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BUILDING ENERGY PERFORMANCE STANDARDS - THE BIG PICTURE

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MARYLAND'S MANDATE IS THE MOST AGGRESSIVE IN THE UNITED STATES

Maryland – 60% reduction by 2031; Net zero emission by 2045

California – 40% reduction by 2030; Carbon neutral by 2045

New York – 40% by 2030; 85% by 2050

Mass. – 50% by 2030; 75% by 2040; Net zero by 2050

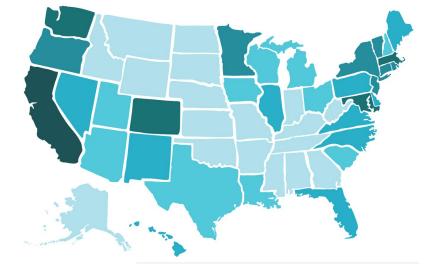
Virginia – No 2030 target; Net Zero by 2045

Penn. – 26% by 2025; 80% by 2050

Information based on Climate Xchange dashboard, www.climate-xhange.org

Delaware – 26-28% by 2025; no other targets.

West Va. – no targets.

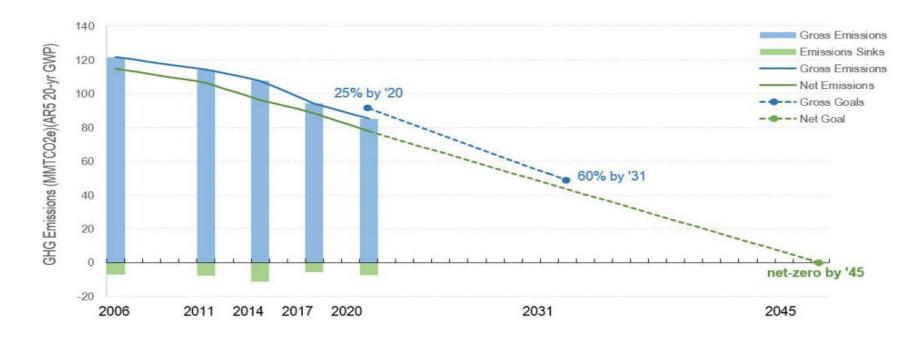


This map shows the occurrence of climate policies passed at the state-level. Higher numbers represent more climate policies implemented.

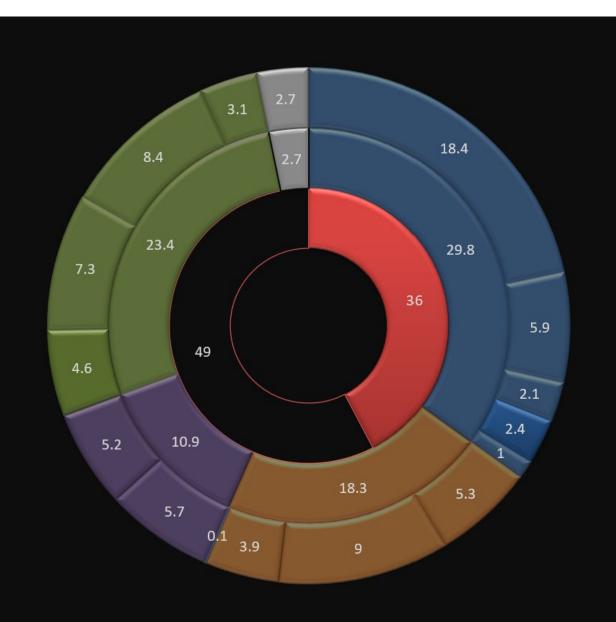
CLIMATE SOLUTIONS NOW ACT

60% REDUCTION BY 2031, NET ZERO BY 2045

Figure 1. Maryland's historic GHG and sinks (bars), and CSNA goals (lines)



