



Maryland
Department of
the Environment

Maryland Building Energy Performance Standards (BEPS) 2024

July 29, 2024

Air Quality Control Advisory Council Presentation

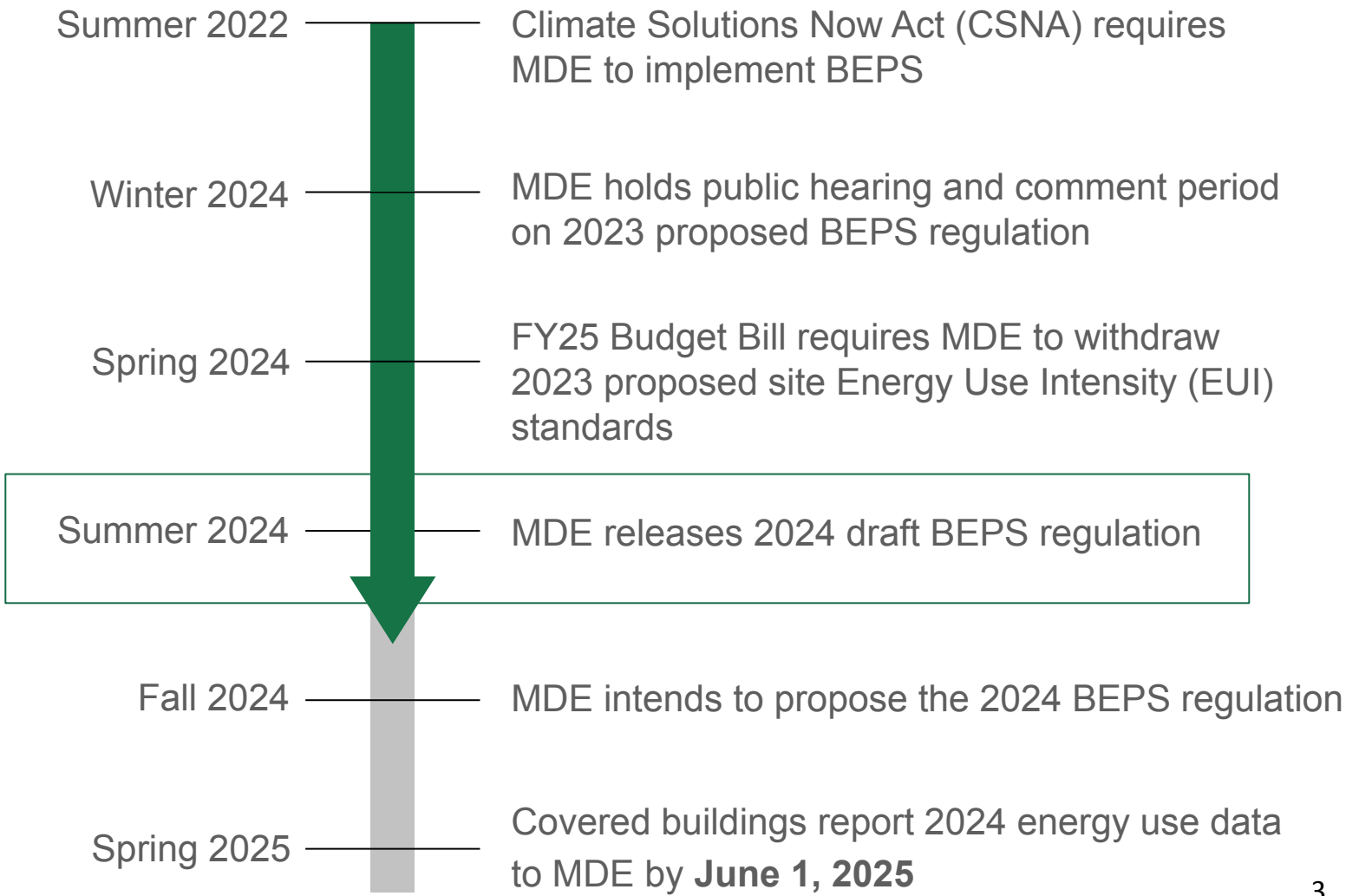
Zach Berzolla, Ph.D., Building Decarbonization Section Head



