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the Environment

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# **TECHNICAL SUPPORT DOCUMENT**

## **FOR**

### **COMAR 26.28 – Building Energy Performance Standards**

**November 2023**

**PREPARED BY:**

**MARYLAND DEPARTMENT OF THE ENVIRONMENT**

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## Table of Contents

I. INTRODUCTION.....	4
II. PURPOSE OF REGULATORY ACTION.....	4
III. BACKGROUND.....	4
IV. SOURCES AFFECTED AND LOCATION.....	5
V. REQUIREMENTS.....	5
VI. PROJECTED EMISSIONS REDUCTIONS.....	5
VII. ECONOMIC IMPACT.....	6
A. Economic Impact on Small Businesses.....	7
VIII. CORRESPONDING FEDERAL STANDARD.....	7
IX. DOCUMENTS TO BE INCORPORATED BY REFERENCE.....	8
X. STAKEHOLDER OUTREACH.....	8
XI. RESOURCES.....	9
XII. PROPOSED REGULATIONS.....	10
APPENDICES.....	20
Appendix A – TM 23-01 - Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards, August 2023	
Appendix B – Identification of Potentially Covered Buildings	
Appendix C – Maryland BEPS Impact Analysis Methodology	
Appendix D – 2023 ACP Emissions Benchmarking	
Appendix E – MD BEPS Webinar 1	
Appendix F – MD BEPS Webinar 2	
Appendix G – MD BEPS Webinar 3	
Appendix H – BEPS Overview for Stakeholder Meetings	
Appendix I – Preliminary Building Stock Analysis Highlights	
Appendix J – Cost-Benefits Analysis Briefing	
Appendix K – AQCAC Presentation 1	
Appendix L – AQCAC Presentation 2	
Appendix M – June 2023 BEPS Stakeholder Comments	

## **I. INTRODUCTION**

This Technical Support Document has been created to support the new regulatory requirements for the Maryland Building Energy Performance Standards.

## **II. PURPOSE OF REGULATORY ACTION**

The purpose of this action is to create the Maryland Building Energy Performance Standards (BEPS) as required by the Climate Solutions Now Act (CSNA) of 2022. See, in relevant part, Title 2, Subtitle 16 of the Environment Article, Annotated Code of Maryland. The goal is to reduce direct greenhouse gas (GHG) emissions and improve overall energy efficiency from Maryland's building sector for certain buildings that are 35,000 square feet or larger. The regulation requires covered building owners to measure and report data to the Maryland Department of the Environment (MDE). The regulation further requires that covered building owners meet specific net direct GHG emissions and energy use intensity (EUI) standards. This dual standard system promotes efficient electrification to enable Maryland's clean energy transition, minimize electricity grid impacts, and achieve Maryland's goal of net-zero GHG emissions by 2045. The regulation also contains record keeping and reporting requirements for electric and gas companies and district energy providers.

## **III. BACKGROUND**

In 2022, the Maryland General Assembly passed the CSNA that modified Maryland's GHG emissions reduction goals in response to the latest science indicating that more stringent goals are necessary to combat climate change. CSNA set new goals to reduce statewide GHG emissions by 60% below 2006 levels by 2031 and achieve net-zero emissions by 2045. Among the requirements outlined in the new law is that Maryland implement BEPS. CSNA requires MDE to develop BEPS for covered buildings that: achieve a 20% reduction in net direct GHG emissions on or before January 1, 2030, as compared with 2025 levels for average buildings of similar construction; attain net-zero direct GHG emissions on or before January 1, 2040; and include EUI targets by building type.

Covered buildings will be required to benchmark energy use utilizing the United States Environmental Protection Agency's (EPA) ENERGY STAR Portfolio Manager tool, which is a free interactive resource management tool that enables the benchmarking of energy use of any type of building. Covered buildings are subject to interim performance standards beginning in 2030 and running through 2039, and to a final performance standard that must be achieved on an annual basis in 2040 and beyond.

In July 2023, Maryland joined the White House National Building Performance Standards Coalition,<sup>1</sup> which is a nationwide group of state and local governments that have committed to inclusively design and implement building performance policies and programs in their

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<sup>1</sup> National BPS Coalition (July 2023), <https://nationalbpscoalition.org/>.

jurisdictions. Maryland’s development of BEPS has been supported by federal agencies, labor, and non-governmental organizations that provided resources for workforce engagement, technical analysis, equity strategies, policy design, and stakeholder engagement.

#### **IV. SOURCES AFFECTED AND LOCATION**

The proposed regulation applies to buildings in Maryland that are 35,000 square feet or larger (excluding the parking garage area). Historic buildings, public and nonpublic elementary and secondary schools, manufacturing buildings, agricultural buildings, and federal buildings are exempt. There are approximately 9,000 covered buildings in Maryland located across all counties. Electric and gas companies and, in limited cases, tenants in covered buildings are required to maintain and provide energy consumption data for covered buildings.

#### **V. REQUIREMENTS**

This regulation requires covered building owners to report data to MDE through the EPA ENERGY STAR Portfolio Manager tool. Benchmarking will begin in 2025 and compliance with direct GHG emissions and site EUI standards will begin in 2030. Covered building owners may need to make improvements to their buildings to meet the net direct GHG emissions and site EUI standards. Covered buildings must meet or be below interim standards in 2030 through 2039 and final standards in 2040 and beyond or pay an alternative compliance fee or penalty. Interim and final standards are set in the regulation. MDE will conduct an updated analysis after the 2025 benchmarking data are submitted in 2026 to determine if the interim and/or final standards need to be modified based on actual 2025 benchmarked building energy performance.

Electric companies and gas companies are required to maintain and provide energy consumption data for all covered buildings and provide to the building owner accurate and timely information on the actual amount of electricity, gas, or fuel delivered to a covered building. District energy companies are required to provide information on the emissions intensity of their district energy system to their customers.

A tenant of a covered building is required to provide requested benchmarking information to a covered building owner that cannot otherwise be acquired from other sources.

#### **VI. PROJECTED EMISSIONS REDUCTIONS**

According to Maryland’s GHG Emissions Inventory (Sept. 26, 2022),<sup>2</sup> direct fuel use in buildings produced nearly 14 million metric tons of carbon dioxide equivalent (MMTCO<sub>2</sub>e) in 2020. Electricity consumption, almost all of which was consumed in buildings, generated approximately 18 MMTCO<sub>2</sub>e in 2020. Through their direct fuel use and electricity consumption

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<sup>2</sup> Maryland Greenhouse Gas Emissions Inventory (Sep. 26, 2022), <https://mde.maryland.gov/programs/air/climatechange/pages/greenhousegasinventory.aspx>.

combined, Maryland's buildings accounted for roughly a third of all statewide GHG emissions. Buildings covered by BEPS accounted for approximately 5 MMTCO<sub>2</sub>e in 2020. In combination with state and federal policies to achieve 100% clean power generation, BEPS is modeled to reduce emissions by approximately 18 MMTCO<sub>2</sub>e between 2025 and 2050 based on a study by the U.S. Department of Energy's Lawrence Berkeley and Pacific Northwest National Laboratories (August 2023, Appendix C).

The combination of direct GHG and site EUI standards delivers efficient electrification, which will not only make it easier for the state to achieve its GHG reduction goals, but also enable the covered building stock to electrify at sufficient scale to achieve the BEPS emissions goals by mitigating winter peak electricity demand. A study by the U.S. Department of Energy's Lawrence Berkeley National Laboratory found that the Maryland BEPS will reduce peak electricity demand from covered buildings 6% by 2040 below current levels while shifting that peak to the winter, whereas a policy that excludes site EUI standards would both shift peak electricity demand to the winter and increase that peak demand to 24% above the current summer peak by 2040. By reducing peak electricity demand, BEPS will ensure the covered building stock can electrify at sufficient scale to achieve the BEPS emissions goals without the need for additional electricity generation, transmission, and distribution capacity while also helping Maryland to hit its requirements to achieve net-zero statewide GHG emissions by 2045.

## **VII. ECONOMIC IMPACT**

Between 2025 and 2040, building owners whose buildings do not already meet the BEPS standards will be required to implement energy efficiency measures and/or electrification measures or pay alternative compliance fees in order to comply with BEPS. As building owners implement these measures, they will begin to save money from reduced energy costs. Savings from reduced energy costs will accumulate and increase over time and beyond the initial implementation period for BEPS.

Results from a 2023 study by the U.S. Department of Energy's Lawrence Berkeley and Pacific Northwest National Laboratories demonstrate that during BEPS implementation (2025-2040), all covered buildings combined will spend more on efficiency measures (\$8.8B) and electrification measures (\$6.4B) than the energy cost savings accrued in this period (\$8.96B). However, on a longer time horizon (2025-2050), energy cost savings increase to \$22.3B, indicating a net savings for Maryland's covered buildings. On average, over the 2025-2050 time horizon, covered buildings save \$4.47 per square foot in energy costs. However, there is significant variation with 25% of covered buildings modeled to save more than \$9.29 per square foot and 25% of covered buildings modeled to lose more than \$4.43 per square foot.

The Building Energy Transition Task Force, created by the CSNA, is an advisory body that will prepare a report to the Governor and the General Assembly by December 1, 2023. The report will include recommendations relating to funding the retrofit of covered buildings to comply with BEPS. Additionally, through the efforts of various state agencies, significant funding from

the federal Bipartisan Infrastructure Law and Inflation Reduction Act are expected to reduce costs of compliance with BEPS for Maryland’s affected sources and speed their return on investments. For example, the federal Energy Efficient Commercial Building Deduction provides up to \$5 per square foot for projects that reduce energy use intensity, including electrification projects.

The public in Maryland could see economic benefits through reduced electricity rates due to the impact of BEPS on reducing strain on the electric grid. A study by the U.S. Department of Energy’s Lawrence Berkeley National Laboratory found that a sample including 87% of Maryland’s covered buildings currently has a peak electricity demand of around 2.74 gigawatts occurring on hot summer days. If BEPS included direct GHG emissions standards but not site EUI standards, then peak electricity demand would shift to winter and increase 24% to 3.4 gigawatts by 2040, which would require additional grid improvements paid for by electric ratepayers. Because BEPS includes both direct GHG emissions and site EUI standards, peak electricity demand is expected to decrease 6% to 2.58 gigawatts by 2040. Reducing peak demand reduces the need for ratepayer funded grid improvements and helps Maryland efficiently use existing electric grid infrastructure. A copy of the Lawrence Berkeley National Laboratory’s peak electricity demand study will be posted on MDE’s website.

#### A. Economic Impact on Small Businesses

As described above in the above economic impact, on average, over the 2025-to-2050-time horizon, covered buildings save \$4.47 per square foot in energy costs. The savings and costs identified in the 2023 study from the U.S. Department of Energy’s Lawrence Berkeley and Pacific Northwest National Laboratories will impact small businesses that are covered building owners and may also impact small businesses that are tenants in buildings covered by BEPS.

The Building Energy Transition Task Force, created by the CSNA, will prepare a report to the Governor and the General Assembly, which will include recommendations relating to a plan for funding the retrofit of covered buildings to comply with BEPS. Additionally, significant funding from the federal Bipartisan Infrastructure Law and Inflation Reduction Act are expected to reduce costs of compliance with BEPS for Maryland’s affected sources and small businesses.

### **VIII. CORRESPONDING FEDERAL STANDARD**

In December 2022, the U.S. Council on Environmental Quality (CEQ) issued a Federal Building Performance Standard (BPS).<sup>3</sup> The Federal BPS was issued according to the requirements set by Executive Order (E.O.) 14057, *Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability*.<sup>4</sup> The Federal Government is considered the single largest energy consumer in

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<sup>3</sup> The Federal Building Performance Standard, Council on Environmental Quality (Dec. 2022), <https://www.sustainability.gov/pdfs/federal-building-performance-standard.pdf>.

<sup>4</sup> 86 FR 70935 (Dec. 13, 2021), <https://www.whitehouse.gov/briefing-room/presidentialactions/2021/12/08/executive-order-on-catalyzing-clean-energy-industries-and-jobs-through-federal-sustainability/>.

the country, and the Federal BPS includes facilities owned by the Federal Government or covered facilities according to section 432 of EISA (42 U.S.C. § 8253(f)(2)(B)). The Federal BPS will deliver a net-zero emissions building portfolio by 2045, including a 50 percent GHG emissions reduction by 2032, prioritizing energy efficiency and electrification. To achieve these goals, section 205(b) of E.O. 14057 provides that agencies should use the Federal BPS to prioritize reductions in scope 1 GHG emissions. Scope 1 emissions cover standard building operational needs, including direct emissions from space heating and cooling, water heating, cooking, backup generators, and laundry.

## **IX. DOCUMENTS TO BE INCORPORATED BY REFERENCE**

- This action has one document for Incorporation by Reference, under COMAR 26.28.01.03, the Maryland Department of the Environment Technical Memorandum (TM) 23-01, "Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards", August 2023.

## **X. STAKEHOLDER OUTREACH**

Between November 14 and December 8, 2022, MDE hosted 12 stakeholder engagement meetings regarding the BEPS draft regulations. These meetings were convened in partnership with the Institute for Market Transformation (IMT) and Northeast Energy Efficiency Partnerships (NEEP). The purpose of these meetings was to garner preliminary questions and concerns about the BEPS policy that can help inform the initial drafting of regulations while informing stakeholders of the impacts of the policy.

The meetings were organized by targeting specific stakeholder cohorts and groups including colleges, state-owned buildings, district energy providers, utilities, fuel distributors, environmental non-governmental organizations, hospitals, offices, retail, hospitality, multifamily, affordable housing, light industrial, warehouses, laboratories, life sciences, assisted living, nursing facilities, restaurants, food service facilities, and local governments. Attendance in meetings ranged from 25 to 110 with a total of 419 individuals across 329 organizations participating in one or more meetings.

MDE released a draft version of the BEPS regulations for comment in June 2023 and received 60 submissions from various stakeholders. The comments addressed various areas of the proposed regulations, including but not limited to:

- Technical Memorandum 23-01, Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards.
  - Requests to review the document.
  - Requests for specific processes / methods to be included in the document.
- Requests for clarification and addition of certain definitions.
- Stakeholder role clarifications.
  - Question regarding roles of building owners, utilities, and tenants.
  - Clarification for the utility reporting requirements.

- Input from District Energy Providers and customers.
- Requests for methodology and analyses underlying the Standards.
- Feedback regarding specific Standards by property type.
- Questions about inclusion of the Standards prior to the 2025 baseline data submission.
- Inquiries about Site EUI Standards.
- Questions about the Alternative Compliance Fees.
- Requests for additional exemptions.
- Requests for added flexibility for affordable housing providers.
- Questions about third party verification.
- Concern over undue burdens on buyers or sellers of real estate property.
- Questions about methods for campus level compliance.

A compilation of the comments received can be found in Appendix M of this Technical Support Document.

## **XI. RESOURCES**

The following resources were utilized in the development of the proposed regulations:

- United States Environmental Protection Agency Overview of Building Energy Performance Standards:
  - [https://www.energystar.gov/buildings/resources\\_audience/policymakers](https://www.energystar.gov/buildings/resources_audience/policymakers)
- United States Environmental Protection Agency Benchmarking and Building Performance Standards Policy Toolkit:
  - <https://www.epa.gov/statelocalenergy/benchmarking-and-building-performance-standards-policy-toolkit>
- United States Department of Energy Building Performance Standards Tools:
  - <https://buildingdata.energy.gov/#/>
- Institute for Market Transformation Building Performance Standards Guides:
  - <https://www.imt.org/public-policy/building-performance-policy-center/implementation/>
- Federal Building Performance Standards:
  - <https://www.sustainability.gov/federalbuildingstandard.html#:~:text=The%20Federal%20Building%20Performance%20Standard,by%20square%20footage%20by%202030.>

## XII. PROPOSED REGULATIONS

# Title 26 DEPARTMENT OF THE ENVIRONMENT

## Subtitle 28 BUILDING ENERGY PERFORMANCE STANDARDS

### Chapter 01 Definitions and Documents Incorporated by Reference

Authority: Environment Article, §§1-404, 2-301, 2-302, 2-1205, 2-1602, Annotated Code of Maryland

#### .01 Purpose.

The purpose of this chapter is to define the terms used in this subtitle and identify the documents that are incorporated by reference.

#### .02 Definitions.

A. In this subtitle, the following terms have the meanings indicated.

B. Terms Defined.

(1) “Affordable Housing Providers” means the owner of a covered building that primarily provides housing to limited income households, where a minimum of 51% of households living within the building are at or below 80% of the area median income, as defined in the Housing and Community Development Article, §4-1801, Annotated Code of Maryland, or a covered building that is restricted under the Low-Income Housing Tax Credit (LIHTC) program.

(2) “Agricultural building” means a structure that is used primarily to cultivate, manufacture, process, or produce agricultural crops, raw materials, products, or commodities. Agricultural building includes a greenhouse.

(3) “Alternative compliance fee” means a fee paid by the building owner to come into compliance with applicable net direct emissions standards, as specified in Regulation.01A of COMAR 26.28.04.

(4) “Area-weighted standard” means an interim or final performance standard that is calculated based on the floor area proportion of the property types within a covered building.

(5) Authorized occupant.

(a) “Authorized occupant” means a person that is approved by a building owner to be within a covered building.

(b) “Authorized occupant” does not include:

(i) Security guards;

(ii) Janitors;

(iii) Construction workers;

(iv) Landscapers; and

(v) Other maintenance personnel.

(6) “Baseline performance” means the weather-normalized numeric values of net direct greenhouse gas emissions and site EUI of a covered building for the covered building’s baseline year.

(7) “Baseline year” means either calendar year 2025 for a covered building that was constructed and occupied prior to calendar year 2025 or the first full calendar year in which a newly constructed covered building was occupied.

(8) “Benchmark” means to track and input a building’s energy consumption data and other relevant building information on a monthly basis for at least 12 consecutive months, as required by the benchmarking tool, to quantify the building’s energy use and greenhouse gas emissions.

(9) Benchmarking information.

(a) “Benchmarking information” means descriptive information about a building, its operating characteristics, and information generated by the benchmarking tool regarding the building’s energy consumption, efficiency, and performance.

(b) “Benchmarking information” includes but is not limited to the building identification number, address, gross floor area, and separate energy consumption totals for each fuel type.

(10) “Benchmarking tool” means the website-based software, commonly known as ENERGY STAR Portfolio Manager, or any successor system, approved by the United States Environmental Protection Agency.

(11) “Building” has the meaning set forth in the International Building Code, which is incorporated by reference under COMAR 09.12.51.04A and as modified in COMAR 09.12.51.04B.

(12) “Building owner” means an individual or legal entity possessing title to a building including but not limited to a board of the owners’ association, master association, board of directors, community association, cooperative housing corporation, or condominium.

(13) “Campus” means a collection of two or more buildings, of any building type or size, that act as a single cohesive property with a single shared primary function and are owned and operated by the same party, such as, but not limited to, higher education or hospital campuses, as determined by the Department.

(14) “Commercial building” means a commercial building as defined and subject to the commercial provisions of the International Energy Conservation Code, which is incorporated by reference in COMAR 09.12.51.04A and as modified in COMAR 09.12.51.04D, regardless of the nature of the entity or government that owns the building.

(15) Covered building.

(a) “Covered building” means a building that is a commercial or multifamily residential building in the State of Maryland or is owned by the State of Maryland and has a gross floor area of 35,000 square feet or more, excluding the parking garage area; and is:

(i) A single building;

(ii) One or more buildings held in the condominium form of ownership with a combined gross floor area of 35,000 square feet or more (excluding the parking garage area) and governed by a single board of managers; or

(iii) Two or more buildings with a combined gross floor area of 35,000 square feet or more (excluding the parking garage area) that are served in whole or in part by the same electric or gas meter or are served by the same heating or cooling system(s), which is not a district energy system.

(b) “Covered building” includes a building that meets the criteria for a covered building as described in this section and is located in a historic district but where the building is not individually designated as a historic property under federal, state, or local law.

(c) “Covered building” does not include:

(i) A building, or space within a building, individually designated as a historic property under federal, state, or local law, separate and apart from a building’s inclusion in a historic district;

(ii) A public or nonpublic elementary or secondary school building;

(iii) A manufacturing building;

(iv) An agricultural building; or

(v) A building owned by the Federal government;

(16) “Department” means the Maryland Department of the Environment.

(17) “Direct greenhouse gas emissions or direct emissions” means greenhouse gas emissions produced on-site by covered buildings, as calculated by the benchmarking tool unless otherwise specified by the Department.

(18) “District energy system” means a system in which thermal energy generated at one or more central facilities provides heating or cooling through a network of insulated underground pipes to provide hot water, steam, space heating, air conditioning, or chilled water to nearby buildings.

(19) “District energy provider” means an entity that provides thermal energy to customers through a district energy system.

(20) “Electric company” has the meaning stated in Public Utilities Article, §1-101, Annotated Code of Maryland.

(21) “Final performance standard or final standard” means the numeric values of net direct greenhouse gas emissions and site EUI that each covered building shall ultimately achieve on an annual basis in 2040 and beyond.

(22) “Financial distress” means:

(a) A property that is the subject of a tax lien sale or public auction due to property tax arrearages;

(b) A property that is controlled by a court appointed receiver; or

(c) A property that was acquired by a deed in lieu of foreclosure in the last calendar year.

(23) “Food service facility” has the meaning stated in COMAR 10.15.03.02B.

(24) Full-time-equivalent employee.

(a) “Full-time-equivalent employee” means a person that occupies a covered building for no less than 40 hours per week throughout a calendar year.

(b) “Full-time-equivalent employee” excludes:

(i) Security guards;

(ii) Janitors;

(iii) Construction workers;

(iv) Landscapers; and

(v) Other maintenance personnel.

(25) “Gas company” has the meaning stated in Public Utilities Article, §1-101, Annotated Code of Maryland.

(26) “Greenhouse gas emissions or emissions” means gasses released into the atmosphere that contribute to climate change, including but not limited to carbon dioxide (CO<sub>2</sub>), as calculated by the benchmarking tool unless otherwise specified by the Department.

(27) Gross floor area.

(a) “Gross floor area” means the total building square footage measured between the principal exterior surfaces of the enclosing fixed walls of a building.

(b) “Gross floor area” consists of all areas inside the building, including but not limited to lobbies, tenant areas, common areas, meeting rooms, break rooms, the base level of atriums, restrooms, elevator shafts, stairwells, mechanical equipment areas, basements, and storage rooms.

(c) “Gross floor area” does not include exterior spaces, balconies, bays, patios, exterior loading docks, driveways, covered walkways, outdoor play courts (e.g., tennis, basketball), parking, the interstitial space between floors (which house pipes and ventilation), and crawl spaces.

(d) “Gross floor area” is not the same as rentable space, but rather includes all areas inside the building(s).

- (28) “Interim performance standard or interim standard” means the numeric values of net direct greenhouse gas emissions and site EUI which covered buildings shall achieve by a specified calendar year that is prior to 2040.
- (29) “Manufacturing building” means a building classified as a manufacturing building in North American Industry Classification System (NAICS) or otherwise designated as a manufacturing building by the Department.
- (30) “Mixed-use building” means a building that contains two or more property types.
- (31) Net direct greenhouse gas emissions or net direct emissions.
- (a) “Net direct greenhouse gas emissions or net direct emissions” means:
- (i) The sum of all direct greenhouse gas emissions from a covered building; or
- (ii) For a covered building connected to a district energy system, direct greenhouse gas emissions plus the greenhouse gas emissions attributable to thermal energy inputs from the district energy system used by the covered building, as calculated using the methodology provided in this regulation.
- (b) “Net direct greenhouse gas emissions or net direct emissions” does not include direct greenhouse gas emissions from a food service facility located within a covered building.
- (32) “Newly constructed covered building” means a covered building that was constructed after 2024 and occupied by at least one full-time-equivalent employee or authorized occupant.
- (33) “Occupied” means a covered building with at least one full-time equivalent employee or authorized occupant.
- (34) “Property type” means the primary use of a building space as specified in ENERGY STAR Portfolio Manager.
- (35) Site energy use.
- (a) “Site energy use” means all energy used on-site by a covered building to meet the energy loads of the building.
- (b) “Site energy use” includes electricity delivered to the building through the electric grid and/or generated on-site with renewable sources; thermal energy delivered to the building through a district energy system; and natural gas, diesel, propane, fuel oil, wood, coal, and other fuels used on-site.
- (c) “Site energy use” excludes electricity used for charging vehicles, a food service facility located within a covered building, and other electricity uses excluded from site energy use by the benchmarking tool.
- (36) “Site energy use intensity or site EUI” is calculated by the benchmarking tool by dividing the total energy consumed in one calendar year by the gross floor area of the building and reported as a value of a thousand British thermal units (kBtu) per square foot per year.
- (37) “Tenant” means a person or entity occupying or holding possession of a building, part of a building, or premises pursuant to a rental or lease agreement.
- (38) “Weather normalized” means a method for modifying the measured building energy use in a specific calendar year to estimate energy use under normal weather conditions as calculated by the benchmarking tool.
- (39) Web services application programming interface (API) or web services API.
- (a) “Web services API” means the free application for use by organizations to exchange building energy and other data between their own systems and the benchmarking tool.
- (b) “Web services API” may include the entry of data into the tool and/or the calculation and extraction of metrics and other information from the tool.
- (40) “Whole building energy consumption data” means energy data that has been summed for an entire building, which may include a single occupant or a group of separately metered tenants, representing the cumulative total of energy used in the covered building.

**.03 Incorporation by Reference.**

- A. In this subtitle, the following documents are incorporated by reference.
- B. Documents Incorporated.

(1) Maryland Department of the Environment Technical Memorandum 23-01, "Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards", August, 2023.

## **Title 26 DEPARTMENT OF THE ENVIRONMENT**

### **Subtitle 28 BUILDING ENERGY PERFORMANCE STANDARDS**

#### **Chapter 02 Benchmarking and Reporting**

Authority: Environment Article, §§1-404, 2-301, 2-302, 2-1205, 2-1602, Annotated Code of Maryland

**.01 Purpose.**

The purpose of this chapter is to establish reporting requirements for building owners, tenants, electric and gas companies, and district energy providers.

**.02 Reporting Requirements of Building Owners.**

- A. Data Collection.

(1) Each calendar year beginning in 2025 or in the first calendar year after which a newly constructed covered building is occupied, the building owner shall collect and enter all required benchmarking information for the previous calendar year into the benchmarking tool.

(2) Nothing in this regulation shall be construed to permit a building owner to use tenant energy usage data for purposes other than evaluation of the performance of the building.

#### B. Benchmarking Report.

(1) A building owner shall submit a benchmarking report to the Department by June 1st of each year, beginning in 2025, using the benchmarking tool.

(2) Following the first full calendar year that energy data can be collected and the building was occupied, the owner of any newly constructed covered building shall benchmark the building and report to the Department no later than June 1st of the following year, and every June 1st thereafter.

(3) The annual benchmarking report shall include, at a minimum, the benchmarking information spanning January 1st to December 31st of the previous calendar year.

(4) The building owner shall enter data into the benchmarking tool such that the benchmarking report shall be based on an assessment of the energy consumed by the building for the entire calendar year being reported.

(5) The building owner shall exclude from the benchmarking report submetered and separately metered energy consumption data for:

(a) Food service facilities that engage in commercial cooking and water heating;

(b) Electric vehicle charging;

(c) Other electricity uses excluded from site energy use by the benchmarking tool; and

(d) Emissions from required combustion equipment under the following conditions:

(i) Emissions from generators shall be excluded from the net direct emissions requirements if a federal or state regulation requires a covered building including a health care facility, laboratory, assisted living and nursing facility, military building, critical infrastructure, and a building used in life sciences to use a backup generator or other equipment that shall run on combustible fuels.

(ii) A covered building is required to include emissions from a combustion generator/equipment if the relevant federal or state regulation is updated to allow battery storage and/or other types of systems that do not produce direct emissions.

(6) Energy consumption for food service facilities can be excluded using a standard deduction formula in accordance with the Department's TM 23-01, "Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards," when such energy consumption cannot be excluded using submetered or separately metered data.

(7) Before submitting a benchmarking report, the building owner shall run all automated data quality checker functions available within the benchmarking tool and shall confirm that all data has been accurately entered into the tool. The building owner shall correct all missing or incorrect information as identified by the data quality checker prior to submitting the benchmarking report to the Department.

(8) If a building owner is notified of an inaccuracy by the Department or other third party, then the building owner shall amend the information reported within the benchmarking tool, and shall provide the Department with an updated benchmarking submission within 30 days of learning of the inaccuracy.

(9) The building owner of a mixed-use covered building shall use the benchmarking tool to report the gross floor area for all property types in the building.

(10) The building owners of a covered building that is connected to district energy systems shall submit additional information to supplement the annual benchmarking report in accordance with the Department's TM 23-01, "Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards".

#### C. Third Party Verification of Benchmarking Reports.

(1) The building owner shall have a third party verify the accuracy of benchmarking reports for calendar years:

(a) 2025 (benchmarking report due in 2026);

(b) 2030 (benchmarking report due in 2031);

(c) 2035 (benchmarking report due in 2036);

(d) 2040 (benchmarking report due in 2041); and

(e) every five years thereafter.

(2) The building owner of a newly constructed covered building shall have a third party verify the first required benchmarking report and then comply with the schedule in this chapter for verification of subsequent reports.

(3) The building owner shall provide to the third party verifier all utility bills, delivered fuel receipts, and other documentation needed by the verifier for the calendar year covered by the benchmarking report.

(4) The building owner shall submit a copy of a third party verification to the Department when submitting the associated benchmarking report in accordance with the Department's TM 23-01, "Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards."

#### D. Maintenance of Historical Data.

(1) The building owner shall maintain adequate records demonstrating compliance with this Chapter, including but not limited to, energy bills, reports, forms, and records received from tenants or utilities and records.

(2) Such records shall be preserved for a period no less than five years.

(3) At the request of the Department, such records shall be made available for inspection and audit by the Department.

### **.03 Reporting Requirements of Tenants.**

A tenant of a covered building shall, within 30 days of a request by the building owner, provide all requested benchmarking information that cannot otherwise be acquired by the building owner from other sources.

### **.04 Reporting Requirements of Electric and Gas Companies and District Energy Providers.**

#### **A. Electric and Gas Companies.**

(1) Electric and gas companies delivering energy to a covered building shall maintain whole-building energy consumption data for all buildings, for at least the most recent five years in an electronic format capable of being uploaded to the benchmarking tool.

(2) On and after January 1, 2025, upon the request and authorization of a building owner an electric or gas company shall provide the building owner with at least the most recent 12 consecutive months of whole building energy consumption data by fuel type for the specified building for all the fuel type(s) provided by the company.

(a) The electric or gas company shall provide data to the requestor as follows:

(i) Data shall include whole building energy consumption, aggregating all utility meters that measure energy consumption at the building;

(ii) Data shall be provided to the requestor within 90 days of receiving a data request in 2025;

(iii) Data shall be provided to the requestor within 30 days of receiving a data request in 2026 or later; and

(iv) Whole building energy consumption data shall be provided to the requestor in monthly intervals.

(b) An electric or gas company may be exempt from §A(2)(a) in accordance with §A(7).

(3) Investor-owned electric and gas companies serving 40,000 or more customers shall use the benchmarking tool's web services API to deliver data to requesters on an ongoing basis.

(4) Investor-owned electric and gas companies serving fewer than 40,000 customers, municipal electric and gas companies, or cooperatively owned electric and gas companies shall provide data in the spreadsheet template specified by the benchmarking tool, or through the benchmarking tool's web services API to requesters on an ongoing basis.

(5) Electric and gas companies shall develop and maintain a process to identify and confirm with the building owner the list of meters that will be used to calculate the aggregated total as follows:

(a) Electric and gas companies shall provide to the building owner a listing of all meters included in the whole building energy consumption data for verification purposes; and

(b) If any correction or update takes place at a meter that is included in the whole building energy consumption data, then the affected value(s) shall be proactively updated by the electric or gas company through the benchmarking tool's web services API or through an updated spreadsheet template with a notification provided to the building owner/data requestor.

(6) For covered buildings with five or more tenants, electric and gas companies shall deliver to requestors the monthly whole building energy consumption data capturing total consumption by fuel type of all relevant fuel(s) across all meters at the building.

(a) The whole building energy consumption data shall not be deemed confidential information by the electric and gas companies for purposes of delivery to the building owner.

(b) Electric and gas companies will not be required to acquire explicit authorization for data release by the individual tenants.

(7) For covered buildings with fewer than five tenants, electric and gas companies shall deliver whole building energy consumption data to the building owner if the building tenants provide written or electronic consent for the delivery of the tenant's energy data to the building owner.

(a) The building tenant's consent may be provided in a lease agreement provision.

(b) The building tenant's consent is not required if an electric or gas company customer vacates the covered building before explicitly denying consent for the delivery of the tenant's energy data to the building owner.

(8) When providing whole-building consumption data to a property with onsite generation of renewable electricity (e.g., solar or wind energy), electric and gas companies shall ensure that the consumption values delivered to the building owner capture total (gross) grid electricity consumption as metered by the electric or gas company, rather than net (or net-metered) consumption of grid electricity.

#### **B. District Energy Providers.**

(1) Starting no later than January 1, 2025, district energy providers shall maintain all records that are necessary to comply with this regulation for a period of not less than five years. At the request of the Department, such records shall be made available for inspection and audit by the Department.

(2) District energy providers shall provide greenhouse gas emissions factors per unit of district energy input (steam, hot water, chilled water, etc.) to the owners of covered buildings and to the Department for benchmarking and compliance purposes.

(3) Emissions factors and a full and detailed accounting of their calculation shall be provided by the district energy provider by March 1st of each calendar year and cover the previous calendar year based on actual fuel consumption and system performance data. The Department may require a third party review of such calculations paid for by the district energy provider.

(4) District energy providers shall use methodology for allocating emissions that will be based on the "Efficiency Method" in the World Resources Institute's "Calculation tool for direct emissions from stationary combustion: Allocation of GHG Emissions from a Combined Heat and Power (CHP) Plant."

### **.05 Disclosure of Covered Building Benchmarking and Performance Standards Information.**

A. Before a buyer signs a contract for the purchase of a covered building, the building owner selling the covered building shall:

- (1) Disclose to the prospective buyer that the building is subject to requirements under this Subtitle;
- (2) Transfer the following records to the prospective buyer:
  - (a) A copy of the complete benchmarking record from the benchmarking tool;
  - (b) Documentation of data verification;
  - (c) Documentation of any alternative compliance payments made to the Department; and
  - (d) Any other records relevant to maintain compliance under this Subtitle.
- (3) Provide to the prospective buyer the following information:
  - (a) Performance baseline; and
  - (b) Interim and final performance standards.

## Title 26 DEPARTMENT OF THE ENVIRONMENT

### Subtitle 28 BUILDING ENERGY PERFORMANCE STANDARDS

#### Chapter 03 Performance Standards and Compliance Demonstration

Authority: Environment Article, §§1-404, 2-301, 2-302, 2-1205, 2-1602, Annotated Code of Maryland

**.01 Purpose.**

The purpose of this chapter is to establish performance standards for covered buildings.

**.02 Performance Standards.**

A. Interim and final net direct emissions and final site EUI standards are:

Table 1. Performance Standards.

Property Type	Net Direct Emissions Standards Kg CO <sub>2</sub> e per square foot			Site EUI Standards kBtu per square foot
	Interim Standard for 2030-2034	Interim Standard for 2035-2039	Final Standard for 2040 and beyond	Final Standard for 2040 and beyond
Adult Education	2.34	1.17	0	46
Ambulatory Surgical Center	1.76	0.88	0	46
Aquarium	1.99	1.00	0	145
Bank Branch	1.01	0.50	0	85
Bar/Nightclub	1.70	0.85	0	220
Barracks	0.57	0.29	0	38
Bowling Alley	2.07	1.03	0	84
Casino	1.03	0.52	0	41
College/University	2.43	1.21	0	57
Convenience Store with Gas Station	2.25	1.13	0	137
Convenience Store without Gas Station	2.25	1.13	0	137
Convention Center	0.39	0.19	0	40
Courthouse	1.14	0.57	0	47
Data Center	1.26	0.63	0	145
Distribution Center	0.58	0.29	0	19
Enclosed Mall	0.24	0.12	0	44
Fast Food Restaurant	exempt	exempt	exempt	exempt
Financial Office	0.32	0.16	0	58
Fire Station	1.70	0.85	0	47
Fitness Center/Health Club/Gym	2.87	1.43	0	59
Food Sales	2.25	1.13	0	137
Food Service	exempt	exempt	exempt	exempt

Heated Swimming Pool	2.07	1.03	0	84
Hospital (General Medical & Surgical)	6.10	3.05	0	144
Hotel	1.47	0.74	0	60
Ice/Curling Rink	2.07	1.03	0	84
Indoor Arena	1.03	0.52	0	41
K-12 School	exempt	exempt	exempt	exempt
Laboratory	5.35	2.68	0	144
Library	1.92	0.96	0	55
Lifestyle Center	0.91	0.46	0	58
Mailing Center/Post Office	0.92	0.46	0	48
Medical Office	0.18	0.09	0	70
Movie Theater	0.78	0.39	0	57
Multifamily Housing	0.82	0.41	0	29
Museum	0.75	0.38	0	29
Non-Refrigerated Warehouse	0.09	0.05	0	30
Office	0.22	0.11	0	55
Other – Education	1.59	0.80	0	45
Other - Entertainment/Public Assembly	0.54	0.27	0	48
Other - Lodging/Residential	0.002	0.001	0	37
Other – Mall	1.40	0.70	0	81
Other – Other	1.60	0.80	0	54
Other - Public Services	2.12	1.06	0	61
Other – Recreation	0.70	0.35	0	78
Other - Restaurant/Bar	exempt	exempt	exempt	exempt
Other – Services	2.63	1.31	0	51
Other - Specialty Hospital	6.10	3.05	0	144
Other – Stadium	0.31	0.16	0	23
Other - Technology/Science	0.001	0.001	0	183
Outpatient Rehabilitation/Physical Therapy	1.76	0.88	0	46
Parking	exempt	exempt	exempt	exempt
Performing Arts	2.38	1.19	0	57
Personal Services (Health/Beauty, Dry Cleaning, etc)	2.17	1.09	0	47
Police Station	1.52	0.76	0	54
Pre-school/Daycare	2.45	1.23	0	48
Prison/Incarceration	0.57	0.29	0	38
Race Track	1.03	0.52	0	41
Refrigerated Warehouse	1.37	0.69	0	38
Repair Services (Vehicle, Shoe, Locksmith, etc)	2.16	1.08	0	52

Residence Hall/Dormitory	0.70	0.35	0	38
Residential Care Facility	1.43	0.72	0	50
Restaurant	exempt	exempt	exempt	exempt
Retail Store	0.60	0.30	0	48
Roller Rink	2.07	1.03	0	84
Self-Storage Facility	0.19	0.10	0	7
Senior Living Community	1.43	0.72	0	50
Social/Meeting Hall	1.53	0.76	0	39
Stadium (Closed)	0.31	0.16	0	23
Stadium (Open)	0.32	0.16	0	21
Strip Mall	1.90	0.95	0	58
Supermarket/Grocery Store	2.25	1.13	0	137
Transportation Terminal/Station	2.22	1.11	0	56
Urgent Care/Clinic/Other Outpatient	1.76	0.88	0	46
Vehicle Dealership	2.23	1.12	0	61
Veterinary Office	1.76	0.88	0	46
Vocational School	2.34	1.17	0	46
Wholesale Club/Supercenter	0.60	0.30	0	48
Worship Facility	0.87	0.44	0	32
Zoo	1.03	0.52	0	41

B. Interim Site EUI Standards. Interim site EUI standards are calculated using a straight-line trajectory from a covered building's baseline performance to the final performance standards in 2040, set by the compliance tool as specified in the Department's TM 23-01, "Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards".

C. Interim and Final Standards for Mixed-Use Covered Buildings. Area-weighted standards for net direct emissions and site EUI for mixed-use buildings will be set by the compliance tool as specified in the Department's TM 23-01, "Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards".

D. Achieving and Maintaining the Standards.

(1) Each covered building shall not exceed the interim site EUI and net direct emissions standards for 2030-2034 in each calendar year including 2030, 2031, 2032, 2033, and 2034, as determined on a yearly basis.

(2) Each covered building shall not exceed the interim site EUI and net direct emissions standards for 2035-2039 in each calendar year including 2035, 2036, 2037, 2038, and 2039, as determined on a yearly basis.

(3) Each covered building shall not exceed the final site EUI and net direct emissions standards in calendar year 2040 and each calendar year thereafter, as determined on a yearly basis.

## Title 26 DEPARTMENT OF THE ENVIRONMENT

### Subtitle 28 BUILDING ENERGY PERFORMANCE STANDARDS

#### Chapter 04 Alternative Compliance and Special Provisions

Authority: Environment Article, §§1-404, 2-301, 2-302, 2-1205, 2-1602, Annotated Code of Maryland

##### **.01 Alternative Compliance Pathway.**

A. Alternative Compliance Pathway for Net Direct Emissions Standards.

(1) In lieu of meeting the net direct emissions standards in COMAR 26.28.03, the building owner shall come into compliance with the net direct emissions standards by paying an alternative compliance fee for the greenhouse gas emissions in excess of the net direct emissions standards.

(2) An alternative compliance fee shall be paid for every metric ton of net direct emissions in excess of the net direct emissions standard in a given calendar year. The fee shall be:

- (a) \$230 per metric ton of excess CO<sub>2</sub>e in 2020 dollars, adjusted for inflation, for 2030;
- (b) \$234 per metric ton of excess CO<sub>2</sub>e in 2020 dollars, adjusted for inflation, for 2031;
- (c) \$238 per metric ton of excess CO<sub>2</sub>e in 2020 dollars, adjusted for inflation, for 2032;
- (d) \$242 per metric ton of excess CO<sub>2</sub>e in 2020 dollars, adjusted for inflation, for 2033;
- (e) \$246 per metric ton of excess CO<sub>2</sub>e in 2020 dollars, adjusted for inflation, for 2034;
- (f) \$250 per metric ton of excess CO<sub>2</sub>e in 2020 dollars, adjusted for inflation, for 2035;
- (g) \$254 per metric ton of excess CO<sub>2</sub>e in 2020 dollars, adjusted for inflation, for 2036;
- (h) \$258 per metric ton of excess CO<sub>2</sub>e in 2020 dollars, adjusted for inflation, for 2037;
- (i) \$262 per metric ton of excess CO<sub>2</sub>e in 2020 dollars, adjusted for inflation, for 2038;
- (j) \$266 per metric ton of excess CO<sub>2</sub>e in 2020 dollars, adjusted for inflation, for 2039;
- (k) \$270 per metric ton of excess CO<sub>2</sub>e in 2020 dollars, adjusted for inflation, for 2040; and
- (l) The fee rate increases by \$4 per metric ton of CO<sub>2</sub>e per calendar year in 2020 dollars, adjusted for inflation, in each calendar year following 2040.

(3) The annual fee rate set forth in this chapter shall be increased each calendar year by the percentage, if any, by which the Consumer Price Index for the most recent calendar year exceeds the Consumer Price Index for the previous calendar year.

B. Other Provisions. If covered building ownership changes in 2030 or any calendar year thereafter, then the owner of the building on December 31st is responsible for compliance with this regulation and paying alternative compliance fees or penalties for the calendar year ending on December 31st and every calendar year thereafter until that person is no longer the owner of the covered building.

#### **.02 Exemptions.**

A. Exemptions from Benchmarking and Performance Standard Requirements. A building owner may apply for an exemption from the requirements of this regulation for one calendar year when the building owner can provide documentation showing that one of the following conditions are met:

- (1) Financial distress;
- (2) The covered building was not occupied for the entirety of the calendar year being reported; or
- (3) The covered building was demolished during the calendar year for which benchmarking is required.

B. Exemption from Establishing Baseline Performance.

(1) The Department may, in its sole discretion, grant an exemption from the requirement to establish baseline performance when, during the baseline year, less than 50% of the floor area of the covered building was occupied for at least 180 days and where the building owner applies for such exemption.

(2) A covered building may not receive an exemption from the requirement to establish baseline performance for more than three years.

C. Exemptions for Affordable Housing Providers.

(1) The Department may grant the application of reduced alternative compliance fees to an affordable housing provider when the building owner submits in writing such request by June 1st of each calendar year, beginning in 2031 which demonstrates to the Department that it has made a good faith effort, as demonstrated under §C(2) of this regulation.

(2) A good faith effort may be demonstrated to the Department by submitting a copy of the application to a Federal or Maryland administered program that would make the building(s) more energy efficient and/or reduce greenhouse gas emissions. The submission shall also include the benchmark report, intended scope of work, and estimated greenhouse gas reductions expected from the intended scope of work to achieve at least the applicable Interim or Final Standard.

(3) An alternative compliance fee granted by the Department under §C(1) of this regulation is good for one calendar year.

(4) A project that has applied to a program under §C(2) of this regulation but has not yet completed the improvements, can submit a confirmation received from the program administrator to the Department, verifying the project's active participation status to satisfy the good faith effort for another year.

(5) An alternative compliance fee granted by the Department under §C(1) of this regulation does not exempt the owner from complying with the benchmarking and reporting requirements in COMAR 26.28.02.

(6) An affordable housing provider may apply for the alternative compliance fee annually.

#### **.03 Option for Campus-Level Compliance.**

A. The owner of a covered building may choose to meet site EUI and net direct emissions standards, as specified under this regulation, at the campus level instead of the individual building level when two or more covered buildings are:

- (1) Connected to a district energy system;
- (2) Served by the same electric or gas meter; or
- (3) Served by the same heating or cooling system(s), which is not a district energy system.

B. Campus-level reporting shall include energy consumption and greenhouse gas emissions for all buildings and stationary equipment located on the campus, including all central plants, except as provided in §B(1) of this regulation.

(1) Campus-level reporting does not include energy consumption and greenhouse gas emissions from activities/sources that are excluded from the benchmarking report requirements in COMAR 26.28.02.

(2) The owner of a campus shall report to the Department annually by June 1st:

- (a) Any permits to build new buildings or change the footprint or usage of existing buildings on the campus; and

(b) Any buildings have received new certificates of occupancy.

(3) The Department shall, in consultation with the principal owner of a campus, determine whether the affected buildings will be included in campus-level compliance following the rules established in this chapter and whether and how to adjust the campus' interim and final performance standards.

C. Performance Standards for Campus-Level Compliance.

(1) For a campus that consists of one property type, the interim and final net direct emissions and site EUI standards are those that correspond with that property type.

