MARYLAND COMMISSION ON CLIMATE CHANGE

Project Introduction: Accelerating light-duty ZEV adoption across Maryland

December 21, 2022

energetics
Clean Energy Consulting

veic

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Agenda

- 4:00pm – Welcome!
- 4:10pm – Project background and Q&A
- 4:25pm – Feedback Questions
  - Question 1: What are you most interested in learning about from this project?
  - Question 2: Available data resources?
  - Question 3: Who else should be at this meeting? What opportunities are we not taking advantage of?
- 4:55pm – Next steps and adjourn

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Opening Remarks

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Project Goals

- Evaluate the current status of Maryland's zero emission vehicle (ZEV) and charging infrastructure plans, programs, and other efforts → **Determine if they are sufficient to meet the State's goal of reducing GHG emissions by at least 60% by 2031**

- Evaluate the effectiveness of existing Maryland programs to determine if: 1) they **can be improved** and 2) **whether they should continue**

- Identify/**develop potential policy frameworks for improved/new programs** to increase adoption to meet/exceed the State's goals

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Scope of Work

Task 1 – <u>Reference Case Analysis</u>

Evaluate current market trends, forecasts/projections to determine what percentage of annual light-duty vehicle sales in MD are projected to be ZEV (without state incentives)

- What is the projected impact on gasoline consumption?
- What are the projected GHG and NOx emissions impacts?
- What impact would MD's potential participation in the ACC II program have on ZEV sales?

Evaluate the major light-duty vehicle manufacturers' plans to incorporate ZEV platforms/phase out conventional vehicles

- Which manufacturers are planning to release fleet-compatible EVs…
  - Between now and 2025, 2030, and 2035.
  - Develop a summary of projected model availability and specifications relevant to fleet deployment
  - Evaluate projected vehicle consumer transaction prices between now and 2025, 2030, and 2035.

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Scope of Work

Task 1 – Reference Case Analysis (cont.)

Evaluate published studies about what factors may limit ZEV adoption

- High vehicle costs (from higher component and manufacturing costs and higher profit)
- Raw material supply (e.g., battery materials including lithium, cobalt, and nickel)
- Domestic/worldwide manufacturing capacity for ZEVs (vehicle-level and below, systems, components

Determine if there are any factors that would increase gasoline demand and consumption (implied from current baseline).

Determine the crossover point when normal market conditions will make ZEVs an attractive purchase decision without state incentives

- Lower vehicle prices, federal incentives, widely-available charging infrastructure

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Scope of Work

Task 2 – <u>Recommendations for State Action</u>

Estimate when ZEV supply may meet demand

- With state ZEV adoption targets and recommended state incentives

Determine drivers for ZEV sales to exceed conventional

- Price parity
  - ➢ including federal incentives
- Conventional fuel cost trends
- Access to convenient/cost-efficient charging
  - ➢ especially for EV drivers without access to home charging

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Scope of Work

Task 2 – Recommendations for State Action (cont.)

Determine practical actions Maryland could take to achieve the greatest reduction in greenhouse gas emissions from light-duty vehicles by 2031

- Estimate and compare the anticipated emissions impacts and equity implications of various policies, strategies, and actions
- Review current policy/recommend additional policies that could result in greater EV supply/sales in Maryland
- Identify additional ways in which Maryland can encourage vehicle manufacturers to supply and sell ZEVs in Maryland
  - ➢ Identify policy and program options to overcome identified barriers to prioritizing Maryland as an attractive ZEV sales market
- Evaluate the benefit of offering ZEV purchase incentives
  - ➢ Determine which incentive structure could offer the greatest greenhouse gas emissions reduction by 2031
  - ➢ Estimate the cost of any proposed ZEV purchase inventive(s)

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Scope of Work

Task 2 – Recommendations for State Action (cont.)

Use learnings from other states' programs to determine the most appropriate focus for Maryland's program(s)

- Charging Infrastructure, ZEVs, or both
- Evaluate based on environmental/equity benefits and cost-benefit
- Determine which options have the greatest environmental/equity benefit and which have the greatest cost-benefit results
- Determine each potential action's environmental, equity, and other impacts vary by population density, geography, socioeconomic factors and demographic characteristics
- Consider how ZEV incentive programs can be designed to ensure equity
- Determine if ZEV incentives should be universally available or targeted to certain categories of vehicles and/or drivers
- Consider federal ZEV tax credit changes related to vehicle eligibility and determine how Maryland's ZEV incentive program could be designed to address these changes

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Scope of Work

Task 3 – <u>Recommendations for equitable ZEV charging solutions</u>

Use learnings from other states' programs and community feedback to determine the most appropriate focus for Maryland's program(s)

- Charging Infrastructure, ZEVs, or both
- Evaluate based on environmental/equity benefits and cost-benefit
- Determine which options have the greatest environmental/equity benefit and which have the greatest cost-benefit results
- Determine each potential action's environmental, equity, and other impacts vary by population density, geography, socioeconomic factors and demographic characteristics
- Consider how ZEV incentive programs can be designed to ensure equity
- Determine if ZEV incentives should be universally available or targeted to certain categories of vehicles and/or drivers
- Consider federal ZEV tax credit changes related to vehicle eligibility and determine how Maryland's ZEV incentive program could be designed to address these changes

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Scope of Work

Task 3 – <u>Recommendations for Equitable ZEV Charging Solutions (cont.)</u>

- Identify Justice40 identified underserved population regions
- Use data from MVA/other State agencies to estimate
  - Current demand for charging in these areas
  - How public/shared-use charging infrastructure demand could increase as a result of the State's more aggressive ZEV actions
- Determine utilities' interest/timing for supporting V2G (technically and financially)
- Evaluate if focusing on public transit solutions in urban environments would lead to higher environmental benefits, equity benefits, and cost effectiveness rather than charging infrastructure and light-duty ZEVs

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Discussion

Q&A

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Discussion

What are you most interested in learning about from this project?

https://forms.gle/qe5D7tcS45ZoUsQU8

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Discussion

What are available data/other resources that should be utilized for this project that hasn't been discussed?

https://forms.gle/vxvqZMbwG4Tkuuvk8

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Discussion

Who else should be at this meeting?

What opportunities are we not taking advantage of that could make this project more successful?

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Next Steps

- Next meetings
  - Late January (Progress update)
  - Late February (Final update)
- How to stay involved
  - Join meetings
  - Google Forms to remain open
  - Questions/comments? Contact wzalis@energetics.com

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Questions?

Thank you!

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