2022 INVENTORY AND REDUCTIONS NEEDED BY 2031 (APPROXIMATE MILLION METRIC TONS)



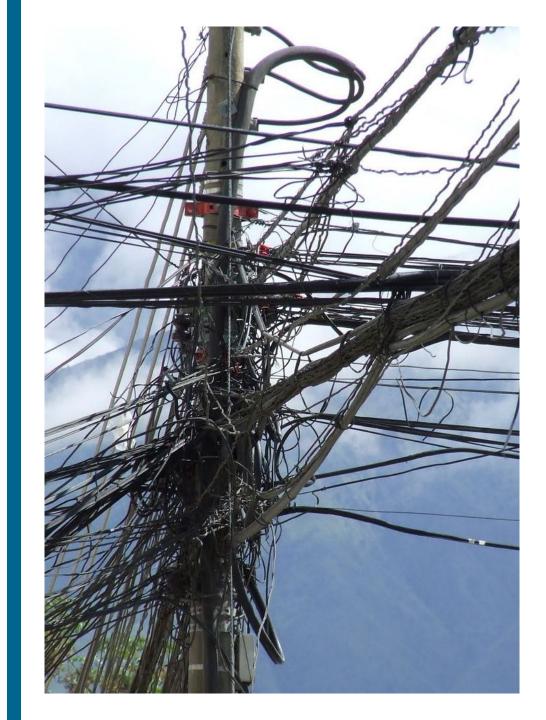
- By 2031, need to cut 36 MMT out of 85 MMT
- ☐ 2031 Allowance 49
- **TRANSPORTATION 29.8**
- Onroad Gasoline 18.4
- Onroad Diesel 5.9
- Nonroad 2.1
- Aviation 2.4
- Other 1
- **■** ELECTRICITY GEN. 18.3
- Natural Gas 5.3
- Imports 9.0
- Coal 3.9
- Oil .1
- **■** BUILDINGS 10.9
- Residential 5.7
- Commerical 5.2
- **■** NON COMBUSTION 23.4
- Fossil Fuel Industry 4.6
- Industrial Processes and Product Use 7.3
- Waste Management 8.4
- Agriculture 3.1
- **INDUSTRY 2.7**

CLIMATE SOLUTIONS NOW ACT OF 2022

ELECTRIFY EVERYTHING

The Act sets out an overall plan that can be summarized simply:

- Substitute electricity for fossil fuel consumption.
- Replace fossil fuel electric generation with "clean" energy (solar, wind, nuclear, hydro).
- Meet a very difficult transition milestone in eight years (by 2031).
- Eliminate (or offset) *all* fossil fuel use and, instead, generate all energy by renewable electricity within 33 years (by 2045).



MULTIPLE APPROACHES TO BUILDINGS

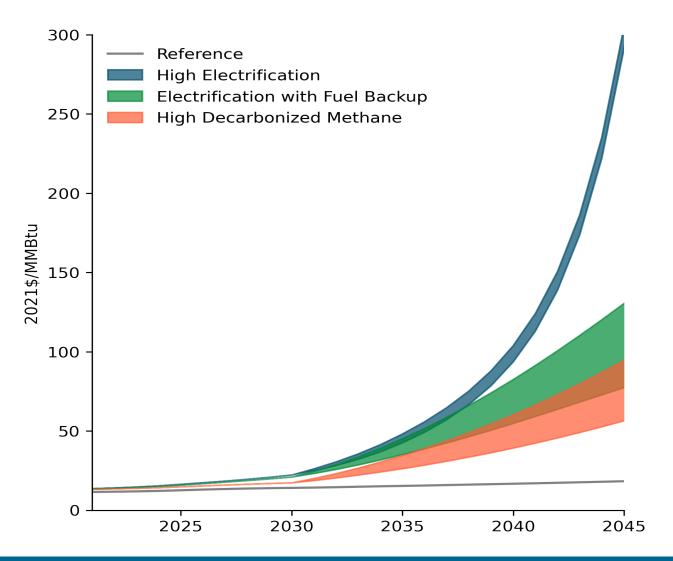
MEASURES IN STATUTES AND PROPOSED REGULATIONS

- Changes to Building Codes
 - Require more efficient buildings
 - Phase out fossil fuel for heating and water heating in new buildings.
- Mandate reductions in "direct greenhouse gas emissions" in covered buildings
 - 20% reduction by 2030
 - Net zero by 2040
- Mandate improvements in Site Energy Use Intensity (CO₂ per sq ft)
 - Mandatory targets by 2030
 - Zero SEUI by 2040

Electric Vehicles Charging Requirements

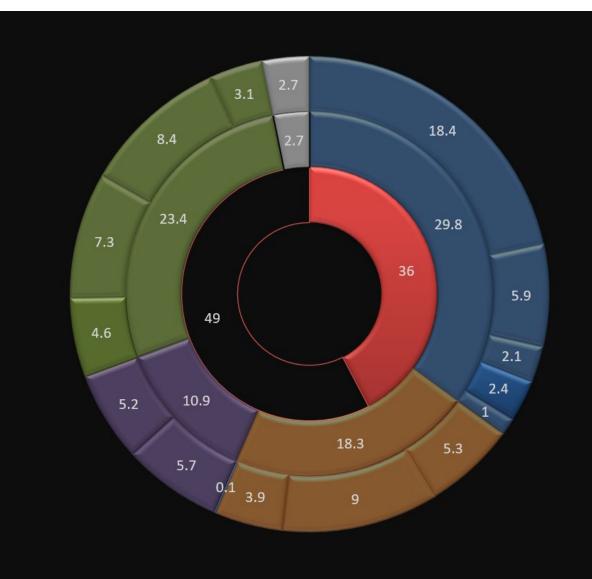


WHAT WILL THIS DO TO NATURAL GAS PRICES?