(2) For a campus that consists of more than one property type, the interim and final net direct emissions and site EUI standards are based on area-weighted standards as specified in the Department's TM 23-01, "Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards".

(3) Interim site EUI standards are calculated using a straight-line trajectory from baseline performance to the final performance standards as specified in the Department's TM 23-01, "Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards".

(4) Achieving and Maintaining the Standards.

(a) Campus-level energy use shall not exceed the interim site EUI and net direct emissions standards for 2030-2034 in each calendar year including 2030, 2031, 2032, 2033, and 2034, as determined on a yearly basis.

(b) Campus-level energy use shall not exceed the interim site EUI and net direct emissions standards for 2035-2039 in each calendar year including 2035, 2036, 2037, 2038, and 2039, as determined on a yearly basis.

(c) Campus-level energy use shall not exceed the final site EUI and net direct emissions standards in calendar year 2040 and each calendar year thereafter, as determined on a yearly basis.

## APPENDICES

- Appendix A – TM 23-01 - Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards, August 2023
- Appendix B – Identification of Potentially Covered Buildings
- Appendix C – Maryland BEPS Impact Analysis Methodology
- Appendix D – 2023 ACP Emissions Benchmarking
- Appendix E – MD BEPS Webinar 1
- Appendix F – MD BEPS Webinar 2
- Appendix G – MD BEPS Webinar 3
- Appendix H – BEPS Overview for Stakeholder Meetings
- Appendix I – Preliminary Building Stock Analysis Highlights
- Appendix J – Cost-Benefits Analysis Briefing
- Appendix K – AQCAC Presentation 1
- Appendix L – AQCAC Presentation 2
- Appendix M – June 2023 BEPS Stakeholder Comments

Appendix A – TM 23-01 - Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards, August 2023

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**TM 23-01 Technical Guidance and Calculation Methodologies to Comply with Building  
Energy Performance Standards, August 2023**

Maryland Department of the Environment  
August 2023

## TABLE OF CONTENTS

<b>TM 23-01 Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards, August 2023</b>	1
Appendix A: Introduction	5
A. Benchmarking and Reporting	7
A. 1 Benchmarking Background	7
A. 1.1 Reporting Responsibility - Who is Responsible for Collecting and Reporting Data?	7
A. 1.2 Covered Buildings - Who Needs to Benchmark?	7
A. 1.2.1 Notification by the Department.	8
A. 1.2.2 Exemptions - Which buildings do not need to comply?	8
A. 2 Benchmarking Requirements	9
A. 2.1 Data Collection	9
A. 2.1.1 Entering Data into ENERGY STAR Portfolio Manager	10
A. 2.1.2 What Data Is Collected?	10
A. 2.1.3 Data Usage	11
A. 2.1.4 Energy and Emission Exclusions	11
A. 2.1.4.1 Food Service Facilities	12
A. 2.1.4.2 Electric Vehicle Charging	13
A. 2.1.4.3 Emissions From Required Combustion Equipment	13
A. 3 Reporting	14
A. 3.1 Reporting Deadline	14
A. 3.1.1 Sharing Benchmarking Data via ENERGY STAR Web Services	14
A. 3.2 Verification	15
A. 3.2.1 Data Quality Check	15
A. 3.2.2 Third Party Verification	16
B. Performance Standards and Compliance Demonstration	18
B. 1 Building Energy Performance Standards Background	18
B. 1.1 Metrics	19
B. 1.1.1 Net Direct Greenhouse Gas Emissions (kg/CO <sub>2</sub> e/ Sq Ft)	19
B. 1.1.2 Site Energy Use Intensity (kBtu/sq ft)	20
B. 1.2 Compliance Responsibility - Who is Responsible for Achieving Compliance?	20
B. 1.3 Covered Buildings - Who Needs to Comply with the Building Energy Performance Standards?	20

**DRAFT CONFIDENTIAL AND DELIBERATIVE**

B. 2 Determining Interim and Final Standards	20
B. 2.1 Final Net Direct Emissions Standard	21
B. 2.2 Final Site Energy Use Intensity Standard	21
B. 2.3 Interim Net Direct Emissions Standards	22
B. 2.4 Interim Site Energy Use Intensity Standards	23
C. Alternative Compliance	24
C. 1 Alternative Compliance Pathway	24
C. 2 Exemptions	25
C. 2.1 Exemption From Benchmarking and Performance Standard Requirements	25
C. 2.2 Exemption From Establishing Baseline Performance	26
C. 2.3 Exemptions for Affordable Housing Providers	26
D. Special Provisions	27
D. 1 Additional Reporting Requirements for Covered Buildings Connected to District Energy Systems	27
D 1.1 Reporting District Energy Emissions	27
D 1.1.1 Reporting Responsibilities of District Energy Providers	27
D.1.1.2 Reporting Responsibilities of the Building Owner	27
D 1.2 Efficiency Method	28
D 1.2.1 Step 1: Calculate the Total Direct Greenhouse Gas Emissions for All Combustion Sources Used in the Co-generation	28
D 1.2.2 Step 2: Calculate the Additional Energy and Emissions for Any Other Inputs Into the District Energy Network	28
D 1.2.3 Step 3: Calculate the Energy Content of Each Output Stream for the District Energy System	29
D 1.2.4 Step 4: Identify the Efficiencies of Production of Each Output Stream From the District Energy System	29
D 1.2.5 Step 5: Allocate Total Emissions to Output Streams	29
D 1.2.5 Step 6: Calculate Emission Factors for Each Output Stream	30
D 1.2.6 Further Guidance on the Use of the Efficiency Method	31
D 1.3 Calculation of Emissions for Chilled Water	31
D. 2 Campus-Level Compliance	31
D. 2.1 Required Data: What Data Should be Included in a Campus-level Benchmarking Report?	32
D. 2.1.1 Buildings on a Campus That Are Not Owned by the Principal Campus Owner	32
D. 2.2 Reporting Data as a Campus	33

**DRAFT CONFIDENTIAL AND DELIBERATIVE**

D. 2.3 Performance Standards for Campus-Level Compliance	33
D. 2.3.1 Additional Forms Required for Campus-Level Compliance	33

## Appendix A: Introduction

*Appendix A: Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards* has been developed to serve as the Maryland Department of the Environment's (the Department) initial Implementation Guidelines for covered building owners. The information provided offers background, clarification, and details to support the requirements outlined in the Maryland Building Energy Performance Standards (BEPS) and addresses stakeholder comments and questions received in June, 2023 in response to the initial draft regulation shared for stakeholder feedback. The information presented here was developed in consultation with the following technical assistance partners:

U.S. Department of Energy  
U.S. Environmental Protection Agency  
Lawrence Berkeley National Laboratory  
Pacific Northwest National Laboratory  
Institute for Market Transformation  
Northeast Energy Efficiency Partnerships

The Department will continue to add additional resources and guidance documents to support covered buildings with their compliance to BEPS via the Department's dedicated webpage: <https://mde.maryland.gov/programs/air/ClimateChange/Pages/BEPS.aspx> and updates to this Technical Memorandum as needed. The contents in this Technical Memorandum will be continuously reviewed, improved, and updated as the Department works closely with covered building owners, gas and electric companies, district energy providers, technical experts, local governments, other State agencies, and other stakeholders on Maryland's BEPS implementation.

In 2024, the Department will convene a series of working groups to further refine and develop processes discussed in this *Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards*. As an outcome of these working group processes, the Department will publish subsequent supplemental resources, white papers, and instructional tools to support BEPS implementation and the guidelines presented here. Topics to be included in the 2024 working group processes may include:

- Benchmarking and report submission
- Third party verification
- Electric and gas company reporting requirements
- District energy systems
- Campus compliance
- Affordable housing providers
- Unique building types

Throughout 2024 and 2025, the Department will conduct stakeholder outreach and education to reach covered building owners and provide training and support to assist them in meeting the

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first benchmarking requirement for their covered buildings. Building owners are required to submit their Initial Benchmarking Report by June 1, 2025 with data from January 1, 2024 - December 31, 2024. The Initial Benchmarking Report will establish the building's participation in BEPS and confirm key reporting details about the building such as property type, gross floor area, and more. The Baseline Benchmarking Report will be due to the Department by June 1, 2026 with data from January 1, 2025 - December 31, 2025. The Baseline Benchmarking Report will establish the baseline metrics for covered buildings to inform BEPS standards and compliance into the future.

Interim and final BEPS standards are set in the regulation. MDE will conduct an updated analysis after the 2025 Baseline Benchmarking Report data are submitted in 2026 to determine if the interim and/or final standards need to be modified based on actual 2025 benchmarked building energy performance. The Department may convene an additional series of working groups in 2026 to address sector-specific issues associated with compliance for the 2030-2034 and 2035-2039 interim standards.

## A. Benchmarking and Reporting

### A. 1 Benchmarking Background

Benchmarking refers to the process of measuring and reporting energy usage data. The reporting will be done through a software platform called ENERGY STAR Portfolio Manager. Maryland's gas and electric companies are required to provide whole building energy consumption data to building owners through either the ENERGY STAR Portfolio Manager web services application programming interface (API) or through a spreadsheet. To check the status of a gas or electric company's ability to automate the benchmarking process, refer to the EPA's [list of utilities](#)<sup>1</sup> that provide benchmarking data to ENERGY STAR Portfolio Manager.

Building owners are required to input data into ENERGY STAR Portfolio Manager and review the data prior to the annual reporting deadline beginning in 2025. Benchmarking reports are due to the Department on June 1st every year and must contain all energy usage data from the previous calendar year. For example, the deadline to report data for calendar year 2025 is June 1, 2026. Benchmarking requirements are discussed in more detail in the Benchmarking Requirements section.

Building owners are required to submit their Initial Benchmarking Report by June 1, 2025 with data from January 1, 2024 - December 31, 2024. The Initial Benchmarking Report will establish the building's participation in BEPS and confirm key reporting details about the building such as property type, gross floor area, and energy use data. The Baseline Benchmarking Report will be due to the Department by June 1, 2026 with data from January 1, 2025 - December 31, 2025. The Baseline Benchmarking Report will establish the baseline metrics for covered buildings to inform BEPS standards and compliance into the future.

#### A. 1.1 Reporting Responsibility - Who is Responsible for Collecting and Reporting Data?

It is the responsibility of the owner of a covered building to collect and report the energy usage data into [ENERGY STAR Portfolio Manager](#).<sup>2</sup>

#### A. 1.2 Covered Buildings - Who Needs to Benchmark?

A "Covered building" is a building that:

- (a) Is a commercial or multifamily residential building in the State of Maryland or is owned by the State of Maryland; and

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<sup>1</sup> [https://www.energystar.gov/buildings/tools-and-resources/utilities\\_increase\\_access\\_energy\\_data\\_help\\_commercial\\_customers\\_benchmark](https://www.energystar.gov/buildings/tools-and-resources/utilities_increase_access_energy_data_help_commercial_customers_benchmark).

<sup>2</sup> <https://www.energystar.gov/buildings/benchmark>.

**DRAFT CONFIDENTIAL AND DELIBERATIVE**

(b) Has a gross floor area of 35,000 square feet or more, excluding the parking garage area; and is:

(i) A single building;

(ii) One or more buildings held in the condominium form of ownership with a combined gross floor areas of 35,000 square feet or more (excluding the parking garage area) and governed by a single board of managers; or

(iii) Two or more buildings with a combined gross floor area of 35,000 square feet or more (excluding the parking garage area) that are served in whole or in part by the same electric or gas meter or are served by the same heating or cooling system(s), which is not a district energy system.

(c) A building that meets the criteria for a covered building as described in this section and is located in a historic district but where the building is not individually designated as a historic property under federal, state, or local law is a covered building.

NOTE: Owners of multiple covered buildings that are located on a campus have the option to benchmark and comply with the performance standards at the campus level instead of the individual building level. For more information see section D. 2 about campus level compliance.

**A. 1.2.1 Notification by the Department.**

The Department will try to assist owners with compliance by updating and publicly sharing a list of potentially covered buildings or a covered buildings list based on known gross floor area. The list will be found on the Department's BEPS website.

The Department will try to assist owners with compliance by notifying covered building owners via direct mail, electronically via email, or through a public posting on a web site of their obligation to benchmark.

NOTE: Failure of the Department to notify any owner shall not affect the obligation of such owner to comply with this regulation.

Failure of the Department to list a building on the covered building list shall not affect the obligation of the owner to comply with this regulation

Contact MDE if you do not see your building listed and you believe it is a covered building. See the section below if you believe your building is exempt.

**A. 1.2.2 Exemptions - Which buildings do not need to comply?**

If your building falls into one of the following categories then you may apply for exemption status. To apply for an exemption, a building owner must submit an exemption request form to

the Department. Resubmissions for exemption status may be required by the Department. The form to apply for exemption will be listed on the Department's [BEPS website](#).<sup>3</sup>

1. A building, or space within a building, individually designated as a historic property under federal, state, or local law, separate and apart from a building's inclusion in a historic district;
2. A public or nonpublic elementary or secondary school building;
3. A manufacturing building;
4. An agricultural building; or
5. A building owned by the Federal government.

Buildings that have been individually designated as historic buildings under federal, state, or local law are exempt from the requirements of this regulation. If a building meets the criteria of a covered building and has not been individually designated as a historic building, then it must comply with the regulations, even if it resides in a historic district.

## A. 2 Benchmarking Requirements

For more information about benchmarking at the campus level see Section D. 2.

### A. 2.1 Data Collection

Data must be collected annually. Each year by June 1st, the previous year of data must be collected, reviewed, and submitted to the Department. Data should be collected using the benchmarking tool: [ENERGY STAR Portfolio Manager](#).<sup>4</sup>

**NOTE: If a building is newly constructed it will be required to begin reporting after the first full calendar year of occupancy. See the example in section A 3.1.**

There are a few methods a building owner can use to obtain the data:

1. Obtain data from all electric and gas companies, fuel distributors, and district energy providers that provide service to the building;
2. Read meters that serve the building; or
3. Collect data from tenants.

**NOTE: Electric and gas companies are required to provide data in a method that follows guidelines from EPA ENERGY STAR Portfolio Manager. See the EPA list for details on the status of electric and gas companies integrating with ENERGY STAR Portfolio Manager.**

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<sup>3</sup> <https://mde.maryland.gov/programs/air/ClimateChange/Pages/BEPS.aspx>.

<sup>4</sup> <https://www.energystar.gov/buildings/benchmark>.

## DRAFT CONFIDENTIAL AND DELIBERATIVE

Delivered fuel oil, diesel, and any other delivered fuels must be reported. Retain all bills and use your delivery bills to record the volume and dates of fuel deliveries made during the calendar year within ENERGY STAR Portfolio Manager.

If asked, tenants are required to provide the necessary information within 30 days of the request. Benchmarking in no way permits a building owner to use the energy usage data for purposes other than the evaluation of the performance of the building.

### A. 2.1.1 Entering Data into ENERGY STAR Portfolio Manager

If you are new to ENERGY STAR Portfolio Manager, follow this [quickstart guide](#)<sup>5</sup> to creating an account and setting up your buildings. [This guide](#)<sup>6</sup> has more detailed instructions for adding buildings to your account. Follow EPA's [guide on entering data into ENERGY STAR Portfolio Manager](#).<sup>7</sup> For other useful information on ENERGY STAR Portfolio Manager visit the [training page](#).<sup>8</sup>

There are three ways to enter data for your property or portfolio:

1. Work with third-party providers that exchange data directly with Portfolio Manager via web services. A list of these providers can be found [here](#).<sup>9</sup>
2. Connect your ENERGY STAR Portfolio Manager account directly to a participating electric or gas company that can upload energy data directly to your account. [See this map](#)<sup>10</sup> to identify the available services.
3. Enter data manually (create/update one meter at a time).
4. Upload data using spreadsheet templates (create/update multiple meters at once).

To check if your electric or gas company is able to automatically upload benchmarking data for your building or portfolio directly into ENERGY STAR Portfolio Manager, see [this list](#).<sup>11</sup>

### A. 2.1.2 What Data Is Collected?

The following data is required for all covered buildings.

- Unique Property ID;
- Property Name;
- Property Address including ZIP code;
- Property Use Type(s);

5

[https://www.energystar.gov/sites/default/files/tools/Portfolio%20Manager%20Quick%20Start%20Guide\\_May%202022\\_final\\_508.pdf](https://www.energystar.gov/sites/default/files/tools/Portfolio%20Manager%20Quick%20Start%20Guide_May%202022_final_508.pdf)

6

[https://www.energystar.gov/buildings/tools-and-resources/how\\_set\\_your\\_property\\_portfolio\\_manager](https://www.energystar.gov/buildings/tools-and-resources/how_set_your_property_portfolio_manager).

7 [https://www.energystar.gov/sites/default/files/tools/HowtoGetUtilityDataIntoPortfolioManager\\_May%202022\\_Final\\_508.pdf](https://www.energystar.gov/sites/default/files/tools/HowtoGetUtilityDataIntoPortfolioManager_May%202022_Final_508.pdf).

8 [https://www.energystar.gov/buildings/training/how\\_to\\_guides](https://www.energystar.gov/buildings/training/how_to_guides).

9 [https://www.energystar.gov/buildings/benchmark/get\\_started/service\\_providers\\_exchange\\_data](https://www.energystar.gov/buildings/benchmark/get_started/service_providers_exchange_data).

10

[https://www.energystar.gov/buildings/owners\\_and\\_managers/existing\\_buildings/use\\_portfolio\\_manager/find\\_utilities\\_provide\\_data\\_benchmarking](https://www.energystar.gov/buildings/owners_and_managers/existing_buildings/use_portfolio_manager/find_utilities_provide_data_benchmarking).

11 [https://www.energystar.gov/buildings/tools-and-resources/utilities\\_increase\\_access\\_energy\\_data\\_help\\_commercial\\_customers\\_benchmark](https://www.energystar.gov/buildings/tools-and-resources/utilities_increase_access_energy_data_help_commercial_customers_benchmark).

## DRAFT CONFIDENTIAL AND DELIBERATIVE

- Total Gross Floor Area of Property;
  - If the building has multiple uses, for example a financial building with retail stores, offices, and restaurants, follow the instructions within the [Quick Start Guide](#)<sup>12</sup> to report the square footage for each of these uses.
  - If one or more of the building uses are for a food service facility(ies), refer to Section A. 2.1.4 on energy exclusions.
- Year Built;
- Occupancy;
- Number of Buildings;
- 12 months of energy data from January 1 - December 31 of the year being benchmarked;
  - Energy data includes: electricity, natural gas, delivered fuels such as fuel oil or propane, onsite- solar generation, steam, any other energy source including energy for backup generation.

NOTE: The information collected above will be used to generate the net direct emissions and site energy use intensity for the property. It will also be used to set your building's interim and final performance standards. The methodology for these calculations are outlined throughout this document.

### A. 2.1.3 Data Usage

Some data that is collected as required by the BEPS regulation will be publicly available on the [BEPS website](#).<sup>13</sup> No personally identifiable information will be included in these data sets. The Department may publish basic building information and energy performance metrics annually for all buildings reporting that year, including but not limited to the following fields:

- Property name;
- Address;
- Property type(s);
- Gross Floor Area;
- Year Built;
- Site EUI;
- Net direct greenhouse gas emissions;
- An indication if the building is or is not in compliance with BEPS.

### A. 2.1.4 Energy and Emission Exclusions

Some energy uses can be excluded from a building's total energy consumption and greenhouse gas emissions reporting. See the list below for energy uses that can be subtracted.

1. Food service facilities;
2. Electric vehicle charging;

<sup>12</sup> <https://www.energystar.gov/buildings/tools-and-resources/portfolio-manager-quick-start-guide>.

<sup>13</sup> <https://mde.maryland.gov/programs/air/ClimateChange/Pages/BEPS.aspx>.

**DRAFT CONFIDENTIAL AND DELIBERATIVE**

3. Other electricity uses excluded by the benchmarking tool; and
4. Emissions from required combustion equipment under the following conditions:
  - a. A backup generator if federal or state regulation requires a covered building to use a backup generator or other equipment that must run on combustible fuels.

A. 2.1.4.1 Food Service Facilities

Buildings that contain food service facilities, as defined in [COMAR 10.15.03.02B](#),<sup>14</sup> such as restaurants and cafeterias, can exclude the energy use and emissions associated with these spaces, by taking the following steps:

1. From the property's Details tab in ENERGY STAR Portfolio Manager, enter a property use of "Restaurant" for the food service facility(ies) at the property, specifying the associated gross floor area.
2. From the property's Energy tab, enter a meter for each fuel/energy type used in the building's food service facility(ies). For each meter, enter consumption values based on either:
  - a. actual metered consumption; or
  - b. calculated consumption, per the formulas below.

All consumption values should be marked with a (-) so that the meter(s) function as **negative meters**. This will subtract the food service facility energy use—and resulting ENERGY STAR Portfolio Manager emissions calculations—from the building's total.

NOTE: If the consumption values are estimated using the formulas below, mark the values as "Estimated" when entering them in ENERGY STAR Portfolio Manager.

**All-Electric Food Service facilities should use the following equation:**

$$\begin{aligned} & \textit{Modified Electricity Consumption Excluding Food Service Facility} \\ & = EB - ED \times GFA \end{aligned}$$

Key: EB = Total Electricity Consumption from Utility Bill  
ED = Electricity Deduction = **67.2 kWh/sqft**  
GFA = Gross Floor Area of the Food Service Facility

**Mixed-Fuel Food Service Facilities should use the following two equations:**

$$\begin{aligned} & \textit{Modified Natural Gas Consumption Excluding Food Service Facility} \\ & = GB - GD \times GFA \end{aligned}$$

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<sup>14</sup> <https://dsd.maryland.gov/regulations/Pages/10.15.03.02.aspx>.

**DRAFT CONFIDENTIAL AND DELIBERATIVE**

Key: GB = Total Natural Gas Consumption from Utility Bill  
GD = Natural Gas Deduction = **0.376 therms/sqft**  
GFA = Gross Floor Area of the Food Service Facility

$$\text{Modified Electricity Consumption Excluding Food Service Facility} \\ = EB - ED \times GFA$$

Key: EB = Total Electricity Consumption from Utility Bill  
ED = Electricity Deduction = **70 kWh/sqft**  
GFA = Gross Floor Area of the Food Service Facility

#### A. 2.1.4.2 Electric Vehicle Charging

Energy use from Electric Vehicle Charging Stations can be excluded, following the steps below:

1. Enter the number of chargers by type, by adding the Electric Vehicle Charging Station property use from the property's Details tab in Portfolio Manager:
  - a. Number of Level 1 EV Charging Stations;
  - b. Number of Level 2 EV Charging Stations; and
  - c. Number of DC Fast EV Charging Stations.
2. Create an electric meter for the EV charger energy use. Enter consumption values for the EV charging station(s), based on:
  - a. metered consumption; or
  - b. calculation consumption, following a forthcoming methodology to be developed by EPA.

All consumption values should be marked with a (-) so that the meter(s) function as negative meters, subtracting the EV charger energy use from the building's total. If the consumption values are calculated using the EPA methodology, mark the values as "Estimated" when entering them in Portfolio Manager.

#### A. 2.1.4.3 Emissions From Required Combustion Equipment

If federal or state regulation requires a covered building to use a backup generator or other equipment that must run on combustible fuels, these can be excluded. Energy usage from backup generators or other combustion equipment that are not required by federal or state regulation must be included.

1. If the combustion equipment is on the main meter but there is a submeter, then this submeter should be entered as an additional meter with negative entries ([More information here](#)).<sup>15</sup>
2. If the combustion equipment is from delivered fuels or separately metered (not submetered), then it can be left out of the data entered into Portfolio Manager.

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<sup>15</sup> <https://energystar-mesa.force.com/PortfolioManager/s/article/Can-I-add-a-negative-meter-to-subtract-parking-cell-towers-EV-charging-stations-etc-1600088527076>.

3. If the combustion equipment is on the main meter and not submetered, then contact the Department regarding how to quantify emissions and energy usage from the equipment.

## A. 3 Reporting

### A. 3.1 Reporting Deadline

Once the data has been collected, the building owner must ensure it has been correctly entered into ENERGY STAR Portfolio Manager by June 1st beginning in 2025. By June 1st, building owners must report data from the previous calendar year which is defined as January 1 to December 31.

Owners of newly constructed buildings will be required to begin reporting after the first full year of occupancy of the newly constructed building.

*Example:*

*A building that is newly constructed and occupied beginning on March 1, 2025 would be required to comply with the June 1, 2027 deadline with data from January 1 - December 31 of 2026. This is because 2026 is the first full calendar year.*



#### A. 3.1.1 Sharing Benchmarking Data via ENERGY STAR Web Services

The Department uses ENERGY STAR Portfolio Manager's Web Services capabilities to facilitate automatic annual benchmarking. This process only needs to be set up once and allows the Department to read data in your ENERGY STAR Portfolio Manager account and run basic data checks. Once your ENERGY STAR Portfolio Manager account has been created and you have added properties there are 3 basic steps to sharing your data with the Department.

1. Add the Maryland Department of the Environment as a contact.
2. Send the Department a connection request.
3. Select the properties for which you want to share data.
4. Allow the Exchange of Data READ ONLY Access.
5. View shared properties from the "Sharing" tab.

For a more detailed explanation of this process, see the [EPA Guide](#).<sup>16</sup> The Department will create a specific Maryland Data Exchange Guide for this process prior to the first benchmarking period.

## A. 3.2 Verification

Prior to the June 1 benchmarking deadline, a building owner must check their benchmarking data. ENERGY STAR Portfolio Manager has built-in data quality tools that must be used annually. Every five years, a building owner must have their data verified by a third party.

### A. 3.2.1 Data Quality Check

Prior to the June 1 benchmarking deadline each year, the building owner must check the accuracy of the data using the data quality checker built into ENERGY STAR Portfolio Manager. These checks will identify errors in the data such as missing information. If data is missing or inaccurate, then the building owner is required to fix it prior to the reporting deadline. If the building owner is notified of an error by the Department, then the building owner must correct the error within 30 days.

The data quality check can be run from the summary page of an individual building within ENERGY STAR Portfolio Manager. See the screenshot below. See this [list](#)<sup>17</sup> of possible alert messages.

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<sup>16</sup> [https://portfoliomanager.energystar.gov/pdf/reference/Connection\\_and\\_Sharing\\_for\\_Data\\_Exchange\\_en\\_US.pdf](https://portfoliomanager.energystar.gov/pdf/reference/Connection_and_Sharing_for_Data_Exchange_en_US.pdf).

<sup>17</sup> [https://www.energystar.gov/buildings/tools-and-resources/list\\_portfolio\\_manager\\_alerts](https://www.energystar.gov/buildings/tools-and-resources/list_portfolio_manager_alerts).

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The screenshot shows a software interface with a navigation bar at the top containing tabs for Summary, Details, Energy, Water, Waste & Materials, Goals, and Design. The 'Summary' tab is active. On the left, there is a 'Source EUI Trend' chart area with a 'Refresh' button and a 'Change Metric' link. The main content area is divided into two sections: 'Metrics Summary' and 'Data Quality Checker'.

**Metrics Summary Table:**

Metric	Dec 2013 (Energy Baseline)	Dec 2020 (Energy Current)	Change
ENERGY STAR Score (1-100)	Not Available	Not Available	N/A
Source EUI (kBtu/ft²)	Not Available	Not Available	N/A
Site EUI (kBtu/ft²)	Not Available	Not Available	N/A
Energy Cost (\$)	1,044.26	2,815.88	1771.62 (169.70%)
Total (Location-Based) GHG Emissions Intensity (kgCO2e/ft²)	Not Available	Not Available	N/A
Water Use (All Water Sources) (kgal)	Not Available	Not Available	N/A
Total Waste (Disposed and Diverted) (Tons)	Not Available	Not Available	N/A

**Data Quality Checker:**

Run a check for any 12-month time period to see if there are any possible errors found with your data.

**Check for Possible Errors** (button circled in red)

**A. 3.2.2 Third Party Verification**

To ensure quality of data, building owners must also have their data verified by a third party every five years. Third party verification will begin in 2026 with the benchmarking submission which covers calendar year 2025. The following is a schedule of third party verification dates.

Calendar Year Data Being Verified	Verification deadline MDE
2025	June 1, 2026
2030	June 1, 2031
2035	June 1, 2036
2040	June 1, 2041
Every 5 years following this pattern	

The third party verifier must have access to the building data to accurately verify the information. To accomplish this, follow [the guide on sharing Portfolio Manager Properties](#).<sup>18</sup> It is the

<sup>18</sup>

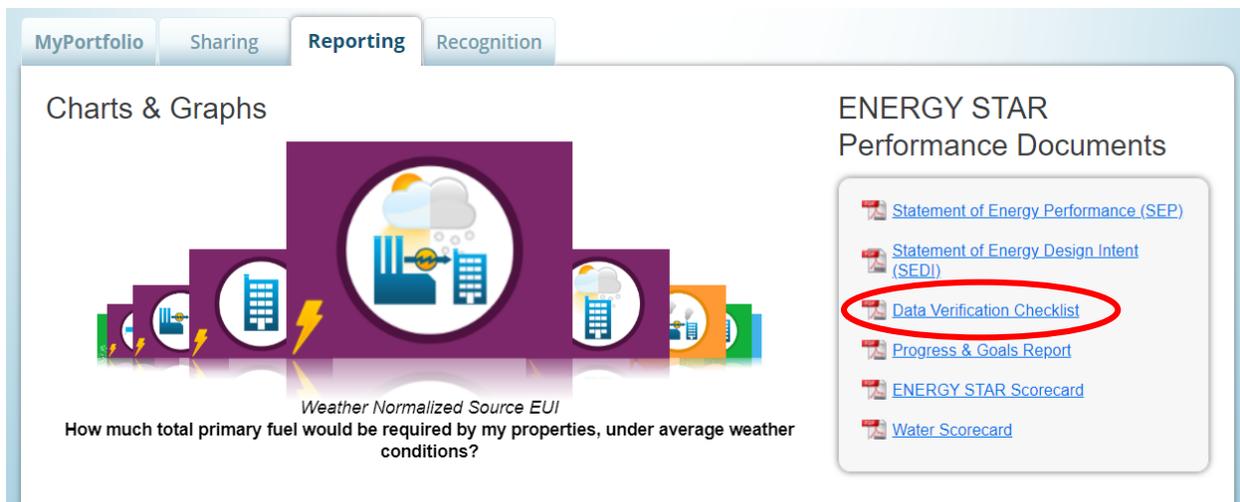
<https://www.energystar.gov/sites/default/files/tools/How%20to%20Share%20Properties%20with%20Other%20Portfolio%20Manager>

## DRAFT CONFIDENTIAL AND DELIBERATIVE

responsibility of the certified third party verifier to: generate, review and sign an ENERGY STAR Data Verification Checklist. The Department will develop and publish a verification guide for instructions on how to complete a third party verification. At a minimum, the following information will be required as part of the third-party verification process:

1. Basic Property Information
  - a. All
2. Review of Property Use Details
  - a. Accurate Gross Floor Area and allocation to appropriate property types
  - b. Building Occupancy
3. Review of Energy Consumption
  - a. Total Energy Use
  - b. Additional Fuels
  - c. Total Energy Consumption meters
4. Signature of Verifier
  - a. Name
  - b. Signature
  - c. Date

A Data Verification Checklist can be created from the Reports tab within ENERGY STAR Portfolio Manager. View a sample report [here](#).<sup>19</sup>



The screenshot displays the ENERGY STAR Portfolio Manager interface. At the top, there are four tabs: "MyPortfolio", "Sharing", "Reporting", and "Recognition". The "Reporting" tab is selected. Below the tabs, there are two main sections. On the left, under "Charts & Graphs", there is a large purple graphic with a circular icon containing a building and a lightning bolt, with the text "Weather Normalized Source EUI" and "How much total primary fuel would be required by my properties, under average weather conditions?". On the right, under "ENERGY STAR Performance Documents", there is a list of documents: "Statement of Energy Performance (SEP)", "Statement of Energy Design Intent (SEDI)", "Data Verification Checklist", "Progress & Goals Report", "ENERGY STAR Scorecard", and "Water Scorecard". The "Data Verification Checklist" item is circled in red.

Once the verifier is finished, they should email a digital copy of the report to the building owner who must save it and keep it in their records. To complete the verification process, the verifier must navigate to the property details of the building and mark the building as verified in the following steps:

[%20Users\\_May%202021\\_FINAL.pdf#:~:text=To%20start%20sharing%2C%20go%20to%20the%20Sharing%20tab.,select%20propertiesby%20using%20filters%20by%20primary%20function%20orstate%2Fprovince.](#)

<sup>19</sup> [https://www.energystar.gov/buildings/tools-and-resources/sample\\_energy\\_star\\_data\\_verification\\_checklist](https://www.energystar.gov/buildings/tools-and-resources/sample_energy_star_data_verification_checklist).

## DRAFT CONFIDENTIAL AND DELIBERATIVE

1. While viewing the Property navigate to the “Details” tab.
2. Click “add verification information” located at the bottom right.
3. The form will ask for the year for which the data was verified, the date of verification, the name of the verifier, and their professional designation.

The screenshot shows a web interface for property management. On the left, there is a sidebar with an 'Edit' button at the top, followed by 'Additional Information' which includes 'Federal Property: Not Set' and 'Service & Product Provider: None (Find a SPP)' with an 'Edit' button. Below this is a 'Delete this Property' button and a warning icon with the text 'Caution! Deleting your property is permanent.' The main content area has a 'Property Notes' section with a text input field and a 'Save Notes' button. Below that is a 'Verification' section with a paragraph of text and a blue button labeled 'Add Verification Information' which is circled in red.

Below are the qualifications for a third party verifier.

1. Professional Engineer (PE) issued within the United States;
2. Licensed Architect issued within the United States;
3. Certified Energy Manager (CEM);
4. Building Energy Assessment Professional;
5. Any other additional data verifier license or training program credentials recognized by the Department and posted to the website.

## B. Performance Standards and Compliance Demonstration

### B. 1 Building Energy Performance Standards Background

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Building Energy Performance Standards (BEPS) are mandatory performance standards that a covered building must achieve over time. Maryland BEPS includes two metrics to evaluate the performance of a building: **net direct greenhouse gas emissions** and **site energy use intensity** (Site EUI). Net direct greenhouse gas emissions standards were established by the Climate Solutions Now Act of 2022. Site EUI standards were developed based on an analysis of Maryland’s building stock conducted by the U.S. Department of Energy’s Lawrence Berkeley and Pacific Northwest National Laboratories (MDE Technical Support Document for BEPS, Appendix C *MD BEPS Impact Analysis*). MDE used the 2023 ACP Emissions Benchmarking study (MDE Technical Support Document for BEPS, Appendix D *2023 ACP Emission Benchmarking*) to set standards for the aquarium property type because the sample size of aquaria in the Lawrence Berkeley National Lab analysis was low and potentially unreliable for setting standards for this property type. MDE used its best professional judgment as guided by the 2023 ACP Emissions Benchmarking study to set the aquarium standard. MDE intends to continue to gather data and may adjust this and other standards given future availability of compelling data. The standards become more stringent every five years until 2040. See below for the compliance timeline.

Compliance with the standards will be determined based on data submitted during the benchmarking process.

<b>Compliance year</b>	<b>Deadline to Input Verified Data into ENERGY STAR Portfolio Manager</b>
2025	June 1, 2026
2030	June 1, 2031
2035	June 1, 2036
2040	June 1, 2041

## B. 1.1 Metrics

Maryland BEPS uses two metrics to measure building energy performance: net direct greenhouse gas emissions measured in kilograms of CO<sub>2</sub> equivalent per square foot, and site EUI measured in thousand British Thermal Units (kBtu) per square foot.

### B. 1.1.1 Net Direct Greenhouse Gas Emissions (kg/CO<sub>2</sub>e/ Sq Ft)

Net direct greenhouse gas emissions or net direct emissions are the sum of all direct greenhouse gas emissions. For a covered building connected to a district energy system, direct greenhouse gas emissions plus the greenhouse gas emissions attributable to thermal energy inputs from the district energy system used by the covered building, as calculated using the

methodology provided in this regulation. Net direct emissions does not include direct emissions from a food service facility located within a covered building. See Section A. .2.1.4 on Energy and Emission Exclusions.

### B. 1.1.2 Site Energy Use Intensity (kBtu/sq ft)

Site EUI is a metric of energy consumption per square foot of building space. This metric allows buildings of different sizes to be compared. Site EUI refers to energy used directly on-site. In other words, it is energy used by the building.

*Example:*

*A building that is 35,000 square feet in floor area with an energy consumption of 2,000,000kBtu. Will have an EUI of 57.14 kBtu/sqft.*

## B. 1.2 Compliance Responsibility - Who is Responsible for Achieving Compliance?

The building owner is responsible for making the necessary improvements to the building to comply with the building energy performance standards. Annual benchmarking will help the building owner track performance.

## B. 1.3 Covered Buildings - Who Needs to Comply with the Building Energy Performance Standards?

The same buildings that are required to submit benchmarking data are also required to comply with the performance standards. Buildings that are exempt from benchmarking are also exempt from the building energy performance standards. See Section A. 1.2 on Covered Buildings.

## B. 2 Determining Interim and Final Standards

The information below pertains both to individual buildings and campuses. Each building or campus will need to comply with two types of standards: net direct greenhouse gas emissions and site EUI. Each metric has a **final standard** that must be achieved by 2040 and **interim standards** in 2030 through 2039. The Department will assess interim and final standards for each covered building based on the benchmarking data submitted through ENERGY STAR Portfolio Manager. Methodology on how the Department will compute the standards per building can be found in the sections below.

## B. 2.1 Final Net Direct Emissions Standard

The final net direct emissions standard is the same for every covered building or campus: 0 (zero) kg CO<sub>2</sub>e per square foot. See below for more information about determining the Interim Standards.

## B. 2.2 Final Site Energy Use Intensity Standard

Site EUI standards were developed based on an analysis of Maryland’s building stock conducted by the U.S. Department of Energy’s Lawrence Berkeley and Pacific Northwest National Laboratories (MDE Technical Support Document for BEPS, Appendix C *MD BEPS Impact Analysis*). Final standards are set in the regulation. MDE used the 2023 ACP Emissions Benchmarking study (MDE Technical Support Document for BEPS, Appendix D *2023 ACP Emission Benchmarking*) to set standards for the aquarium property type because the sample size of aquaria in the Lawrence Berkeley National Lab analysis was low and potentially unreliable for setting standards for this property type. MDE used its best professional judgment as guided by the 2023 ACP Emissions Benchmarking study to set the aquarium standard. MDE intends to continue to gather data and may adjust this and other standards given future availability of compelling data. MDE will conduct an updated analysis after the 2025 benchmarking data are submitted in 2026 to determine if the interim and/or final standards need to be modified based on actual 2025 benchmarked building energy performance.

NOTE: The following calculations will be performed by the Department outside of ENERGY STAR Portfolio Manager. The methodology is provided for reference.

Individual Buildings with mixed use types will have a mixed standard specific to them. Campuses with buildings that have different property types will have a mixed standard specific to the campus. Mixed-use standards will be calculated by the Department using the methodology and equations below.

If a covered building or campus consists of **one property type**, then its final site EUI standard is the final site EUI standard for the property type grouping in which it belongs. For example, if a covered building is an office building, then its final site EUI performance standard is that of the “Office” property type grouping.

If a covered building or campus is **mixed-use**, consisting of more than one property type, then an area-weighted final site EUI standard will be calculated by the Department that blends the final site EUI standards from multiple property types following this formula:

$$EUI_{AW} = \left( \left( \frac{GSF_A}{GSF_S} \right) \times EUI_A \right) + \left( \left( \frac{GSF_B}{GSF_S} \right) \times EUI_B \right) + \left( \left( \frac{GSF_C}{GSF_S} \right) \times EUI_C \right) + etc.$$

Key: EUI<sub>AW</sub> is the area-weighted final site EUI standard  
GSF<sub>A</sub> is the gross square footage of a property type within a covered building or campus  
GSF<sub>B</sub> is the gross square footage of a second property type within the covered building or campus

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GSF<sub>C</sub> is the gross square footage of a third property type within the covered building or Campus

GSF<sub>S</sub> is the sum of the gross square footage of a GSF<sub>A</sub> , GSF<sub>B</sub> , GSF<sub>C</sub> , etc.

EUI<sub>A</sub> is the final site EUI standard for the property type group corresponding to GSF<sub>A</sub>

EUI<sub>B</sub> is the final site EUI standard for the property type group corresponding to GSF<sub>B</sub>

EUI<sub>C</sub> is the final site EUI standard for the property type group corresponding to GSF<sub>C</sub>

If a covered building or campus includes more than three property types, then the formula above can be modified to replace “etc.” with “((GSF<sub>D</sub> / GSF<sub>S</sub>) x EUI<sub>D</sub>)” and so on to include additional property types.

In the case of a campus, see Section D. 2 on Campus-Level Compliance for more information.

*Example:*

*A 45,000 square foot mixed use building where 20,000 square feet are used for Office space, 15,000 square feet are used for retail and 10,000 square feet are used for restaurants.*

*The final EUI standards for these property types are: 55 kBtu/sf for offices, 48 kBtu/sf for retail stores, and restaurants are exempt. The 10,000 square feet of restaurant space should be removed from this equation so the “total building area” in the case of determining the final EUI standard is 35,000 square feet. The calculation to find the mixed final EUI standard is as follows:*

$$52 \text{ kBtu/sf} = \left( \left( \frac{20,000}{45,000 - 10,000} \right) \times 55 \text{ kBtu/sf} \right) + \left( \left( \frac{15,000}{45,000 - 10,000} \right) \times 48 \text{ kBtu/sf} \right)$$

Office Space Retail Stores

### B. 2.3 Interim Net Direct Emissions Standards

Interim net direct emissions standards are listed in the regulation by property type in kg CO<sub>2</sub>e per square foot.

If a covered building or campus produces net direct emissions and is a mixed-use building or campus, then its interim net direct emissions standard in 2030 and 2035 will be calculated by the Department using an area-weighted approach. In this situation, the following formula can be used to calculate the area-weighted maximum net direct emissions in 2030 and 2035.

$$GHG_{AW} = \left( \left( \frac{GSF_A}{GSF_S} \right) \times GHG_A \right) + \left( \left( \frac{GSF_B}{GSF_S} \right) \times GHG_B \right) + \left( \left( \frac{GSF_C}{GSF_S} \right) \times GHG_C \right) + \text{etc.}$$

**Key:** GHG<sub>AW</sub> is the area-weighted maximum net direct emissions standard for 2030  
GSF<sub>A</sub> is the gross square footage of one property type within the covered building  
GSF<sub>B</sub> is the gross square footage of a second property type within the covered building

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GSF<sub>C</sub> is the gross square footage of a third property type within the covered building

GSF<sub>S</sub> is the sum of the gross square footage of a GSF<sub>A</sub> , GSF<sub>B</sub> , and GSF<sub>C</sub>

GHG<sub>A</sub> is the 2030 emissions standard for the property type group corresponding to

GSF<sub>A</sub>

GHG<sub>B</sub> is the 2030 emissions standard for the property type group corresponding to

GSF<sub>B</sub>

GHG<sub>C</sub> is the 2030 emissions standard for the property type group corresponding to

GSF<sub>C</sub>

If a covered building includes more than three property types, then the formula above can be modified to replace “etc.” with “((GSF<sub>D</sub> / GSF<sub>S</sub>) x GHG<sub>D</sub>)” and so to include additional property types.

Submetered area within a covered building that is a parking garage or a food service facility can be excluded from area-weighted calculations.

*Example:*

*A 45,000 square foot mixed use building where 20,000 square feet are used for Office space, 15,000 square feet are used for retail and 10,000 square feet are used for restaurants.*

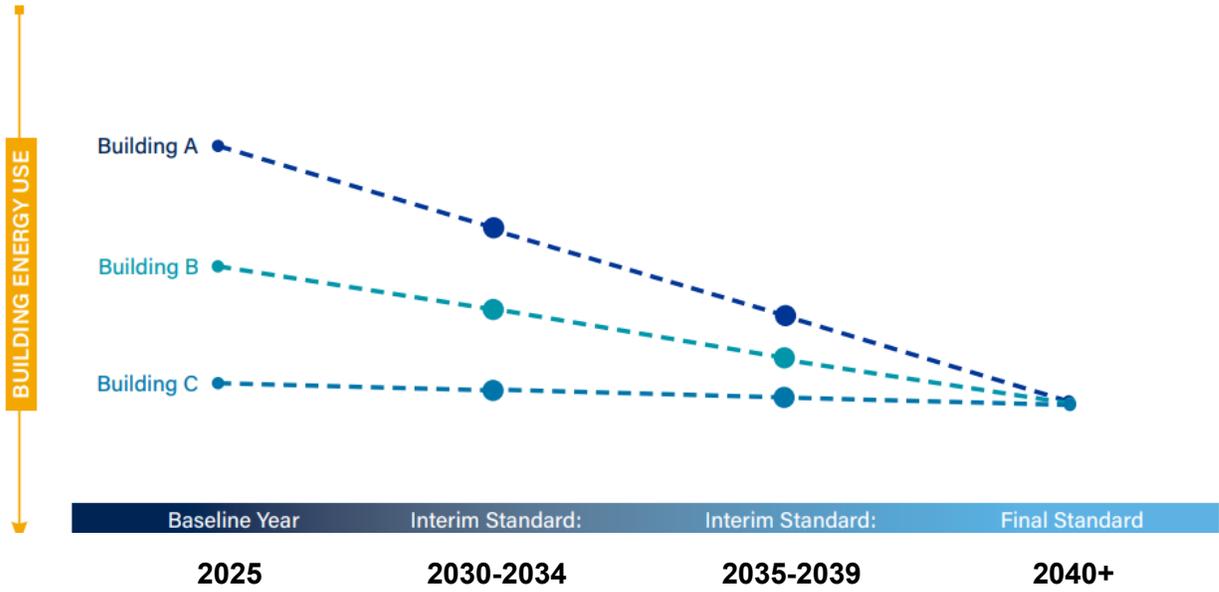
*At the time of this writing, the 2030 interim net direct emissions standards for these property types are: 0.22 kgCO<sub>2</sub>e/sf for offices, 0.60 kgCO<sub>2</sub>e/sf for retail stores, and restaurants are exempt. The 10,000 square feet of restaurant space should be removed from this equation so the “total building area” in the case of determining the interim net direct emissions standard is 35,000 square feet. The calculation to find the mixed 2030 interim net direct emissions standard is as follows:*

$$\begin{aligned} &.38 \text{ kgCO}_2\text{e/sf} \\ &= \left( \left( \frac{20,000}{45,000 - 10,000} \right) \times 0.22 \text{ kgCO}_2\text{e/sf} \right) \\ &+ \left( \left( \frac{15,000}{45,000 - 10,000} \right) \times 0.60 \text{ kgCO}_2\text{e/sf} \right) \\ &\qquad\qquad\qquad \text{Office Space} \qquad\qquad\qquad \text{Retail Space} \end{aligned}$$

## B. 2.4 Interim Site Energy Use Intensity Standards

NOTE: The following calculations will be performed by the Department outside of ENERGY STAR Portfolio Manager. The methodology used to calculate the Interim Site EUI are below.