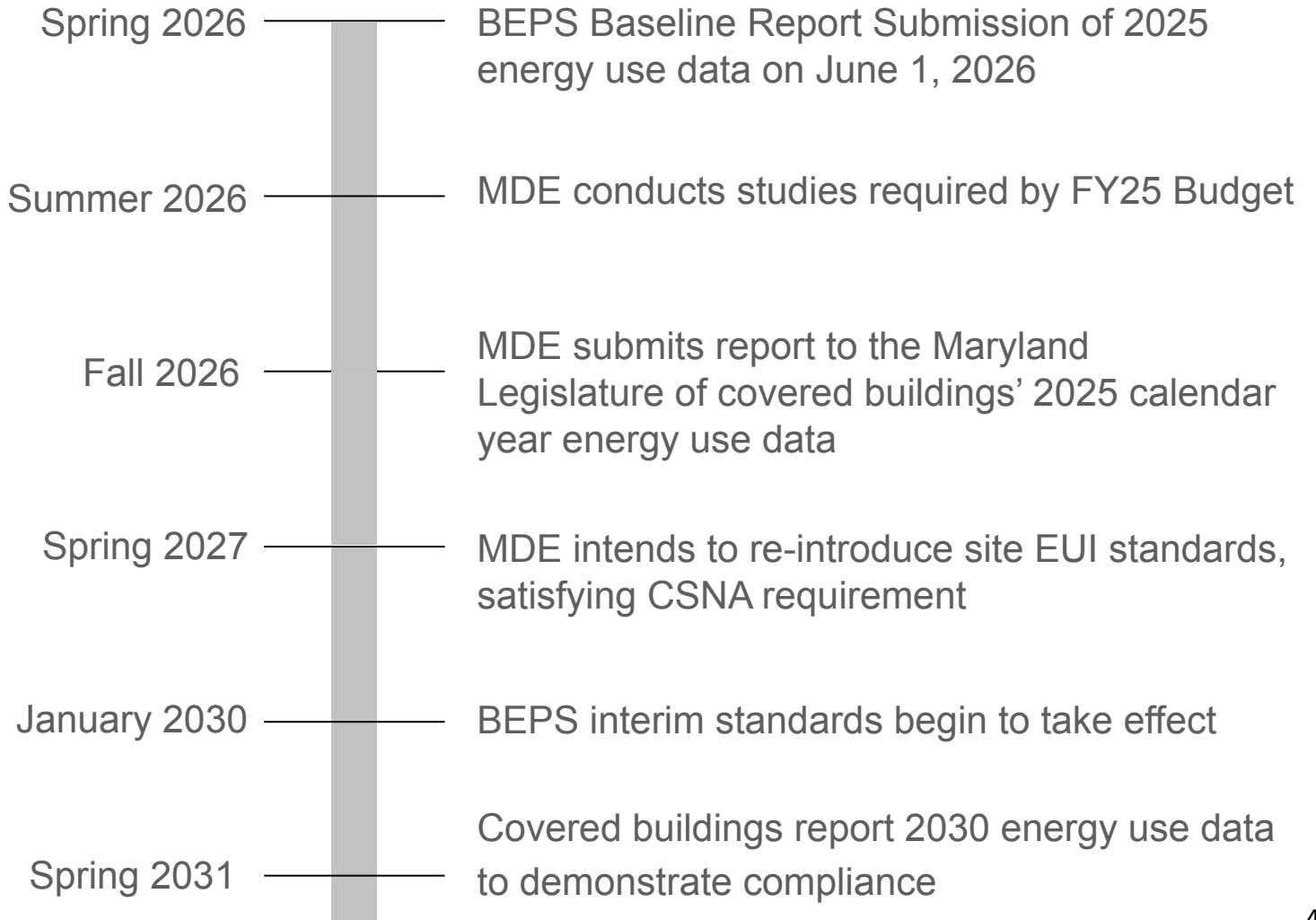
Presentation Outline

- Timeline
- Regulation Updates
- Background
- Outreach
- Discussion / Questions

BEPS Timeline



BEPS Timeline





BEPS Proposed Regulation

- December 2023 proposal has been withdrawn; revised version advanced
- What's changed between the two versions?
 - Removal of Site Energy Use Intensity (Site EUI) Standards
 - Modified the agricultural building definition, manufacturing building definition, exemption procedure, public infrastructure property types, and the consumer price index for clarification
- What stays the same between the two versions?
 - All other requirements, which includes:
 - Reporting requirements, including the reporting of energy use and emissions data to MDE annually starting June 1, 2025
 - Net direct emissions standards