- Chart models Residential natural gas rates (in 2021 equivalent dollars per MMBtu) for Commission recommendations.
- Gas prices soar in high electrification scenario as a result of limited customers.
- Gas prices increase even in decarbonized methane scenario because of production cost increases.
- Limiting customers while maintaining distribution systems will increase delivery costs.
- Electricity cost impacts depend on whether significant additional (renewable) capacity and storage can be built as well as the cost of grid upgrades.

Wait! There is More! Still Short for 2031 and Need Net Zero By 2045!



- **REDUCTION NEEDED: NET 85 OUT OF 85!**
- 2045 Allowance ZERO
- **▼** TRANSPORTATION 29.8
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PATHWAY CALLS FOR ADDITIONAL CUTS

PATHWAY SEEKS TO NEARLY DOUBLE THE REDUCTIONS FROM BUILDINGS

The Pathway Model predicts that emissions will fall by 20% under current building policies.

New policies will reduce emissions by an additional 15%.

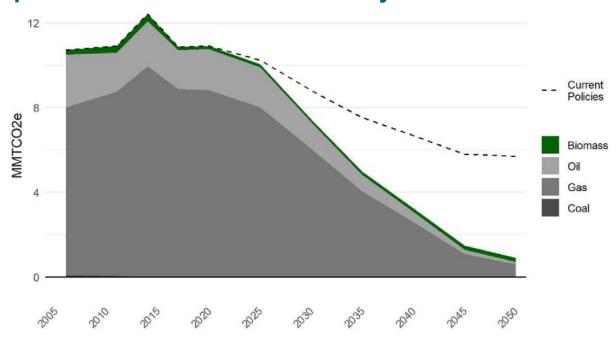


Chart from page 52 of Pathway Report

PROPOSED ADDITIONAL BUILDING MEASURES

- Clean Heat Standards (banning fossil fuel appliances)
- Public Service Commission restrictions on new natural gas hookups
- Local Building Codes banning new gas hookups.
 - New York banning new hookups in most buildings starting in 2026.
 - DC bans most new hookups starting 2026.
 - At least 20 Cities (mostly in California) have banned new gas hookups.
 - Maryland counties considering or enacting all-electric building codes.
 - However, there are legal challenges based on preemption arguments (CRA v. Berkley, 9th Circuit)
 - At least 20 states have passed state laws forbidding local bans on gas stoves.
- Air pollution rules restricting new gas stoves.
- Extension of BEPS to buildings smaller than 25,000 square feet.



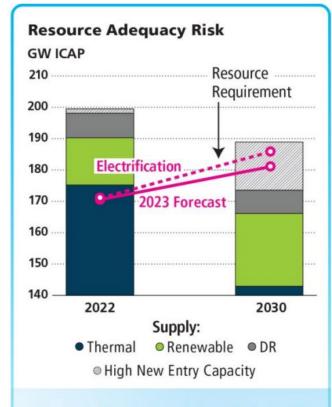
NON-BUILDING PROPOSALS IN THE PATHWAY REPORT STILL IN DRAFT – BRIEFING / LISTENING SESSIONS UNDERWAY

- "Cap-and-Invest" a Carbon tax with the proceeds spent on climate change and environmental justice projects.
- Expand Renewable Portfolio System to 100% clean electricity (including tax credits and payments for low-income communities).
- Shift the Regional Greenhouse Gas Initiative Target to net zero by 2040.
- Provide much larger incentives for electric vehicles and trucks as well as reductions in vehicle miles driven.
- Switch non-road use (lawnmowers, construction equipment, etc.) to electric alternatives.



CAN THE GRID HANDLE THE LOAD?

- Eliminating fossil fuels will increase the transmission load as energy is transferred by electric lines instead of pipelines and propane/heating oil trucks. Electric Vehicles also increase the demand on the system. On average, demand will increase 1.4% each year.
- Maryland has always been a "summer peak" state for electricity consumption greatest electricity demand was from air conditioning during summer months. Moving from heating oil, natural gas and propane to electric will make Maryland a "winter peak" state.
- The last coal plants are scheduled to close in 2025. Only about 5% of renewable energy projects in the queue get built and renewable projects are intermittent suppliers.
- PJM estimates that 80% of the Baltimore region's power will be imported by 2025.
- Results of the study *were* due back to the General Assembly by September 30, 2023.
- PJM predicts possible brownouts and rolling blackouts between 2025 and 2028 in Balt.
- Over \$700 million in transmission upgrades will be needed by 2028 to solve the shortfall.



The projections in this study indicate that it is possible that the current pace of new entry would be insufficient to keep up with expected retirements and demand growth by 2030.

Energy Transition in PJM (2/24/23)



THANK YOU!

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