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Cindy Osorto, Policy Analyst  
Maryland Department of the Environment  
1800 Washington Boulevard  
Baltimore, Maryland 21230

### **Comments on the E3 Building Decarbonization Study Preliminary Results (August 2021)**

Submitted via email to Cindy Osorto ([cindy.osorto1@maryland.gov](mailto:cindy.osorto1@maryland.gov)) and Christopher Beck ([christopher.beck@maryland.gov](mailto:christopher.beck@maryland.gov))

Dear Ms. Osorto and Mr. Beck:

The Sierra Club and Climate Law & Policy Project submit the following comments on the Preliminary Results from [E3's Building Decarbonization Study](#) and preliminary policy recommendations for discussion among the MWG Buildings Sub Group.

In the wake of the release of the latest monumental report from the Intergovernmental Panel on Climate Change – Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change – the MCCC, including the MWG Buildings Sub-Group, must be prepared to recommend urgent and transformative action by the state to equitably address the climate crisis by moving off from fossil fuels.

### **Feedback, Questions, and Observations on Preliminary Results of E3's Building Decarbonization Study**

Overall, we believe the preliminary results are useful as initial guide posts in the discussion of how and how fast Maryland needs to decarbonize its building sector. Four examples include:

- The two most cost-effective decarbonization pathways found by the analysis result in a 64% – 96% reduction in gas use in the state in the next 24 years (slide 13), indicating a massive industry and market shift that speaks to the critical need for long-term planning for a just and equitable transition off the existing gas distribution and utility system.
- The High Electrification pathway results in the fewest cumulative emissions over the next 24 years (slide 8). The IPCC report mentioned above cites “...limiting human-induced global warming to a specific level requires limiting **cumulative** CO2 emissions...” (emphasis added).
- Assuming high fuel cost, the High Electrification Pathway has the lowest combined system costs (electric and gas). High Electrification with Improved System Configuration has comparable total system costs to Electrification with Fuel Backup even assuming low fuel cost. If building shell improvements are included in all pathways to reduce total electricity demand (Slide 13), High Electrification likely has the lowest total resource cost (Slide 27), contrary to conclusion 4 (Slide 36).

- Gas utility rates will increase dramatically (slides 29 and 32) in all scenarios, creating significant equitable energy cost issues for households that remain on gas. This will need to be addressed and should showcase the need for prioritization of comprehensive (health, safety, efficiency, and electrification) retrofit programs for limited income consumers and affordable housing.

At the same time, however, we have serious concerns about underlying assumptions, particular gaps in the data presented, and the final conclusions drawn from analysis that are reliant on those assumptions.

#### *Lack of data and incorporation of distribution system methane leakage*

The Preliminary Results do not include evaluation of the impacts of methane leakage from the remaining gas distribution system under the Electrification with Fuel Backup or High Decarbonized Methane pathways (slide 36). This lack of consideration for upstream methane leaks in the hybrid and decarbonized methane scenarios is a serious oversight that could result in the state failing to meet net-zero targets recommended by the MCCC. The aforementioned latest report from the IPCC recognizes the severe impact of methane on climate disruption and recognizes the need to make “strong, rapid and sustained reductions” of methane pollution.

The gas that leaks from the distribution system in either the Electrification with Fuel Backup or High Decarbonized Methane scenarios will remain a potent climate pollutant; however, the emissions impact of the leaky distribution system is not included in the emissions impact of the scenarios (slide 8). The “indirect emissions” of the Electrification with Fuel Backup and the High Decarbonized Methane pathways are detrimentally incomplete – those “indirect emissions” for the two scenarios are significantly higher when methane leakage impacts are considered and evaluated.

#### *Lack of clarity on select technology assumptions and cost analysis assumptions and gaps*

A series of assumptions made on critical technology solutions and subsequent cost impacts such as efficiency of cold climate air source heat pumps, types of building shell upgrades included in certain modeled decarbonization pathways, and electric grid infrastructure upgrades are opaque but are significant drivers of model outputs and ultimate conclusions. For example, the high “equipment costs” associated with building shell upgrades are applied solely to the High Electrification and High Decarbonized Methane pathways but not to the Electrification with Fuel Backup pathway with little to no explanation and without detail as to what those shell upgrades would be — and why they were not included in the Electrification with Fuel Backup pathway, although they might be cost effective, particularly if fuel cost is high — and the more granular cost assumptions associated with those particular solutions. Further, the analysis appears to assume that ground-source heat pump sales penetration reaches 10% in certain pathways but the reasoning behind that assumption is unclear. And finally, the electric system upgrades that are cited as needed to respond to backup resistance heating on extremely cold days are assigned significant costs. Demand from backup resistance heating will be determined entirely by heat pump efficiency. Given the rapidly declining costs and increasing efficiencies of clean energy and other clean technologies — in particular cold climate heat pumps— we believe assumptions about efficiency and the need for backup resistance heat may be too conservative. These assumptions need to be discussed in the study, so that policymakers will better understand options available to them. For example,

legislators could choose to require higher adoption rates in the future for geothermal heat pumps or limit ccASHPs to only best in class rather than average commercially available.