Site EUI Guidance

- MDE intends to establish site EUI standards in 2027
- Building owners should refer to the site EUI standards [proposed](#) in December 2023 for directional guidance as they plan improvements to their buildings.
- Building owners are advised not to install electric resistance heating equipment without considering how the use of such equipment would influence the site EUI.

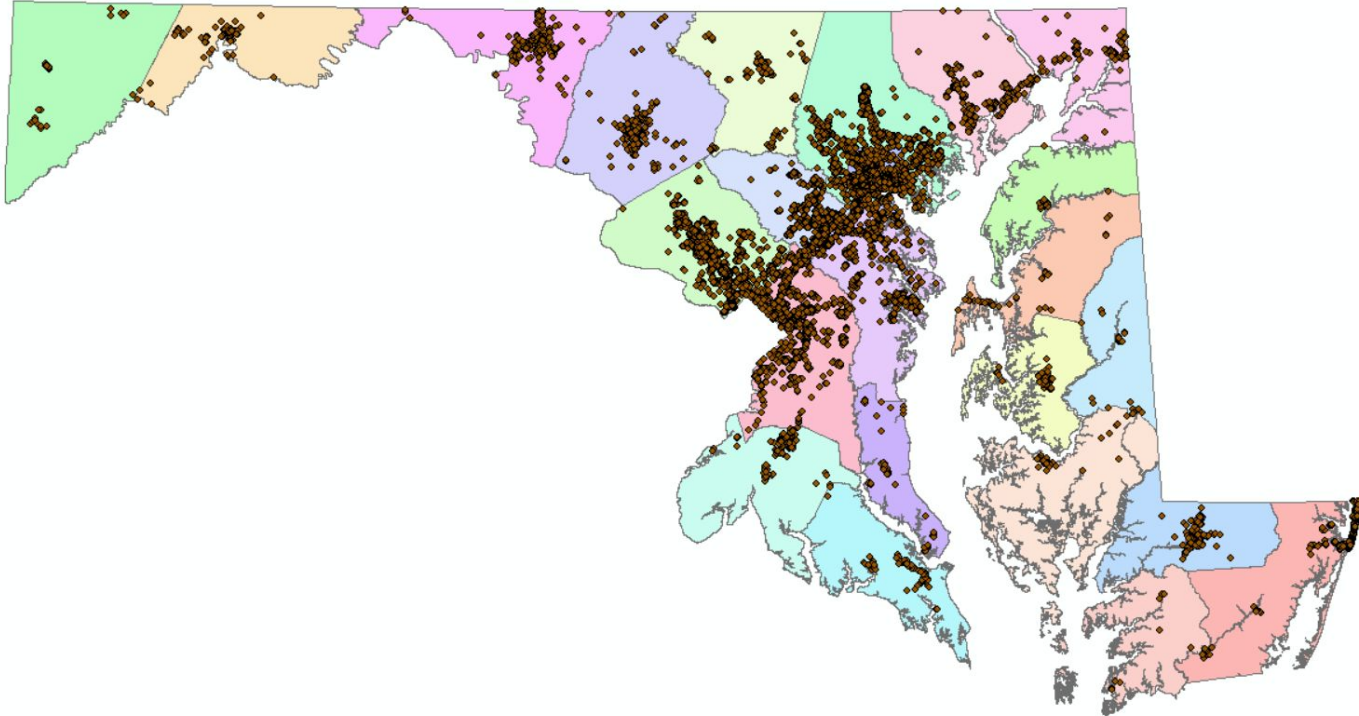


Covered Buildings

A covered building is a building in Maryland that has a gross floor area of 35,000 square feet or more excluding the parking garage area



