assumes jobs in the solar and wind industry will have a higher average wage than in the base load power industry. Federal reports show fossil fuel jobs, on average pay 37% higher than wind and solar jobs including higher benefits.**
QUESTION: Shouldn't this assumption be corrected with the lost income of higher paying base load power jobs?



- 20) QUESTION: On what successful precedent was a 6% increase in forecasted VMTs by 2030 based?
- 21) QUESTION: How can the 25% forecast of EV penetration be justified with vehicle buyers having the ability to circumvent the inventory mandate?
- 22) QUESTION: Are the cradle to grave CO2 emissions from EVs considered in the Climate Pathway calculations?
- 23) QUESTION: Why aren't gas hybrids included in the Climate Pathway?
- 24) QUESTION: Does the Climate pathway plan to install a charger at every urban parking location?
- 25) QUESTION: How will heavy loads be delivered with EVs when full battery MDV/HDV have not demonstrated the ability to handle these loads?
- 26) QUESTION: Is the Department's alternative to unrealized EV conversion goals and higher VMTs a mandate of public transportation, transit?