Interim site EUI standards are calculated for 2030-2034 and 2035-2039 for each building. To do so, a straight-line trajectory is drawn from the baseline performance to the final performance standard in 2040. The following figure illustrates that each covered building in a common property type group may have unique interim standards because their baseline performance may differ. All buildings in a common property type have the same final EUI standards.



Interim standards are calculated by the Department using the following formulas.

NOTE: The Department will use the following formulas to calculate interim site EUI standards for both mixed-use and single-use buildings.

Standard for 2030-2034 = baseline performance - ((baseline performance - final standard) x 0.33)

Standard for 2035-2039 = baseline performance - ((baseline performance - final standard) x 0.67)

*Example:*

*If a building's baseline site EUI is 100 kBTU/sf and its final standard is 70 kBTU/sf, then its interim standard for 2030-2034 would be 90 kBTU/sf and its interim standard for 2035-2039 would be 80 kBTU/sf as seen in these equations:*

$$\text{Standard for 2030-2034} = 90 \text{ kBTU/sf} = 100 \text{ kBTU/sf} - ((100 \text{ kBTU/sf} - 70 \text{ kBTU/sf}) \times 0.33)$$

$$\text{Standard for 2035-2039} = 80 \text{ kBTU/sf} = 100 \text{ kBTU/sf} - ((100 \text{ kBTU/sf} - 70 \text{ kBTU/sf}) \times 0.67)$$

## C. Alternative Compliance

### C. 1 Alternative Compliance Pathway

If a building owner is not able to meet the net direct emissions standard for one or more of their buildings, the building owner shall pay an alternative compliance fee for each metric ton of carbon dioxide equivalent (CO<sub>2</sub>e) that is emitted over the standard.

## DRAFT CONFIDENTIAL AND DELIBERATIVE

The alternative compliance fee can be determined by subtracting the building's net direct emissions from its target and multiplying by the cost per metric ton of CO<sub>2</sub>e. If the number is positive then this is the alternative compliance fee. If the number is negative then the building is in compliance and no fee is required.

The alternative compliance fee will begin at \$230 and will increase \$4 every year as written in Chapter 04 Alternative Compliance and Special Provisions of the regulation.

### *Example:*

*If, for calendar year 2030, a covered building is permitted to produce 200 metric tons of CO<sub>2</sub>e, but actually produces 300 metric tons of CO<sub>2</sub>e, then it has produced 100 metric tons of CO<sub>2</sub>e in excess of the 2030 net direct emissions standard. Therefore, the owner of the covered building must pay a fee of: 100 metric tons x \$230 per metric ton = \$23,000 (in 2020 dollars, adjusted for inflation).*

The Department will identify buildings that fail to meet compliance and will notify the building owner. The Department will invoice the building owner at the address listed as the primary contact and the email listed as the primary contact. The invoice will include documentation identifying how far the building is out of compliance and the resulting alternative compliance fee amount. A building owner has 30 days to pay.

Failure to pay in a timely manner may result in referral to the central collections unit of the Department of Budget and Management, in which case a 17% collection fee will be added.

The alternative compliance fee can be paid in two ways:

1. A check for the compliance fee can be written to "Maryland Department of the Environment/Clean Air Fund" and directed to P.O. Box 2037, Baltimore, MD 21203-2037; or
2. An online portal [www.egov.maryland.gov/mde/invoice](http://www.egov.maryland.gov/mde/invoice) can be used to make credit card payments. A processing fee is added.

## C. 2 Exemptions

There are some instances where the owner of a building that would otherwise be required to comply with the performance standard can apply to be exempt for one or more calendar years.

### C. 2.1 Exemption From Benchmarking and Performance Standard Requirements

A building owner may apply for their building to be exempt from complying with the building energy performance standard for the following reasons:

1. Financial distress;
2. The covered building was not occupied during the calendar year being reported; or
3. The covered building was demolished during the calendar year for which benchmarking is required

To apply for an exemption, a building owner must submit an exemption request form to MDE and provide any documentation to substantiate the request. A building owner may request an exemption at any point prior to the reporting deadline of June 1 of each year for the previous year of reporting. Any exemption approved by MDE will be limited to the benchmarking and performance standard year for which the request was made and shall not extend to past or future submissions.

### **C. 2.2 Exemption From Establishing Baseline Performance**

A building owner may apply for an exemption from the requirement to establish baseline performance when, during the year that would have been the baseline year, less than 50% of the covered building was occupied for at least 180 days. A covered building may not receive an exemption from the requirement to establish baseline performance for more than three years.

To apply for an exemption, a building owner must submit an exemption request form to MDE and provide any documentation to substantiate the request. A building owner may request an exemption at any point prior to the reporting deadline of June 1 of each year for the previous year of reporting. Any exemption approved by MDE shall be limited to the benchmarking and performance standard data for the year for which the request was made and shall not extend to past or future years.

### **C. 2.3 Exemptions for Affordable Housing Providers**

An affordable housing provider may apply for reduced alternative compliance fees when the building owner submits in writing such a request by June 1st of each calendar year, beginning in 2031.

To apply, an affordable housing provider must submit an exemption request to MDE and submit a copy of the application to a Federal or Maryland administered program that would make the building(s) more energy efficient and/or reduces greenhouse gas emissions. The submission must also include the benchmark report, intended scope of work, and estimated greenhouse gas reductions expected from the intended scope of work to achieve at least the applicable Interim or Final Standard.

Any exemption approved by MDE shall be limited to the alternative compliance fee for the year for which the request was made and shall not extend to past or future years. A project that has applied to a program but has not yet completed the improvements, can submit a confirmation

received from the program administrator to the Department with their exemption request, verifying the project's active participation status to satisfy the good faith effort for another year.

## D. Special Provisions

### D. 1 Additional Reporting Requirements for Covered Buildings Connected to District Energy Systems

Emissions from district energy systems are included within the definition of net direct emissions. When assessing a building's compliance with the standards, the Department will use a system-specific emission factor for the district energy system, instead of national default factors or customer-specific factors.

#### D 1.1 Reporting District Energy Emissions

District energy providers and building owners of covered buildings that are connected to district energy systems have reporting requirements to comply with Maryland BEPS.

##### D 1.1.1 Reporting Responsibilities of District Energy Providers

To the Department:

By March 1st of each calendar year, district energy providers must provide the Department with emissions factors and a full and detailed accounting of their calculation using the "Efficiency Method" in the World Resources Institute's "Calculation tool for direct emissions from stationary combustion: Allocation of greenhouse gas emissions from a Combined Heat and Power (CHP) Plant." A description of this method, with details specific to its application to systems in Maryland, can be found in Section D. 1.2 Efficiency Method below.

To the Building Owner:

District Energy Providers must provide covered building owners the greenhouse gas emissions factors per unit of district energy input (steam, hot water, chilled water, etc.). As ENERGY STAR Portfolio Manager does not support the addition of custom emission factors at this time, these data must be provided separately to the customer.

For the purpose of BEPS compliance, emission factors must be consistent for all users of the same district energy system. The individual purchase of "green" credits for district energy by a customer does not impact their emissions for the purpose of BEPS compliance.

##### D.1.1.2 Reporting Responsibilities of the Building Owner

Building owners must report all district energy use to the Department via the ENERGY STAR Portfolio Manager tool.

Building owners must annually fill out a form, provided by the Department, to submit their system-specific emissions to the Department incorporating emissions factors provided by the building owner's district energy provider.

## D 1.2 Efficiency Method

If the district energy system has only one output, such as steam, and has only on-site combustion inputs, then the emissions intensity shall be defined as the carbon emissions of all combustion inputs divided by the total energy output.

If the district energy system has two or more inputs (e.g., natural gas and recovered waste heat), or two or more outputs (e.g., steam and electricity), then emissions shall be assigned to the respective energy sources based on the "efficiency method" defined for co-generation systems by the World Resources Institute GHG Protocol.<sup>20</sup> The efficiency method uses plant-specific values for heat and power production efficiency, if available, or generic values when plant-specific information is missing. The following sections describe the steps to the Efficiency Method.

### D 1.2.1 Step 1: Calculate the Total Direct Greenhouse Gas Emissions for All Combustion Sources Used in the Co-generation

Include all relevant greenhouse gases: carbon dioxide, methane, and nitrous oxide. Use emissions factors appropriate to each fuel consumed by the district energy plant. Sum the total for all greenhouse gases using the same emissions factors used in ENERGY STAR Portfolio Manager.<sup>21</sup>

### D 1.2.2 Step 2: Calculate the Additional Energy and Emissions for Any Other Inputs Into the District Energy Network

If the district energy system receives additional energy inputs such as waste heat, emissions associated with those inputs must also be accounted for, as applicable. These inputs would add to both total emissions and total heat energy content of the system. Input sources may be considered to be emissions-free if no greenhouse gas emissions were used in the generation of the resource.

Examples of energy inputs into a district plant that are not emissions-free include: waste heat from industrial processes that use combustion and waste heat from electricity plants including those that burn solid waste.

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<sup>20</sup> Gillenwater, M., Woodfield, M., Simmons, T., McCormick, M., Camobreco, V., Hockstad, L. and Upton, B. 2006. Calculation tool for direct emissions from stationary combustion: Allocation of GHG Emissions from a Combined Heat and Power (CHP) Plant. World Resources Institute. Available at: [https://ghgprotocol.org/sites/default/files/CHP\\_guidance\\_v1.0.pdf](https://ghgprotocol.org/sites/default/files/CHP_guidance_v1.0.pdf).

<sup>21</sup> ENERGY STAR. 2022. "Portfolio Manager Technical Reference: Greenhouse Gas Emissions." U.S. Environmental Protection Agency. Available at: <https://www.energystar.gov/buildings/tools-and-resources/portfolio-manager-technical-reference-greenhouse-gas-emissions>.

Examples of non-fuel energy inputs into a district plant that can be considered to be emissions-free include: sewer/wastewater heat recovery; geothermal energy; ground-source, air-source or water-source energy; and electricity.

If the facility that produced the additional heat energy is itself a cogeneration facility, then the efficiency method must be applied a second time for that facility to calculate the emissions intensity of the heat input. For example, if a waste-to-energy incinerator or an industrial facility provides heat to a district energy plant, the efficiency method would be applied first at the incinerator to allocate its emissions between the power generation and the heat generation, and the emissions attributed to the exported heat would be added to the total emissions for the district energy system.

#### **D 1.2.3 Step 3: Calculate the Energy Content of Each Output Stream for the District Energy System**

Include each output stream of thermal energy (e.g., water/steam at various temperatures and pressures), electricity, and chilled water, if applicable. Convert all outputs to consistent units, such as MMBtu. Use enthalpy tables to determine the energy content (enthalpy) of water/steam at different temperatures and pressures.

#### **D 1.2.4 Step 4: Identify the Efficiencies of Production of Each Output Stream From the District Energy System**

The efficiencies determine the amount of fuel, and therefore the associated emissions, required to generate a unit of energy stream output. The calculations should use plant-specific efficiency factors if available. In absence of plant-specific data, default values can be used. EPA recommends default efficiency values of 0.80 for steam production and 0.35 for electricity production using natural gas, and 3.2 for chilled water. (The use of alternative input fuels, such as wood or solid waste, may result in different efficiencies for electricity production.)

#### **D 1.2.5 Step 5: Allocate Total Emissions to Output Streams**

Use the following formulas to allocate across multiple output streams, followed by the formula key. The example provided uses heat energy (steam), electricity, and chilled water, but the formulas can be generalized to any two or more output streams.

To calculate the emissions allocated to heat outputs such as steam or hot water (stream 1), use the following equation. Note that the total emissions (ET) and heat energy content (H) must include both energy generated onsite as well as any imported source, subject to the guidance in Section D. 1.2.2:

$$E_H = E_T * \frac{\frac{H}{e_H}}{\frac{H}{e_H} + \frac{P}{e_P} + \left(\frac{C}{e_C}\right)}$$

To calculate the emissions allocated to output electricity from a cogeneration facility (stream 2), use the following equation:

$$E_P = E_T * \frac{\frac{P}{e_P}}{\frac{H}{e_H} + \frac{P}{e_P} + \left(\frac{C}{e_C}\right)}$$

For trigeneration facilities that also generate chilled water, use the following formula to calculate the emissions attributable to the chilled water (stream 3). For separate generation of chilled water, see section D. 1.3.

$$E_C = E_T * \frac{\frac{C}{e_C}}{\frac{H}{e_H} + \frac{P}{e_P} + \frac{C}{e_C}}$$

**Key:**  $E_T$  = total district energy system greenhouse gas emissions from all energy inputs, including waste heat inputs

$E_H$  = emissions allocated to steam or hot water production, in metric tons CO<sub>2</sub>e

$E_P$  = emissions allocated to electricity generation, in metric tons CO<sub>2</sub>e

$E_C$  = emissions allocated to chilled water production, in metric tons CO<sub>2</sub>e, if applicable

$H$  = energy content of steam or hot water outputs in MMBtu

$P$  = delivered electricity generation in MMBtu

$C$  = chilled water output in MMBtu, if applicable

$e_H$  = assumed efficiency of the steam/hot water production

$e_P$  = assumed efficiency of electricity generation

$e_C$  = assumed efficiency of chilled water production, if applicable

#### D 1.2.5 Step 6: Calculate Emission Factors for Each Output Stream

Divide the total emissions from each output stream by the total quantity of that output stream. To the extent possible, divide by the total energy sales or total energy delivered to customers, as opposed to total output at the central plant. This approach is appropriate for building-level emission factors, and effectively assigns a pro-rata share of system-level transport and thermal losses to the buildings.

### D 1.2.6 Further Guidance on the Use of the Efficiency Method

For further guidance on the use of the efficiency method, consult:

- Gillenwater, M., Woodfield, M., Simmons, T., McCormick, M., Camobreco, V., Hockstad, L. and Upton, B. 2006. "Calculation tool for direct emissions from stationary combustion: Allocation of GHG Emissions from a Combined Heat and Power (CHP) Plant." *World Resources Institute*. [https://ghgprotocol.org/sites/default/files/CHP\\_guidance\\_v1.0.pdf](https://ghgprotocol.org/sites/default/files/CHP_guidance_v1.0.pdf)
- Eash-Gates, P. 2022. "Allocation of Emissions from District Energy Systems with Multiple Outputs - Building Performance Standards." *Synapse Energy Economics*. <https://www.synapse-energy.com/emissionsfactors>

### D 1.3 Calculation of Emissions for Chilled Water

When chilled water is generated from electricity in a building, it is exempt from the emissions standards of Maryland's BEPS (though not from the EUI targets). However, especially in a district energy context, chilled water is not always purely generated from electricity, and may also have emissions associated with it:

- Chilled water loops that are powered by grid electricity can be treated as having no net direct emissions.
- Chilled water loops that use trigeneration should have an emissions factor based on the application of the efficiency method for that output, as laid out in Section D. 1.2.
- Chilled water loops that use gas-fired absorption chillers or gas-fired engine-driven chillers should have an emissions factor that accounts for the amount of gas burned in the chillers. If this data is not available, the EPA factors may be used, with absorption chillers having an emissions intensity of 73.89 kg/MBtu, and engine-driven chillers having an emissions intensity of 49.31 kg/MBtu.

## D. 2 Campus-Level Compliance

The owner of a campus may choose to meet site EUI and net direct emissions standards, as specified in the regulation, at the campus level instead of the individual building level when two or more covered buildings are:

1. Connected to a district energy system;
2. Served by the same electric or gas meter; or
3. Served by the same heating or cooling system(s), which is not a district energy system.

The following buildings shall be excluded from campus-level calculations:

1. a building designated as a historic property under federal, state, or local law;
2. a public or nonpublic elementary or secondary school building;
3. a manufacturing building;
4. an agricultural building; or
5. a building owned by the Federal government.

If the owner of a campus chooses to meet the standards at the campus level as opposed to the individual building level, then the owner must notify the Department by completing the "Campus-

Level Compliance Pathway Selection Form” and include a list and map of buildings. Completing this form will initiate a process to identify the covered buildings on the campus and develop campus-level BEPS standards. See Section D. 2.3 for more information.

Multifamily housing campuses and hospital campuses are customarily benchmarked in ENERGY STAR Portfolio Manager as single “properties,” where the property is already assumed to represent a campus by default. If such properties are not listed on the covered building list as a single property already, then the owner needs to submit a form requesting to benchmark and report as a campus. If the covered building list already lists them as single properties, then the form is not needed.

## **D. 2.1 Required Data: What Data Should be Included in a Campus-level Benchmarking Report?**

If an owner chooses to report and comply at the campus level instead of at the individual building level, then the following data should be reported:

1. energy consumption and fuel use for all buildings;
2. energy consumption and fuel use for all stationary equipment including all central plants and district energy plants, even if those plants are combined heat and power facilities.

Campus-level reporting does not include energy consumption and fuel use from activities/sources that are excluded from the benchmarking report requirements in Chapter 2 of the regulation. See more in Section A. 2.1.4. These activities/sources are:

1. Food service facilities;
2. Electric vehicle charging;
3. Other electricity uses excluded by the benchmarking tool; and
4. Emissions from required combustion equipment if federal or state regulation requires a covered building to use a backup generator or other equipment that must run on combustible fuels.

By June 1 of each year, the owner of a campus must report changes to building footprint, usage, and occupancy. Reporting this information should be done through the “Changes to Campus Buildings Reporting Form.” Within the form, list each new building, change of building footprint, or change in the usage of a building and upload the permits that were issued for the changes. Changes to occupancy should be reported and the certificate of occupancy should be uploaded to the same “Changes to Campus Buildings Reporting Form.”

### **D. 2.1.1 Buildings on a Campus That Are Not Owned by the Principal Campus Owner**

Buildings that are not owned by the principal campus owner can report and comply with the building energy performance standard as an individual building instead of being aggregated into

the campus-level report. The principal owner of the campus should indicate this occurrence when submitting the “Campus-Level Compliance Pathway Selection Form.”

The Department may direct that:

1. Buildings located within a campus that are not owned by the principal owner of the campus may be excluded from campus-level calculations.
2. If such a building is a covered building, then the owner of such covered building must comply with this regulation.
3. If the owner of such a covered building located on a campus and the principal campus owner agree to include such building in campus-level compliance, then the owners may submit a written request to the Department to approve that arrangement.

## D. 2.2 Reporting Data as a Campus

Campuses have the same reporting and compliance deadlines as described above. Benchmarking data must be input and verified into ENERGY STAR Portfolio Manager by June 1st every year. The report should have all data from the previous calendar year (January 1- December 31).

Campus owners will still report data through ENERGY STAR Portfolio Manager. Refer to the EPA’s guidance on using [ENERGY STAR to benchmark a campus](#).<sup>22</sup>

See Section A. 3.1.1 for information on how to set up automatic annual data exchange with the Department via ENERGY STAR Portfolio Manager’s Web Services functionality.

## D. 2.3 Performance Standards for Campus-Level Compliance

The Department shall, in consultation with the principal owner of a campus, determine whether the affected buildings will be included in campus-level compliance following the rules established in the regulation and whether and how to adjust the campus’ interim and final performance standards. To initiate this process, the campus owner must first submit the “Campus-Level Compliance Pathway Selection Form” and the “Changes to Campus Buildings Reporting Form.”

The process to determine the final and interim performance standards is the same for campus-level compliance as it is for individual buildings. Refer to B. 2 Determining Interim and Final Standards for detailed instructions.

### D. 2.3.1 Additional Forms Required for Campus-Level Compliance

1. Campus-Level Compliance Pathway Selection Form
  - a. Including a list and map of buildings
2. Changes to Campus Buildings Reporting Form

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22

[https://www.energystar.gov/sites/default/files/tools/How%20to%20Benchmark%20a%20Campus%20in%20Portfolio%20Manager\\_May%202022\\_Final\\_508.pdf](https://www.energystar.gov/sites/default/files/tools/How%20to%20Benchmark%20a%20Campus%20in%20Portfolio%20Manager_May%202022_Final_508.pdf).

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- a. Including a list and map of buildings
- b. Including permits for new buildings, changes in footprint to existing buildings, and changes of building usage
- c. Including certificates of occupancy

Appendix B – Identification of Potentially Covered Buildings

## Appendix B

### Identification of buildings in Maryland potentially covered by Building Energy Performance Standards (BEPS)

#### Introduction

To support the emissions impact and economic impact analyses MDE explored available state data from the Maryland Department of Assessments and Taxation (SDAT) and Maryland Department of Planning (MDP). This data is available for download from the MDP website (<https://planning.maryland.gov/Pages/OurProducts/DownloadFiles.aspx>).

#### Methodology

##### *Data Sources*

The primary dataset used is the Maryland Computer Assisted Mass Appraisal (CAMA) Detailed Building Characteristics shapefile, from the third quarter of 2022. The pertinent information provided is building floorspace (in square feet) and building use type.

A secondary dataset used is Maryland PropertyView Parcel Points from the Maryland Parcel geodatabase, of October 2022. The key information utilized from this dataset is building address (for residential buildings) and tax exemption and land use descriptions.

##### *Aggregation*

The CAMA dataset tracks building data at a sub-building level such that multiple use types within a single building (e.g., shopping center) and multiple units within a single building (e.g., condominium) are recorded as individual records.

Commercial buildings were aggregated based on a trim of the CAMA Building Number which, for roughly 90% of records, follows a consistent numbering system to identify separate buildings on a single parcel and multiple uses within a single building. The building square footage was summed across individual buildings (i.e., aggregating multiple uses within a single building).

For residential buildings the CAMA Building Number is not reliable in identifying multiple units within a single building. Residential buildings were instead aggregated based on building address information from Parcel Points. Parcel Polygons were not used because this dataset has a single representative record for residential condominiums whereas Parcel Points has records per individual tax account. The building square footage was summed across individual buildings (i.e., aggregating multiple units within a single building).

##### *Exclusions*

From there the 35,000 square foot threshold was applied and properties potentially excluded were identified. Schools were identified by CAMA Building Type Description and Parcel Tax Exemption Class Description. Parcel Tax Exemption Class Description was used to identify Historical properties. The

CAMA Building Type Description of Industry was equated to manufacturing. And Parcel Land Use Description was used to identify Agricultural properties.

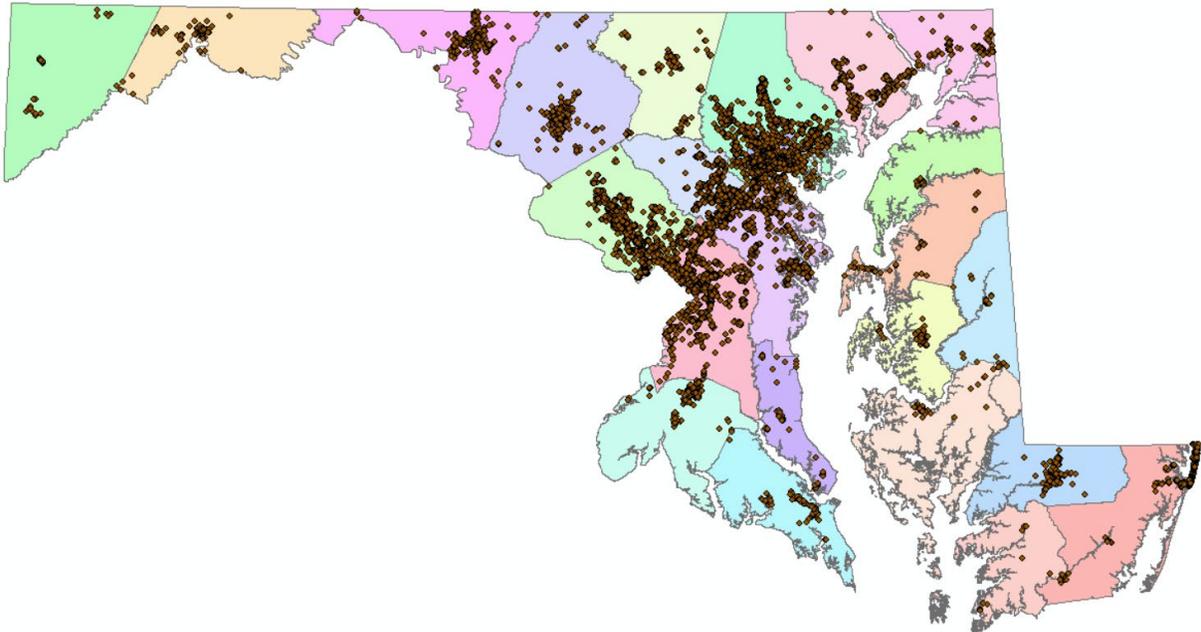
Parking was excluded prior to square footage aggregation using CAMA Building Type Description for commercial buildings and CAMA Building Style Description for residential buildings.

### Improvements

This initial exploration of available state will be enhanced to verify aggregation of multiple uses and units, associate building records with street addresses (particularly in cases of multiple buildings on a single parcel), associate building records spatially with buildings footprints, and check for missing buildings.

### Results

Results from this analysis of buildings potentially covered by BEPS are provided in the tables and figures that follow. Figure 1 displays a map of the location of parcels with potentially covered buildings. Tables 1 and 2 provide a summary of building counts and building floorspace by building type and county. Figures 2 and 3 offer a summary of building counts and building floorspace by broader building type categories. A full spreadsheet of the buildings identified in this analysis as potentially covered by BEPS is available for download on the MDE Website (<http://mde.maryland.gov/programs/Regulations/air/Pages/reqcomments.aspx>). The spreadsheet also provides county level building type summaries.



**Figure 1:** Location of buildings identified as potentially covered by BEPS

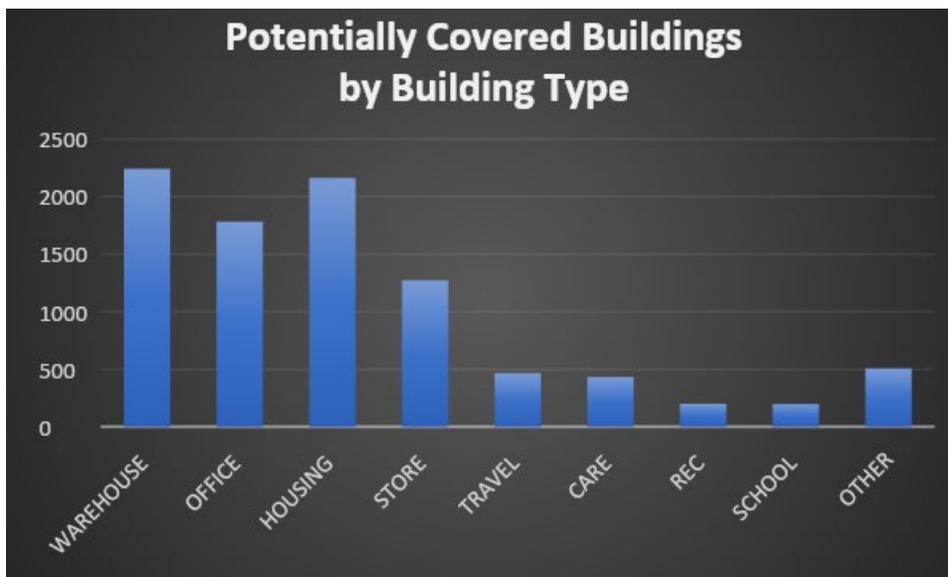
**Table 1:** Summary of buildings identified as potentially covered by BEPS, by building type

Building Type Description	Building Count	Total Floorspace (sq. ft.)
AUTO Auto Center	20	1,052,084
AUTO Auto Showroom	8	384,374
AUTO Complete Automobile Dealership	20	1,002,051
AUTO Service Garage	68	4,166,332
AUTO Storage Garage	4	302,424
BANK Branch Bank	1	210,026
BANK Main Bank	4	339,022
BURIAL Mortuary	1	36,548
CARE Convalescent Hospital	173	10,953,971
CARE Day Care Center	4	217,891
CARE General Hospital	64	18,818,701
CARE Group Home	9	786,718
CARE Home for the Elderly	176	15,910,092
CARE Surgical Center	7	509,945
COMMUNITY Branch Post Office	3	127,589
COMMUNITY Church	103	6,186,216
COMMUNITY Library	43	2,722,475
COMMUNITY Main Post Office	8	1,486,480
COMMUNITY Rectory	3	476,032
DWEL Boat Slip	1	88,980
DWEL Center Unit	4	225,069
DWEL Condo Garden	314	19,007,217
DWEL Condo Hi Rise	243	37,082,625
DWEL Condo Studio	36	2,259,623
DWEL Condo Townhouse	26	4,543,438
DWEL End Unit	5	253,460
DWEL Mobile Home	4	553,469
DWEL Parking Space	1	70,686
DWEL Penthouse	15	2,222,572
DWEL Standard Unit	10	437,982
HOUSING Apartment	1,084	139,313,765
HOUSING Mixed Residential / Retail	4	185,764
HOUSING Multiple Residence	409	32,575,755
HOUSING Residential Apartment Units	4	542,953
OFFICE Medical Office Building	186	13,610,261
OFFICE Office Building	1,586	173,801,697
OFFICE Office Condominium	10	726,667
OTHER Building Per Square Foot	8	2,225,493
OTHER Building Per Unit	13	1,056,353
OTHER Condo	1	66,594
OTHER Special Use	1	205,752
PUBLIC Government Building	124	27,549,926
REC Auditorium	24	4,005,983
REC Banquet Hall	1	45,046
REC Bowling Alley	15	610,035
REC Cinema	25	1,621,149
REC City Club	3	191,164
REC Club House	22	1,342,563

REC Country Club	10	669,064
REC Fraternal Building	7	320,484
REC Gymnasium	28	2,013,186
REC Handball / Racquetball Courts	2	112,808
REC Health Club	36	2,413,946
REC Indoor Tennis Facility	9	584,491
REC Skating Rink	10	739,463
REC Theater	9	677,001
RESTAURANT Restaurant	12	620,082
RESTAURANT Tavern	2	91,490
SAFETY Armory	6	328,583
SAFETY Fire Station	7	670,196
SAFETY Jail	29	4,570,714
SAFETY Volunteer Fire Station	2	101,988
SCHOOL Classroom	55	4,508,469
SCHOOL Computer Center	9	885,454
SCHOOL Dormitory	59	4,733,524
SCHOOL Fraternity House	1	79,648
SCHOOL Laboratory Building	31	4,689,250
SCHOOL Manual Arts Building	4	215,161
SCHOOL Multi-Purpose School Building	39	3,710,748
STORE Department Store	91	11,175,191
STORE Discount Store	230	23,667,065
STORE Finish Neighborhood Shopping Center	1	75,100
STORE Mall - Covered	1	40,429
STORE Mall - Enclosed	13	2,629,526
STORE Mall - Open	2	136,912
STORE Market	273	15,836,860
STORE Retail Condominium	3	410,925
STORE Retail Store	138	8,578,263
STORE Shell Community Shopping Center	2	187,560
STORE Shell Neighborhood Shopping Center	2	84,288
STORE Shell Regional Shopping Center	2	158,049
STORE Shopping Center / Community	265	23,455,364
STORE Shopping Center / Neighborhood	174	12,357,590
STORE Shopping Center/ Regional	75	17,393,902
TRANSPORT Hangar	12	650,582
TRANSPORT Storage Hangar	1	125,633
TRANSPORT T Hangar	2	120,650
TRAVEL Hotel	385	38,991,857
TRAVEL Motel	80	3,999,418
WAREHOUSE Cold Storage Facility	26	4,709,685
WAREHOUSE Discount Warehouse	87	10,079,482
WAREHOUSE Distribution Warehouse	688	71,361,527
WAREHOUSE Mega Warehouse	118	56,459,193
WAREHOUSE Mini Storage Warehouse	248	19,010,844
WAREHOUSE Storage Warehouse	1,002	94,655,237
WAREHOUSE Transit Warehouse	25	2,194,818
WAREHOUSE Warehouse Condominium	5	920,565
WAREHOUSE Warehouse Mini Storage Multi Story	43	4,132,899
<b>TOTAL</b>	<b>9,259</b>	<b>988,446,176</b>

**Table 2:** Summary of buildings identified as potentially covered by BEPS, by county

County	Building Count	Total Floorspace (sq. ft.)
Montgomery	1,577	205,743,888
Prince George's	1,214	121,641,532
Baltimore County	1,197	119,219,491
Baltimore City	1,174	149,390,965
Anne Arundel	883	88,354,017
Howard	824	79,100,972
Frederick	415	35,673,582
Harford	318	41,655,939
Washington	271	32,029,617
Worcester	269	20,885,126
Charles	185	14,174,057
Wicomico	169	12,435,913
Carroll	153	13,892,301
St. Mary's	117	7,418,906
Allegany	104	9,061,980
Cecil	104	18,257,641
Calvert	65	4,198,953
Queen Anne's	48	3,095,326
Talbot	47	2,748,566
Dorchester	43	3,658,617
Caroline	25	1,835,485
Kent	23	1,650,008
Garrett	21	1,384,435
Somerset	13	938,859
<b>TOTAL</b>	<b>9,259</b>	<b>988,446,176</b>



**Figure 2:** Building count potentially covered by BEPS, by building type category

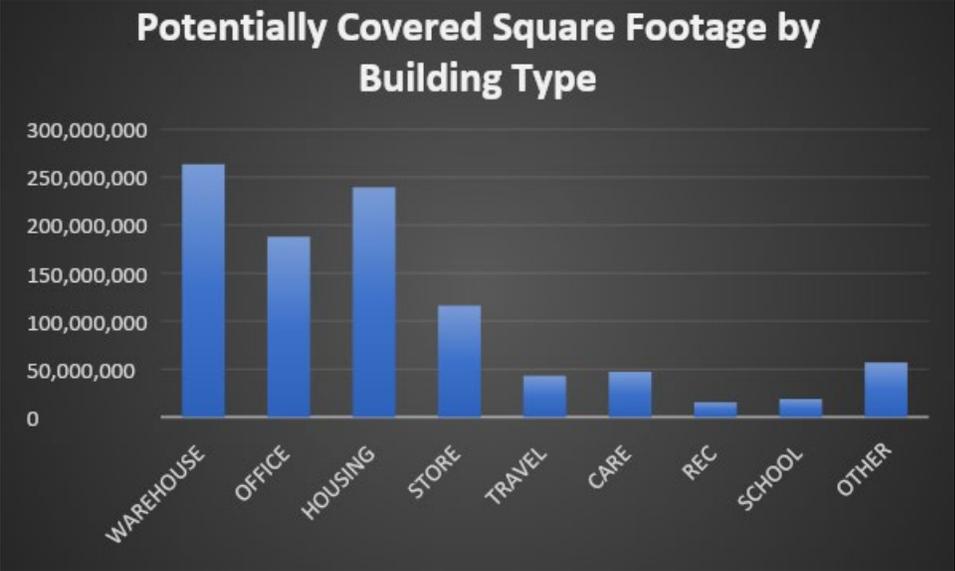


Figure 3: Total floorspace potentially covered by BEPS, by building type category

Appendix C – Maryland BEPS Impact Analysis Methodology

# Maryland Building Energy Performance Standards Impact Analysis

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## Background

Building Energy Performance Standards (BEPS) are outcome-based policies and laws aimed at reducing the carbon impact of the built environment by requiring existing buildings to meet energy and/or greenhouse gas emissions-based performance targets. BEPS are powerful policy tools that provide a lifecycle approach to building performance and can empower state and local governments to deliver on their energy and carbon goals for the building sector.

The Department of Energy (DOE) Building Technologies Office, through the Building Energy Codes Program, is providing technical assistance (TA) to jurisdictions interested in exploring BEPS programs through a National BEPS TA Network. From November 2022 through July 2023, through the engagement with this network, Lawrence Berkeley National Laboratory (LBNL) and Pacific Northwest National Laboratory (PNNL) provided the Maryland Department of the Environment (MDE) with the following BEPS technical assistance:

- Building stock analyses including analysis of energy and emission impacts associated with BEPS adoption
- Performance target-setting and trajectories
- Measure and technology prioritization and packaging
- Cost-effectiveness analyses

In support of MDE, LBNL and PNNL leveraged a growing body of research and modeling for jurisdictions receiving technical assistance through DOE, including Aspen, Berkeley, New York City, San Francisco, Seattle, Washington DC and the State of Washington, as well as ASHRAE. The methods and results for the National BEPS TA are presented in this *Maryland BEPS Impact Analysis*.

## Overview

The *Maryland BEPS Impact Analysis* describes the methodologies used by LBNL and PNNL for estimating the impacts of Maryland's BEPS regulation. The analysis included three objectives:

- Objective One: Model and compute performance targets for Maryland's BEPS, including direct greenhouse gas emissions and energy use intensity (EUI) standards

- Objective Two: Identify and model measures for Maryland’s covered buildings to meet BEPS performance targets to conduct cost-effectiveness analysis
- Objective Three: Model the Maryland BEPS impacts by estimating the energy and emissions impacts of Maryland’s BEPS adoption

The underlying assumptions and process to meet each objective are described below with the associated outputs.

### **Objective One: Computing targets**

LBNL followed the following four steps to meet the first objective to model and compute performance targets for Maryland’s BEPS, including direct greenhouse gas emissions and EUI standards:

- Step One: Establish baseline median EUIs
- Step Two: Develop end-use estimates for natural gas use
- Step Three: Calculate site-EUI targets
- Step Four: Calculate direct-emissions targets

### **Step One: Establish Baseline Median EUIs by Property Type**

A dataset provided by the United States Environmental Protection Agency (EPA) that aggregated ENERGY STAR Portfolio Manager (ESPM) buildings by property type for Maryland was used to get initial estimates of electric and gas EUI for each ESPM property type [1]. LBNL mapped each ESPM type to a set of property types in the EPA dataset, computed the median site EUI and electric/site ratio for the buildings in the EPA dataset, and used those data to compute electric and gas EUI (see Table 3). When there were at least five buildings in the EPA dataset, the ESPM property type was mapped to the same type in the EPA dataset. In other cases, multiple property types were grouped (see Table 3) based on data availability and on the suggested property type groupings in EPA’s published mappings [2].

Weather-normalized site EUI data were not available in the EPA dataset. To evaluate the impact of weather-normalization, LBNL used Montgomery County, Maryland benchmarking data to compare weather-normalized and non-normalized site EUI medians for each of the 69 property types and found that only one type (Parking) had a difference greater than 4%. Therefore, it was concluded that weather-normalized site EUI data was likely not significantly different from the non-normalized site EUI data) for this analysis.

### **Step Two: Develop End-Use Estimates for Natural Gas Use**

LBNL used data from the Commercial Buildings Energy Consumption Survey (CBECS) [3] and the Residential Energy Consumption Survey (RECS) [4] to determine the proportion of gas used for space heating, water heating, cooking, and other uses. While CBECS and RECS are national

surveys, the South Atlantic and Middle Atlantic census divisions and the Mixed mild (for CBECS) or Mixed-Humid (for RECS) climate zones were used for the Maryland analyses. CBECS withholds climate information from most hospitals, therefore for this property type only, the climate zone restriction was removed and all hospitals in the South Atlantic and Middle Atlantic divisions were included.

CBECS/RECS data for buildings that did not use gas were excluded from the analysis, as all-electric buildings do not contribute useful data for gas end-use breakdowns. ESPM property types were mapped to either one or more specific CBECS building types (i.e., the PBAPLUS column) or to one general CBECS building type (i.e., the PBA column). This mapping was largely based on EPA's suggested mapping [2], but additional types were included when data availability was insufficient. This mapping is included in the "CBECS/RECS Types" column in Table 3. The CBECS/RECS analysis resulted in the proportion of natural gas used for space heating, water heating, cooking, and other uses. These results were subsequently used for initial impact modeling, site EUI target setting (per step three below), and cost modeling for electrification. All results are presented in Table 3 MD BEPS Impact Analysis Final Results Table.

### **Step Three: Calculate Site EUI Targets**

LBNL leveraged the work from Montgomery County, Maryland who partnered with Steven Winter Associates (SWA) to develop decarbonization pathways for commercial buildings. LBNL utilized the methodology from "How Targets Are Calculated" (Figure 7, page 26) of the SWA report for Montgomery County [5] for the Zero Net Carbon (ZNC) scenario to compute the final site EUI target for buildings across the state. These final site EUI targets can be found in Table 3 MD BEPS Impact Analysis Final Results Table under column "Final Site EUI Target (kBtu/SF)".

### **Step Four: Calculate Direct Emissions Targets**

Interim gas EUI targets were computed for each property type using the initial gas EUI from the EPA dataset (as in Step One, except only for buildings that use gas), and reducing it by 20% for the 2030 target or 60% for the 2035 target. These targets are aligned with MDE's stated goals of 20% reduction by 2030 and net zero by 2040. Gas EUI targets were converted to direct emissions intensity targets based on a weighted average of the emissions factors (i.e., due to natural gas, district steam, district chilled water) for the energy mix across all buildings in the EPA dataset. These direct emissions targets can be found in Table 3 MD BEPS Impact Analysis Final Results Table under columns "2030 Direct Emissions Target (kg CO<sub>2</sub>e / SF)" + "2035 Direct Emissions Target (kg CO<sub>2</sub>e / SF)".

### **Objective Two: Estimating measure costs**

PNNL estimated the costs of implementing building modifications in three different categories: conventional energy efficiency measures (EEMs), electrification measures, and normal replacement costs. Using the cost estimates developed by PNNL, LBNL modeled the behavior of

Maryland's covered buildings' compliance to BEPS, as discussed in Objective Three: Modeling BEPS Impacts.

**Conventional EEMs:** These are measures that do not involve electrification or a change of fuel source. Through a robust literature review of studies performed for the implementation of building performance standards across the U.S. as well as research from the latest model energy code development, PNNL identified EEMs that include lighting, HVAC, envelope, retro-commissioning, plug load control, and other measures. Costs and savings were aggregated for the list of identified EEMs in order to establish a cost curve for these measures. The cost curves were developed by sorting the measures from low to high cost per unit of EUI savings, which is a measure of cost-effectiveness, and by developing a regression curve that could represent the cost for deeper levels of savings. The approach to developing the cost curve assumes that building owners will be most likely to implement energy efficiency improvements starting with the most cost-effective measures and continue with more costly measures to meet requirements. These cost relationships were developed for three building types: multifamily, office and other. The curve for "other" was applied to all other building types for which a specific curve was not developed.

Figure 1 shows a cost curve example for a multifamily application with increasing costs per unit energy saved as the total EUI savings increases. Gas use was modeled to be eliminated through electrification and the process for developing electrification costs is described below in the assessment of electrification measures. The complete list of EEMs with corresponding costs as well as the cost curves for the three building types analyzed are shown in Table 4 and Figures 4, 5, and 6.

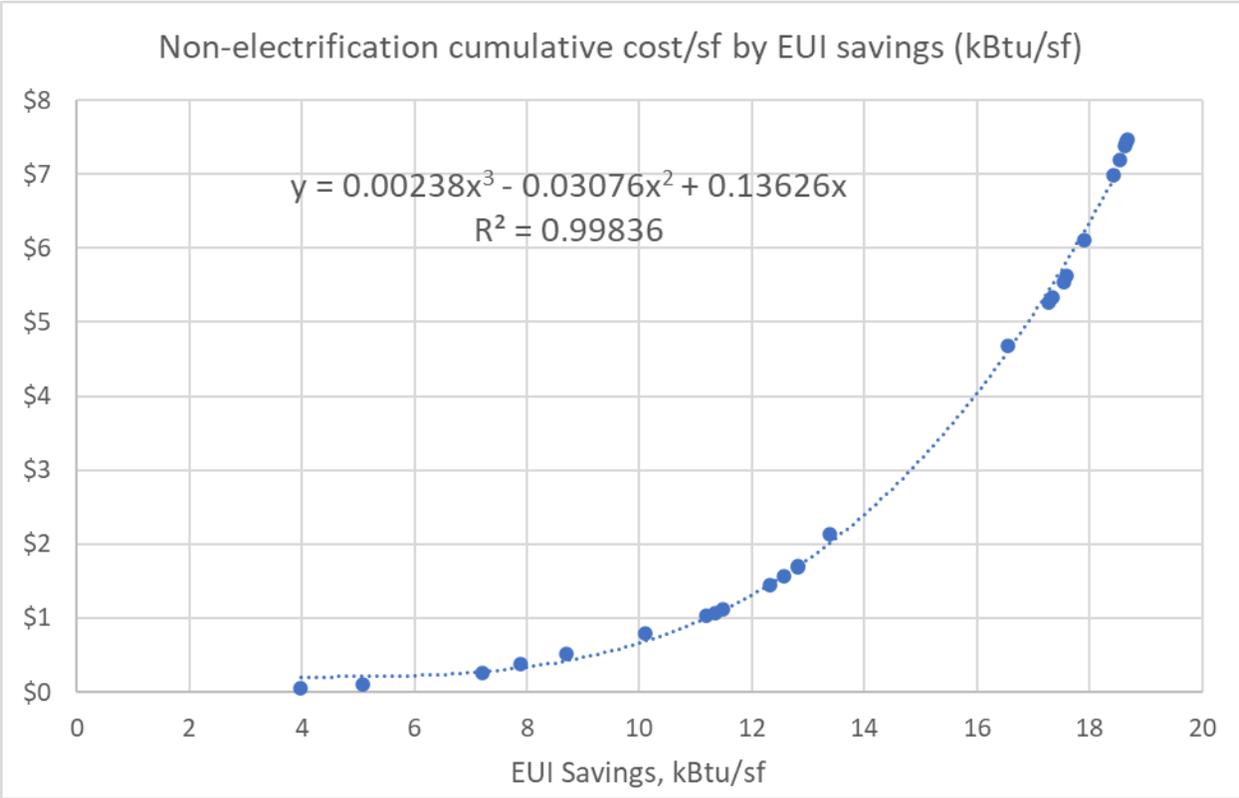


Figure 1: Non-electrification cumulative cost/sf by EUI savings (kBtu/sf) – Multifamily Building Type

**Electrification measures:** These are measures where fossil fuel-fired equipment is replaced with electric equipment. Typically, reverse cycle refrigeration equipment and heat pumps are used as the replacement technology for space and water heating and other electric technologies are used for other fossil fuel-fired equipment such as food service equipment and clothes dryers. Costs for these electrification measures were analyzed per square foot of floor area based on studies conducted for Washington D.C. [8], Montgomery County [5], and Maryland [7]. Table 5 Electrification Costs shows the electrification costs (capital or “first costs”) used in the model.