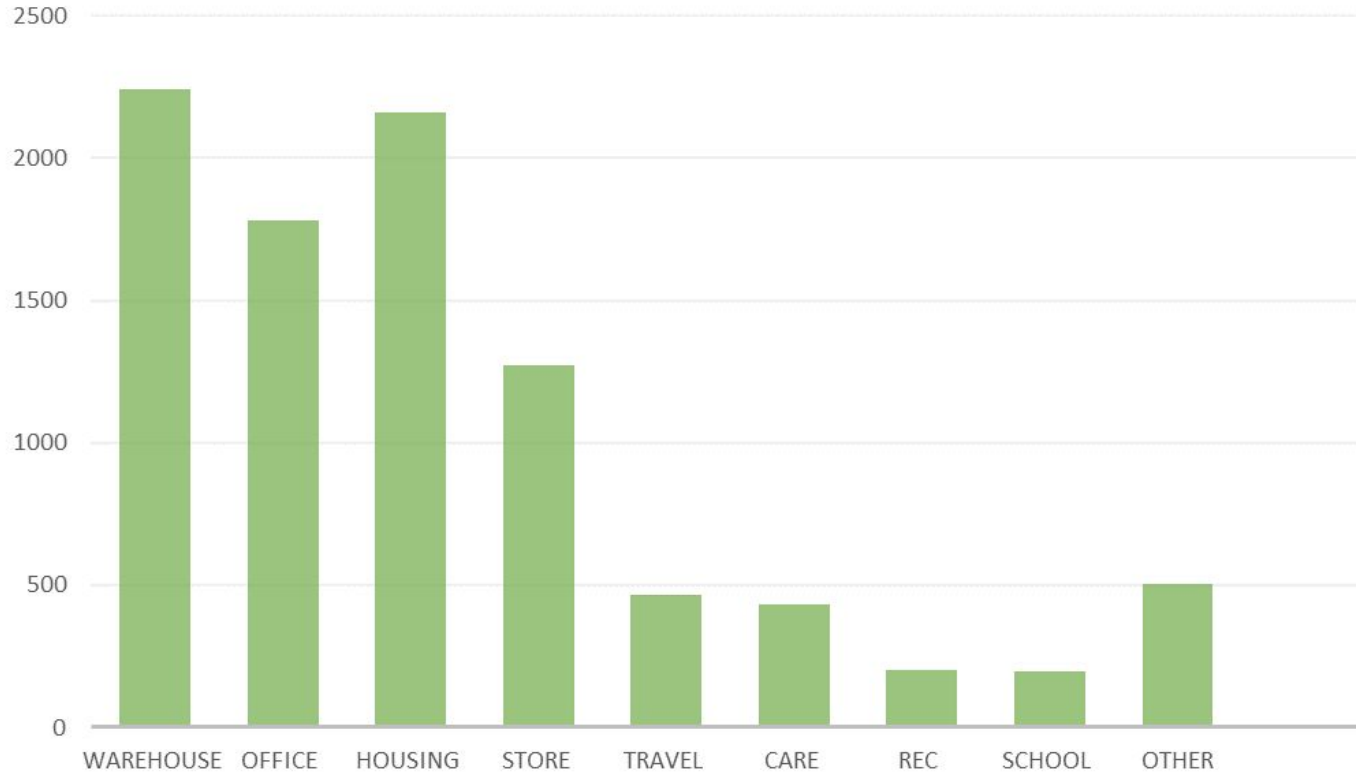
Location of Covered Buildings



Preliminary analysis



Covered Buildings in MD



Preliminary analysis



Exempt Buildings

Exempt buildings:

- Buildings smaller than 35,000 square feet;
- Historic buildings (designated as historic property under law);
- Public or nonpublic elementary and secondary school buildings;
- Manufacturing buildings;
- Agricultural buildings; and
- Federally-owned buildings



Exemptions: Energy Use

- Food service facilities that engage in commercial cooking and water heating
- Electric vehicle charging
- Emissions from required combustion equipment if a federal or State regulation requires backup equipment to run on combustible fuels; only for certain property types
- Others excluded by the benchmarking tool