Further, there is a lack of clarity or significant gaps in the cost analyses of the report including a lack of accounting for costs of climate adaptation and disaster costs which (Slide 8) High Electrification is most poised to avoid due to its larger cumulative emissions reduction. Additionally, it is unclear how the gas “Delivery Cost” savings estimate for the High Electrification Scenario was developed and what it includes (slide 28). Similarly, it is unclear if any cost savings associated with the inevitable massive reduction of existing gas system financial subsidies were incorporated into the cost analyses in the High Electrification scenario.

Finally, an optimistic RNG Supply Curve is unlikely and should not be used for the cost analyses. Doing so can make the High Decarbonized Methane and Electrification with Fuel Backup scenarios appear more cost-effective than they likely will be. [Other analyses](#) have found that the supply of RNG is likely to be highly limited across the country and Maryland must weigh the most cost-effective way to use a limited supply of RNG across the entire economy. It is unclear if the E3 analysis considered the residential and commercial ratepayer cost impacts of prioritizing the use of the least-expensive RNG supplies in the more difficult-to-decarbonize industrial sector rather than using that fuel in the building sector.

### **Preliminary Climate Action Recommendations for MWG Buildings Sub-Group to Discuss**

We would like to offer the following recommended actions to be considered and discussed by the MWG Buildings Sub-Group. This list is not meant to serve as a blanket indication of support for any of the proposals, but we believe they are important to be brought up for initial discussion. Further, this is not intended to be an exhaustive list of potential policy recommendations; rather it should serve as a starting point for the August 24, 2021 meeting. We will continue to engage in the Sub Group discussions and comment opportunities, providing commentary and thoughts on other proposals and providing new and updated recommendations as the process continues, including additional comments and potential recommendations by the September 1, 2021 deadline for discussion during the September 7, 2021 meeting.

The items listed and briefly discussed below are intended to reflect the latest urgent call to action from the IPCC, as well as an implementation of the Maryland Greenhouse Gas Reduction Act Plan, which clearly and explicitly states that **“The 2030 GGRA Plan reduces emissions** from energy use in residential and commercial buildings by prioritizing energy efficiency to counteract increases in use that would otherwise occur from growth in Maryland’s economy, and **by converting fossil fuel heating systems to efficiently electric heat pumps that are powered by increasingly clean and renewable Maryland electricity.**” (emphasis added)

- Unfortunately, due to a lack of legislative or administrative action, the building sector [recommendations from the MCCC in 2020](#) were not instituted. These recommendations should carry forward, particularly with the focus on justice and equity, but should be updated to reflect the latest science and expert analysis of the climate crisis. This includes:

- *Increased ambition for the rate of heating equipment sales that are efficient all-electric technologies.* Reflecting the call within the Net Zero by 2050 Roadmap from the International Energy Agency, Maryland should ensure that there are no new sales of fossil fuel boilers beginning in 2025.
- *Sunset of financial subsidies for fossil fuel appliances within EmPOWER.* EmPOWER Maryland and other energy programs in the state should be focused on providing financial assistance only to non-fossil fuel equipment, appliances, and infrastructure associated with the building sector and any and all incentives and subsidies for fossil fuel systems should be eliminated. This should be paired with an increased incentive size for non-fossil appliances and systems installed for limited income consumers.
- *Based on E3's analysis, new construction in Maryland should be all-electric.* The 2020 recommendations focused on all-electric new construction for state buildings; however, the Maryland-specific analysis performed by E3 demonstrates that all-electric new construction in Maryland is cost-effective and climate-friendly.
- *The Green and Healthy Task Force recommendation should expand to also establish an equitable comprehensive retrofit program.* This new program would include and align health and safety, efficiency and weatherization, and electrification programs and measures with a goal of retrofitting every limited income and affordable housing unit in the state within the next decade.
- In addition to the strengthening of the 2020 recommendations, we would like to put forward the following proposals for discussion among the MWG Buildings Sub Group:
  - *The state should initiate a long-term planning process for the just and equitable transition off the current gas utility model and distribution system.* As the E3 analysis has demonstrated, the next 24 years will see between a 64% – 96% reduction in gas use and the state must begin planning how this will happen in a way that ensures low- and moderate-income Marylanders do not bear the cost burden of the remaining, expensive gas distribution system.
  - *The state should institute energy cost burden protections for low-income households* such as a Percentage of Income Payment Plan (PIPP) like the program recently adopted in Virginia.
  - *Maryland should prioritize the use of any relevant federal resources coming from the budget reconciliation process* to perform comprehensive health, safety, efficiency, and electrification retrofits for affordable housing and should ensure that any new federal funds are not used to support the expansion or installation of new fossil fuel infrastructure or appliances.

Thank you for your time and consideration.

Sincerely,

David Smedick  
Acting Deputy Regional Campaign Director  
Sierra Club

Donald Goldberg  
Executive Director  
Climate Law and Policy Project