**Baseline Replacement Costs:** These are costs associated with replacing fossil fuel-fired space and water heating equipment with new fossil fired-equipment when the existing equipment reaches the end of its useful life. These costs were evaluated to understand the incremental cost of electrification, i.e. the additional cost that would be required to install electric equipment instead of a like-for-like fossil fired-equipment. In aggregate across the building stock, it was found that \$0.91 per square foot would be spent on baseline system replacements, whereas \$6.48 per square foot would be spent on electrification, yielding an incremental cost of \$5.57 per square foot for system electrification. Baseline replacement costs were estimated from tools used to develop the state-level cost effectiveness for ASHRAE Standard 90.1-2019 [6]. These costs reflect the most recent research of typical costs for equipment that would comply with current

Maryland energy codes. Costs were normalized by site EUI. Table 6. Baseline Replacement Costs shows the baseline replacement costs used in the model.

### Objective Three: Modeling BEPS impacts

LBNL used the analysis of potentially covered buildings provided by MDE as the set of buildings to be analyzed, including each building’s type and floor area. LBNL mapped the building types from the MDE analysis of potentially covered buildings to ESPM property types. LBNL used the same methodology as Step One in Objective One to sample site EUI and the electric/site ratio from buildings with the corresponding building type in the EPA dataset. LBNL applied the same methodology as Step Two in Objective One to subdivide each building’s gas use into space heating, water heating, and everything else. The resulting dataset with building type, floor area, electric use, and gas use (split into space heating, water heating, and other) was the starting point for the BEPS impact analysis.

LBNL constructed a model that predicts the behavior of each building from 2025 through 2050 under several potential BEPS policy implementations. Each year, a building is subjected to BEPS targets, reduces its energy use (via efficiency, electrification, or replacement as described above), and the model predicts the resulting energy use (by fuel and end use), GHG emissions, and costs. Table 1 provides an overview of the model’s inputs and sources.

*Table 1. MD BEPS Impact Analysis Model Inputs and Sources*

<b>Model Input</b>	<b>Factors</b>	<b>Data Source</b>
Electricity GHG Emissions Factor	By year	MDE 2030 GGRA Plan
Natural Gas GHG Emissions Factor	53.11 kgCO <sub>2</sub> e/MBtu	ESPM
Electricity and gas rate projections	By year	Study conducted by Energy and Environmental Economics (E3) [7]
Site EUI and Direct Emissions Targets	Table 3. MD BEPS Impact Analysis Final Results Table	LBNL, as described in Objective One
EEM costs	Table 4. EEM Costs and Figures 4, 5, and 6.	PNNL, as described in Objective Two
Electrification costs	Table 5. Electrification Costs.	SWA
Baseline replacement costs	Table 6. Baseline Replacement Costs	ASHRAE Standard 90.1-2019

Non-compliance fee estimates	For site EUI targets: \$0.10 per kBtu in excess of the target For direct emissions: \$230/MtCO <sub>2</sub> e in excess of the target in 2030 and increasing by \$4/MtCO <sub>2</sub> e each year	MDE
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The model predicts BEPS impacts under three scenarios: baseline, full compliance, and finance-driven compliance.

**Scenario One: Baseline**

In the baseline scenario, buildings are not subject to any BEPS targets. Buildings replace their space heating and water heating system once during the analysis period, and incur replacement costs from Objective Two Baseline Replacement Costs. Space and water heating systems are replaced like-for-like, so gas consumption decreases, but electricity consumption does not change. Since there are no targets, buildings do not pay non-compliance fees, and have little incentive to reduce energy consumption or GHG emissions with each replacement or renovation.

**Scenario Two: Full Compliance**

In the full compliance scenario, buildings are subject to the site EUI and direct emissions intensity targets found in Table 3. During each five-year compliance cycle, each building first tries to meet its direct emissions target through gas efficiency (up to 20% reduction for space heating). If gas efficiency savings are not sufficient to meet the target, it then electrifies space heating, water heating, and other end uses until the emissions target is met. The logic applied to prioritize electrification of end-uses was developed to minimize project size for each compliance cycle. First – a building considers if either space heating, water heating, or a combination of both can satisfy the target, electing to electrify the minimum amount needed for compliance. Second – if space heating and water heating are already electrified, ‘other’ end-uses are electrified at a lower assumed efficiency. For electrification, the efficiencies described in Objective Two electrification measures were applied. The building is modeled to reduce electricity consumption via efficiency until its site EUI target is met. All buildings comply with all targets, regardless of cost, so no buildings pay non-compliance fees.

**Scenario Three - Finance-driven Compliance**

In the finance-driven compliance scenario, buildings are subject to the same targets as the full compliance schedule, and use the same reduction strategy to meet the targets, except that they only make reductions if they are cost effective. At each modeling step (i.e., gas efficiency, gas electrification, electric efficiency), a building compares the cost of implementing the reduction and the cost savings due to purchasing energy to possible non-compliance fees. When considering electrification, the building factors in baselines replacement cost as described in Objective Two Baseline Replacement Cost. The building uses a 10-year outlook when considering implementing efficiency measures, and a 30-year outlook when considering electrification. If possible non-compliance fees are less expensive, the building chooses not to make any energy reductions and pays the non-compliance fees instead.

## Results

For each scenario, LBNL modeled estimated energy impacts, emissions impacts and costs from 2025-2050. The results are summarized in Table 2 MD BEPS Impact Analysis Model Results Summary.

*Table 2. MD BEPS Impact Analysis Model Results Summary.*

	Energy Use (billion kBtu)	Emissions (billion kgCO <sub>2</sub> e)	Total Cost (billion \$)
Baseline Scenario	1832.94	58.86	69.84
Financial-Driven Compliance	1256.41	40.58	65.42
Full Compliance	1214.63	39.81	66.93
Savings - Financial-Driven Compliance	576.53	18.28	4.42
Savings - Full Compliance	618.31	19.05	2.92

In the finance-driven compliance scenario, natural gas consumption decreases almost to zero by 2040, and electricity consumption decreases 36%.

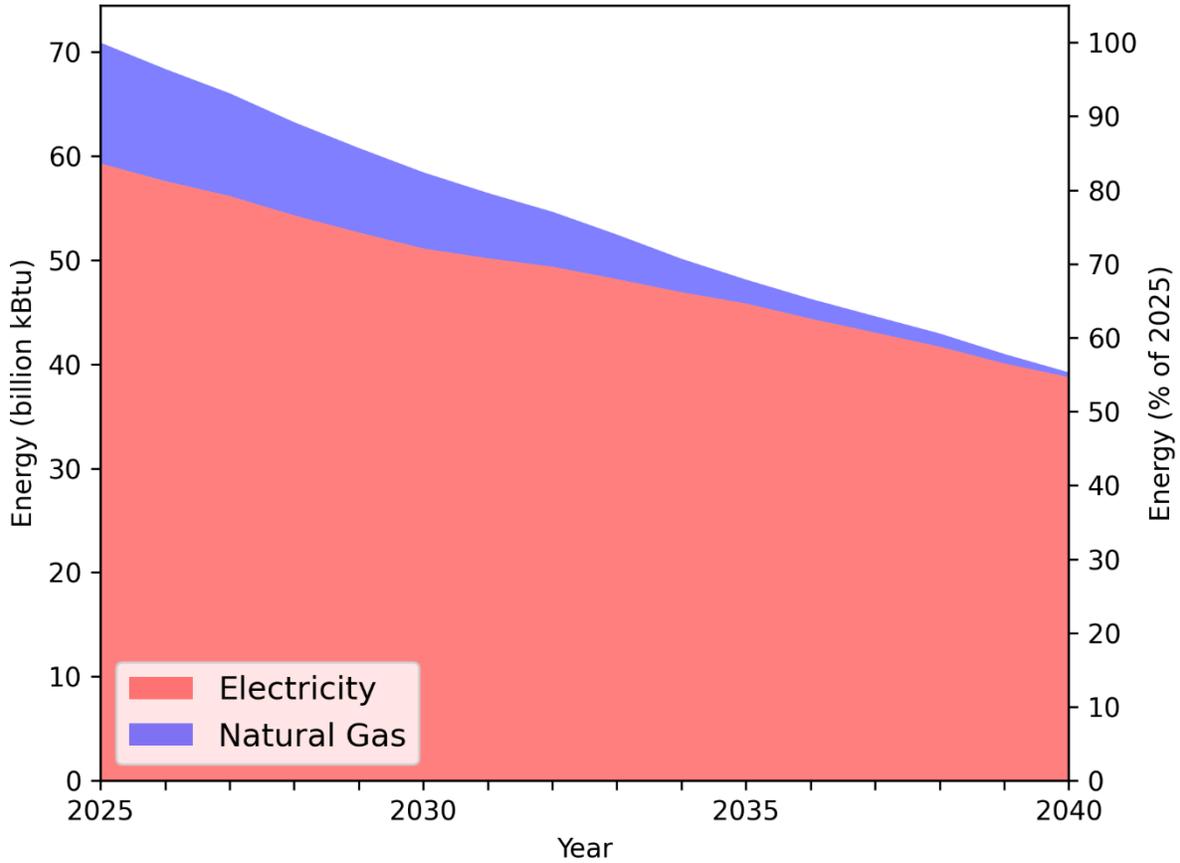


Figure 2: Finance-Driven Compliance Scenario – Projected State-wide Covered Building Energy Consumption

Similarly, emissions from natural gas decrease almost to zero by 2040, but emissions from electricity decrease 88%, largely due to the electric grid getting cleaner. In the baseline scenario, electricity consumption does not decrease, but emissions from electricity decrease 80%.

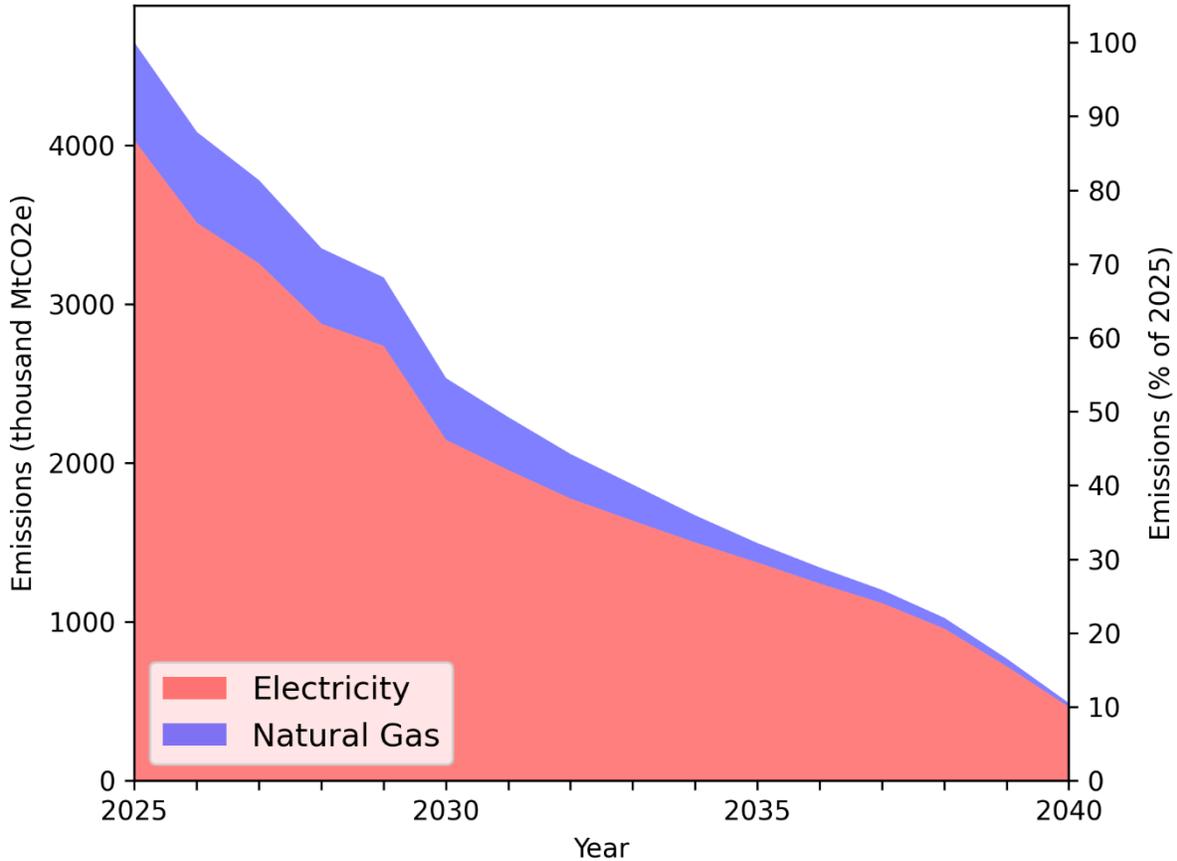


Figure 3: Finance-Driven Compliance Scenario – Projected State-wide Covered Building Emissions

In the full compliance scenario, energy savings are 10% more than in the finance-driven compliance scenario, but emissions savings are essentially equal (due to the electric grid getting cleaner). On average, and cumulatively across the 2025-2050 time horizon, buildings save \$4.47/sqft, but there is significant variation: 25% of buildings save >\$9.29/sqft and 25% lose >\$4.43/sqft.

## References

- [1] U.S. Environmental Protection Agency. “Property Types in Portfolio Manager”. [https://www.energystar.gov/buildings/benchmark/understand\\_metrics/property\\_types](https://www.energystar.gov/buildings/benchmark/understand_metrics/property_types).
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[4] U.S. Energy Information Administration. “Residential Energy Consumption Survey”. 2015. <https://www.eia.gov/consumption/residential/data/2015/>.

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[6] Tyler, Xie, Poehlman, and Rosenberg. “Cost-Effectiveness of ANSI/ASHRAE/IES Standard 90.1-2019 for Maryland”. Pacific Northwest National Laboratory. July 2021.

[7] Energy and Environmental Economics. “Maryland Building Decarbonization Study”. October 20, 2021.

[8] DC Department of Energy and Environment (DOEE). “Cost and Benefit Impact Study of the Building Energy Performance Standards Program”. March 2022.

**Tables and Figures**

Table 3. MD BEPS Impact Analysis Final Results Table

ESPM Property Type	EPA Type Grouping	EPA Count	Elec EUI (kBtu/SF)	Gas EUI (kBtu/SF)	Site EUI (kBtu/SF)	Elec/Site Ratio	SWA Type	CBECS/RECS Types	CBECS/RECS Count	CBECS/RECS Site EUI (kBtu/SF)	Gas Space Ratio	Gas Water Ratio	Gas Cook Ratio	Gas Other Ratio	Final Site EUI Target (kBtu/SF)	2030 Direct Emissions Target (kg CO2e / SF)	2035 Direct Emissions Target (kg CO2e / SF)
Adult Education	Adult Education Other - Education Vocational School	11	42.7	28	70.7	0.604	Higher Education	Education	125	66.1	0.737	0.111	0.089	0.063	45.8	2.335	1.168
Ambulatory Surgical Center	Urgent Care/Clinic/Other Outpatient	9	43.5	32.9	76.4	0.57	Health Care Outpatient	Outpatient health care	23	49.6	0.984	0.014	0.001	0.001	45.5	1.76	0.88
Aquarium	Movie Theater Museum Other - Entertainment/Public Assembly Performing Arts Stadium (Closed) Stadium (Open)	54	44.1	14.1	58.2	0.758	Public Assembly	Public assembly	35	58.8	0.96	0.008	0.026	0.006	41.3	1.033	0.517
Bank Branch	Bank Branch	364	99.6	0.9	100.5	0.991	Office	Office	150	57.1	0.823	0.107	0.019	0.051	85	1.006	0.503
Bar/Nightclub	Food Service	137	242.6	26.1	268.7	0.903	Food Service	Food service	15	288.6	0.201	0.122	0.671	0.006	219.6	1.697	0.848
Barracks	Barracks Other - Lodging/Residential Residence Hall/Dormitory	44	45.1	0.1	45.2	0.999	Lodging	Dormitory/ fraternity/ sorority	15	96.4	0.158	0.287	0.256	0.299	38.4	0.573	0.286
Bowling Alley	Fitness Center/Health Club/Gym Ice/Curling Rink Other - Recreation Swimming Pool	83	98.3	2	100.3	0.981	Public Assembly	Recreation	7	39.3	0.981	0.002	0.016	0	84.1	2.067	1.034
Casino	Movie Theater Museum Other - Entertainment/Public Assembly	54	44.1	14.1	58.2	0.758	Public Assembly	Public assembly	35	58.8	0.96	0.008	0.026	0.006	41.3	1.033	0.517

ESPM Property Type	EPA Type Grouping	EPA Count	Elec EUI (kBtu/SF)	Gas EUI (kBtu/SF)	Site EUI (kBtu/SF)	Elec/Site Ratio	SWA Type	CBECS/RECS Types	CBECS/RECS Count	CBECS/RECS Site EUI (kBtu/SF)	Gas Space Ratio	Gas Water Ratio	Gas Cook Ratio	Gas Other Ratio	Final Site EUI Target (kBtu/SF)	2030 Direct Emissions Target (kg CO2e / SF)	2035 Direct Emissions Target (kg CO2e / SF)
	Performing Arts Stadium (Closed) Stadium (Open)																
College/University	College/University	58	47.7	47.3	95	0.502	Higher Education	Education	125	66.1	0.737	0.111	0.089	0.063	56.6	2.428	1.214
Convenience Store with Gas Station	Convenience Store with Gas Station Supermarket/Grocery Store	158	137.5	49.1	186.7	0.737	Food Sales	Grocery store/food market	2	331.6	0.595	0.004	0.36	0.042	137	2.254	1.127
Convenience Store without Gas Station	Convenience Store without Gas Station Supermarket/Grocery Store	157	137.3	49.1	186.4	0.736	Food Sales	Grocery store/food market	2	331.6	0.595	0.004	0.36	0.042	136.8	2.254	1.127
Convention Center	Convention Center	5	47.6	0	47.6	0.999	Public Assembly	Social/meeting	10	59.5	0.943	0.012	0.044	0.002	40.4	0.387	0.193
Courthouse	Courthouse	17	46.7	25.7	72.4	0.646	Public Order/Safety	Service	20	47.1	0.88	0.118	0.001	0	46.6	1.138	0.569
Data Center	Data Center	7	170.9	0.2	171.1	0.999	Other	Other	5	59	0.613	0.006	0.031	0.351	145.4	1.258	0.629
Distribution Center	Distribution Center	19	20.3	8.1	28.4	0.716	Warehouse/storage	Distribution/shipping center	38	44.5	0.986	0.004	0	0.009	19.4	0.577	0.288
Enclosed Mall	Enclosed Mall	11	51.6	0.1	51.7	0.998	Enclosed/Strip Mall	Enclosed mall Other retail Retail store Strip shopping mall	40	39.2	0.769	0.174	0.04	0.018	43.9	0.243	0.122
Financial Office	Financial Office	13	66.3	5.9	72.2	0.918	Office	Office	150	57.1	0.823	0.107	0.019	0.051	58.2	0.318	0.159
Fire Station	Fire Station	15	43.6	38.6	82.2	0.53	Public Order/Safety	Fire station/police station	1	75.6	1	0	0	0	46.9	1.701	0.851
Fitness Center/Health Club/Gym	Fitness Center/Health Club/Gym	11	49.5	65.1	114.6	0.432	Public Assembly	Recreation	7	39.3	0.981	0.002	0.016	0	59.1	2.867	1.434

ESPM Property Type	EPA Type Grouping	EPA Count	Elec EUI (kBtu/SF)	Gas EUI (kBtu/SF)	Site EUI (kBtu/SF)	Elec/Site Ratio	SWA Type	CBECS/RECS Types	CBECS/RECS Count	CBECS/RECS Site EUI (kBtu/SF)	Gas Space Ratio	Gas Water Ratio	Gas Cook Ratio	Gas Other Ratio	Final Site EUI Target (kBtu/SF)	2030 Direct Emissions Target (kg CO2e / SF)	2035 Direct Emissions Target (kg CO2e / SF)
Food Sales	Supermarket/Grocery Store	156	136.9	49.2	186.2	0.736	Food Sales	Grocery store/food market	2	331.6	0.595	0.004	0.36	0.042	136.6	2.249	1.125
Heated Swimming Pool	Fitness Center/Health Club/Gym Ice/Curling Rink Other - Recreation Heated Swimming Pool	83	98.3	2	100.3	0.981	Public Assembly	Recreation	7	39.3	0.981	0.002	0.016	0	84.1	2.067	1.034
Hospital (General Medical & Surgical)	Hospital (General Medical & Surgical)	29	103.7	135.2	238.9	0.434	Health Care Inpatient	Hospital/inpatient health	83	172.5	0.382	0.36	0.177	0.081	143.7	6.099	3.05
Hotel	Hotel	86	48.7	33.3	82	0.594	Lodging	Lodging	17	81.5	0.156	0.286	0.261	0.297	60.4	1.473	0.737
Ice/Curling Rink	Fitness Center/Health Club/Gym Ice/Curling Rink Other - Recreation Swimming Pool	83	98.3	2	100.3	0.981	Public Assembly	Recreation	7	39.3	0.981	0.002	0.016	0	84.1	2.067	1.034
Indoor Arena	Movie Theater Museum Other - Entertainment/Public Assembly Performing Arts Stadium (Closed) Stadium (Open)	54	44.1	14.1	58.2	0.758	Public Assembly	Public assembly	35	58.8	0.96	0.008	0.026	0.006	41.3	1.033	0.517
Laboratory	Laboratory	40	118.9	113.2	232.1	0.512	Other	Laboratory	13	206.3	0.754	0.019	0.089	0.138	143.8	5.349	2.675
Library	Library	26	52.2	39.2	91.4	0.571	Public Order/Safety	Library	7	110	0.967	0.008	0	0.025	55.1	1.922	0.961
Lifestyle Center	Lifestyle Center	10	67.9	1	68.9	0.985	Enclosed/Strip Mall	Strip shopping mall	18	112	0.731	0.118	0.134	0.016	58	0.912	0.456
Medical Office	Medical Office	68	82.7	0	82.7	0.999	Health Care Outpatient	Medical office (diagnostic)	12	40	0.99	0.008	0	0.002	70.3	0.181	0.09

ESPM Property Type	EPA Type Grouping	EPA Count	Elec EUI (kBtu/SF)	Gas EUI (kBtu/SF)	Site EUI (kBtu/SF)	Elec/Site Ratio	SWA Type	CBECS/RECS Types	CBECS/RECS Count	CBECS/RECS Site EUI (kBtu/SF)	Gas Space Ratio	Gas Water Ratio	Gas Cook Ratio	Gas Other Ratio	Final Site EUI Target (kBtu/SF)	2030 Direct Emissions Target (kg CO2e / SF)	2035 Direct Emissions Target (kg CO2e / SF)
								Medical office (non-diagnostic)									
Movie Theater	Movie Theater	5	61.2	17.8	79	0.775	Public Assembly	Public assembly	35	58.8	0.96	0.008	0.026	0.006	56.8	0.783	0.392
Multifamily Housing	Multifamily Housing	435	26.4	12.4	38.8	0.68	Multifamily	Apartment in a building with 2 to 4 units Apartment in a building with 5 or more units	196	49.2	0.274	0.229	0.118	0.379	29.4	0.823	0.412
Museum	Museum	22	32.1	7.3	39.4	0.815	Public Assembly	Public assembly	35	58.8	0.96	0.008	0.026	0.006	29.2	0.751	0.376
Non-Refrigerated Warehouse	Non-Refrigerated Warehouse	44	35	0.3	35.2	0.993	Warehouse/storage	Non-refrigerated warehouse	19	16.1	0.993	0.004	0	0.002	29.8	0.086	0.043
Office	Office	636	64.1	0.1	64.2	0.999	Office	Office	150	57.1	0.823	0.107	0.019	0.051	54.5	0.218	0.109
Other - Education	Other - Education	8	46.1	17.2	63.3	0.729	Higher Education	Education	125	66.1	0.737	0.111	0.089	0.063	45	1.592	0.796
Other - Entertainment/Public Assembly	Other - Entertainment/Public Assembly	7	56	0.1	56.1	0.998	Public Assembly	Public assembly	35	58.8	0.96	0.008	0.026	0.006	47.6	0.539	0.27
Other - Lodging/Residential	Other - Lodging/Residential	11	43.6	0	43.6	1	Lodging	Lodging	17	81.5	0.156	0.286	0.261	0.297	37.1	0.002	0.001
Other - Mall	Other - Mall	11	81.7	38.5	120.2	0.679	Enclosed/Strip Mall	Enclosed mall Other retail Retail store Strip shopping mall	40	39.2	0.769	0.174	0.04	0.018	81	1.404	0.702
Other - Other	Other - Other	125	50.8	22.3	73.1	0.696	Other	Other	5	59	0.613	0.006	0.031	0.351	54.1	1.602	0.801
Other - Public Service	Other - Public Service	24	69.9	5.7	75.6	0.925	Public Order/Safety	Service	20	47.1	0.88	0.118	0.001	0	61	2.118	1.059

ESPM Property Type	EPA Type Grouping	EPA Count	Elec EUI (kBtu/SF)	Gas EUI (kBtu/SF)	Site EUI (kBtu/SF)	Elec/Site Ratio	SWA Type	CBECS/RECS Types	CBECS/RECS Count	CBECS/RECS Site EUI (kBtu/SF)	Gas Space Ratio	Gas Water Ratio	Gas Cook Ratio	Gas Other Ratio	Final Site EUI Target (kBtu/SF)	2030 Direct Emissions Target (kg CO2e / SF)	2035 Direct Emissions Target (kg CO2e / SF)
Other - Recreation	Other - Recreation	69	92	0	92	1	Public Assembly	Recreation	7	39.3	0.981	0.002	0.016	0	78.2	0.702	0.351
Other - Services	Other - Services	5	51.7	26	77.7	0.665	Service	Service	20	47.1	0.88	0.118	0.001	0	50.9	2.628	1.314
Other - Specialty Hospital	Hospital (General Medical & Surgical)	29	103.7	135.2	238.9	0.434	Health Care Inpatient	Hospital/inpatient health	83	172.5	0.382	0.36	0.177	0.081	143.7	6.099	3.05
Other - Stadium	Stadium (Closed) Stadium (Open)	8	24.4	6.5	30.9	0.789	Public Assembly	Public assembly	35	58.8	0.96	0.008	0.026	0.006	22.5	0.313	0.157
Other - Technology/Science	Other - Technology/Science	32	215.1	0	215.1	1	Other	Other	5	59	0.613	0.006	0.031	0.351	182.9	0.001	0.001
Outpatient Rehabilitation/Physical Therapy	Urgent Care/Clinic/Other Outpatient	9	43.5	32.9	76.4	0.57	Health Care Outpatient	Outpatient health care	23	49.6	0.984	0.014	0.001	0.001	45.5	1.76	0.88
Performing Arts	Performing Arts	12	50.1	54	104.2	0.481	Public Assembly	Public assembly	35	58.8	0.96	0.008	0.026	0.006	57.2	2.379	1.19
Personal Services (Health/Beauty, Dry Cleaning, etc.)	Other - Public Service Other - Services Repair Services (Vehicle, Shoe, Locksmith, etc.)	37	45.1	32.6	77.7	0.58	Service	Service	20	47.1	0.88	0.118	0.001	0	47.1	2.171	1.085
Police Station	Police Station	20	53.1	34.9	88	0.604	Public Order/Safety	Fire station/police station	1	75.6	1	0	0	0	54.1	1.522	0.761
Pre-school/Daycare	Pre-school/Daycare	10	30.2	41	71.2	0.424	K-12 School	Preschool/daycare	2	65.7	0.297	0.313	0.005	0.384	47.7	2.453	1.226
Prison/Incarceration	Barracks Other - Lodging/Residential Residence Hall/Dormitory	44	45.1	0.1	45.2	0.999	Public Order/Safety	Public order and safety	4	82.8	0.984	0.012	0.004	0	38.4	0.573	0.286

ESPM Property Type	EPA Type Grouping	EPA Count	Elec EUI (kBtu/SF)	Gas EUI (kBtu/SF)	Site EUI (kBtu/SF)	Elec/Site Ratio	SWA Type	CBECS/RECS Types	CBECS/RECS Count	CBECS/RECS Site EUI (kBtu/SF)	Gas Space Ratio	Gas Water Ratio	Gas Cook Ratio	Gas Other Ratio	Final Site EUI Target (kBtu/SF)	2030 Direct Emissions Target (kg CO2e / SF)	2035 Direct Emissions Target (kg CO2e / SF)
Race Track	Movie Theater Museum Other - Entertainment/Public Assembly Performing Arts Stadium (Closed) Stadium (Open)	54	44.1	14.1	58.2	0.758	Public Assembly	Public assembly	35	58.8	0.96	0.008	0.026	0.006	41.3	1.033	0.517
Refrigerated Warehouse	Refrigerated Warehouse	5	35.2	31.1	66.3	0.53	Warehouse/ storage	Refrigerated warehouse	1	98.4	0.993	0.007	0	0	37.9	1.372	0.686
Repair Services (Vehicle, Shoe, Locksmith, etc.)	Repair Services (Vehicle, Shoe, Locksmith, etc.)	8	46.1	49.1	95.2	0.484	Service	Service	20	47.1	0.88	0.118	0.001	0	52.4	2.164	1.082
Residence Hall/Dormitory	Residence Hall/Dormitory	31	38.5	9	47.5	0.81	Lodging	Dormitory/ fraternity/ sorority	15	96.4	0.158	0.287	0.256	0.299	37.8	0.702	0.351
Residential Care Facility	Senior Living Community	52	49	31.8	80.8	0.606	Health Care Outpatient	Outpatient health care	23	49.6	0.984	0.014	0.001	0.001	49.9	1.431	0.716
Retail Store	Retail Store	580	52.4	13.2	65.6	0.799	Retail	Retail store	18	35	0.954	0	0.011	0.034	48.3	0.602	0.301
Roller Rink	Fitness Center/Health Club/Gym Ice/Curling Rink Other - Recreation Swimming Pool	83	98.3	2	100.3	0.981	Public Assembly	Recreation	7	39.3	0.981	0.002	0.016	0	84.1	2.067	1.034
Self-Storage Facility	Self-Storage Facility	48	7.1	3.6	10.7	0.665	Warehouse/ storage	Non-refrigerated warehouse	19	16.1	0.993	0.004	0	0.002	7	0.194	0.097
Senior Living Community	Senior Living Community	52	49	31.8	80.8	0.606	Health Care Outpatient	Outpatient health care	23	49.6	0.984	0.014	0.001	0.001	49.9	1.431	0.716
Social/Meeting Hall	Social/Meeting Hall	32	40	19.8	59.8	0.669	Public Assembly	Social/meeting	10	59.5	0.943	0.012	0.044	0.002	39.4	1.527	0.763
Stadium (Closed)	Stadium (Closed) Stadium (Open)	8	24.4	6.5	30.9	0.789	Public Assembly	Public assembly	35	58.8	0.96	0.008	0.026	0.006	22.5	0.313	0.157

ESPM Property Type	EPA Type Grouping	EPA Count	Elec EUI (kBtu/SF)	Gas EUI (kBtu/SF)	Site EUI (kBtu/SF)	Elec/Site Ratio	SWA Type	CBECS/RECS Types	CBECS/RECS Count	CBECS/RECS Site EUI (kBtu/SF)	Gas Space Ratio	Gas Water Ratio	Gas Cook Ratio	Gas Other Ratio	Final Site EUI Target (kBtu/SF)	2030 Direct Emissions Target (kg CO2e / SF)	2035 Direct Emissions Target (kg CO2e / SF)
Stadium (Open)	Stadium (Open)	7	22.3	6	28.3	0.789	Public Assembly	Public assembly	35	58.8	0.96	0.008	0.026	0.006	20.6	0.322	0.161
Strip Mall	Strip Mall	54	54	38.2	92.2	0.586	Enclosed/Strip Mall	Strip shopping mall	18	112	0.731	0.118	0.134	0.016	58.4	1.9	0.95
Supermarket/ Grocery Store	Supermarket/Grocery Store	156	136.9	49.2	186.2	0.736	Food Sales	Grocery store/food market	2	331.6	0.595	0.004	0.36	0.042	136.6	2.249	1.125
Transportation Terminal/ Station	Transportation Terminal/Station	5	55.7	33.3	89	0.625	Public Order/ Safety	Public assembly	35	58.8	0.96	0.008	0.026	0.006	56.3	2.224	1.112
Urgent Care/ Clinic/Other Outpatient	Urgent Care/Clinic/Other Outpatient	9	43.5	32.9	76.4	0.57	Health Care Outpatient	Clinic/other outpatient health	13	113.1	0.977	0.017	0.003	0.003	45.6	1.76	0.88
Vehicle Dealership	Vehicle Dealership	22	54.5	48.7	103.2	0.528	Retail	Retail other than mall	22	38	0.782	0.194	0.006	0.018	60.5	2.233	1.116
Veterinary Office	Urgent Care/Clinic/Other Outpatient	9	43.5	32.9	76.4	0.57	Health Care Outpatient	Clinic/other outpatient health	13	113.1	0.977	0.017	0.003	0.003	45.6	1.76	0.88
Vocational School	Adult Education Other - Education Vocational School	11	42.7	28	70.7	0.604	Higher Education	Education	125	66.1	0.737	0.111	0.089	0.063	45.8	2.335	1.168
Wholesale Club/ Supercenter	Retail Store Wholesale Club/Supercenter	582	52.5	13.3	65.8	0.798	Retail	Retail store	18	35	0.954	0	0.011	0.034	48.4	0.603	0.301
Worship Facility	Worship Facility	31	28	19.4	47.4	0.591	Religious worship	Religious worship	19	32.8	0.589	0.133	0.116	0.162	31.8	0.873	0.437
Zoo	Movie Theater Museum Other - Entertainment/Public Assembly Performing Arts Stadium (Closed) Stadium (Open)	54	44.1	14.1	58.2	0.758	Public Assembly	Public assembly	35	58.8	0.96	0.008	0.026	0.006	41.3	1.033	0.517

Table 4. EEM Costs

The Energy Efficiency Measure (EEM) costs used in the analysis for multifamily, office, and warehouse buildings are shown below. Note that these costs are intended to provide a high-level estimate of the overall cost of energy efficiency retrofits across the Maryland building stock and are not intended to be representative of costs at any particular building. The specific measures and costs for a specific building will be dependent on the building's unique characteristics and systems.

EEM	Cost (\$/square foot)		
	Multifamily	Office	Warehouse
Add Plug Load Control	0.03	-	-
Add R-10 Roof Insulation	7.2	5.6	-
Add R-5.0ci Wall Insulation	5.5	1.0	3.4
Add Vestibule			3.1
Adjust HVAC Schedules	-	0.0	0.0
Close Shaft Vents	5.3	-	-
Conduct Commissioning - Stage 1: 1-month payback	0.01	0.03	0.01
Conduct Commissioning - Stage 2: 1-year payback	0.3	0.2	0.2
Conduct Commissioning - Stage 3: 3-year payback	0.8	0.4	0.7
Improve Fenestration	7.0	-	-
Increase Daylit Area	-	-	0.3
Install a Heat Pump Clothes Dryer	7.4	-	-
Install an Exhaust Recovery Ventilation Unit	4.7	3.1	3.0
Install Central Temperature Controls	1.4	-	1.1
Install DOAS/fan control	-	0.9	-
Install Fault Detection and Diagnosis	5.6	0.2	0.8
Install Low Flow Aerators in Faucets and Showers	7.5	-	-
Install Occupancy Controls	-	1.2	0.3
Install Primary Chilled Water Pump Variable Frequency Drives	-	1.2	-
Install Programmable Thermostats	6.1	-	-
Install Residential HVAC Controls	0.5	-	-
Install Residential Lighting Controls	1.7	-	-
Install Service Hot Water Shower Drain Heat Recovery	1.0	-	-
Install Smart Plug Load Management Tools	-	0.6	0.5

EEM	Cost (\$/square foot)		
	Multifamily	Office	Warehouse
Install Tenant Submeteres	-	5.3	-
Install Thermostatic Balancing Valves	1.7	-	-
Install Variable Frequency Drives on Central Distribution Pumps	0.1	-	-
Install Variable Frequency Drives on Condenser Water Pumps	1.1	1.0	-
Install Variable Frequency Drives on Domestic Water Booster Pumps	1.1	-	-
Install Variable Frequency Drives on Heating Hot Water Pumps	0.4	-	-
Insulate Service Hot Water Piping	7.4	-	-
Reduce Envelope Leakage	0.05	0.04	0.1
Reduce Lighting Power Density	1.6	3.6	0.4
Upgrade Elevator Efficiency	-	3.8	-
Upgrade Exhaust Fans	2.1	-	-
Upgrade Interior Lighting to LED	-	4.7	4.2
Upgrade In-Unit Appliances	5.3	-	-
Upgrader Parking Garage Lighting to LED	-	5.4	-

The cost curves developed using these costs are shown in the figures below.

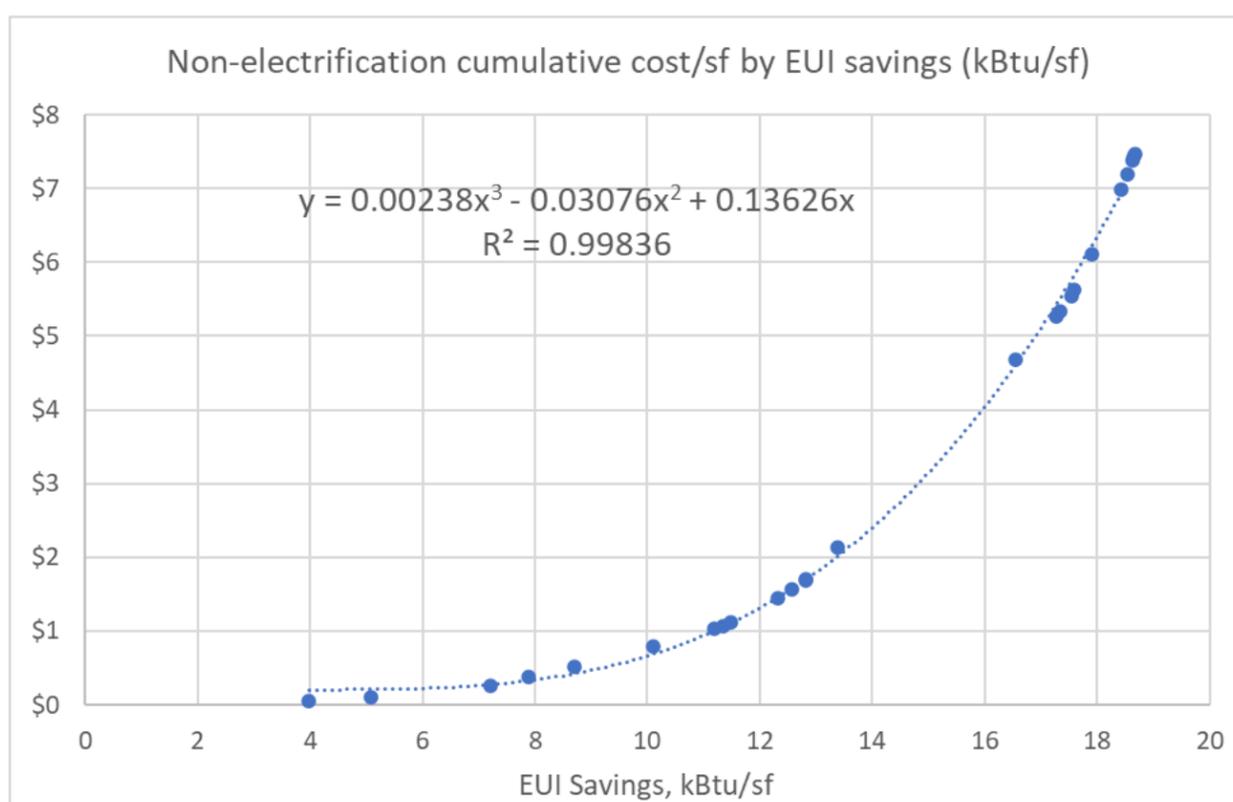


Figure 4: Non-electrification cumulative cost/sf by EUI savings (kBtu/sf) – Multifamily Building Type

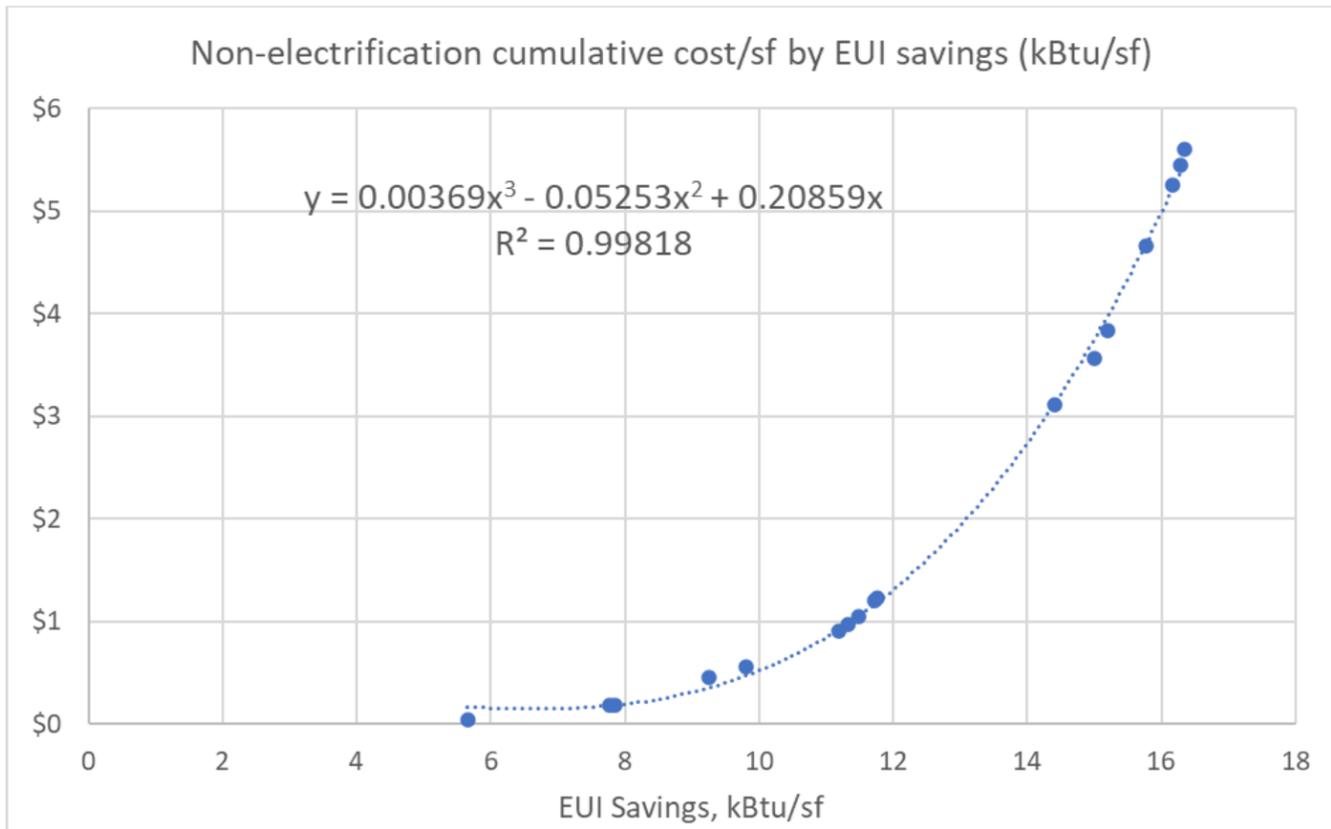


Figure 5: Non-electrification cumulative cost/sf by EUI savings (kBtu/sf) – Office Building Type

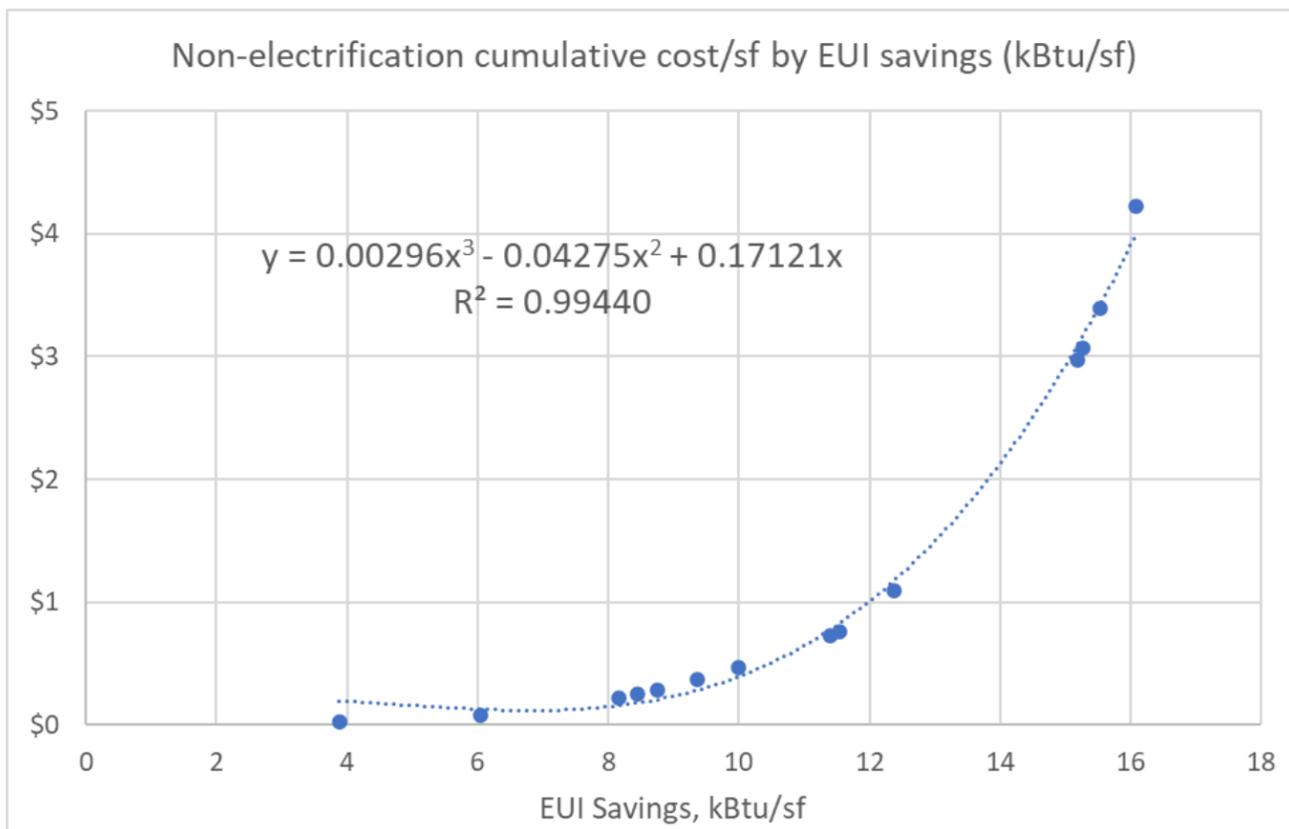


Figure 6: Non-electrification cumulative cost/sf by EUI savings (kBtu/sf) – Warehouse Building Type

Table 5. Electrification Costs.