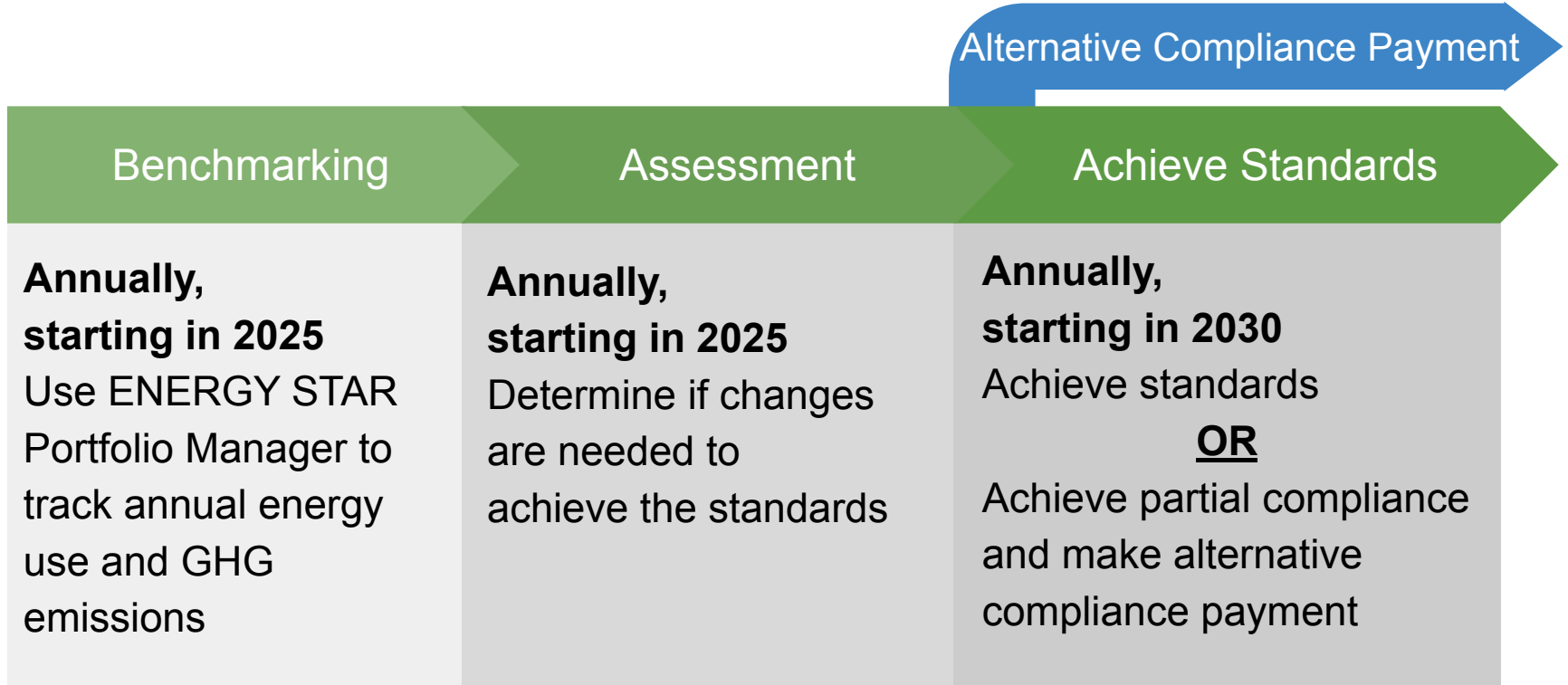


Exemptions: Additional

- Exemption from benchmarking and performance standard requirements
 - Financial distress;
 - Not occupied; or
 - Demolition
- Exemption from establishing baseline performance
 - Less than 50% of the floor area was occupied
- Exemptions for affordable housing providers
 - Affordable housing provider demonstrates good faith effort to secure funding



What's Next for Building Owners?





