



Maryland
Department of
the Environment

2020 Mitigation Workgroup Policy Scenario Results

June 18, 2020

Updated June 22, 2020



Reminder - Process

- MDE has reserved a portion of our analysis budget for MWG use.
- MWG scenario based on input from NGO MWG members and followup with MWG volunteer group.
- Results today are preliminary.
- Additional policy scenarios and sensitivity analysis to come later.



Caveats – See Clarification

- Modeling a zero-carbon electricity system is challenging, as estimates of future needs & cost of energy storage and other grid enhancements vary dramatically.
 - EG from Clean Air Task Force: “At high levels of wind and solar energy (> 60% of system energy), “filling the gap” begins to pose serious cost challenges [~~\$473 Billion in MD for 100% renew]”
https://mde.maryland.gov/programs/Air/ClimateChange/MCCC/MWG/MWG_C2ES_CATF_CARES09172019.pdf
 - EG from MWG Member Arjun Makhijani: 100% renewable costs ~\$400 million more than business-as-usual in 2050; yields net savings across energy system
<https://mde.maryland.gov/programs/Air/ClimateChange/MCCC/MWG/IEEREnergyAndClimatePlanForMaryland.pdf>
 - See Clarification on IEER Analysis on Following Slide



Clarification on IEER Analysis

- At MWG member Makhijani's request, the following clarifies the relevant conclusions from IEER's report:
- The data and analysis in [Prosperous Renewable Maryland](#) indicate that a renewable energy electricity sector, including all storage and demand response costs (including \$1.1 billion in battery storage costs in 2050), providing the same end uses (including mostly electrified transportation and buildings) would be about \$4 billion to \$7 billion per year cheaper than a business-as-usual electricity sector in the year 2050. A summary of the analysis is in Slide 18 of <https://mde.maryland.gov/programs/Air/ClimateChange/MCCC/MWG/IEEREnergyAndClimatePlanForMaryland.pdf>



Caveats

- As E3 will explain, our tools do not explicitly model battery storage and other grid solutions that may be necessary for a ~75% renewable system as envisioned in this scenario.
- This may leave some costs unaccounted for.
- A number of the measures modeled here are outcomes; policies to accomplish these outcomes would be the next conversation.



Impacts Summary

The MWG scenario shows positive economic impacts before 2030, negative after (*results are preliminary*). Large positive health and climate impacts.

MD impact relative to Reference Case	2021 Through 2030	2021 Through 2050
Average job impact*	+ 3,329 job-years	- 5,646 job-years
GDP Impact**	+ \$ 2.02 billion	- \$ 16.4 billion
Personal Income Impact**	+ \$ 1.97 billion	- \$ 12.7 billion
Public Health Benefit (Avoided Mortality)**	+ \$ 0.78 billion	+ \$ 5.07 billion
Climate Change Benefit**	+ \$ 3.36 billion	+ \$ 28.6 billion

* Average number of job-years created or sustained each year.

** 2018 Dollars, Cumulative, Net Present Value using 3% discount rate.

Climate benefit evaluated using Federal Social Cost of Carbon (2015 Update)



Economic Impacts are Preliminary

- MDE & RESI are still debugging the economic model.
- Transportation infrastructure costs in these results are drawn from *GGRA Draft Plan* modeling; updated estimates available shortly.
- We'll provide updated results next month.