Electrification costs used in the analysis are shown below. The costs were determined by averaging the cost per square foot of electrification projects by building type as shown in studies conducted for Washington D.C. [8], Montgomery County [5], and Maryland [7]. These costs are high-level and are not intended to represent exact electrification costs at any particular building.

Building Type	Space Heating Electrification (\$/sf)	Water Heating Electrification (\$/sf)	Other Equipment Electrification (\$/sf)
Residential	\$7.99	\$5.17	\$0.84
Commercial	\$9.16		\$0.12

Table 6. Baseline Replacement Costs

Baseline replacement costs used in the model are shown in the table below.

<b>Building Type[1] [MA2]</b>	<b>End Use</b>	<b>Heating</b>	<b>Cost (\$/kBtu/year)</b>
Large Office	Space heating	Boiler gas-fired	0.13
Small Office	Space heating	PSZ with gas heating	0.11
Midrise Apartment	Space heating	Split A/C with gas heating	1.19
Warehouse	Space heating	PSZ with gas heating	0.01
Large Office	Water heating	Commercial gas storage	0.05
Small Office	Water heating	Commercial gas storage	0.12
Midrise Apartment	Water heating	Residential gas storage	0.11
Warehouse	Water heating	Commercial gas storage	0.10

Appendix D – 2023 ACP Emissions Benchmarking



# 2023 ACP Emissions Benchmarking

*Updated September 7, 2023*

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*Photo: National Aquarium*

# Objectives



**Benchmark aquariums on emissions and energy usage**



**Leverage data to inform climate action**



# Interpreting the Data

01

Big picture

02

By the numbers

03

Analysis per aquarium

04

Beyond scope 1 & 2

---



*Photo: National Aquarium*

# Highlights



**25 aquariums benchmarked**



**78,847 MtCO<sub>2</sub>e total emissions**



**9 aquariums set a Net Zero target**



**Average EUI of 203 kBtu/sqft**

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# How to use the benchmark



**Submit data annually to track your progress**



**Meet internally with key stakeholders to debrief results**



**Reach out to your peers to talk best practices**



**Reach out to Verdis with questions / comments**

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**01**

# **Big Picture**

# 2023 IPCC Update

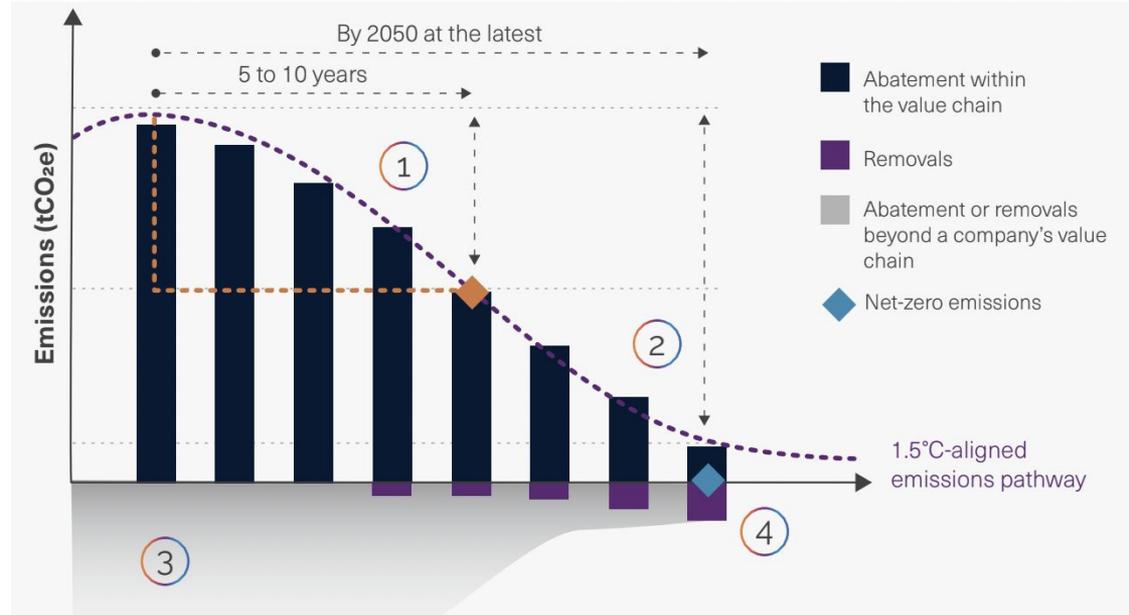
1. Earth is on track to cross the critical 1.5°C threshold sometime in the 2030s
2. Warming is 'unequivocally' due to human activity
3. We can still prevent the most dire climate hazards, but the window is closing

# How to Cap Warming at 1.5°C

1. Reduce by 50% by 2030  
Reduce by 60% by 2035\*
3. Reduce by 90% by 2050
4. Offset while you reduce
5. Offset residual emissions

\*New IPCC target as of 3/20/23  
Reduction based on comparison with 2019

Figure 2 Key elements of the Net-Zero Standard



Source: SBTi Corporate Net-Zero Standard - October 2021

# Milestones

1

## April 2022

ACP announced commitment to address greenhouse gas emissions

2

## April 2023

Aquariums baselined their Scope 1 & 2 emissions

First ACP benchmarking report completed

3

## April 2024

Aquariums encouraged to

1. Have an updated GHG inventory including Scope 3s
2. Build an emission reduction plan and set a target

# Moving Forward

4

## Track

Measure your emissions annually to track your progress and keep the benchmark report updated

Scope 3s can be measured every other year if preferred

5

## Act

Implement strategies that reduce impact from your operations and remove emissions from the atmosphere

6

## Share your story

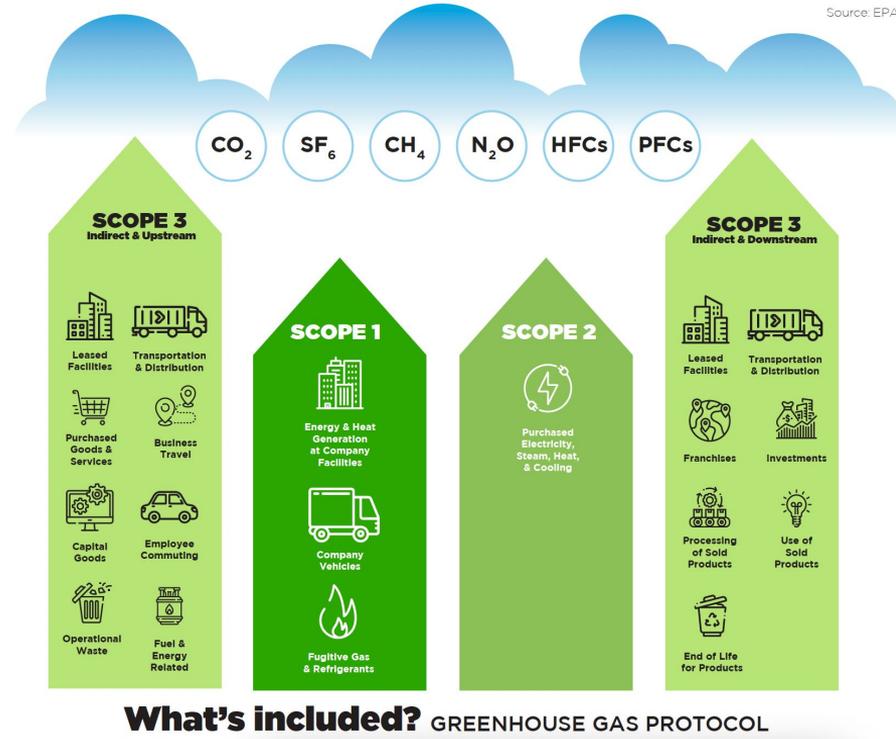
Communicate your journey to Net Zero emissions with your audiences

# Benchmark Boundary

2023 analysis focused on building a baseline for Scope 1 and 2 emissions

Scope 3s are being measured by members and they tend to account for the largest share of emissions

All values presented in the benchmark reflect a baseline year that vary based on the institution between 2019 and 2022



**02**

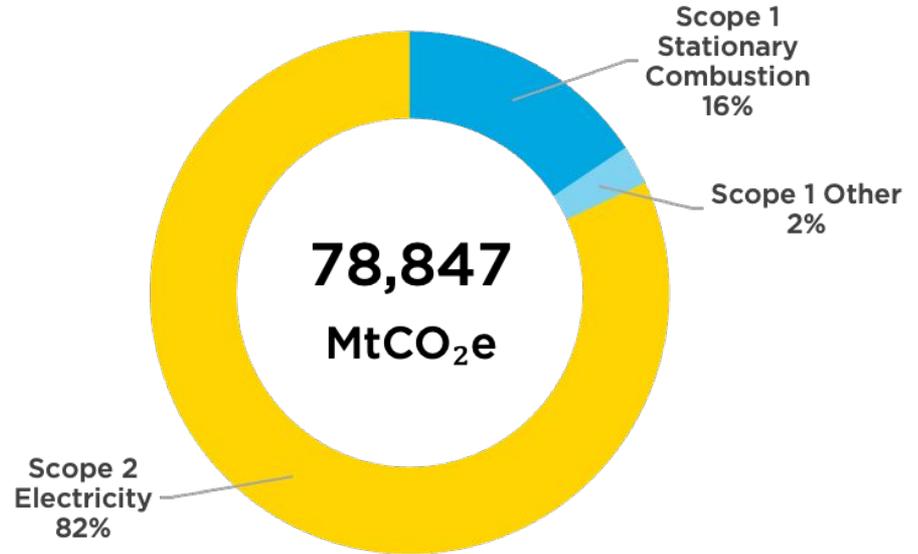
# **By the Numbers**

# ACP Emissions Impact

Scopes 1 & 2 from 25 aquariums

Equivalent to:

- 15,000 cars driving for a year
- 8,700 homes using energy for a year
- Carbon sequestered by 584 acres of mangrove during their growing period



# Interpreting the Data

1

Emissions per SQFT

4

Heating fuel  
consumption

2

Energy use intensity  
(EUI)

5

Renewable energy  
strategy

3

Water use impact on  
electricity usage

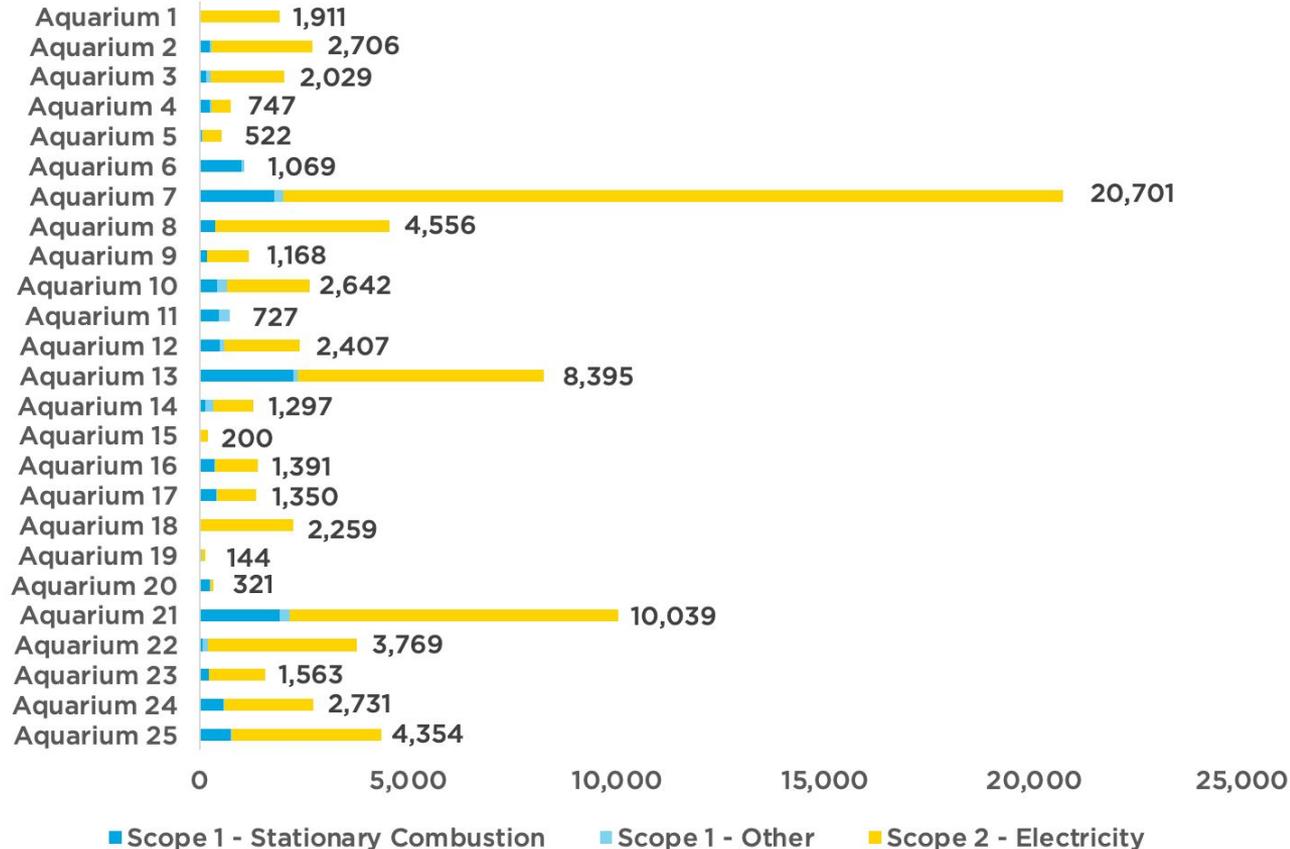
6

Impact of energy mix

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# Emissions Impact by Aquarium

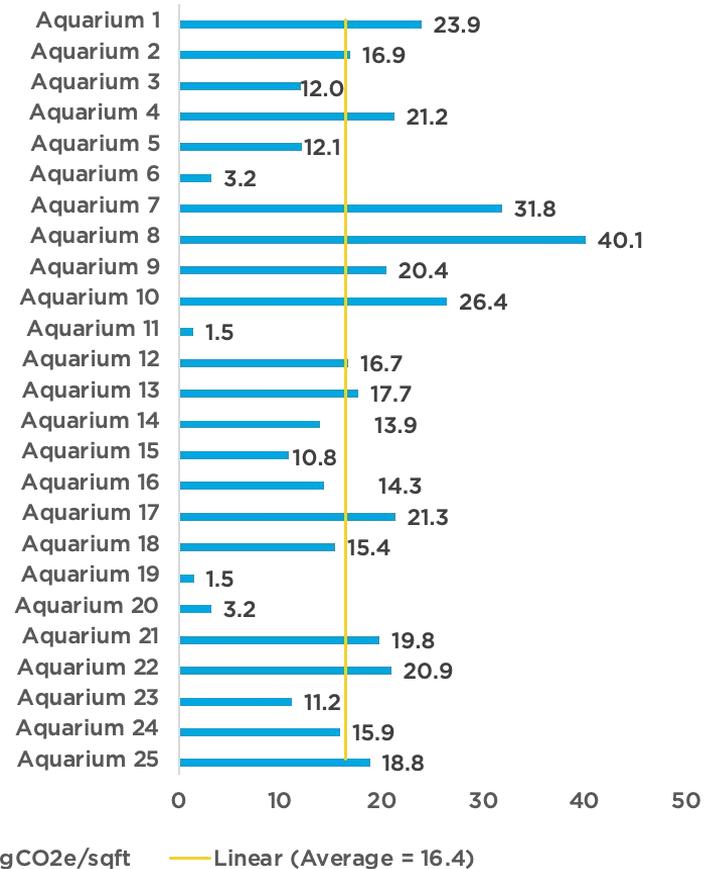
Total Scope 1 & 2 Emissions in MtCO<sub>2</sub>e



## 1

# Emissions per SQFT

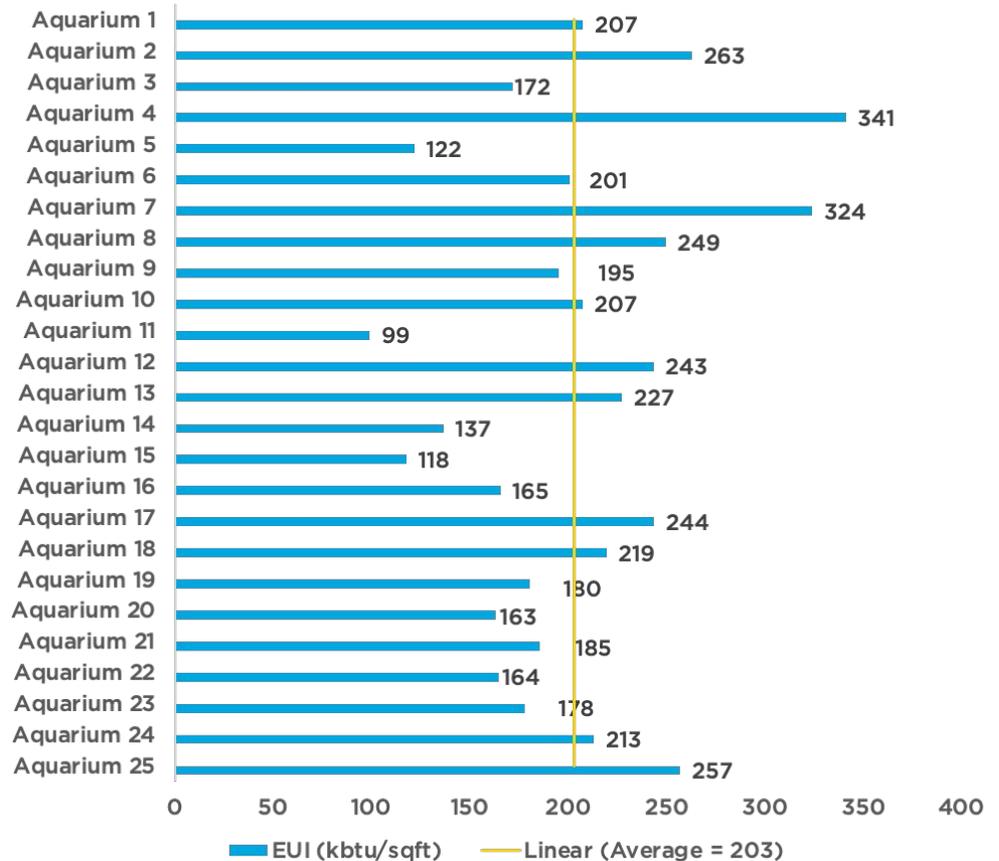
**Average kgCO<sub>2</sub>e/SQFT: 16.4**



# 2

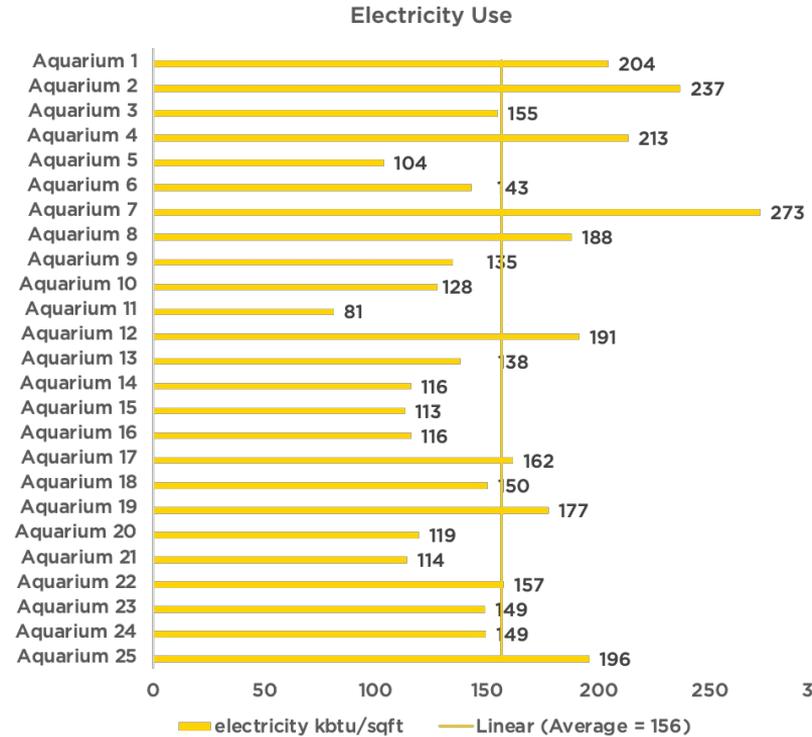
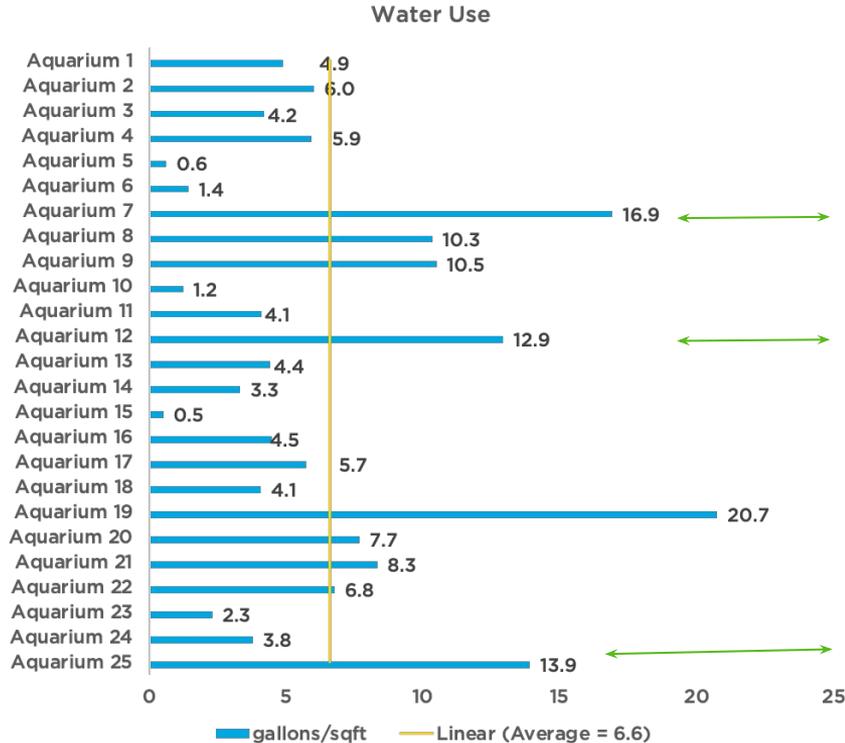
## Energy Use Intensity (EUI)

Average site EUI: 203 kbtu/SQFT



# 3

## Water Use Impact on Electricity Usage

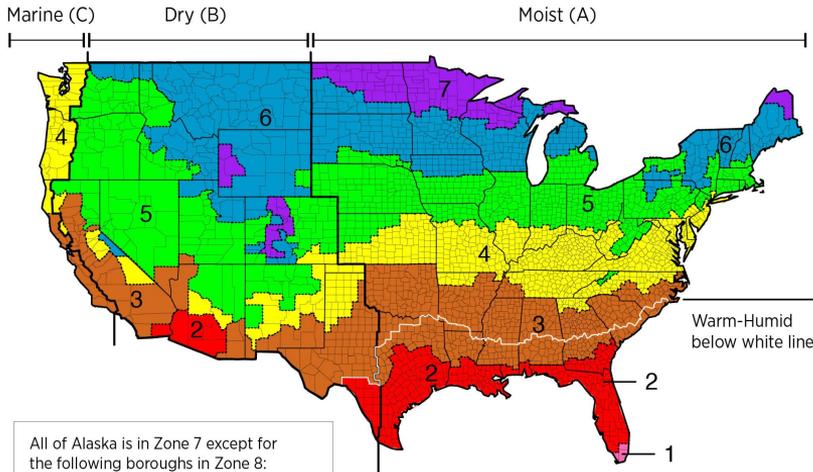


In some cases, a higher EUI can be linked to a higher volume of water per SQFT requiring more electricity for the pumps

# 4

# Heating Fuel Consumption

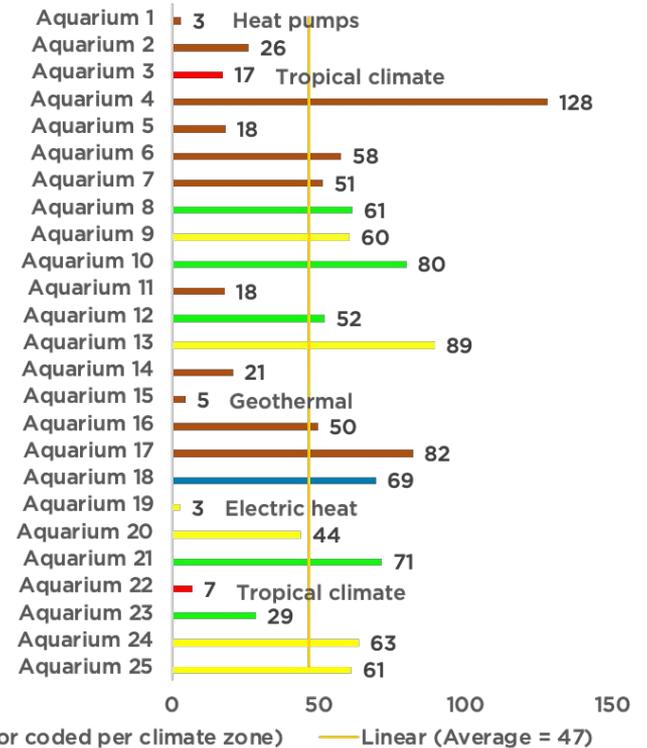
Some aquariums perform better on heating demand, regardless of climate zone



All of Alaska is in Zone 7 except for the following boroughs in Zone 8:  
Bethel, Northwest Arctic, Dellingham, Southeast Fairbanks, Fairbanks N. Star, Wade Hampton, Nome, Yukon-Koyukuk, North Slope

Zone 1 includes Hawaii, Guam, Puerto Rico, and the Virgin Islands

Heating Demand Intensity



# 5

## Renewable Energy Strategy

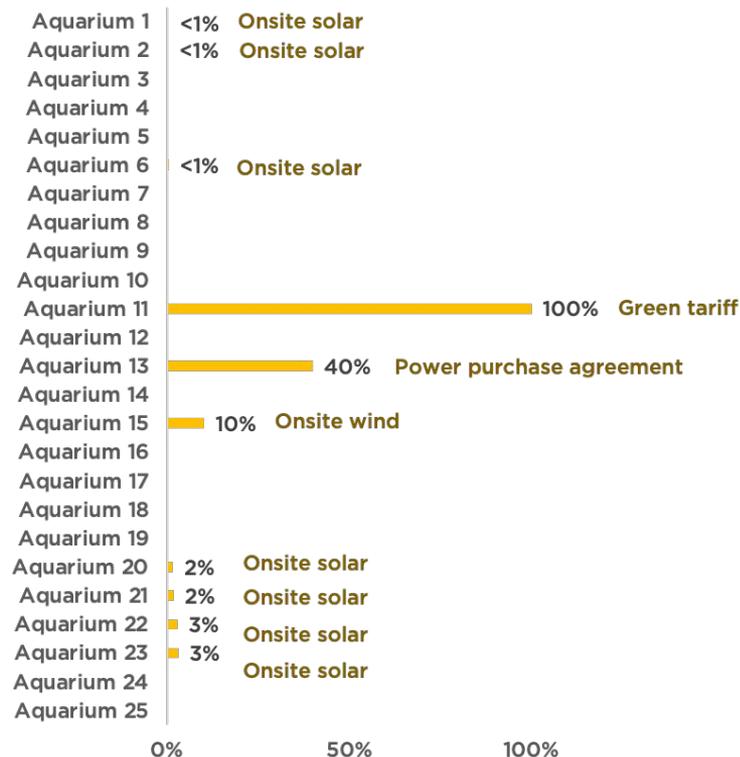
### Onsite solar or wind

- Demonstrates commitment and leadership
- Limited potential on overall usage
- Not suitable for some buildings

### PPA and Green tariff

- Largest impact
- Implementation is unique to each aquarium

Share of Renewable Electricity



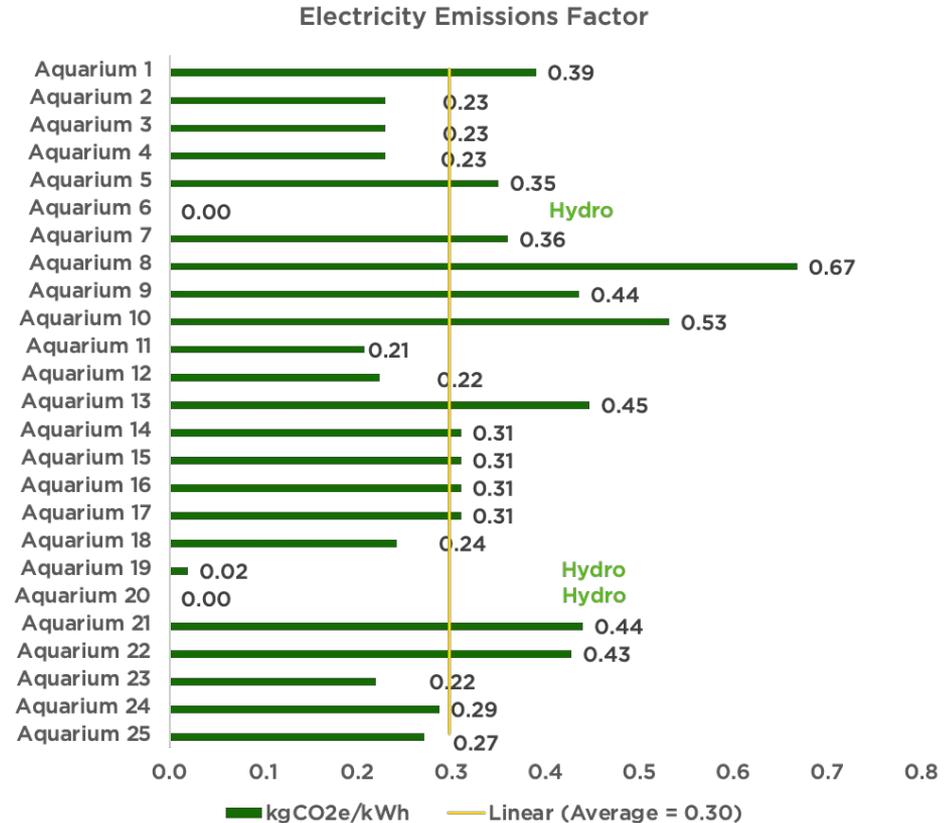
# 6

## Impact of Energy Mix

**Emission factor:** value that reflects the mix of energy sources used by the utility to generate electricity (i.e., fossil fuels vs. renewables).

### Takeaways

- High impact considering electricity represents 83% of total emissions for ACP
- Expected to improve over time and positively impact aquariums
- Importance of relationship with utility



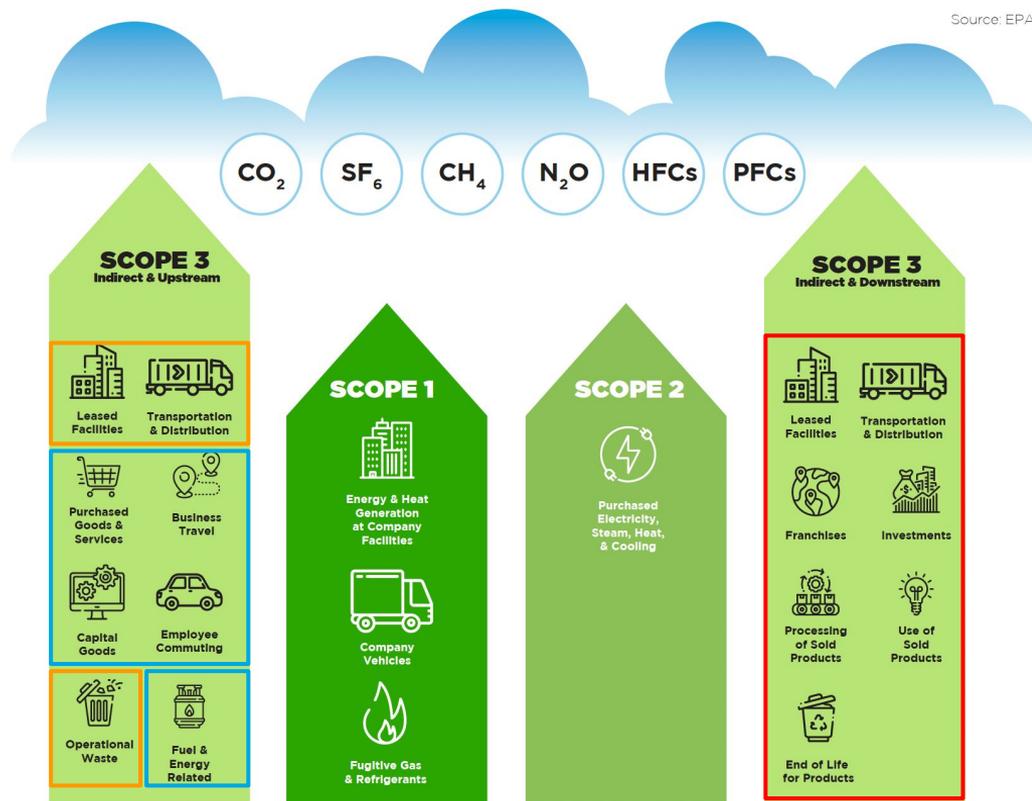
**03**

**Beyond Scope 1 & 2**

# Importance of Scope 3

Source: EPA

- Likely accounts for more emissions than the combined Scope 1 + 2
- Only select categories should be considered
  - Relevant
  - Expected to be minimal
  - Not relevant



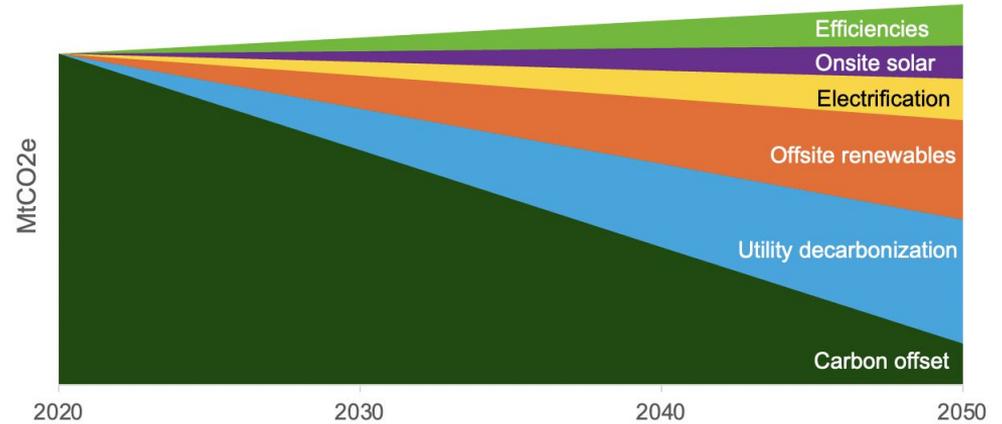
**What's included?** GREENHOUSE GAS PROTOCOL

# Decarbonization

Reducing emissions to achieve Net Zero is key

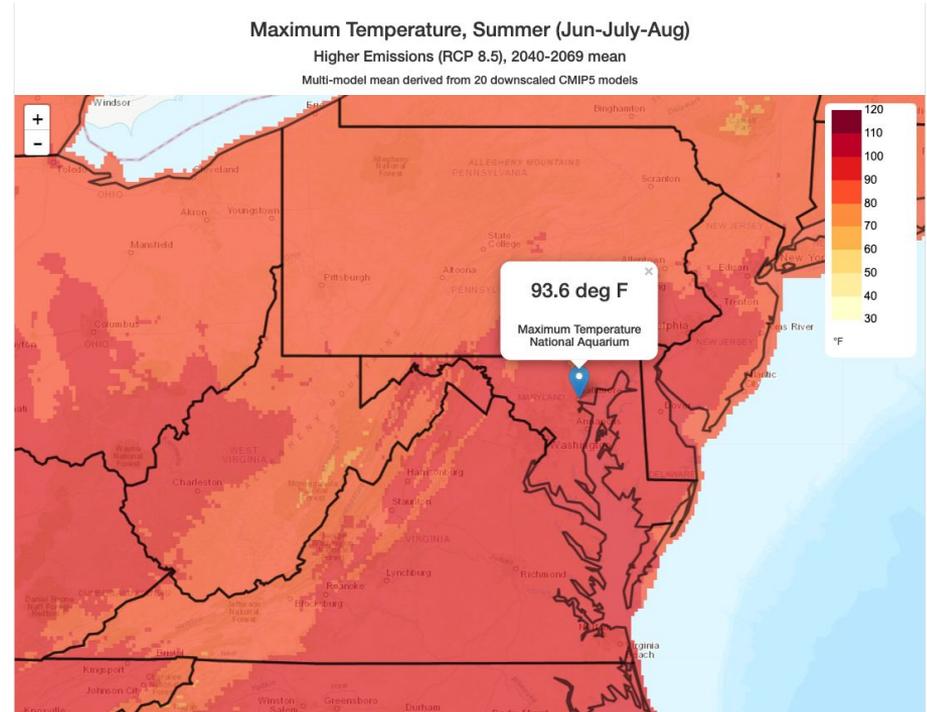
The path to get there is unique for each aquarium

Net Zero Pathway



# Climate Action Planning

- Climate Vulnerability Assessment
- Broader look at mitigation strategies beyond emissions
  - Water
  - Waste
  - Engagement
  - Leadership
- Adaptation and resilience strategies



Source: Climate Toolbox, for National Aquarium CVA



# **APPENDIX: Methodology and Additional Results**

# Methodology

The foundation for the benchmark was a request to all members to measure their greenhouse gas emissions for scope 1 and 2 in accordance with the Greenhouse Gas Protocol Framework. As such, the data collection and analysis focused on the following sources of emissions:

- Stationary combustion: from combustion of fuels in stationary sources such as boilers and furnaces.
- Mobile combustion: from the fuel consumption of owned vehicles.
- Refrigerants: from the use of refrigeration and air conditioning equipment.
- Electricity: from the generation of purchased electricity that is consumed onsite.
- Steam and chilled water: from the energy generated by a third party for heating and cooling purposes.

Along with the results, members disclosed related information such as conditioned space (sqft) for their organization, onsite consumption of fuels (natural gas, propane, diesel, gasoline), and electricity usage.

22 out of the 25 aquariums hired Verdis Group to complete their greenhouse gas inventory and the remaining aquariums disclosed their information via a data request form. In the cases where Verdis Group conducted the inventory, we worked with aquarium staff to gather all the necessary data that would comply with the framework requirements. This work included working with aquarium staff to provide bills or summary reports with the information needed. Approved data included:

- Stationary combustion: quantity of fuel used, type of fuel, and unit of measure
- Mobile combustion: quantity of fuel used, type of fuel, and unit of measure or miles driven combined with an estimated average miles per gallon efficiency
- Refrigerants: volume and type of refrigerant added in operation or total capacity of HVAC units combined with an estimated leakage rate
- Electricity: quantity of kWh used

# Methodology

The data collected, also referred to as activity data, was then converted into metric tons of carbon dioxide equivalent with the emission factors provided by the EPA. Considering the framework for scope 1 and 2 emissions, tables 1, 2, 6, 7, and 12 from the EPA GHG Emission Factor Hub were used most frequently for the conversions. Verdis Group accounted for emissions from four gases: carbon dioxide, methane, nitrous oxide, and refrigerants, which constitute the vast majority of emissions for most organizations. Methane and nitrous oxide are more potent greenhouse gases than carbon dioxide. To compare them equally, Verdis Group converted these gases into carbon dioxide equivalents. For example, methane is approximately 25 times more powerful than carbon dioxide, so methane emissions are multiplied by approximately 25 to produce the carbon dioxide equivalent.

The year used for this baseline varied across organizations between 2019, 2021 and 2022. Each aquarium decided on an appropriate baseline year for their organization based on the most recently available data that was also representative of their normal operations, considering the impact of COVID-19. Each organization submitted data for a full calendar year.

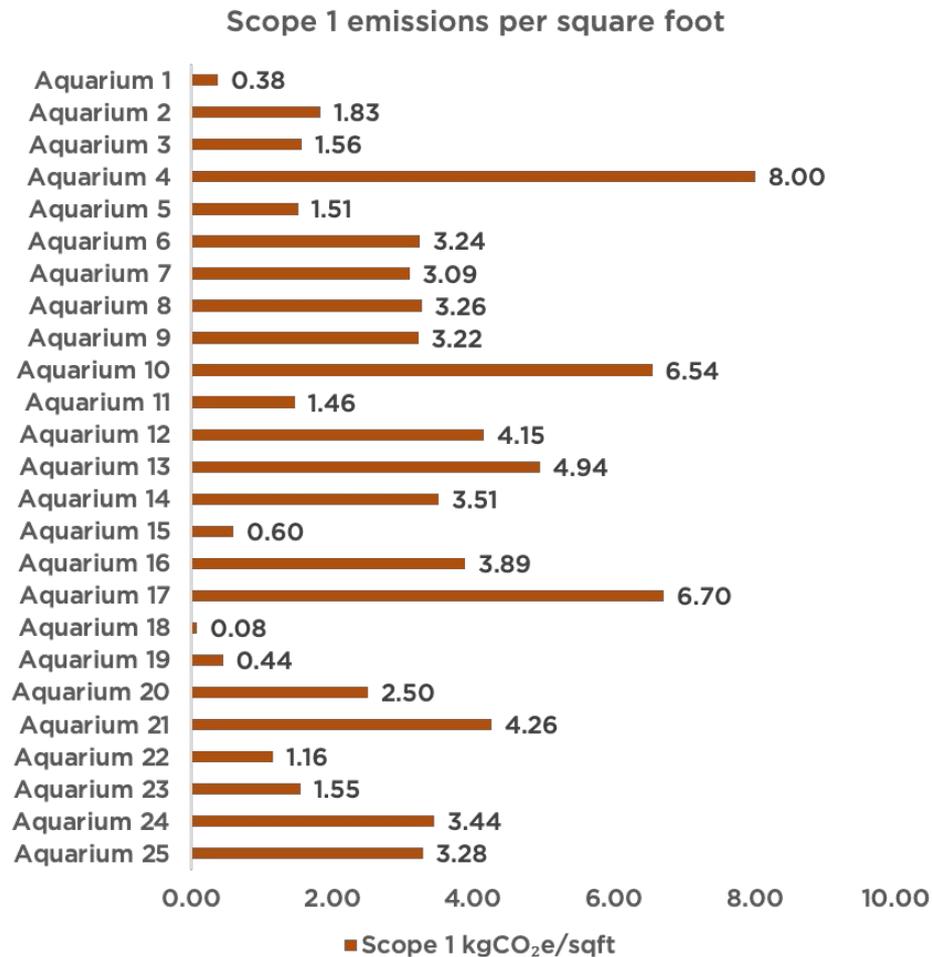
# Additional Results

The below list includes key takeaways from this work:

- 82% of the total emissions across the 25 aquariums were generated from electricity consumption.
- 16% of the total emissions across the 25 aquariums were generated from the combustion of fuels onsite for heating purposes.
- 2% of the total emissions across the 25 aquariums were generated from the mobile fleet fuel consumption and refrigerant leakage.
- For onsite heating fuels, 18 aquariums use natural gas, 4 use other fossil fuels (fuel oil and propane), 1 uses district steam. Two aquariums do not use fossil fuels for heating and are fully electrified (water-source heat pump and geothermal). Generator fuel data was also collected when available and represents a negligible source of emissions (<0.5% of total emissions).
- The average conditioned space for an aquarium is 188,104 sqft.
- The average energy usage intensity for an aquarium is 203 kbtu/sqft, of which 156 kbtu/sqft can be attributed to electricity usage and 47 kbtu/sqft can be attributed to onsite heating.
- On average, aquariums emit 16.4 kgCO<sub>2</sub>e/sqft, of which 13.45 kgCO<sub>2</sub>e/sqft can be attributed to electricity usage, 2.49 kgCO<sub>2</sub>e/sqft to onsite heating, and 0.49 kgCO<sub>2</sub>e/sqft to other scope 1 sources (refrigerants and mobile fleet).

# Additional Results

- Emissions and energy per square foot associated with onsite heating can vary based on the aquarium's location in the country with reduced heating needs in temperate and tropical climates, as well as the use of technologies like geothermal, heat pumps and steam that impact the scope 2 emissions. This graph shows the scope 1 emissions per square foot for each organization and the variability of this data point.