Performance Standard

- Net Direct Greenhouse Gas Emissions Standards (“emissions standards”):
 - By 2030, achieve a 20% reduction as compared with 2025 levels for average buildings of similar construction
 - By 2035, achieve a 60% reduction as compared with 2025 levels for average buildings of similar construction
 - By 2040, achieve net-zero direct greenhouse gas emissions

	Net Direct Emissions Standards kg CO ₂ e per square foot		
Property Type	Interim Standard for 2030-2034	Interim Standard for 2035-2039	Final Standard for 2040 and beyond



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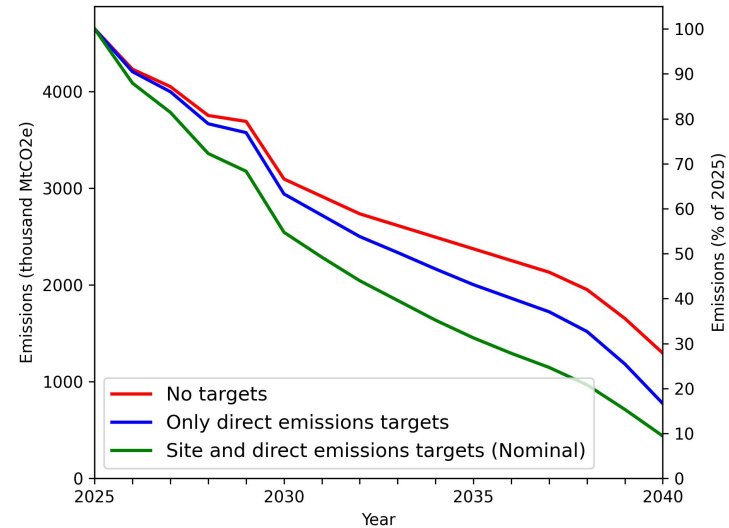
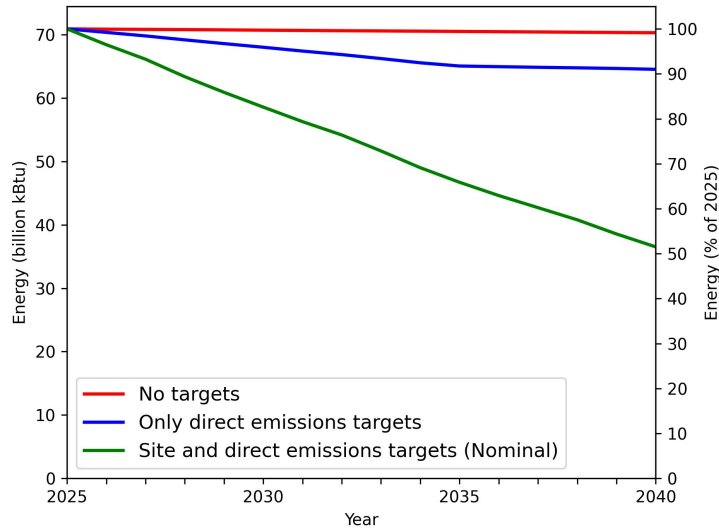
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Building Performance Standards:

Air Quality Control Advisory Council Briefing

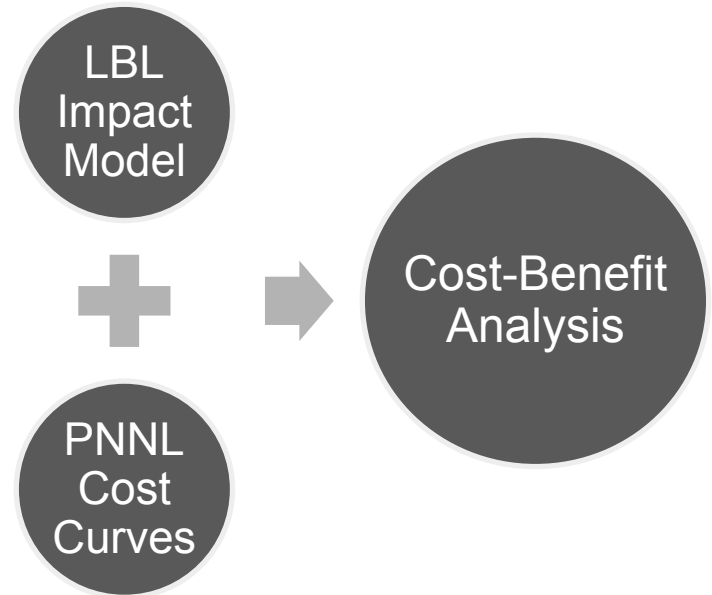
MDE - Energy and Emissions Reductions

- Emissions savings aggregate of cleaner projected grid, electrification, and efficiency