# Thank you!



[verdisgroup.com](https://verdisgroup.com)

[daniel@verdisgroup.com](mailto:daniel@verdisgroup.com)

402.547.8372

Appendix E – MD BEPS Webinar 1



**Maryland**  
Department of  
the Environment

# Maryland Building Energy Performance Standards (BEPS)

May 2023

Maryland BEPS Introduction

Mark Stewart, Climate Change Program Manager

Randy Mosier, Air Quality Planning, Deputy Program Manager



# Objective

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This webinar will provide important background relating to the Maryland BEPS:

- Learn about building energy performance standards
- Background about the BEPS regulation in Maryland
- Overview of the process Maryland uses to adopt new regulations



# Background

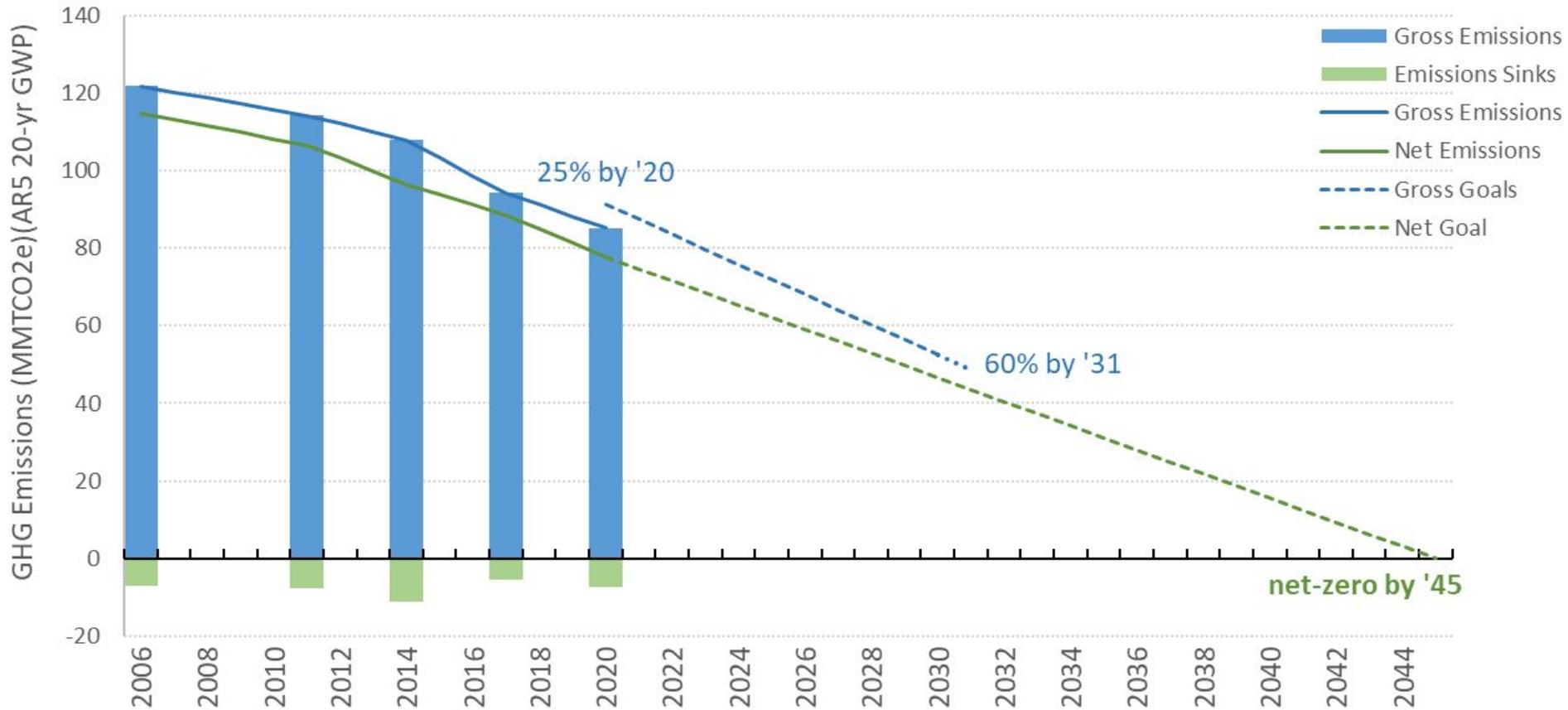
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- Building Energy Performance Standards (BEPS) and Building Performance Standards (BPS) are emerging in cities, counties, and states across the nation
- The typical goal of a BEPS/BPS is to guide large buildings to higher levels of energy efficiency and/or lower levels of greenhouse gas emissions
- The Climate Solutions Now Act of 2022 requires the Maryland Department of the Environment (MDE) to develop BEPS regulations that cover most large buildings in the state
- Decarbonizing large buildings is an important step toward achieving Maryland's greenhouse gas reduction goals



# Maryland's Greenhouse Gas Reduction Goals

Maryland GHG Emissions & Goals





# Covered Buildings

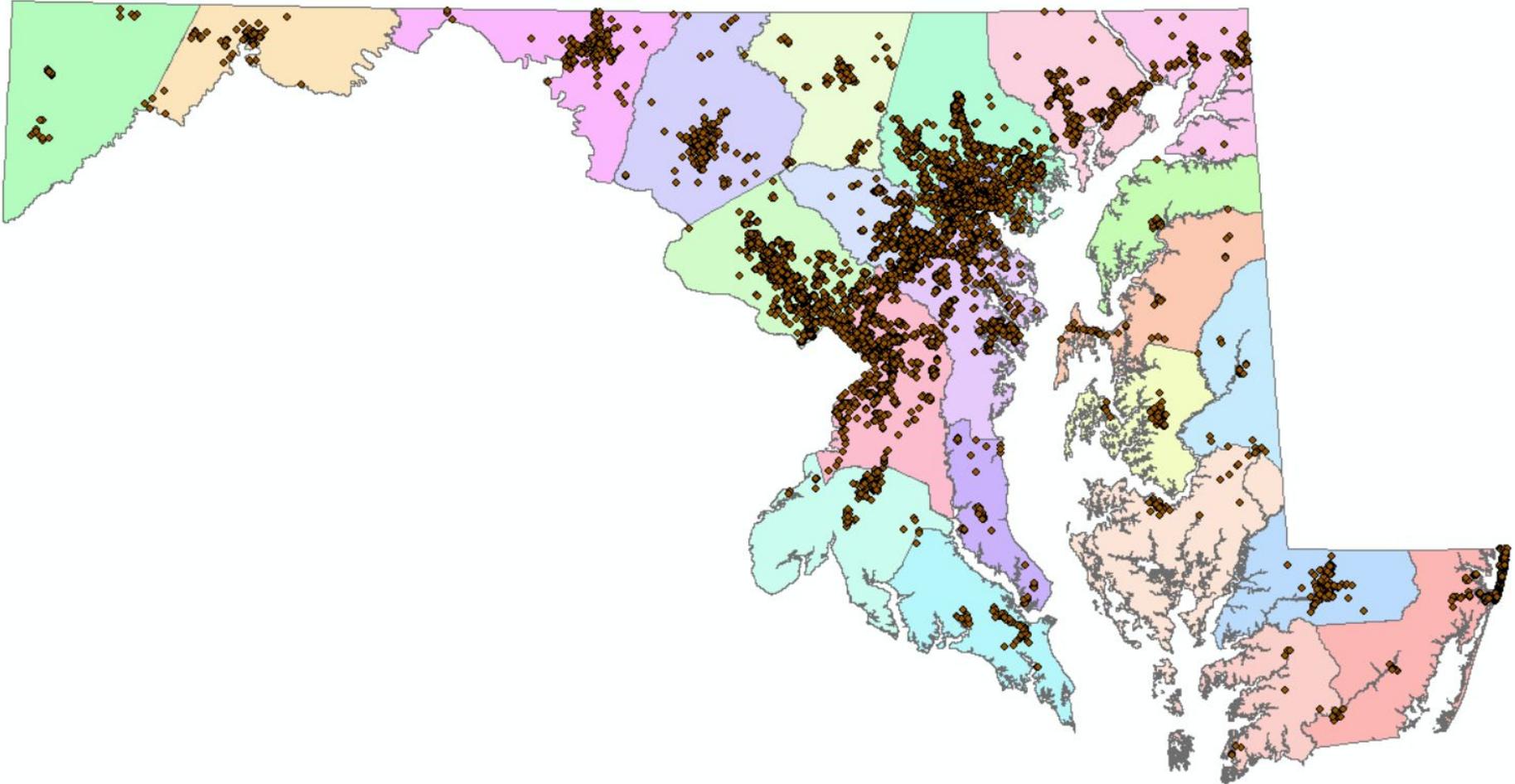
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- A covered building is a building in Maryland that has a gross floor area of 35,000 square feet or more excluding the parking garage area
- Exempt buildings:
  - Buildings smaller than 35,000 square feet;
  - Historic buildings (designated as historic property under law);
  - Public or nonpublic elementary and secondary school buildings;
  - Manufacturing buildings; and
  - Agricultural buildings.



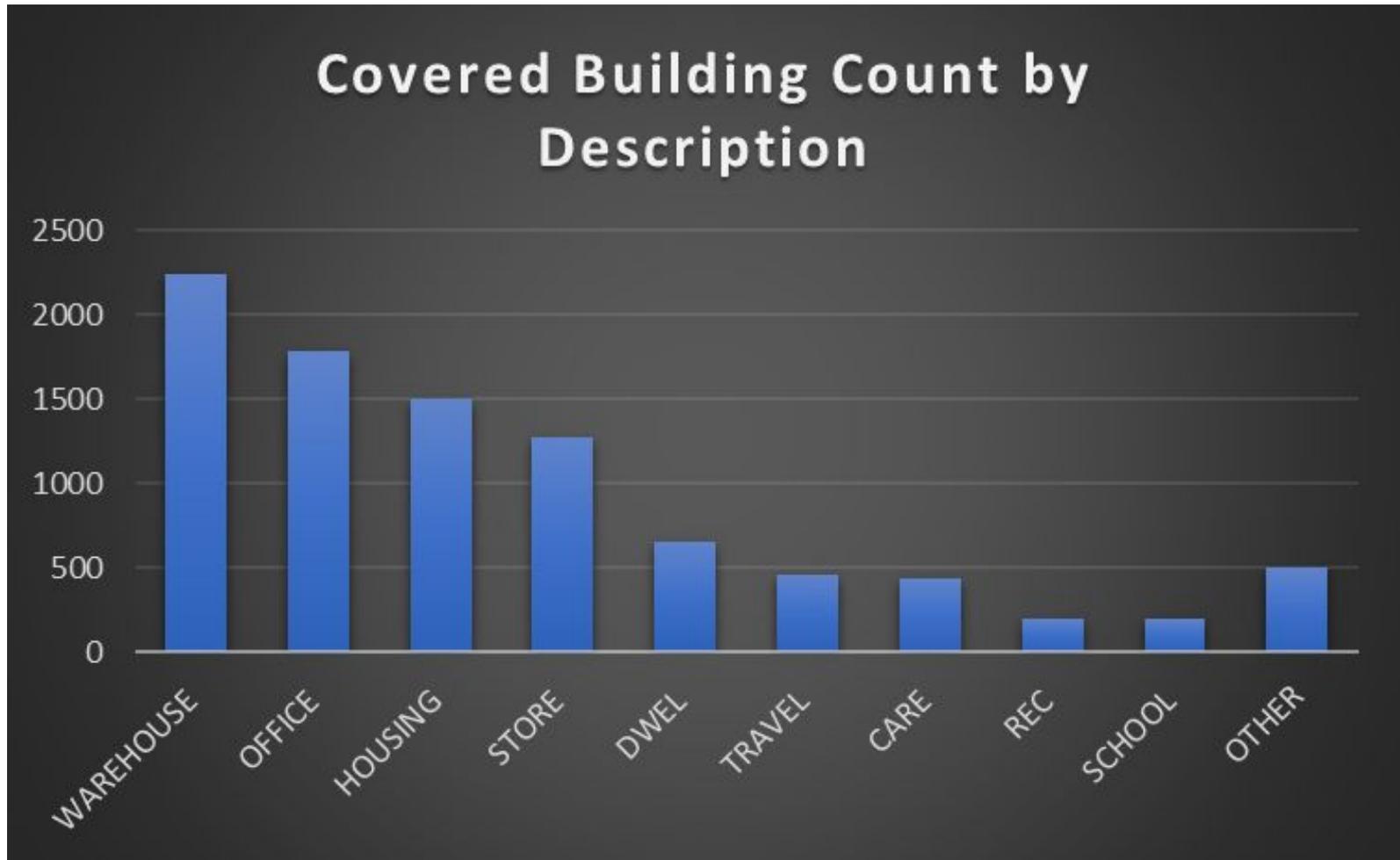
# Location of Covered Buildings

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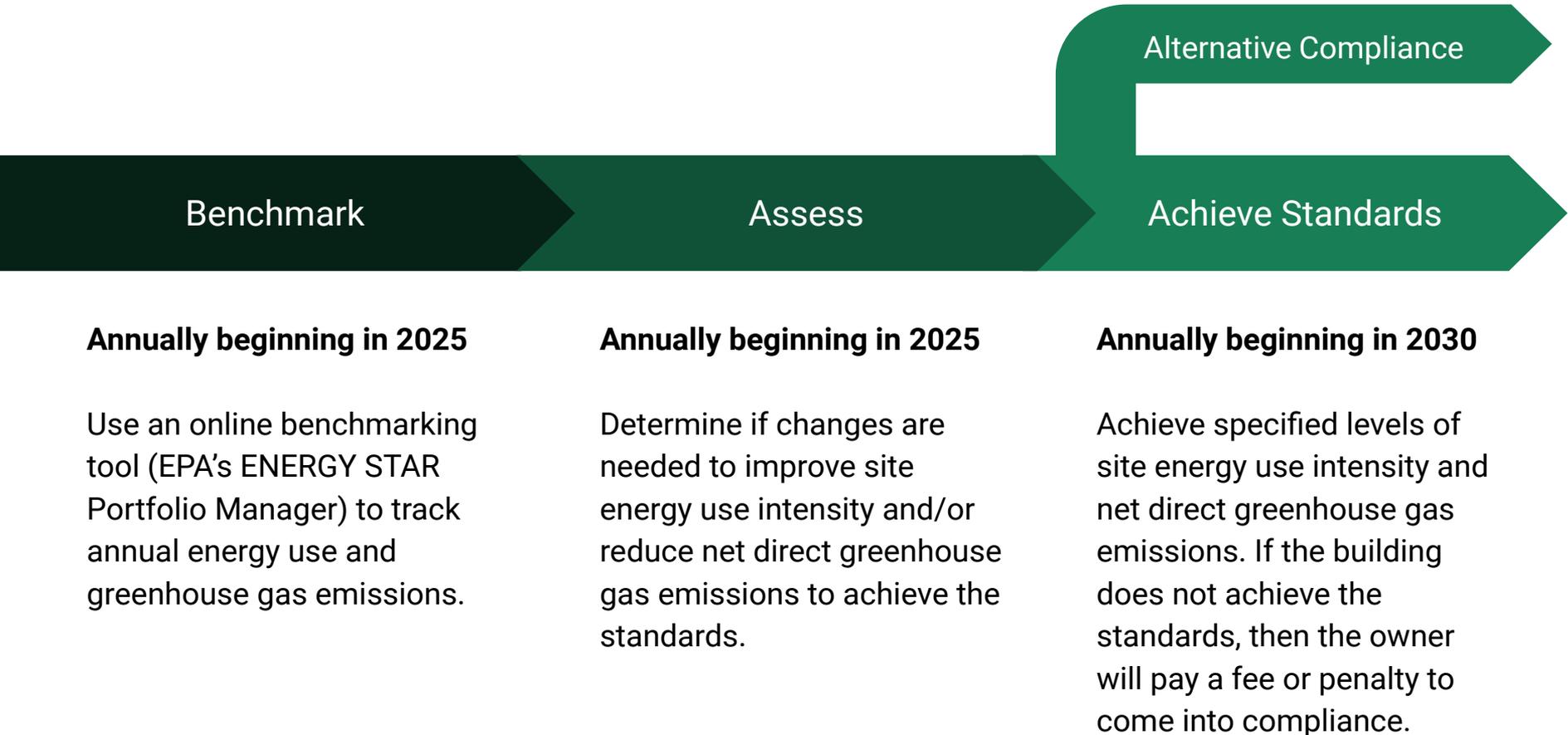


# Distribution of Covered Building Types





# Process for a Covered Building Owner





# Performance Standards

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The Maryland BEPS has two types of performance standards:

- 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
- Site Energy Use Intensity Standards (“site EUI standards”):
  - By 2030, achieve progress on a straight line trajectory to the final standard
  - By 2035, achieve progress on a straight line trajectory to the final standard
  - By 2040, achieve the final standard



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**Maryland**  
Department of  
the Environment

# Regulations Development

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# Code of Maryland Regulations

- All Maryland State agency regulations are compiled in the *Code of Maryland Regulations (COMAR)*
  - Available online through the Office of the Secretary of State, Division of State Documents (DSD)
  - Air pollution control regulations are found under Title 26 Subtitle 9 or 11
  - Radiation control regulations found under Title 26 Subtitle 12

The screenshot displays the Maryland.gov website's Division of State Documents search page. The header includes the Maryland.gov logo and the text 'MARYLAND.GOV Division of State Documents'. A navigation menu on the left lists 'COMAR', 'Maryland Register', and 'Additional Information'. The main content area features a 'Search Regulations' section with a search bar and instructions: 'Display all regulations of a Title, Subtitle or Chapter Under Regulations by Title (left navigation if using a computer) - Click on a Title to filter the list, then on a Subtitle and Chapter as needed. Results will appear below.' Below this, there is a search bar with the placeholder text 'Search...' and a magnifying glass icon. The page also shows a list of regulations by title, including '26 - Department of Environment' and '01 - GENERAL PROVISIONS'. The Windows taskbar is visible at the bottom of the screenshot.



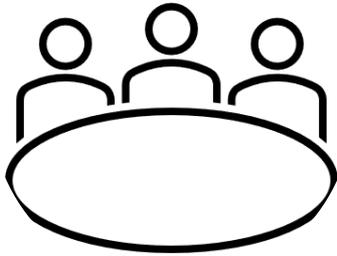
# Air and Radiation Administration

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- Pre-publication process
  - Development of regulations is a coordinated effort with affected and interested parties and state organizations
  - Presentation of regulation proposal to Air Quality Control Advisory Council (AQCAC)
- Publication adoption process
  - MDE submits the regulations to the Joint Committee on Administrative, Executive, and Legislative Review (AELR)
  - MDE submits to Division of State Documents (DSD) for publication
    - Notice of Proposed Action (NPA) in the Maryland Register
  - Public Hearing
  - MDE submits to Division of State Documents (DSD) for publication
    - Notice of Final Action (NFA) in the Maryland Register
    - Final Effective 10 days after publication date



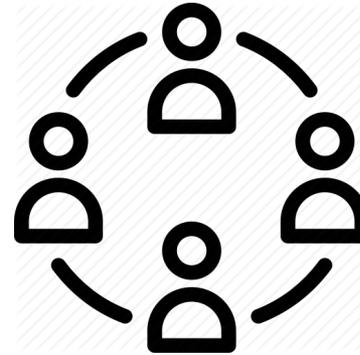
# Regulatory Schedule – Key Dates



Propose  
Regulation and  
Present to AQCAC



Signatures for  
Adoption Process,  
AELR Review



Proposed  
Regulation



Public Hearing and  
Final Adoption





## Contact

### **MDE BEPS website:**

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

### **MDE BEPS email:**

[BEPS.MDE@maryland.gov](mailto:BEPS.MDE@maryland.gov)

Appendix F – MD BEPS Webinar 2



**Maryland**  
Department of  
the Environment

# **Maryland Building Energy Performance Standards (BEPS)**

May 2023  
Understanding the Maryland  
BEPS Standards

Mark Stewart, Climate Change Program Manager



# Objective

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This webinar will provide important background relating to the Maryland BEPS:

- Introduce the benchmarking tool
- Define key terms from the Maryland BEPS draft regulation
- Provide overview of the standards by property type
- Help you prepare for benchmarking and BEPS



# Benchmarking Tool

US Environmental Protection Agency (EPA) ENERGY STAR Portfolio Manager tool will be used for Maryland benchmarking

The screenshot shows the ENERGY STAR Portfolio Manager login interface. At the top left is the ENERGY STAR logo and the text 'ENERGY STAR® PortfolioManager®'. At the top right, there is a 'Help' link and a language selector for 'English | Français'. The main content area is divided into two panels. The left panel, titled 'Welcome to Portfolio Manager', includes the subtitle 'Helping you track and improve energy efficiency across your entire portfolio of properties.' Below this are input fields for 'Username: \*' and 'Password: \*', each with a red asterisk. There are two links: '[I forgot my password.](#)' and '[I forgot my username.](#)'. A blue 'Sign In' button is positioned to the right of these links. At the bottom right of the left panel is a blue 'Create a New Account' button. The right panel contains three links, each with a circular icon: 'ENERGY STAR Buildings Homepage' (green icon of a building), 'Take a Training' (orange icon of a computer monitor), and 'Learn More About Portfolio Manager' (blue icon of a document). At the bottom of the right panel, a yellow information icon is followed by the text: 'These links provide more information from ENERGY STAR and are not available in French.'



# Key Definitions

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**“Greenhouse gas emissions or emissions”** means gasses released into the atmosphere that contribute to climate change, including but not limited to carbon dioxide (CO<sub>2</sub>), as calculated by the benchmarking tool

**“Direct greenhouse gas emissions or direct emissions”** means greenhouse gas emissions produced on-site by covered buildings, as calculated by the benchmarking tool



# Key Definitions

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- **“Net direct greenhouse gas emissions or net direct emissions”** means:
  - Direct greenhouse gas emissions; or
  - For a covered building connected to a district energy system, direct greenhouse gas emissions plus the greenhouse gas emissions attributable to thermal energy inputs from the district energy system used by the covered building, as calculated using the methodology provided in this regulation.
  - “Net direct greenhouse gas emissions or net direct emissions” does not include direct greenhouse gas emissions from a food service facility located within a covered building.



# Key Definitions

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**“Site energy use”** means all energy used on-site by a covered building to meet the energy loads of the building.

- “Site energy use” includes electricity delivered to the building through the electric grid and/or generated on-site with renewable sources; thermal energy delivered to the building through a district energy system; and natural gas, diesel, propane, fuel oil, wood, coal, and other fuels used on-site.
- “Site energy use” excludes electricity used to charge vehicles and other electricity uses excluded from site energy use by the benchmarking tool.

**“Site energy use intensity or site EUI”** is calculated by the benchmarking tool by dividing the total energy consumed in one calendar year by the gross floor area of the building and reported as a value of a thousand British thermal units (kBtu) per square foot per year.



# Key Definitions

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**“Interim performance standard or interim standard”** means the numeric values of net direct greenhouse gas emissions and site EUI which covered buildings must achieve by a specified calendar year that is prior to 2040.

**“Final performance standard or final standard”** means the numeric values of net direct greenhouse gas emissions and site EUI that each covered building must ultimately achieve on an annual basis in 2040 and beyond.



# Understanding the Performance Standards

Property Type	Net Direct Emissions Standards kg CO2e per square foot			Site EUI Standards kBTU per square foot
	Interim Standard for 2030-2034	Interim Standard for 2035-2039	Final Standard for 2040 and beyond	Final Standard for 2040 and beyond

Benchmark your buildings' performance and assess if and when changes are needed using <https://portfoliomanager.energystar.gov/>

Learn about EPA ENERGY STAR Portfolio Manager property types and find yours on the [Portfolio Manager website](#)



# Preparing for Benchmarking and BEPS

1. Visit the website: <https://portfoliomanager.energystar.gov/>
2. Create an EPA ENERGY STAR Portfolio Manager account
3. Begin to access the catalog of how-to guides, pre-recorded and live online training

The screenshot displays the EPA ENERGY STAR Portfolio Manager website. At the top left is the ENERGY STAR logo and the text 'Portfolio Manager'. Below this is the heading '“How To” Series' and a sub-heading 'Portfolio Manager Quick Start Guide'. The main text describes the tool's purpose: 'EPA’s ENERGY STAR Portfolio Manager tool helps you measure and track the energy and water use, waste and materials, and greenhouse gas emissions of your buildings, all in a secure online environment. You can use the results to identify under-performing buildings, set investment priorities, verify efficiency improvements, and receive EPA recognition for superior energy performance. Follow the steps in this guide to get started using the new Portfolio Manager to benchmark your properties, assess performance, and view results.'

A 'Getting Started' section is highlighted with a green border, listing three steps: 'Step 1: Add a Property', 'Step 2: Enter Energy, Water & Waste Data', and 'Step 3: View Results & Progress'. Below this, a large number '1' is followed by the heading 'Add a Property'. The text below reads: 'To get started, log in to Portfolio Manager at [www.energystar.gov/portfoliomanager](http://www.energystar.gov/portfoliomanager). Then, follow these instructions to create a property and to enter property information.'

On the right side of the screenshot, there are several resource cards: 'How-To Guides' (Download dozens of step-by-step how-to documents), 'Demo Videos' (Watch short Portfolio Manager demos on YouTube), 'Webinars' (Browse 100+ recorded webinars on various topics), and 'Slide Library' (Read through PowerPoint presentations at your own pace).



## Contact

### **MDE BEPS website:**

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

### **MDE BEPS email:**

[BEPS.MDE@maryland.gov](mailto:BEPS.MDE@maryland.gov)

Appendix G – MD BEPS Webinar 3



**Maryland**  
Department of  
the Environment

## **Building Energy Performance Standards**

May 2023

Development of Maryland's Standards

Mark Stewart, Climate Change Program Manager  
Joshua Kace, Program Manager, Lawrence Berkeley National Lab



# Objective

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This webinar will provide more information relating to the Maryland BEPS:

- Maryland building stock analysis
- Estimated energy and emissions reductions
- Methodology for setting Maryland's standards



**BERKELEY LAB**

LAWRENCE BERKELEY NATIONAL LABORATORY

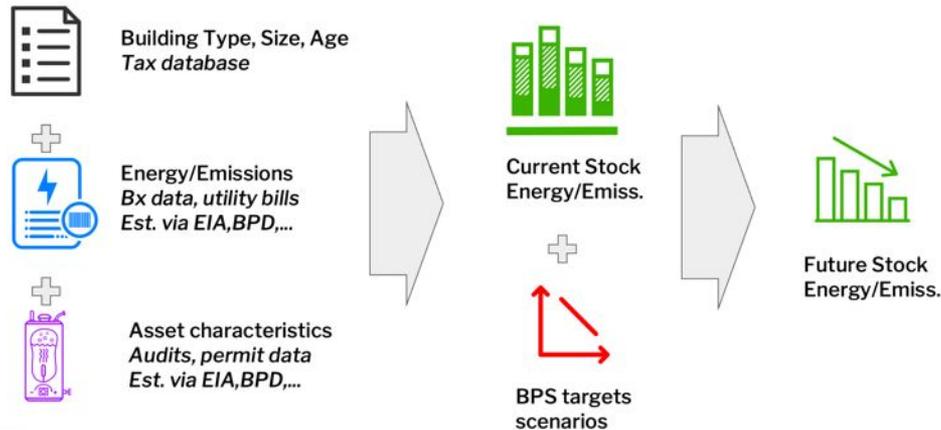


U.S. DEPARTMENT OF  
**ENERGY**

# Maryland BPS Policy Design: Stock Analysis + Target Setting Methodology

# Overview of Building Stock Analysis

- Characterize the building stock (size, type, and energy use for each bldg)
- Scenarios for potential BPS policies (metrics, targets, timing)
- Predict energy reductions under each scenario

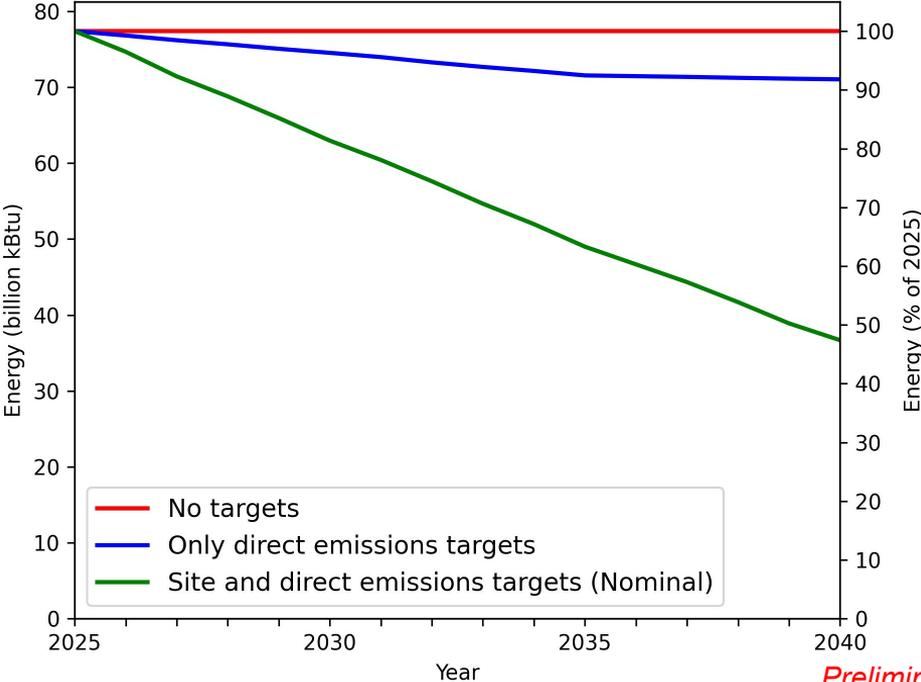


# Data Sources and Modeling Methodology

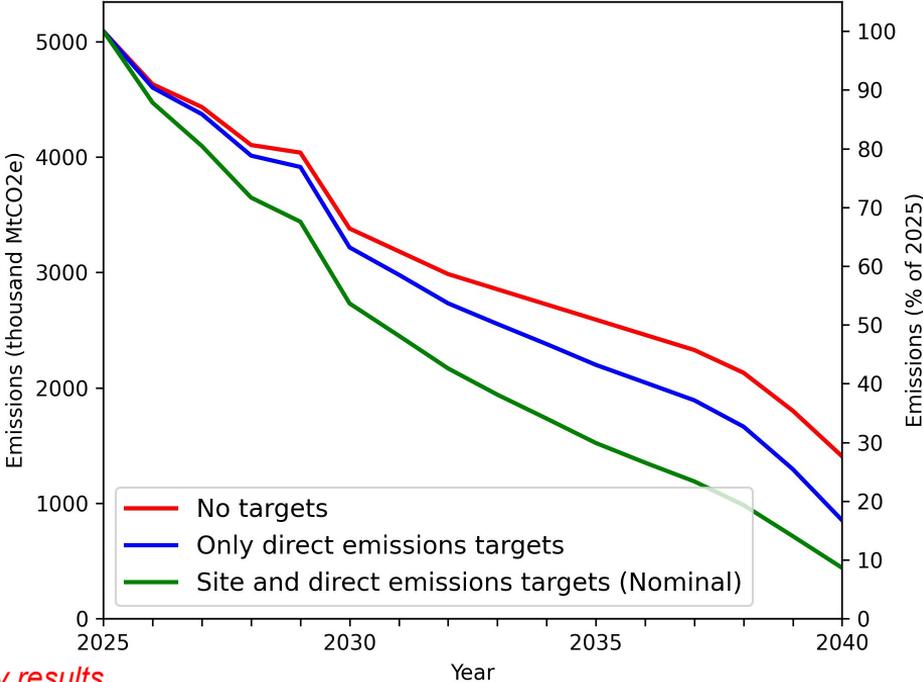
- Data Sources
  - Building types and sizes from Maryland Covered Building List (CBL) (~9300 bldgs >35k sqft)
  - Site EUI and electric/site ratio from EPA dataset
  - Ratio of fuel used for space and water heating from CBECS/RECS
  - Projected grid emissions factors from Maryland analysis
- Impact Model: Reduce energy use to meet targets
  - 3 cycles of 5 years (ending in 2030, 2035, 2040) – actual compliance cycle TBD by MDE
  - First: Try to meet direct emissions target with efficiency
  - Next: Electrify space heating, water heating, other uses, until direct emissions target met
  - Last: Reduce electric use until site energy use intensity (EUI) target met

# Energy and Emissions Reductions

- Emissions savings aggregate of cleaner projected grid, electrification, and efficiency
- Site vs. direct emissions targets: more electric energy savings than emissions

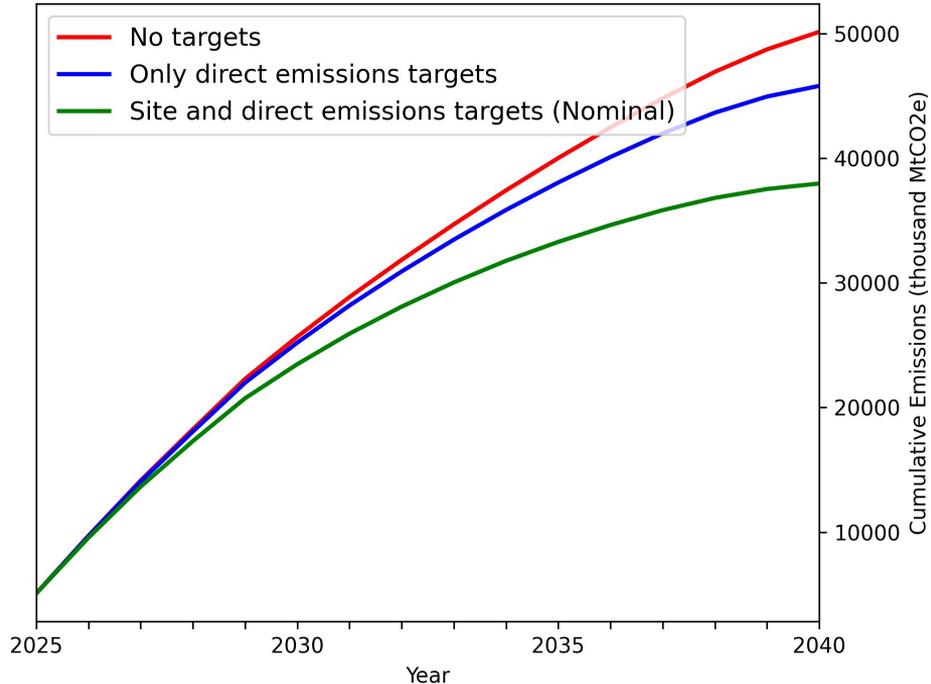


*Preliminary results*



# Cumulative Emissions

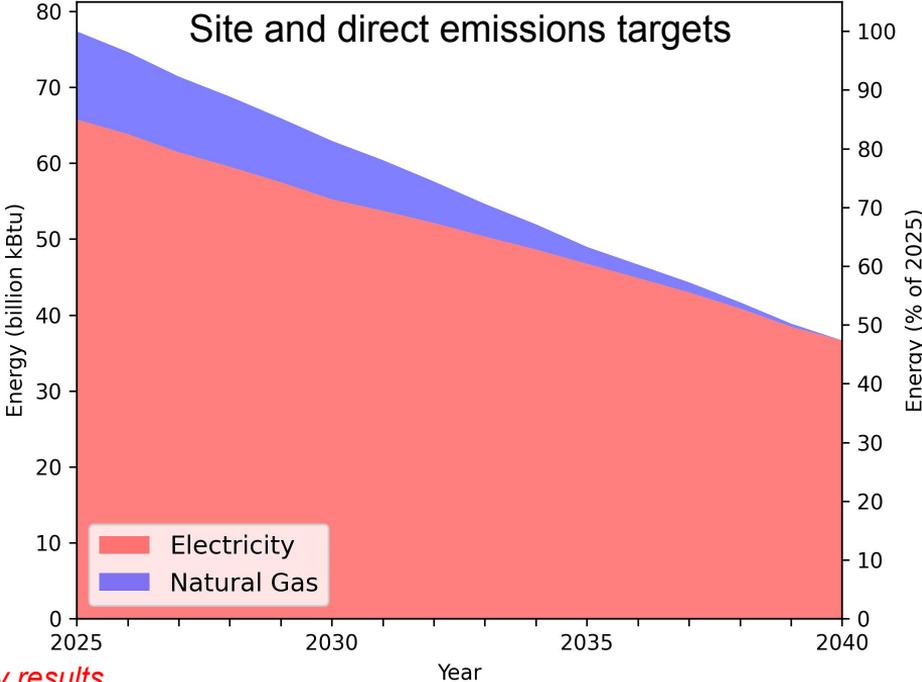
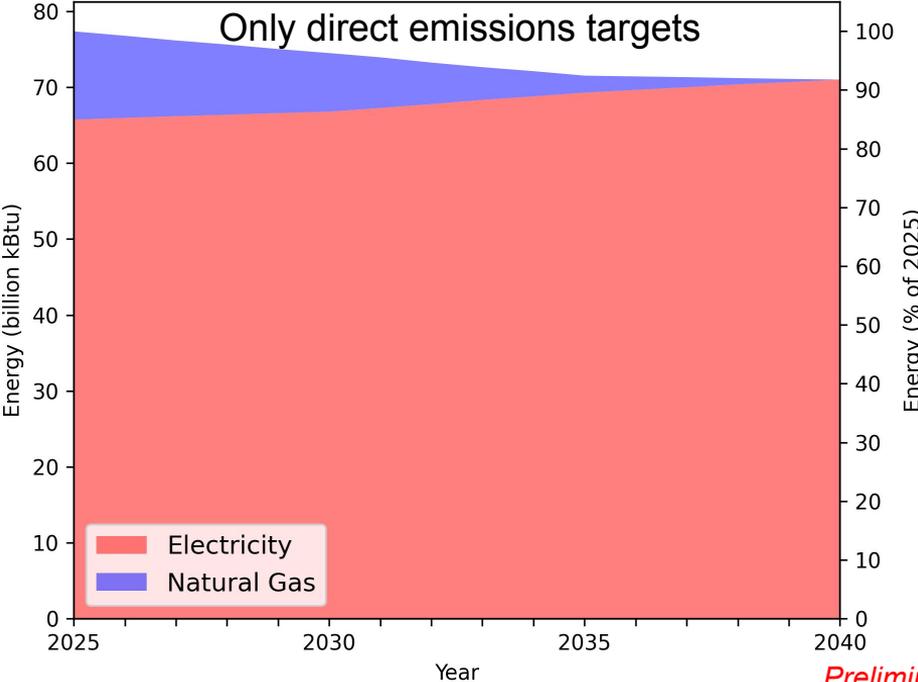
- Only direct emissions targets vs. no targets: 8.7% decrease
- Site and direct emissions targets vs. no targets: 24% decrease



*Preliminary results*

# Electricity and Gas Energy Reductions

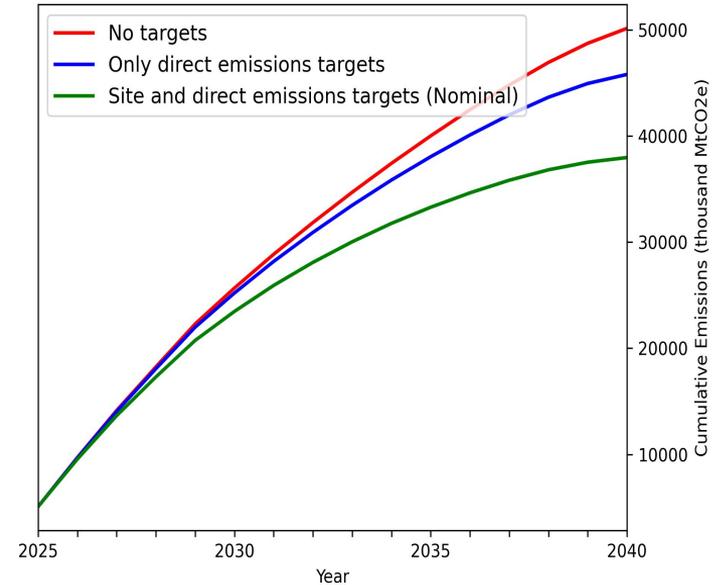
- With only direct emissions targets: electricity use increases 8.0%
- With site and direct emissions EUI targets: electricity use decreases 44%



*Preliminary results*

# Target Setting Process

- **Two-metric approach to target-setting**
  - Direct GHG Emissions (i.e. – on-site fuel use)
    - Explicit targets established in regulation
    - Modeled directly into impact analysis
  - Site EUI
    - Critical for major GHG reductions, peak load impact mitigation, and cost savings to building owners.
    - Focus on leveraging empirical data + existing regional studies to set realistic, data-driven targets.



# Target Setting Process - Direct GHG Emissions

- **Direct GHG Emissions**

- What are direct GHG emissions?
  - Greenhouse gas emissions produced on-site by covered buildings
- Targets as established by Climate Solutions Now Act
  - 20% reduction in net direct Greenhouse Gas (GHG) emissions by January 1, 2030, as compared with 2025 levels for average buildings of similar construction and;
  - Net-zero direct GHG emissions by January 1, 2040.

# Target Setting Process - Site EUI

- Site EUI

- BEPS Technical Report - Steven Winter Associates (SWA) and Montgomery County

- A review of the building stock and energy benchmarking information of Montgomery County and development of an approximate list of buildings projected to be subject to a BEPS policy. This building stock was separated into building types to set technically feasible site EUI targets.



Source: Building Energy Performance Standards Development – Technical Analysis  
Steven Winters Associates, 02/2022



# Target Setting Process - Site EUI

## ● Site EUI - *continued*

- A recommended method for setting building performance standards, what the targets can be, and the estimated impacts of meeting those targets.
- Case studies detailing how different energy performance standards can be achieved for a representative sample of buildings.
- An estimate of the total capital investment to reach the standards, which would inform both the cost to building owners and the level of economic impact of the recommended standards.



Source: Building Energy Performance Standards Development – Technical Analysis  
Steven Winters Associates, 02/2022

# Target Setting Process - Site EUI

- Site EUI – Final Targets

- Generalizing approach for the State

- Develop comprehensive **property type mapping** between Montgomery County, ESPM, and state-wide tax assessor data
- Utilize all available **statewide building energy data** to establish baseline site EUI's by property type.
- Utilize climactically-appropriate CBECS/RECS end-use breakdowns to develop standard estimated proportions
- Apply SWA ZNC methodology to newly established baselines + end-uses

# Target Setting Process - Site EUI

## How Targets are Calculated

All units Site EUI (kBtu/USF)  
The 2019 median is split into energy end uses, and each is reduced according to the efficiency and electrification potential associated with that end use, using market ready technology.

Electricity Use | "Gas" (Gas, Oil, District Steam) Use  
Baseline assumes gas heating and gas hot water  
Due to rounding, components may not add up to 100% of total

Example Calculation	Total Site EUI – All Fuels	Total Site Electricity	Total Site Gas	Space Cooling Elec	Other Elec	Space Heating	Water Heating	Cooking	Other	
Food service 2019 Median	138	61	77	5	56	12	16	49	0	
				↓	↓	↓	↓	↓	↓	
				EE Reduction Potential	15%	15%	20%	10%	0%	0%
				Resulting end use EUI	4.25	47.6	9.6	14.4	49	0
Food service EE Target	<b>125 (=52+73)</b>				<b>52</b>			<b>73</b>		
				↓	↓	↓	↓	↓	↓	
				Electrification Reduction Potential	0%	0%	68%	59%	39%	11%
				Resulting end use EUI	4.25	47.6	3.1	4.1	29.9	0
Food service ZNC Target	<b>89 (=52 + 37)</b>				<b>52</b>			<b>37</b>		

Figure 7. Target calculation, from baseline data through splitting up energy end uses and applying reductions to each end use to arrive at the Energy Efficiency (EE) and Zero Net Carbon-Compatible (ZNC) targets.

End Use	Percent reduction from the median for EE target	Percent reduction starting from the EE target for ZNC target
Electricity	15%	0% (no further change)
Gas Space Heating	20%	68%, all electric (COP* 0.80 → 2.50)
Gas Water Heating	10%	59%, all electric (COP 0.90 → 2.20)
Gas Cooking	0%	39%, all electric (COP 0.45 → 0.74)
Gas Laundry/Other	0%	11%, all electric (COP 0.90 → 1.00)

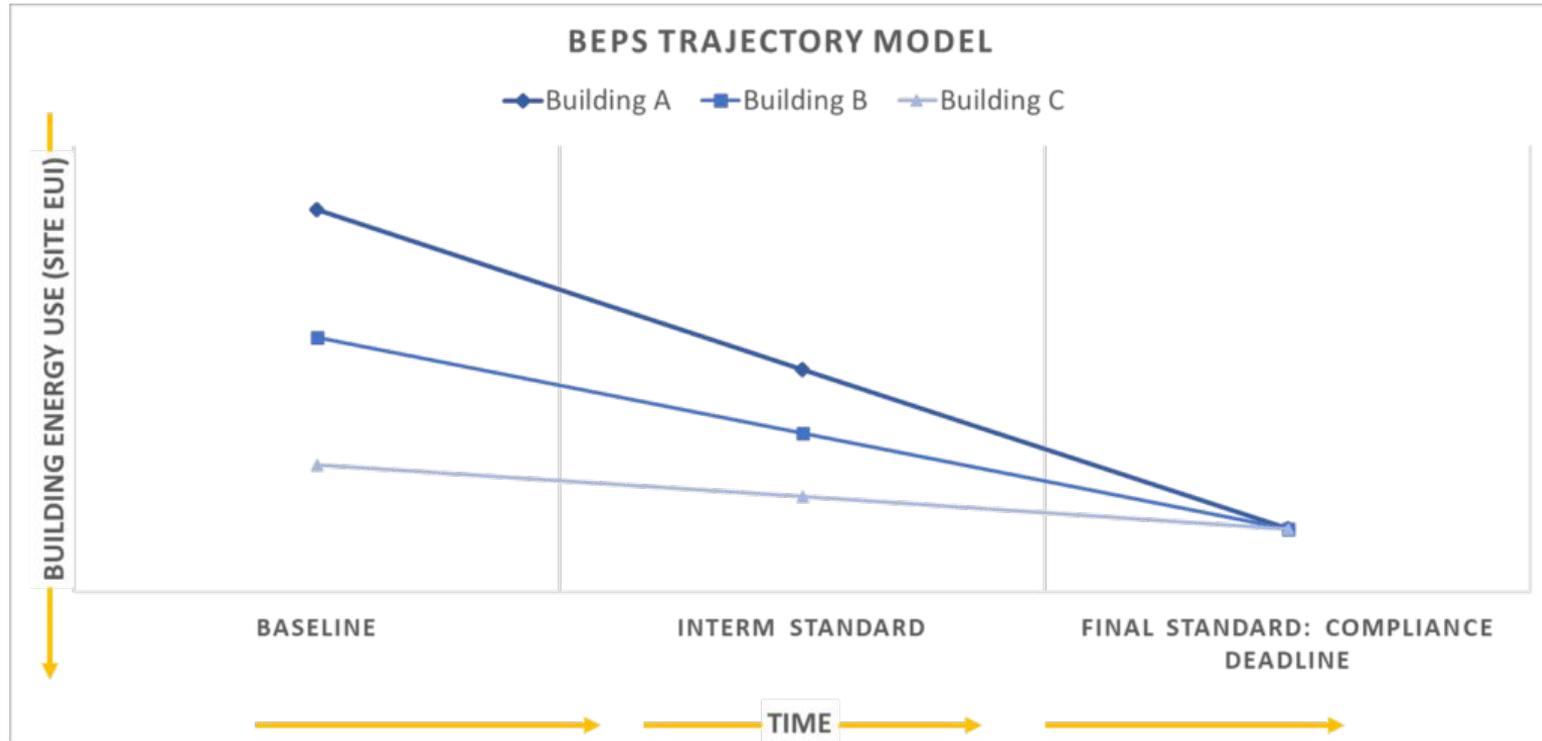
\*COP is the Coefficient of Performance of the equipment, defined as energy output (heat) divided by purchased energy input (gas or electricity). A COP of 0.8 is an annual efficiency of 80%. A heat pump can operate at average efficiencies of 250% (COP of 2.50) by extracting heat from the outside air. Efficiency assumptions came from the 'Electrification of Gas End Uses' tab of the CNCA EBPS tool.



# Target Setting Process - Site EUI

- **Site EUI – Interim Targets**
  - Application of the ‘Trajectory Model’ for Site EUIs
    - Alternative to requiring all buildings of a given property type to achieve the exact same target in the earliest compliance period.
    - Reduces short-term burden on lower-performing buildings
    - Achieves same long-term targets as traditional target-setting

# Target Setting Process - Site EUI





## Contacts

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## Contact

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

MDE BEPS email: [BEPS.MDE@maryland.gov](mailto:BEPS.MDE@maryland.gov)

Appendix H – BEPS Overview for Stakeholder Meetings



**Maryland**  
Department of  
the Environment

# Building Energy Performance Standards

Stakeholder Meeting  
Fall 2022



# Agenda

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- Welcome
- Overview of Building Performance Standards
- Requirements for Maryland Building Energy Performance Standards
- Process and Timeline for Developing Regulations
- Listening Session



# Background

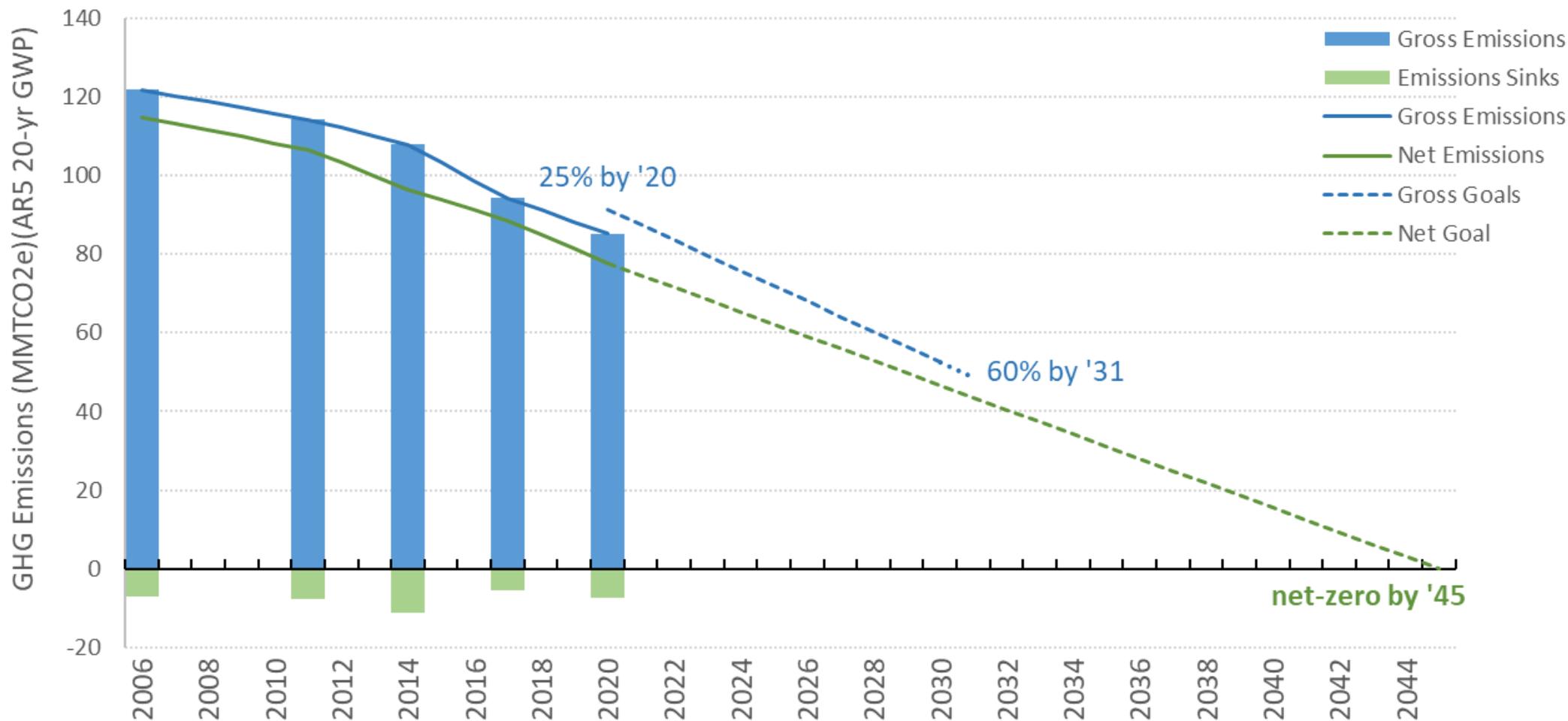
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- Building Energy Performance Standards (BEPS) and Building Performance Standards (BPS) are emerging in cities, counties, and states across the nation
- The typical goal of a BEPS/BPS is to guide large buildings to higher levels of energy efficiency and/or lower levels of greenhouse gas emissions
- The Climate Solutions Now Act of 2022 requires the Maryland Department of the Environment (MDE) to develop BEPS regulations that cover most large buildings in the state
- Decarbonizing large buildings is an important step toward achieving Maryland's greenhouse gas reduction goals



# Maryland's Greenhouse Gas Reduction Goals

### Maryland GHG Emissions & Goals





# Covered Buildings

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- 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
- 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; and
  - Agricultural buildings.



# General Requirements for Covered Buildings

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- Report data to MDE annually beginning in 2025
  - MDE is leaning toward using EPA Energy Star Portfolio Manager for reporting
- Achieve a 20% reduction in net direct greenhouse gas emissions by January 1, 2030, as compared with 2025 levels for average buildings of similar construction
- **Achieve net-zero direct greenhouse gas emissions by January 1, 2040**
- Buildings must also meet to-be-determined energy use intensity (EUI) targets, which MDE will set in the regulations
  - MDE is leaning toward setting Site EUI targets



# Net Direct Greenhouse Gas Emissions

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- Direct greenhouse gas emissions are emissions produced on-site by covered buildings, typically from appliances/equipment that combust fuel for space heating, water heating, and cooking
- “Net direct” greenhouse gas emissions is not defined in the statute, so MDE will define it in the regulations
- One factor for defining “net direct” is that greenhouse gas emissions from commercial tenants in covered buildings that are food service facilities and engage in commercial cooking and water heating must be excluded or “netted out” of net direct emissions



# Alternative Compliance Pathway

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- If a covered building does not meet its emissions reduction targets, then the owner can come into compliance by paying a fee for any emissions that are above target levels
- The Alternative Compliance Fee may not be less than the Social Cost of Greenhouse Gases (SC-GHG) adopted by MDE or the federal government
- Revised federal figures for the SC-GHG were released on November 11, 2022, and are currently open for public comments



# Social Cost of Greenhouse Gases

- U.S. EPA is currently accepting public comments on its “Report on the Social Cost of Greenhouse Gases: Estimates Incorporating Recent Scientific Advances”

*Table ES.1: Estimates of the Social Cost of Greenhouse Gases (SC-GHG), 2020-2080 (2020 dollars)*

Emission Year	SC-GHG and Near-term Ramsey Discount Rate								
	SC-CO <sub>2</sub> (2020 dollars per metric ton of CO <sub>2</sub> )			SC-CH <sub>4</sub> (2020 dollars per metric ton of CH <sub>4</sub> )			SC-N <sub>2</sub> O (2020 dollars per metric ton of N <sub>2</sub> O)		
	2.5%	2.0%	1.5%	2.5%	2.0%	1.5%	2.5%	2.0%	1.5%
2020	120	190	340	1,300	1,600	2,300	35,000	54,000	87,000
2030	140	230	380	1,900	2,400	3,200	45,000	66,000	100,000
2040	170	270	430	2,700	3,300	4,200	55,000	79,000	120,000
2050	200	310	480	3,500	4,200	5,300	66,000	93,000	140,000
2060	230	350	530	4,300	5,100	6,300	76,000	110,000	150,000
2070	260	380	570	5,000	5,900	7,200	85,000	120,000	170,000
2080	280	410	600	5,800	6,800	8,200	95,000	130,000	180,000

*Values of SC-CO<sub>2</sub>, SC-CH<sub>4</sub>, and SC-N<sub>2</sub>O are rounded to two significant figures. The annual unrounded estimates are available in Appendix A.4 and at: [www.epa.gov/environmental-economics/scghg](http://www.epa.gov/environmental-economics/scghg).*



# Financial Incentives

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- There are many federal, state, local, and utility-sponsored incentives to help pay for energy efficiency and electrification projects
- In addition to government and ratepayer funded grants, rebates, and tax credits, low-interest financing with technical assistance is offered through green banks such as the Maryland Clean Energy Center
- Energy service companies also offer low-interest loans, energy-as-a-service, and other creative financing solutions
- MDE will launch a Building Energy Transition Implementation Task Force in 2023 to recommend additional state incentives



# Regulatory Development Timeline

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- Summer 2022 – Secure technical assistance and initiate the rulemaking process (complete)
- Fall 2022 – Begin drafting regulations and initiate a stakeholder engagement process
- Winter 2023 – Circulate draft regulations for public comment while continuing stakeholder engagement
- Spring 2023 – Circulate proposed regulations for public comment
- Summer 2023 – Adopt final regulations



# Regulatory Development Partners

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- Technical assistance:
  - U.S. Department of Energy (U.S. DOE)
  - U.S. Environmental Protection Agency (U.S. EPA)
  - Lawrence Berkeley National Laboratory (LBNL)
  - Pacific Northwest National Laboratory (PNNL)
  - Institute for Market Transformation (IMT)
  - Northeast Energy Efficiency Partnerships (NEEP)
- Community/stakeholder engagement:
  - Institute for Market Transformation (IMT)
  - Interfaith Power and Light (IPL)
  - CASA de Maryland (CASA)
  - Action in Montgomery (AIM)



# Stakeholder Meetings

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- Nov 14 (3-4:30pm) - Colleges/Universities, State-Owned Buildings, and District Energy Providers
- Nov 15 (3-4:30pm) - Utilities and Fuel Distributors
- Nov 17 (9-10:30am) - Environmental NGOs
- Nov 17 (10:30a-12p) - Hospitals
- Nov 28 (3:30-5pm) - Office, Retail, and Hospitality
- Nov 29 (1-2:30pm) - Multifamily Buildings
- Nov 30 (1-2:30pm) - Affordable Housing Providers
- Dec 1 (1-2:30pm) - Light Industrial/Warehouses
- Dec 5 (2-3:30pm) - Laboratories and Life Sciences
- Dec 6 (1-2:30pm) - Assisted Living and Nursing Facilities
- Dec 7 (9-10:30am) - Restaurants/Food Service Facilities
- Dec 8 (9-10:30am) - Local Governments
- TBD - Community Meeting: Tenants of Affordable Housing (hosted in Langley Park by CASA de Maryland)
- TBD - Community Meeting: Tenants of Affordable Housing (hosted in Gaithersburg by Action in Montgomery)



## Contact

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

MDE BEPS email: [BEPS.MDE@maryland.gov](mailto:BEPS.MDE@maryland.gov)

Appendix I – Preliminary Building Stock Analysis Highlights



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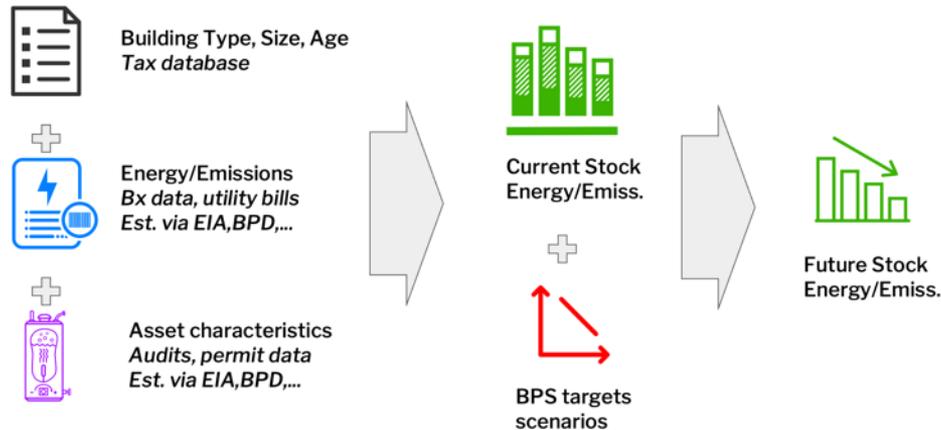


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# Maryland BPS Policy Design: Building Stock Analysis Highlights

# Overview of Building Stock Analysis

- Characterize the building stock (size, type, and energy use for each bldg)
- Scenarios for potential BPS policies (metrics, targets, timing)
- Predict energy reductions under each scenario



# Data Sources and Modeling Methodology

- Data Sources

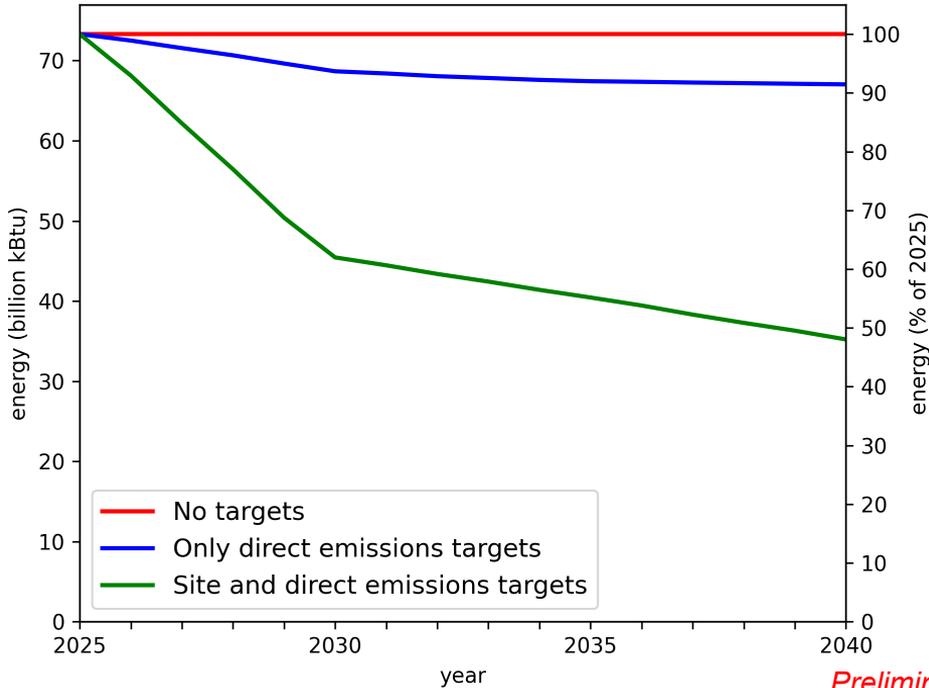
- Building types and sizes from Maryland Covered Building List (CBL) (~8500 bldgs >35k sqft)
- Site EUI and electric/site ratio from EPA dataset
- Ratio of fuel used for space and water heating from Com/ResStock
- Projected grid emissions factors from Maryland analysis
- Site EUI targets from Montgomery County (MoCo) potential targets

- Model: Reduce energy use to meet EUI targets

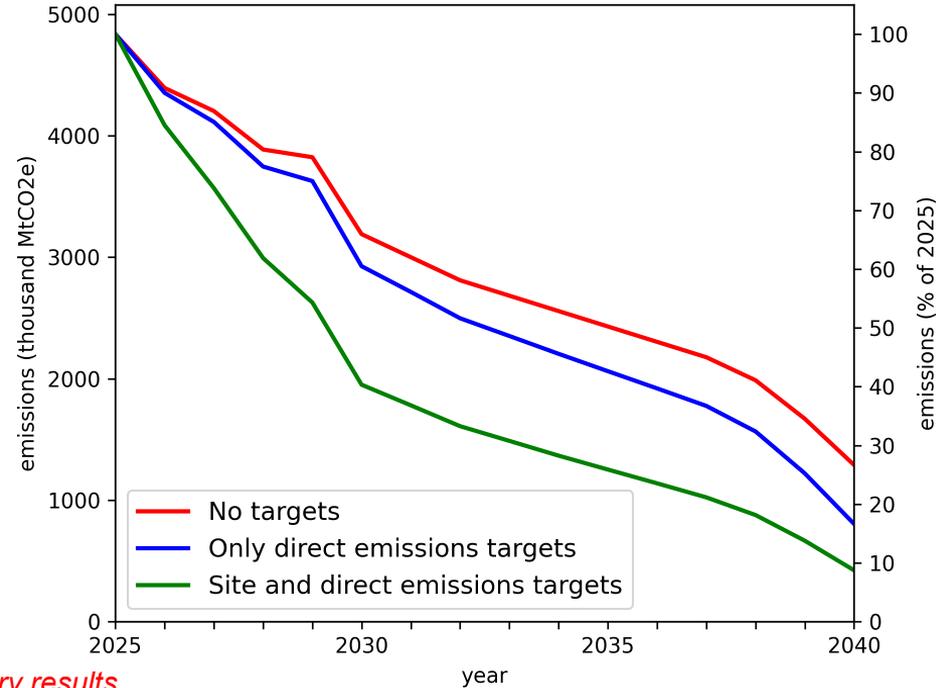
- 3 cycles of 5 years (ending in 2030, 2035, 2040) – actual compliance cycle TBD by MDE
- First: Try to meet direct emissions target with efficiency
- Next: Electrify space heating, water heating, other uses, until direct emissions target met
- Last: Reduce electric use until site EUI target met

# Energy and Emissions Reductions

- Majority of emissions savings due to cleaner grid
- Site vs. direct emissions targets: more electric energy savings than emissions

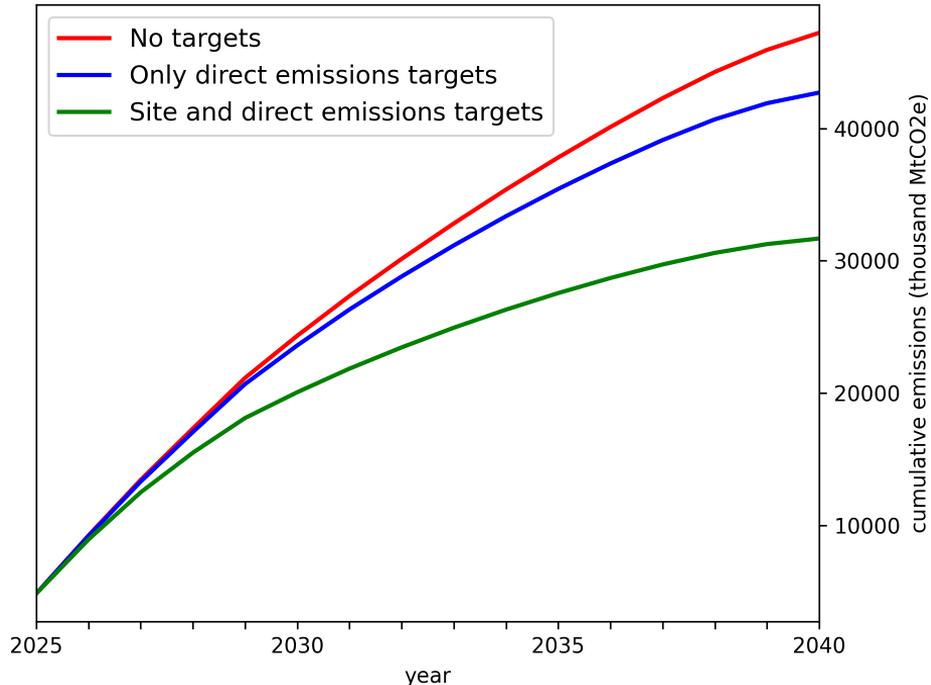


*Preliminary results*



# Cumulative Emissions

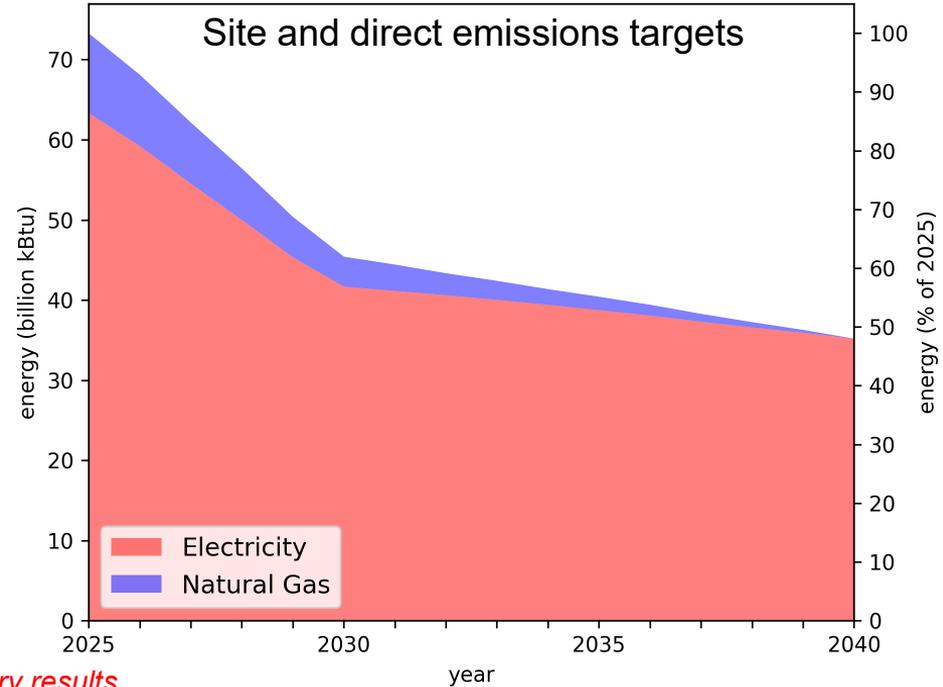
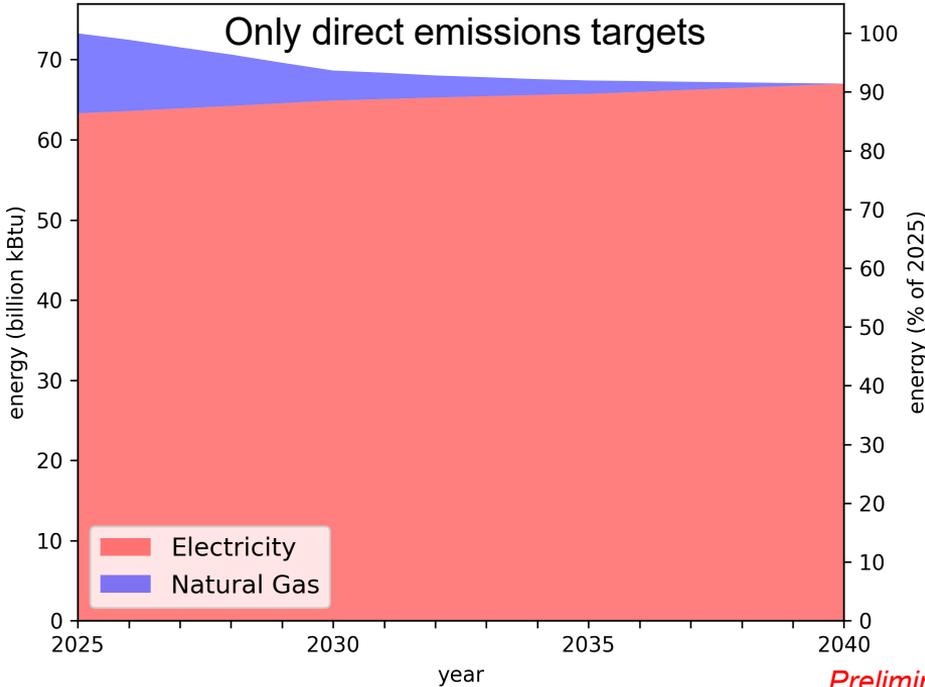
- Only direct emissions targets vs. no targets: 9.6% decrease
- Site and direct emissions targets vs. no targets: 33% decrease



*Preliminary results*

# Electricity and Gas Energy Reductions

- With only direct emissions targets: electricity use increases 5.8%
- With site and direct emissions EUI targets: electricity use decreases 44%



*Preliminary results*

# Model Sensitivity Analyses

- Parameter variations:
  - Direct emissions targets over time (20,40,40% vs. 20,30,50%)
  - Site targets over time (33,33,33% vs. 20,40,40%)
  - Final site targets (MoCo EE vs. ZNC )
  - Max fuel space heating savings by efficiency (10% vs. 20% vs. 30%)
  - Max fuel water heating savings by efficiency (5% vs. 10% vs. 15%)
  - COP when electrifying space heating (2.5 vs. 3.0)
  - COP when electrifying water heating (2.2 vs. 3.0)
- Bottom line: Modeling results are minimally/not sensitive to parameter variations



## Contacts

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Appendix J – Cost-Benefits Analysis Briefing



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# Building Performance Standards: Cost-Benefits Analysis Briefing

# Agenda

- ◆ LBNL Initial Impact Analysis for MDE and Background
- ◆ PNNL BPS Retrofit Costs Meta-Study
- ◆ Combined Cost-Benefit Analysis
- ◆ Discussion of Results

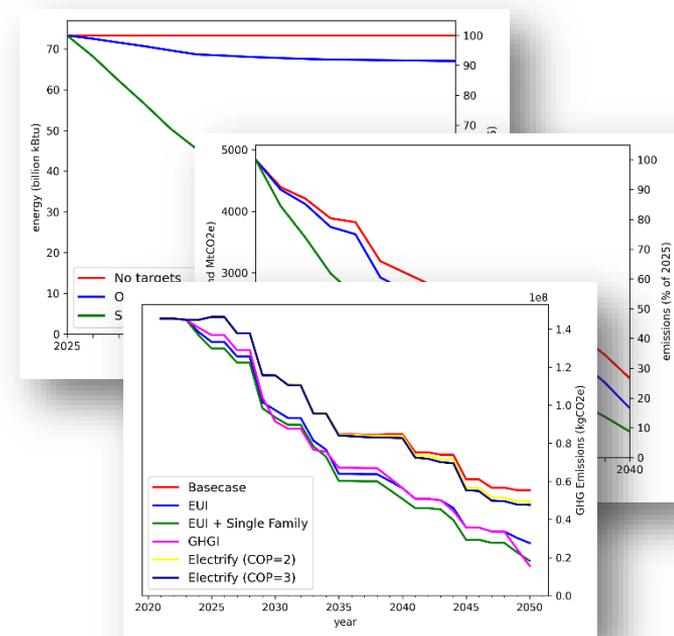
# What are BPS Impact / Stock Analyses?

## ◆ Building Stock Analysis / Energy + Carbon Baseline

- ❑ Fill the gap of unknown energy+carbon data for existing buildings
- ❑ Support jurisdictions at **any phase of policy development**
- ❑ **Leverage all existing data**, regardless of format or quality

## ◆ Impact Analysis

- ❑ **Model policy-driven scenarios** for energy/carbon reduction for any jurisdiction, tailored to their policy framework
- ❑ **Support policy standardization** without sacrificing accuracy of scenario simulation





# Data-driven BPS Policy Analysis



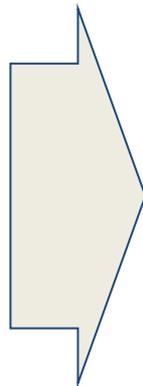
Building Type, Size, Age  
*Tax database*



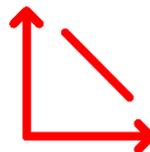
Energy/Emissions  
*Bx data, utility bills*  
*Est. via EIA, BPD, ...*



Asset characteristics  
*Audits, permit data*  
*Est. via EIA, BPD, ...*



Current Stock  
Energy/Emiss.



BPS targets  
scenarios



Future Stock  
Energy/Emiss.



# MDE – Baseline Data Sources and Modeling Methodology

## Data Sources

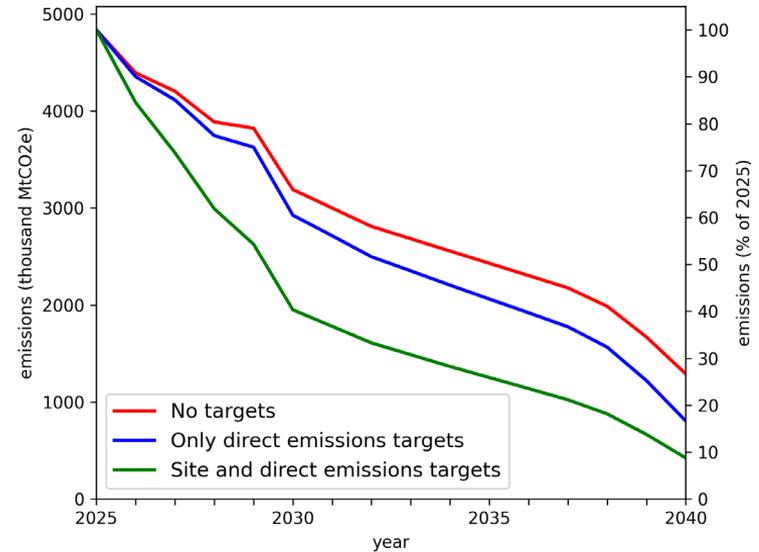
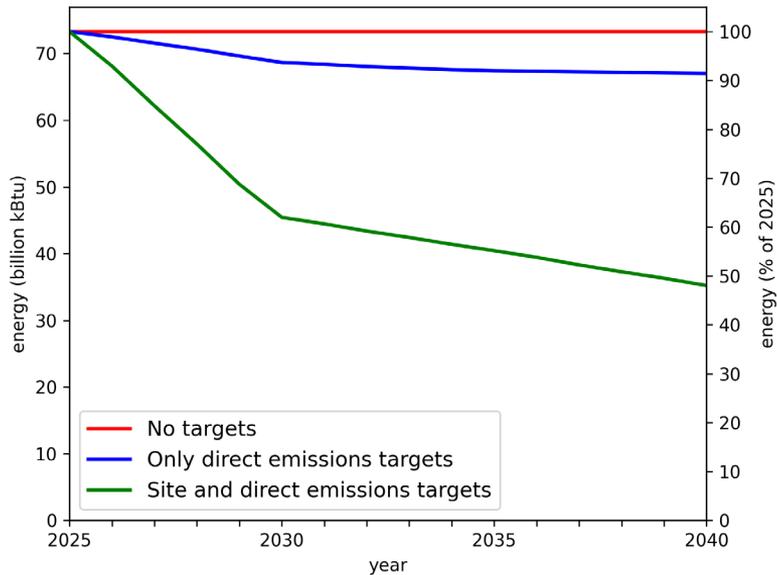
-  Building types + sizes from draft Maryland Covered Building List (CBL) (~9300 bldgs >35k sqft)
-  Site EUI and electric/site ratio from EPA ESPM dataset
-  Ratio of fuel used for space and water heating from Com/ResStock/CBECS
-  Projected grid emissions factors from Maryland analysis

## Impact Model: Reduce energy use to meet targets

-  First: Try to meet direct emissions target with efficiency
-  Next: Electrify space heating, water heating, other uses, until direct emissions target met
-  Last: Reduce electric use until site energy use intensity (EUI) target met

# MDE - Energy and Emissions Reductions

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



# **PNNL – BPS Retrofit Costs Meta-Study**

# PNNL – BPS Retrofit Costs Meta Study

- The cost analysis began with a broad literature search to compile a list of existing BPS cost studies and potential energy efficiency and electrification measures with associated costs and savings.
  - This review was not limited to Maryland only but included some Maryland-related examples, such as Steven Winter’s Building Energy Performance Standard (BEPS) Technical Analysis report for Montgomery County
  - The measures were translated into a common framework (i.e. similar measure types, similar building types, etc.) to be able to compare across jurisdictions.
  - Costs from other locations adjusted using RSMMeans Location Factors to obtain national average costs
- The Maryland-specific analysis included three components:
  - Energy efficiency retrofit costs
  - Electrification of traditionally fossil fuel-fired systems
    - ✓ Space heating
    - ✓ Domestic/service water heating
    - ✓ Other equipment (e.g., cooking or clothes drying)
  - Normal, same-fuel, replacement costs for fossil fuel-fired systems and equipment

## PNNL – Maryland Analysis

The analysis for Maryland leverage the literature search previously described, and included the development of cost curves that could be applied to each building individually. The process included the following:

1. Reviewed list of measures from literature search, selected measures applicable to the Maryland region, and sorted them by the building types in which they would be appropriate.
  - The list includes 27 measures for multifamily buildings for example.
2. Identified additional applicable measures from other existing research, such as energy credit measure studies conducted for the development of model energy codes.
3. Given the wide range of energy savings that is being proposed for Maryland buildings (some are expected to reduce their EUI by up to 80%), generic measure packages that could apply to a specific building type could not be developed without additional building information. A different approach was used: developing cost curves using the cost per unit of savings as a measure of cost-effectiveness.
  - This approach considers that building owners will likely implement energy efficiency improvements starting with the most cost-effective measures and ride the curve upward, implementing the least cost-effective measures as needed.
4. Cost curves were only developed for electricity use since gas will be eliminated through electrification requirements.
5. Different curves were developed for multifamily, office, and warehouse buildings (the most common typologies covered by Maryland's BPS).

# Example ECM (Energy Conservation Measure) List by Loading Order

- Multifamily

Measures sorted by loading order	Cost / kbtu_savings	Electric Portion of WB EUI (%)	W/B Site EUI (kbtu/sf)	W/B Site EUI Savings %	W/B Site EUI Savings (kbtu/sf)	Electric Site EUI Savings (%)	Electric Site EUI Savings (kbtu/sf)	Electric Site EUI Savings (%) normalized to EUI 40	Electric Site EUI Savings (kbtu/sf) normalized to EUI 40	Cost per SF	Electric EUI Savings (%) cumulative	Electric EUI Savings (kbtu/sf) cumulative	Cost/sf cumulative
Commissioning: Stage 1: 1-month payback	\$0.006	100%	113	6.2%	7.00	6.2%	7.00	2.2%	2.48	\$ 0.014	2.2%	2.48	\$ 0.01
Add Plug Load Control	\$0.021	100%	120	2.0%	2.40	2.0%	2.40	0.7%	0.80	\$ 0.017	2.9%	3.28	\$ 0.03
Envelope Leakage Reduction	\$0.022	70%	32	2.5%	0.80	1.8%	0.56	2.2%	0.70	\$ 0.016	5.1%	3.98	\$ 0.05
Install variable frequency drives on central distribution pumps	\$0.059	100%	75	2.7%	2.05	2.7%	2.05	1.5%	1.09	\$ 0.064	6.5%	5.08	\$ 0.11
Commissioning: Stage 2: 1-year payback	\$0.067	100%	113	5.3%	6.00	5.3%	6.00	1.9%	2.12	\$ 0.141	8.4%	7.20	\$ 0.25
Install variable frequency drives on heating hot water pumps	\$0.175	95%	120	1.8%	2.16	1.7%	2.05	0.6%	0.68	\$ 0.120	9.0%	7.88	\$ 0.37
Residential HVAC control	\$0.185	100%	39	2.1%	0.80	2.1%	0.80	2.1%	0.83	\$ 0.153	11.1%	8.71	\$ 0.52
Commissioning: Stage 3: 3-year payback	\$0.189	100%	114	3.5%	4.00	3.5%	4.00	1.2%	1.40	\$ 0.265	12.3%	10.11	\$ 0.79
SHW shower drain heat recovery	\$0.222	100%	33	2.7%	0.89	2.7%	0.89	3.3%	1.08	\$ 0.240	15.6%	11.19	\$ 1.03
Install variable frequency drives on domestic water booster pumps	\$0.273	100%	75	0.4%	0.28	0.4%	0.28	0.2%	0.15	\$ 0.040	15.8%	11.34	\$ 1.07
Install variable frequency drives on condenser water pumps	\$0.343	100%	75	0.4%	0.26	0.4%	0.26	0.2%	0.14	\$ 0.048	16.0%	11.48	\$ 1.12
Central Temperature Controls	\$0.395	100%	86	2.1%	1.81	2.1%	1.81	1.0%	0.84	\$ 0.332	17.0%	12.32	\$ 1.45
Light power reduction	\$0.424	100%	39	0.6%	0.25	0.6%	0.25	0.7%	0.26	\$ 0.110	17.6%	12.58	\$ 1.56
Residential light control	\$0.569	100%	39	0.6%	0.23	0.6%	0.23	0.6%	0.24	\$ 0.136	18.2%	12.81	\$ 1.70
Thermostatic balancing valves	\$0.727	5%	33	0.3%	0.10	0.0%	0.01	0.0%	0.01	\$ 0.005	18.3%	12.82	\$ 1.70
Upgrade Exhaust Fans	\$0.787	100%	86	1.4%	1.20	1.4%	1.20	0.7%	0.56	\$ 0.441	18.9%	13.38	\$ 2.14
Install an exhaust recovery ventilation unit	\$0.803	100%	75	7.9%	5.93	7.9%	5.93	4.2%	3.16	\$ 2.536	23.1%	16.54	\$ 4.68
Upgrade In-Unit Appliances	\$0.817	100%	86	1.8%	1.55	1.8%	1.55	0.8%	0.72	\$ 0.588	24.0%	17.26	\$ 5.26
Close Shaft Vents	\$0.968	100%	38	0.2%	0.07	0.2%	0.07	0.2%	0.07	\$ 0.069	24.2%	17.33	\$ 5.33
Add R-5.0ci Wall Insulation	\$1.075	60%	38	0.8%	0.32	0.5%	0.19	0.5%	0.20	\$ 0.213	24.7%	17.53	\$ 5.55
Fault Detection and Diagnosis	\$1.292	80%	39	0.2%	0.08	0.2%	0.06	0.2%	0.06	\$ 0.080	24.8%	17.59	\$ 5.63
Add programmable thermostats to apartments, provide instructions to occupants on	\$1.496	100%	55	0.8%	0.44	0.8%	0.44	0.6%	0.32	\$ 0.479	25.4%	17.91	\$ 6.11
Improve Fenestration	\$1.689	60%	39	2.2%	0.83	1.3%	0.50	1.3%	0.52	\$ 0.872	26.7%	18.43	\$ 6.98
Add R-10 Roof Insulation	\$1.873	60%	38	0.5%	0.18	0.3%	0.11	0.3%	0.11	\$ 0.210	27.0%	18.54	\$ 7.19
Heat pump clothes dryer	\$2.072	100%	75	0.2%	0.18	0.2%	0.18	0.1%	0.10	\$ 0.200	27.2%	18.64	\$ 7.39
SHW pipe insulation	\$2.470	5%	33	0.8%	0.26	0.0%	0.01	0.0%	0.02	\$ 0.039	27.2%	18.65	\$ 7.43
Install low flow aerators in faucets and showers	\$2.731	10%	86	0.4%	0.37	0.0%	0.04	0.0%	0.02	\$ 0.046	27.2%	18.67	\$ 7.47

# Example ECM List by Loading Order

- Office

Measures sorted by loading order	Cost / kBtu_savings	Electric Portion of WB EUI (%)	W/B Site EUI (kBtu/sf)	W/B Site EUI Savings %	W/B Site EUI Savings (kBtu/sf)	Electric Site EUI Savings (%)	Electric Site EUI Savings (kBtu/sf)	Electric Site EUI Savings (%) normalized to EUI 40	Electric Site EUI Savings (kBtu/sf) normalized to EUI 40	Cost per SF	Electric EUI Savings (%) cumulative	Electric EUI Savings (kBtu/sf) cumulative	Cost/sf cumulative
Adjust existing HVAC schedules to align with occupancy	\$0.004	100%	85	7.4%	6.27	7.4%	6.27	3.5%	2.95	\$0.012	3.5%	2.95	\$ 0.01
Commissioning: Stage 1: 1-month payback	\$0.006	100%	113	6.2%	7.00	6.2%	7.00	2.2%	2.48	\$0.014	5.7%	5.43	\$ 0.03
Envelope Leakage Reduction	\$0.044	70%	35	0.8%	0.28	0.6%	0.20	0.7%	0.23	\$0.010	6.3%	5.66	\$ 0.04
Commissioning: Stage 2: 1-year payback	\$0.067	100%	113	5.3%	6.00	5.3%	6.00	1.9%	2.12	\$0.141	8.2%	7.78	\$ 0.18
Fault Detection and Diagnosis	\$0.079	80%	35	0.2%	0.08	0.2%	0.06	0.2%	0.07	\$0.006	8.4%	7.85	\$ 0.18
Commissioning: Stage 3: 3-year payback	\$0.189	100%	114	3.5%	4.00	3.5%	4.00	1.2%	1.40	\$0.265	9.6%	9.25	\$ 0.45
Install smart plug load management tools	\$0.197	100%	82	1.4%	1.14	1.4%	1.14	0.7%	0.56	\$0.110	10.3%	9.81	\$ 0.56
DOAS/fan control	\$0.252	100%	35	3.5%	1.21	3.5%	1.21	4.0%	1.39	\$0.350	14.3%	11.20	\$ 0.91
Add R-5.0ci Wall Insulation	\$0.452	60%	35	0.5%	0.19	0.3%	0.11	0.4%	0.13	\$0.058	14.7%	11.33	\$ 0.97
Install variable frequency drives on condenser water pumps	\$0.475	100%	85	0.4%	0.34	0.4%	0.34	0.2%	0.16	\$0.076	14.8%	11.49	\$ 1.04
Increase occupancy sensor	\$0.694	100%	35	0.6%	0.20	0.6%	0.20	0.7%	0.23	\$0.159	15.5%	11.71	\$ 1.20
Install primary chilled water pump variable frequency drives	\$0.700	100%	85	0.1%	0.09	0.1%	0.09	0.0%	0.04	\$0.028	15.6%	11.75	\$ 1.23
Install an exhaust recovery ventilation unit	\$0.708	80%	85	8.3%	7.06	6.6%	5.64	3.1%	2.66	\$1.880	18.7%	14.41	\$ 3.11
Light power reduction	\$0.764	100%	35	1.5%	0.52	1.5%	0.52	1.7%	0.60	\$0.457	20.4%	15.01	\$ 3.57
Efficient Elevator	\$1.348	100%	35	0.5%	0.17	0.5%	0.17	0.6%	0.20	\$0.264	21.0%	15.20	\$ 3.83
LED conversion	\$1.479	100%	85	1.4%	1.19	1.4%	1.19	0.7%	0.56	\$0.828	21.6%	15.76	\$ 4.66
Install submeters to incentivize tenants to reduce their energy use	\$1.490	100%	85	1.0%	0.85	1.0%	0.85	0.5%	0.40	\$0.596	22.1%	16.16	\$ 5.25
LED conversion for parking garage	\$1.600	100%	85	0.3%	0.26	0.3%	0.26	0.1%	0.12	\$0.192	22.2%	16.28	\$ 5.45
Add R-10 Roof Insulation	\$2.655	60%	35	0.3%	0.09	0.2%	0.05	0.2%	0.06	\$0.162	22.4%	16.35	\$ 5.61

## Example ECM List by Loading Order

Install smart plug load management tools

DOAS/fan control

Add R-5.0ci Wall Insulation

Install variable frequency drives on condenser water pumps

Increase occupancy sensor

Install primary chilled water pump variable frequency drives

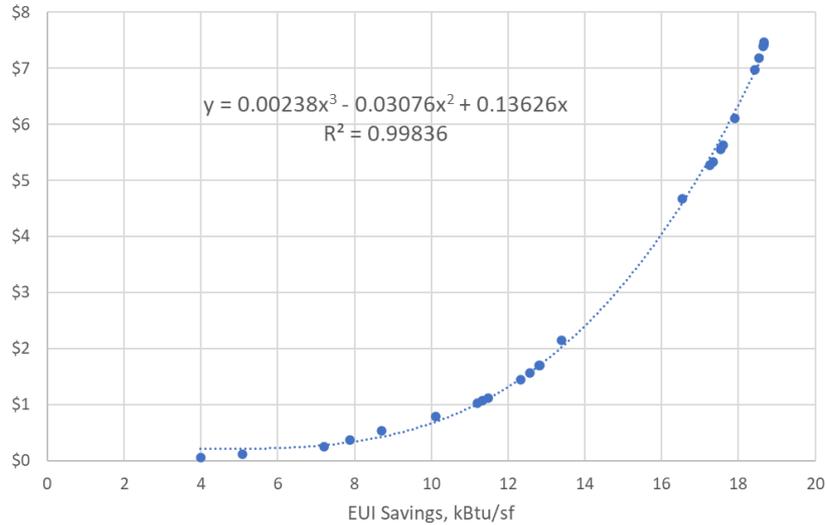
Install an exhaust recovery ventilation unit