Integrating Costs into Impact Modeling

- Utilizing PNNL data on implementation costs for various energy retrofits at buildings, developing region-specific cost curves to help quantify **state-wide** magnitude of investment costs
- Integrated into LBNL impact model to quantify cost-benefit and model compliance rates



State-wide Results: 2025 – 2050*

- ◆ Total Building Area Covered: ~990MM SqFt
- ◆ Baseline Energy Costs: \$68.94B
- ◆ BAU System Replacement Costs: \$0.91B
- ◆ Total Efficiency Investments: \$0.20B
- ◆ Total Electrification Investments: \$5.53B
- ◆ Total Energy Cost Savings from Baseline: \$4.56B
- ◆ **Net Cost of All Investments: \$0.42B**

*All metrics shown aggregated over 2025-2050 time period
Does not include any energy efficiency/electrification incentives

Average Building Results: 2025 – 2050*

- ◆ **Net Cost: \$0.65 / SF**
- ◆ 25% save more than \$0.06 per square foot
- ◆ 25% spend more than \$2.65 per square foot

*All metrics shown aggregated over 2025-2050 time period unless otherwise specified
Does not include any energy efficiency/electrification incentives



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Economic Impacts

- On average, over the 2025-2050 time horizon, covered buildings spend \$0.65 per square foot
- Under a future regulation that includes emissions and site EUI standards, over the 2025-2050 time horizon, on average covered buildings save \$4.47 per square foot
- Significant funding from the federal Bipartisan Infrastructure Law and Inflation Reduction Act are expected to reduce costs of compliance with BEPS and speed their return on investments
- Building Energy Transition Implementation Task Force recommended programs, policies, and incentives aimed at reducing GHG emissions from the buildings sector and development of a plan for funding the retrofit of covered buildings to comply with BEPS



Resources and Financial Support



Utility incentives: staff O&M training, building tune ups, equipment



Financing and technical assistance



Maryland
Energy
Administration

Clean Buildings Hub,
grants, loans, rebates



Federal Incentives

Tax credits/
deductions
(179-D, ITC, etc.)





Clean Buildings Hub



One-stop-shop clearinghouse of relevant information and resources to help stakeholders reduce energy use and emissions of their buildings, such as federal, state, local, and utility incentives. The Hub will catalyze and amplify resources (original and partner), peer learning networks, and educational programming.

Check out the HUB's website below for more information and to submit feedback on resources





Outreach

- Sector-specific meetings in November and December 2022
- Informational webinars posted to MDE website
- AQCAC Presentations on December 12, 2022, March 13, 2023, June 12, 2023, September 11, 2023
- Building Energy Transition Task Force July 2023 - January 2024
- December 2023 Proposal and January 2024 public hearing and comments



Outreach (cont.)

- Small Business Impact Notice and Documents posted July 15
- Outreach sessions scheduled for August 2024
- Local Government Maryland BEPS Cohort 2024-2025
- Working Group sessions meeting from June - October, 2024
 - Electric and Gas Company Reporting Requirements
 - District Energy Systems
 - Benchmarking and Report Submission
 - Campus Compliance
 - Additional to be scheduled in late 2024 and in 2025



Wrap-Up of Next Steps in BEPS

- The Climate Solutions Now Act of 2022 requires MDE to develop BEPS regulations that cover most large buildings in the state with net direct emissions & site EUI standards
- Site EUI has been removed from the regulation based on the 2024 Budget requirements
 - MDE intends to establish site EUI standards based on 2025 benchmarking data after requirements in the budget language are met
- Decarbonizing large buildings is an important step toward achieving Maryland's greenhouse gas reduction goals
- Robust stakeholder outreach, education, and technical support are in progress to assist with compliance



Maryland Building Energy Performance Standards

Discussion and Questions

Contact

MDE BEPS website: <https://mde.maryland.gov/programs/air/ClimateChange/Pages/BEPS.aspx>

MDE BEPS email: BEPS.MDE@maryland.gov