Light power reduction

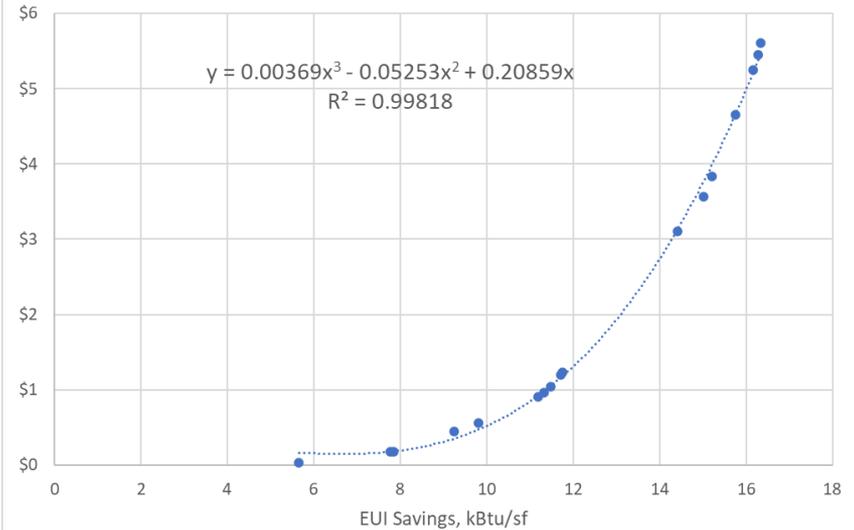
	Electric EUI Savings (kBtu/sf) cumulative	Cost/sf cumulative
5%	2.95	\$ 0.01
7%	5.43	\$ 0.03
8%	5.66	\$ 0.04
2%	7.78	\$ 0.18
4%	7.85	\$ 0.18
5%	9.25	\$ 0.45
3%	9.81	\$ 0.56
3%	11.20	\$ 0.91
7%	11.33	\$ 0.97
3%	11.49	\$ 1.04
5%	11.71	\$ 1.20
5%	11.75	\$ 1.23
7%	14.41	\$ 3.11
4%	15.01	\$ 3.57
0%	15.20	\$ 3.83
5%	15.76	\$ 4.66
1%	16.16	\$ 5.25
2%	16.28	\$ 5.45
4%	16.35	\$ 5.61

# Cost Curves by Property Type

Electric efficiency cumulative cost/sf by EUI savings (Multifamily)



Electric efficiency cumulative cost/sf by EUI savings (Office)



## PNNL – BPS Retrofit Electrification Costs

- Costs to replace common fossil fuel-fired equipment with electric equipment
- Sources of reference cost values
  - Cost and Benefit Impact Study of the Washington D.C. Building Energy Performance Standards Program
  - Steven Winter pilot study investigating costs for electrification of a sample of existing buildings in Montgomery County, Maryland
  - E3 Building Decarbonization Study for the State of Maryland
- Costs are normalized by square foot of floor area due to limited information regarding installed equipment capacities in the studies referenced

## Base Case Gas Systems

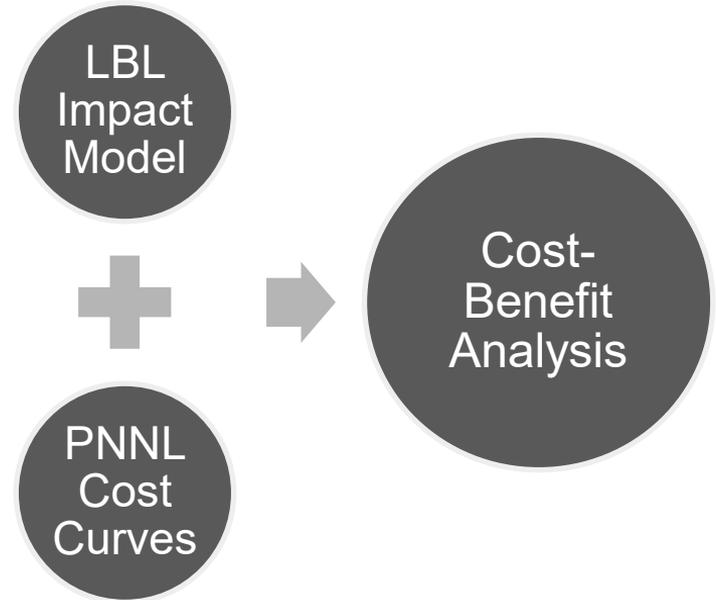
- Purpose: Cost estimates for normal replacement of gas equipment are needed as a baseline for determining incremental capital costs of electrification
- Methodology:
  1. Use PNNL's cost analysis data and calculations used to support ASHRAE 90.1 updates
  2. Retrieve gas equipment costs specific to Maryland construction
    - a. Modeled capacities by prototype buildings: small office; large office; midrise apartment; stand-alone retail
    - b. Include regional cost adjusters for labor and material
  3. Costs normalized to results from 90.1-2019 prototype simulations:
    - a. Annual end use energy consumption; Units = \$/kBtu-yr
    - b. Simulated equipment capacity (furnace, boiler or water heater); Units = \$/kBtu-hr Capacity
    - c. Prototype floor area; Units = \$/sf

## Base Case Gas Systems – Boiler Example

- Large Office Simulation Prototype (498,588 ft<sup>2</sup>)
  - 90.1-2019 minimally compliant
  - Boiler capacity: 3,599 kBtu/hr
  - Modeled annual heating energy: 600,499 kBtu
  - Boiler cost: \$ 78,490, adjusted for:
    - ✓ 90.1 cost vs. capacity relationship
    - ✓ regional labor and material variations
- Normal Replacement Costs
  - $\$78,490 / 3,599 = \$21.80 / \text{kBtuhr}$  of boiler capacity
  - $\$78,490 / 600,499 = \$0.13 / \text{kBtu}$  of annual gas heating energy consumption
  - $\$78,490 / 498,588 = \$0.16 / \text{ft}^2$  of conditioned floor area

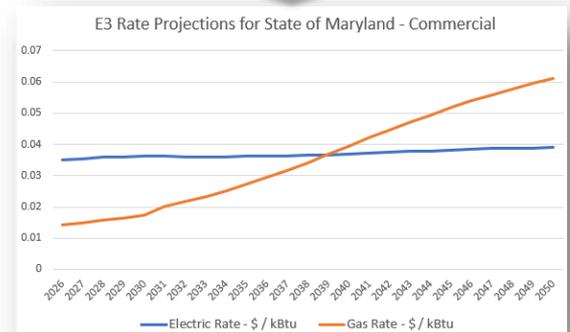
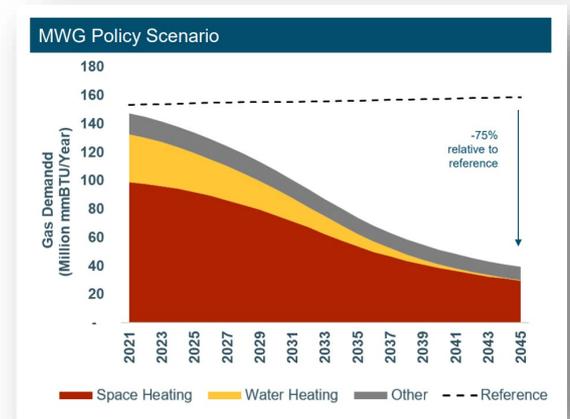
# Integrating Costs into Impact Modeling

- 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



# Rate Projections – State of Maryland

- ◆ Rate projections were taken from the “Maryland Building Decarbonization Study” released by E3 on October 21st, 2021.
- ◆ MDE and MWG designed a “Residential Electrification and Commercial Emissions Standard” scenario (referred to as “MWG Policy Scenario”), based on feedback from the MWG participants for the E3 study
- ◆ Key assumptions for the MWG Policy Scenario include:
  - All-electric new construction
  - High electrification retrofits for existing residential buildings
  - Dual-fuel retrofits for existing commercial buildings, reflecting a Building Emissions Standard targeting net-zero emissions for commercial buildings by 2040 proposed in the draft Building Energy Transition Plan



# Cost Inputs to CBA

## ◆ Capital Cost Categories

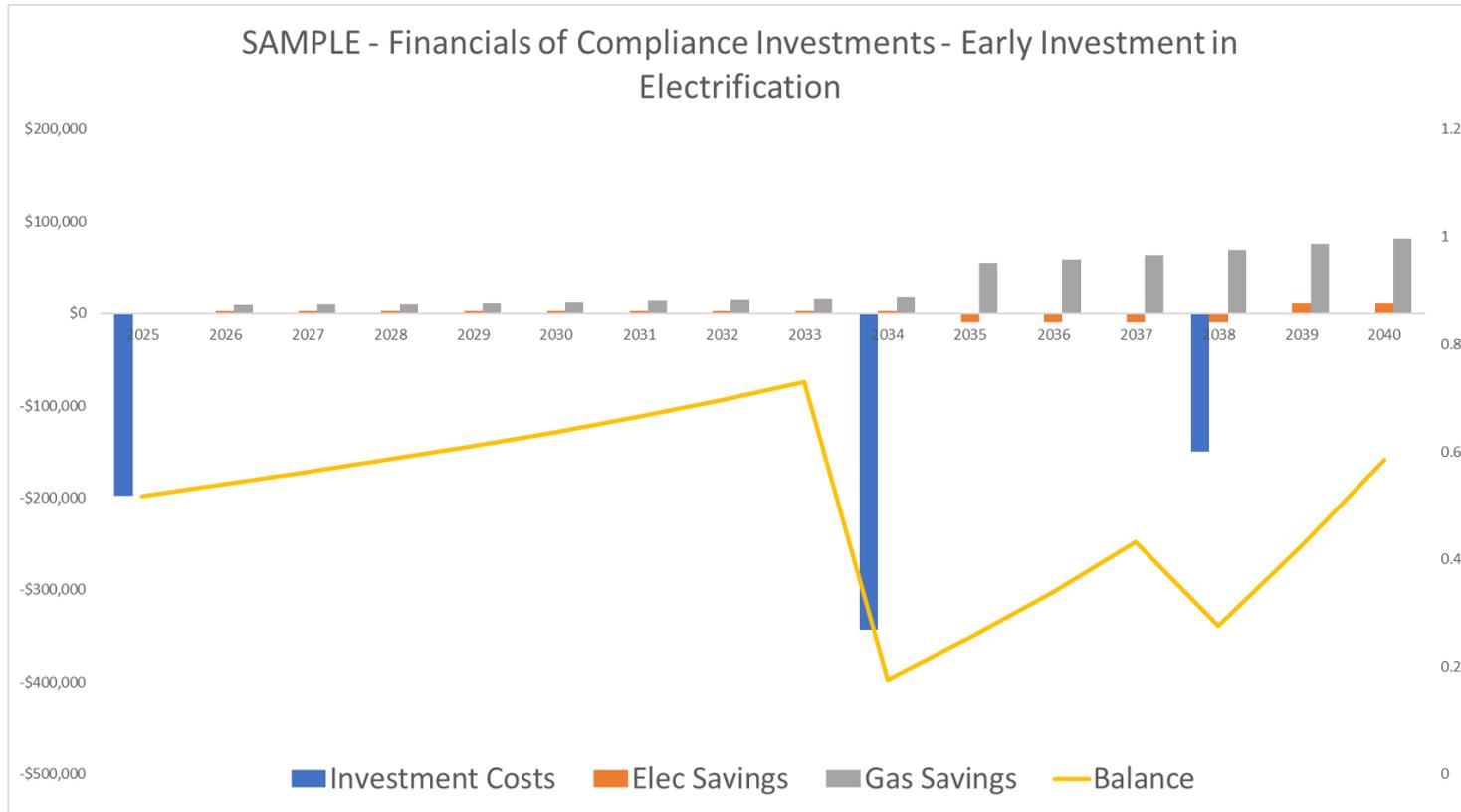
- ❑ Electric Efficiency
- ❑ Gas Efficiency
- ❑ Electrification

## ◆ Ongoing Cost Buckets

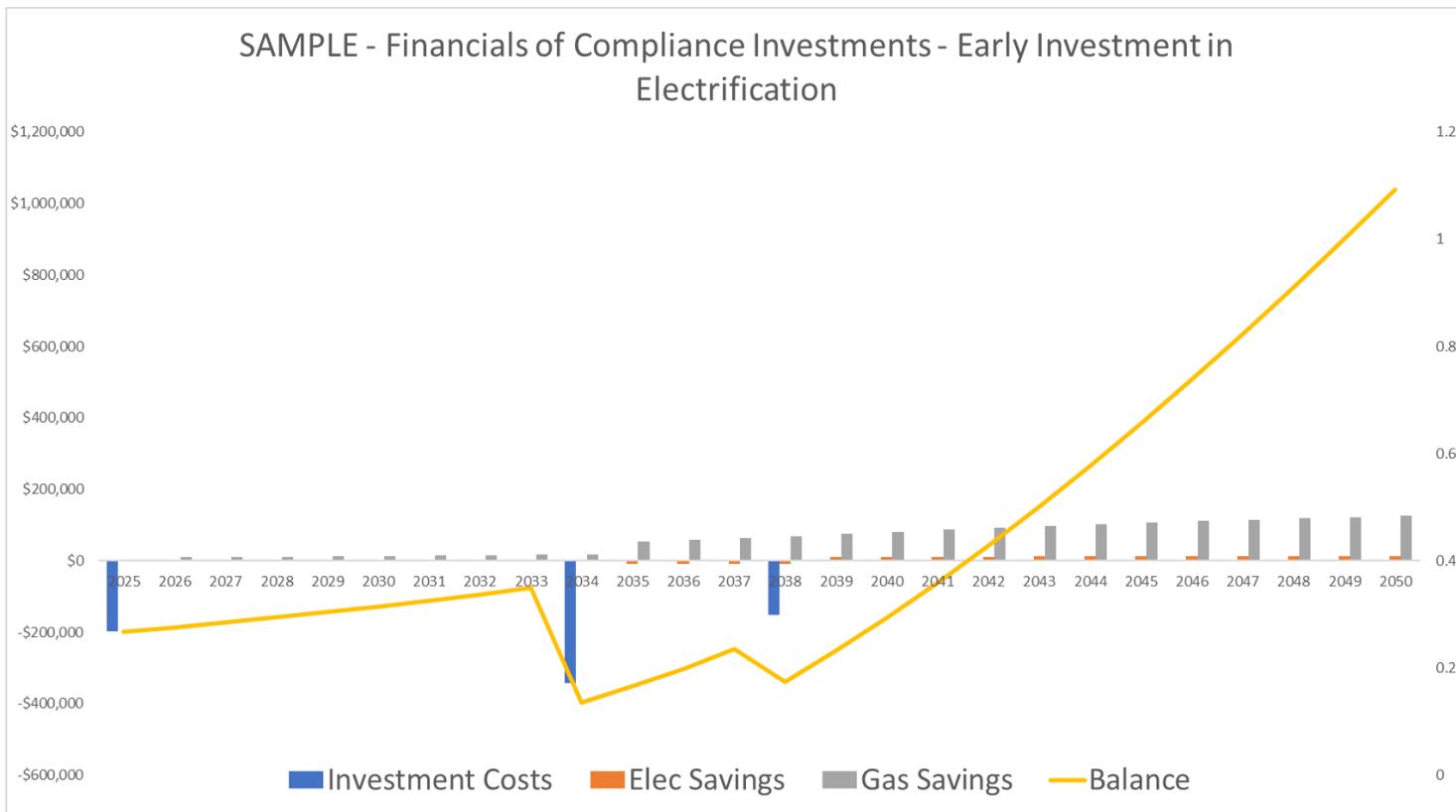
- ❑ Electric Cost (Savings from efficiency, increases from electrification)
- ❑ Gas Cost (Savings from efficiency + electrification)
- ❑ Site EUI ACP (most recent iteration)
- ❑ Direct GHG ACP (most recent iteration)



# Example Building



# Example Building – Longer Outlook



# State-wide Results: 2025 – 2050\*

◆ Total Building Area Covered:	~990MM SqFt
◆ Baseline Energy Costs:	\$68.9B
◆ BAU System Replacement Costs:	\$0.9B
◆ Total Efficiency Investments:	\$8.8B
◆ Total Electrification Investments:	\$6.4B
◆ Total Energy Cost Savings from Baseline:	\$22.3B
◆ <b>Net Cost Savings of All Investments:</b>	<b>\$4.5B</b>

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

# State-wide Results: 2025 – 2050\*

- ◆ Baseline Energy Costs: \$69.60 / SF (\$2.80/SF/Year)
- ◆ BAU Gas System Replacement Costs: \$0.91 / SF
- ◆ Total Efficiency Investments: \$8.97 / SF
- ◆ Total Electrification Investments: \$6.48 / SF
- ◆ Total Energy Cost Savings from Baseline: \$22.56 / SF (\$0.90/SF/Year)
- ◆ **Net Cost Savings of All Investments: \$4.47 / SF**

45% (including 65% in the 1<sup>st</sup> compliance period) of all interventions could be considered 'financeable', per rough assumptions regarding IRR (Internal Rate of Return) thresholds by property type.

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

## Maryland Cost Analysis Caveats

- The costs provided are high-level and should not be used to estimate the costs of retrofits at any individual building
- The list of energy efficiency measures is not exhaustive and does not represent a complete list of all potential retrofits that may be possible within Maryland buildings
- The capacity-based costs (\$/kBtu-yr) provided for the base case gas systems assumes that capacity is scalable with annual energy use which means that buildings with longer operating hours may have underestimated costs and buildings with shorter operating hours may have the opposite
- The square foot-based costs (\$/SF) provided for the base case gas systems will underestimate costs for less efficient buildings since the costs are tied to 2019 code compliant buildings which will have many non-HVAC efficiencies that reduce overall energy consumption. However, given that electrification costs could only be obtained on a per square foot basis due to data availability, this normalized cost was used for comparison

# LBNL Impact Analysis Caveats

- ◆ Due to limited data availability, all results should be considered rough and best-available estimates for costs and savings. Analysis may be refined and is subject to change as more empirical data becomes available.
- ◆ ECM Measure Life was not taken into account for this analysis. Costs assume no net changes in maintenance or upkeep of systems pre- and post-implementation.
- ◆ Like-for-Like system replacement costs in the baseline scenario were assumed to occur once per system for each building otherwise undergoing electrification retrofits in the compliance scenario.
- ◆ Results not adjusted for inflation, and do not take into account future efficiency/electrification technologies not currently on the market.



## Contacts

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U.S. DEPARTMENT OF  
**ENERGY**

Appendix K – AQCAC Presentation 1



**Maryland**  
Department of  
the Environment

# Building Energy Performance Standards

Stakeholder Meeting  
Fall 2022



# Agenda

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- Welcome
- Overview of Building Performance Standards
- Requirements for Maryland Building Energy Performance Standards
- Process and Timeline for Developing Regulations
- Listening Session



# Background

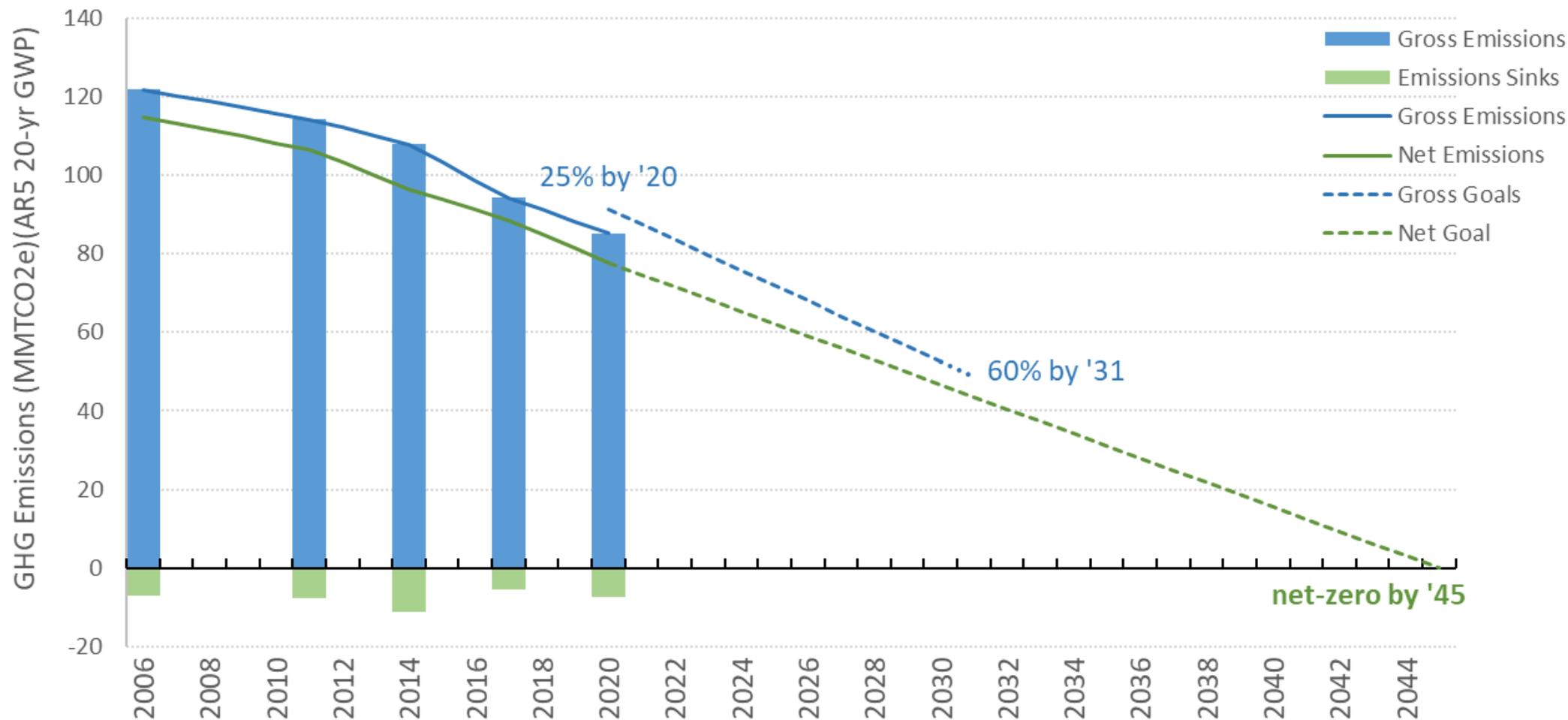
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- Building Energy Performance Standards (BEPS) and Building Performance Standards (BPS) are emerging in cities, counties, and states across the nation
- The typical goal of a BEPS/BPS is to guide large buildings to higher levels of energy efficiency and/or lower levels of greenhouse gas emissions
- The Climate Solutions Now Act of 2022 requires the Maryland Department of the Environment (MDE) to develop BEPS regulations that cover most large buildings in the state
- Decarbonizing large buildings is an important step toward achieving Maryland's greenhouse gas reduction goals



# Maryland's Greenhouse Gas Reduction Goals

Maryland GHG Emissions & Goals





# Covered Buildings

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- 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
- 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; and
  - Agricultural buildings.



# General Requirements for Covered Buildings

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- Report data to MDE annually beginning in 2025
  - MDE is leaning toward using EPA Energy Star Portfolio Manager for reporting
- Achieve a 20% reduction in net direct greenhouse gas emissions by January 1, 2030, as compared with 2025 levels for average buildings of similar construction
- **Achieve net-zero direct greenhouse gas emissions by January 1, 2040**
- Buildings must also meet to-be-determined energy use intensity (EUI) targets, which MDE will set in the regulations
  - MDE is leaning toward setting Site EUI targets



# Net Direct Greenhouse Gas Emissions

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- Direct greenhouse gas emissions are emissions produced on-site by covered buildings, typically from appliances/equipment that combust fuel for space heating, water heating, and cooking
- “Net direct” greenhouse gas emissions is not defined in the statute, so MDE will define it in the regulations
- One factor for defining “net direct” is that greenhouse gas emissions from commercial tenants in covered buildings that are food service facilities and engage in commercial cooking and water heating must be excluded or “netted out” of net direct emissions



# Alternative Compliance Pathway

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- If a covered building does not meet its emissions reduction targets, then the owner can come into compliance by paying a fee for any emissions that are above target levels
- The Alternative Compliance Fee may not be less than the Social Cost of Greenhouse Gases (SC-GHG) adopted by MDE or the federal government
- Revised federal figures for the SC-GHG were released on November 11, 2022, and are currently open for public comments



# Social Cost of Greenhouse Gases

- U.S. EPA is currently accepting public comments on its “Report on the Social Cost of Greenhouse Gases: Estimates Incorporating Recent Scientific Advances”

*Table ES.1: Estimates of the Social Cost of Greenhouse Gases (SC-GHG), 2020-2080 (2020 dollars)*

Emission Year	SC-GHG and Near-term Ramsey Discount Rate								
	SC-CO <sub>2</sub> (2020 dollars per metric ton of CO <sub>2</sub> )			SC-CH <sub>4</sub> (2020 dollars per metric ton of CH <sub>4</sub> )			SC-N <sub>2</sub> O (2020 dollars per metric ton of N <sub>2</sub> O)		
	2.5%	2.0%	1.5%	2.5%	2.0%	1.5%	2.5%	2.0%	1.5%
2020	120	190	340	1,300	1,600	2,300	35,000	54,000	87,000
2030	140	230	380	1,900	2,400	3,200	45,000	66,000	100,000
2040	170	270	430	2,700	3,300	4,200	55,000	79,000	120,000
2050	200	310	480	3,500	4,200	5,300	66,000	93,000	140,000
2060	230	350	530	4,300	5,100	6,300	76,000	110,000	150,000
2070	260	380	570	5,000	5,900	7,200	85,000	120,000	170,000
2080	280	410	600	5,800	6,800	8,200	95,000	130,000	180,000

*Values of SC-CO<sub>2</sub>, SC-CH<sub>4</sub>, and SC-N<sub>2</sub>O are rounded to two significant figures. The annual unrounded estimates are available in Appendix A.4 and at: [www.epa.gov/environmental-economics/scghg](http://www.epa.gov/environmental-economics/scghg).*



# Financial Incentives

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- There are many federal, state, local, and utility-sponsored incentives to help pay for energy efficiency and electrification projects
- In addition to government and ratepayer funded grants, rebates, and tax credits, low-interest financing with technical assistance is offered through green banks such as the Maryland Clean Energy Center
- Energy service companies also offer low-interest loans, energy-as-a-service, and other creative financing solutions
- MDE will launch a Building Energy Transition Implementation Task Force in 2023 to recommend additional state incentives



# Regulatory Development Timeline

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- Summer 2022 – Secure technical assistance and initiate the rulemaking process (complete)
- Fall 2022 – Begin drafting regulations and initiate a stakeholder engagement process
- Winter 2023 – Circulate draft regulations for public comment while continuing stakeholder engagement
- Spring 2023 – Circulate proposed regulations for public comment
- Summer 2023 – Adopt final regulations



# Regulatory Development Partners

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- Technical assistance:
  - U.S. Department of Energy (U.S. DOE)
  - U.S. Environmental Protection Agency (U.S. EPA)
  - Lawrence Berkeley National Laboratory (LBNL)
  - Pacific Northwest National Laboratory (PNNL)
  - Institute for Market Transformation (IMT)
  - Northeast Energy Efficiency Partnerships (NEEP)
- Community/stakeholder engagement:
  - Institute for Market Transformation (IMT)
  - Interfaith Power and Light (IPL)
  - CASA de Maryland (CASA)
  - Action in Montgomery (AIM)



# Stakeholder Meetings

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- Nov 14 (3-4:30pm) - Colleges/Universities, State-Owned Buildings, and District Energy Providers
- Nov 15 (3-4:30pm) - Utilities and Fuel Distributors
- Nov 17 (9-10:30am) - Environmental NGOs
- Nov 17 (10:30a-12p) - Hospitals
- Nov 28 (3:30-5pm) - Office, Retail, and Hospitality
- Nov 29 (1-2:30pm) - Multifamily Buildings
- Nov 30 (1-2:30pm) - Affordable Housing Providers
- Dec 1 (1-2:30pm) - Light Industrial/Warehouses
- Dec 5 (2-3:30pm) - Laboratories and Life Sciences
- Dec 6 (1-2:30pm) - Assisted Living and Nursing Facilities
- Dec 7 (9-10:30am) - Restaurants/Food Service Facilities
- Dec 8 (9-10:30am) - Local Governments
- TBD - Community Meeting: Tenants of Affordable Housing (hosted in Langley Park by CASA de Maryland)
- TBD - Community Meeting: Tenants of Affordable Housing (hosted in Gaithersburg by Action in Montgomery)



## Contact

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

MDE BEPS email: [BEPS.MDE@maryland.gov](mailto:BEPS.MDE@maryland.gov)

Appendix L – AQCAC Presentation 2



**Maryland**  
Department of  
the Environment

# Maryland Building Energy Performance Standards (BEPS)

March 2023  
MDE Status Update  
Air Quality Control Advisory Council



# Today's Briefing

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- Recap of Previous Briefing
- Location and Distribution of Covered Buildings
- Process for Building Owners
- Emissions and Energy Impacts
- Summary of Fall Stakeholder Meetings
- Schedule



# Recap of December Presentation to AQCAC

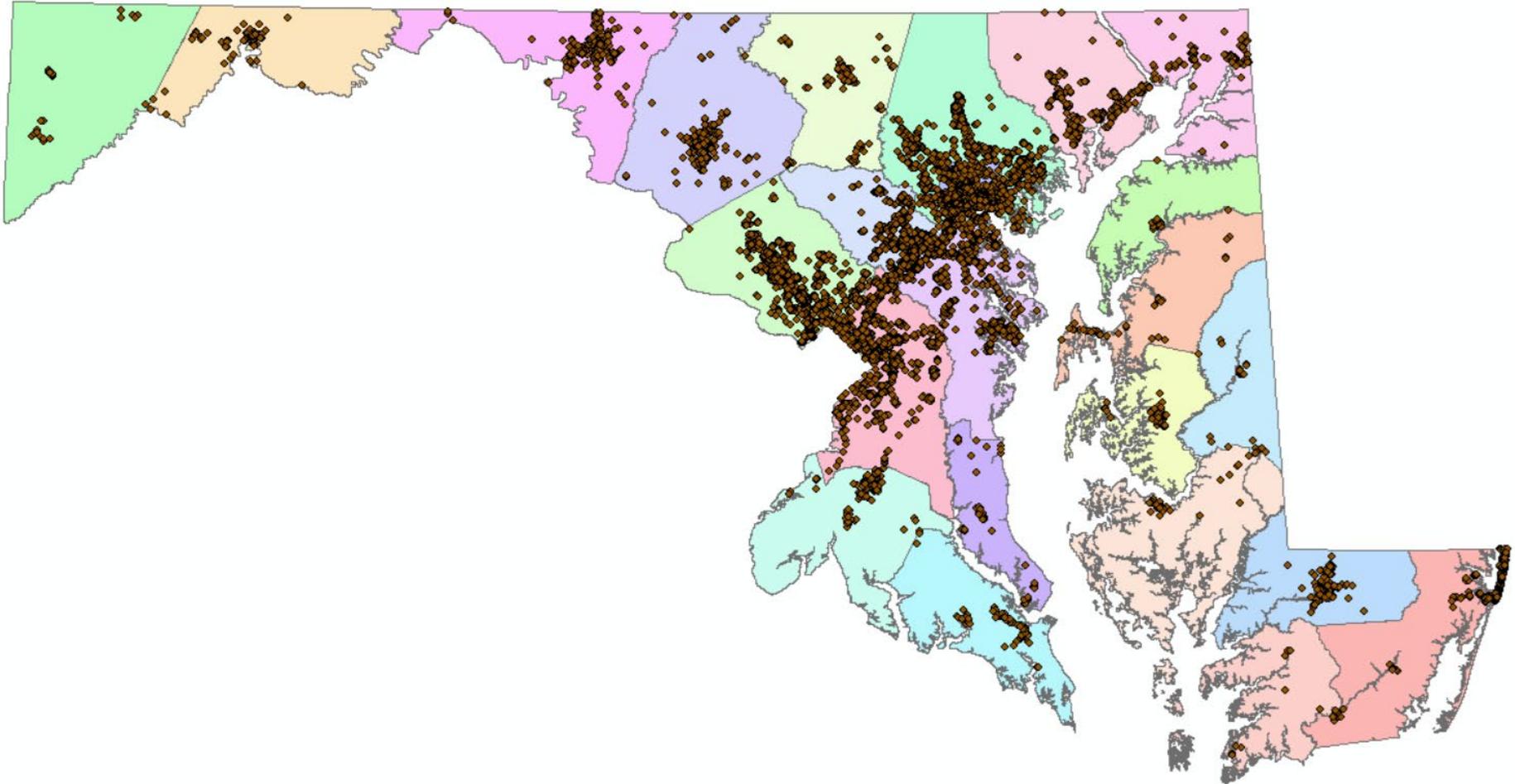
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- A covered building is a building in Maryland that has a gross floor area of 35,000 square feet or more excluding the parking garage area
- Approximately 9,000 covered buildings (pending further analysis)
- Two targets:
  - Net direct greenhouse gas emissions
    - 20% reduction by 2030
    - Net-zero direct emissions by 2040
  - Site energy use intensity
    - Targets to be set through rulemaking
- MDE is working with U.S. DOE, U.S. EPA, LBNL, PNNL, IMT, and NEEP to develop the regulation



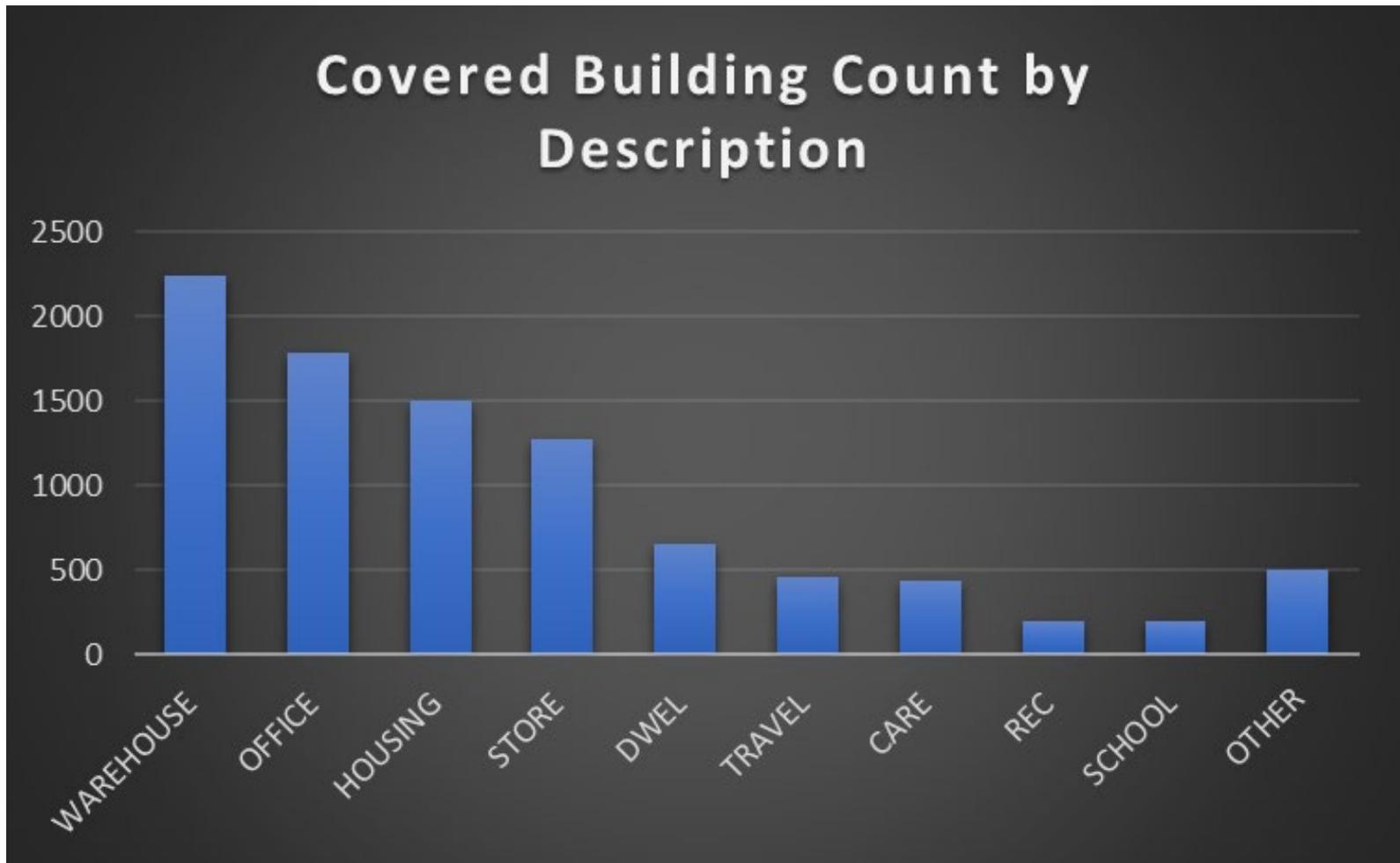
# Location of Covered Buildings

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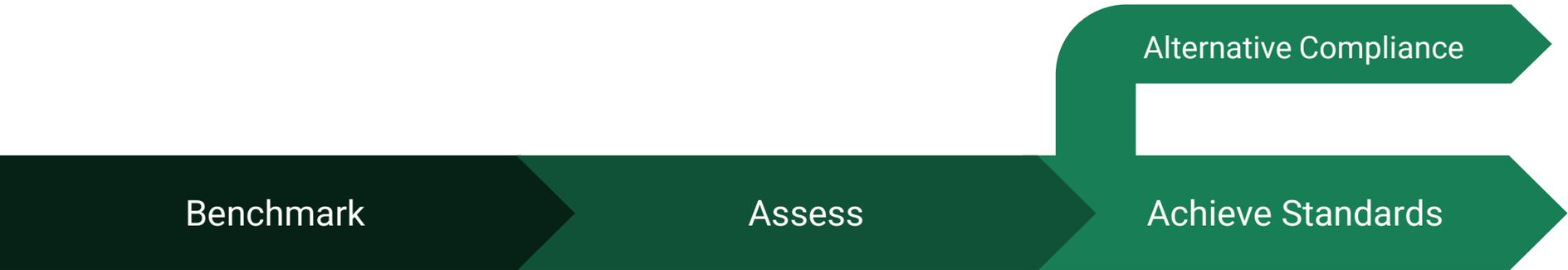


# Distribution of Covered Building Types





# Process for a Covered Building Owner



Benchmark

Assess

Alternative Compliance

Achieve Standards

## Annually beginning in 2025

Use an online benchmarking tool (EPA's ENERGY STAR Portfolio Manager) to track annual energy use and greenhouse gas emissions.

## Annually beginning in 2025

Determine if changes are needed to improve site energy use intensity and/or reduce net direct greenhouse gas emissions to achieve the standards.

## Annually beginning in 2030

Achieve specified levels of site energy use intensity and net direct greenhouse gas emissions. If the building does not achieve the standards, then the owner will pay a fee or penalty to come into compliance.



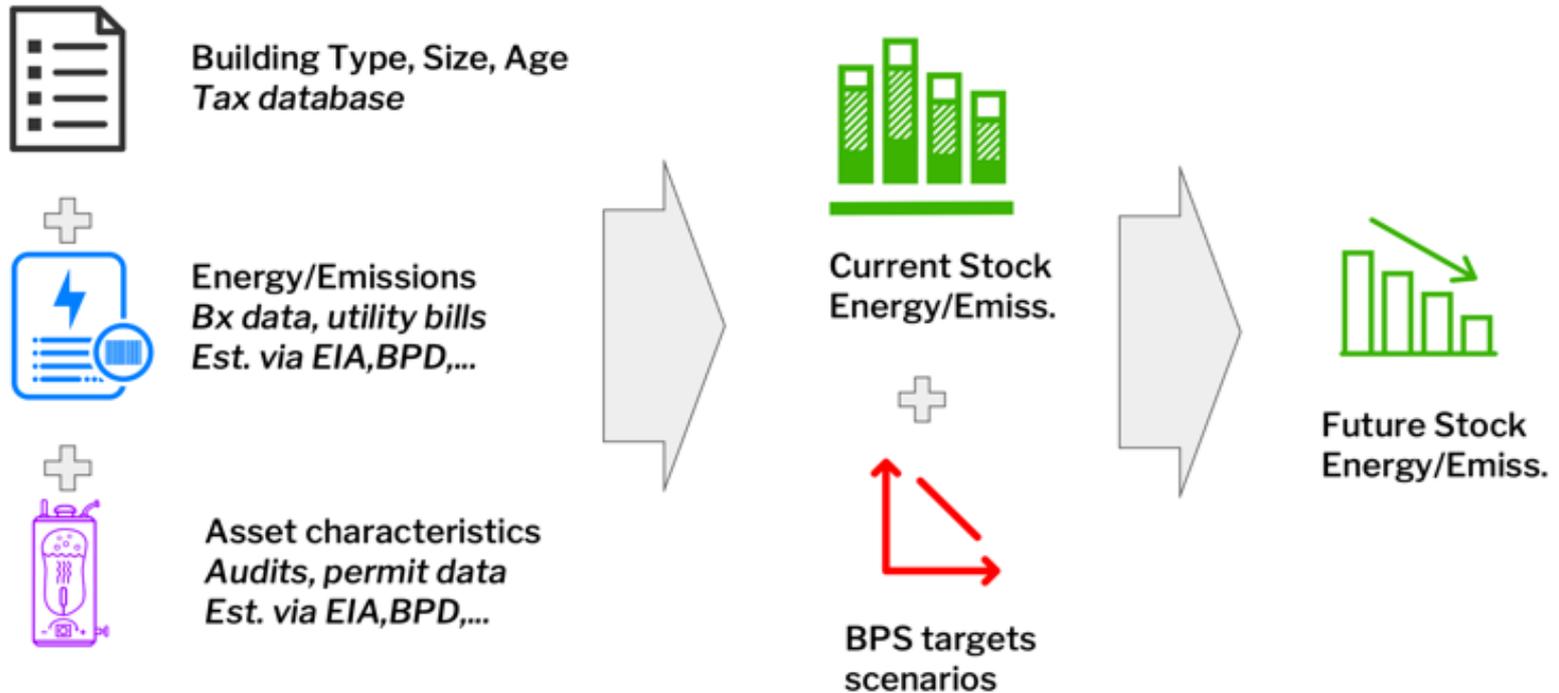
# Emissions and Energy Impacts

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The following slides are from Lawrence Berkeley  
National Laboratory

# Overview of Building Stock Analysis

- Characterize the building stock (size, type, and energy use for each bldg)
- Scenarios for potential BPS policies (metrics, targets, timing)
- Predict energy reductions under each scenario



# Data Sources and Modeling Methodology

- Data Sources

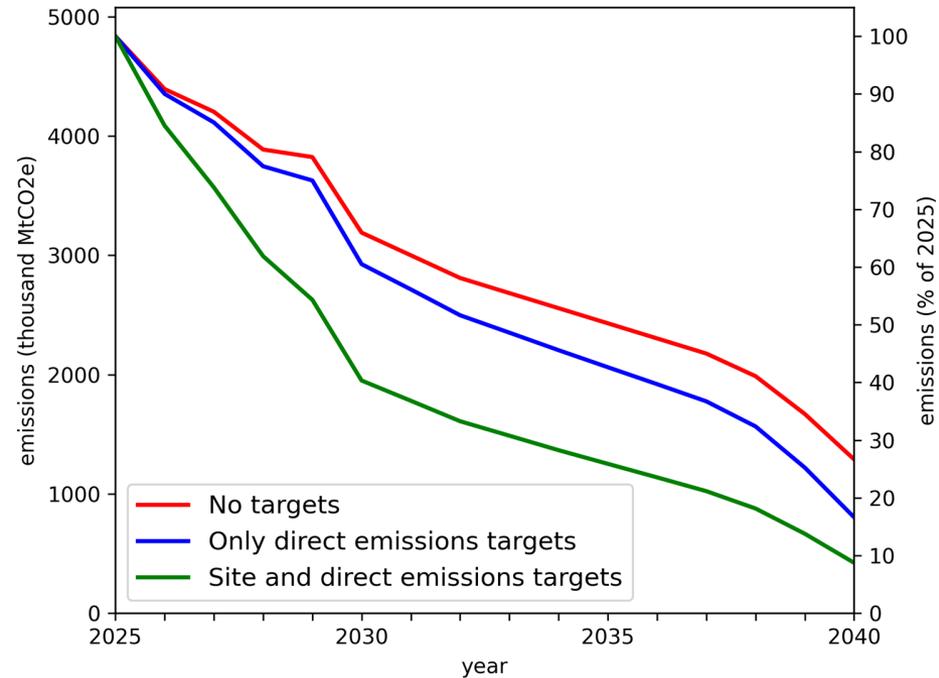
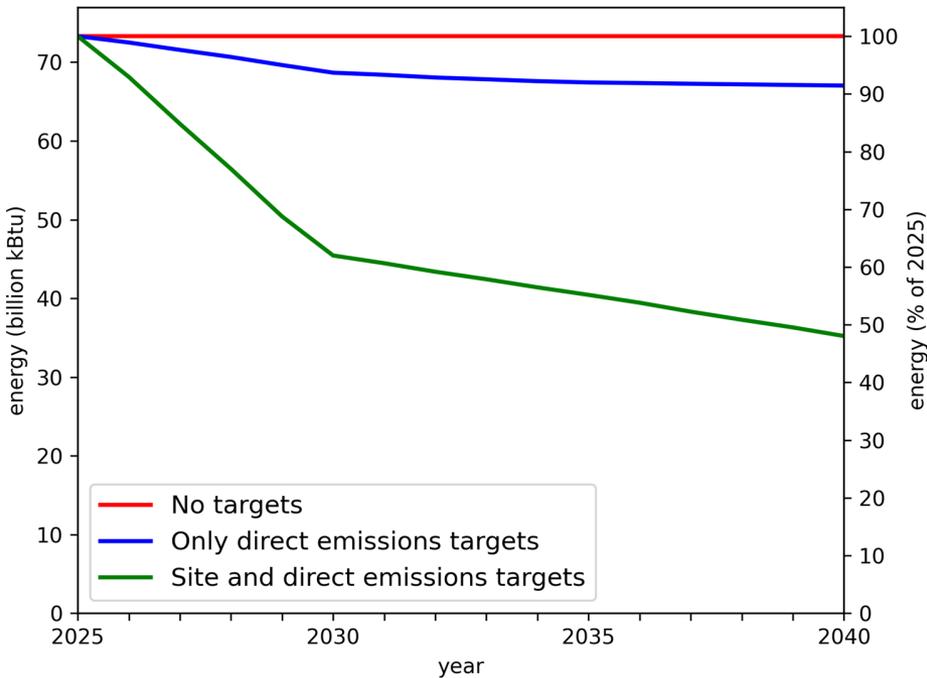
- Building types and sizes from Maryland Covered Building List (CBL) (~8500 bldgs >35k sqft)
- Site EUI and electric/site ratio from EPA dataset
- Ratio of fuel used for space and water heating from Com/ResStock
- Projected grid emissions factors from Maryland analysis
- Site EUI targets from Montgomery County (MoCo) potential targets

- Model: Reduce energy use to meet EUI targets

- 3 cycles of 5 years (ending in 2030, 2035, 2040) – actual compliance cycle TBD by MDE
- First: Try to meet direct emissions target with efficiency
- Next: Electrify space heating, water heating, other uses, until direct emissions target met
- Last: Reduce electric use until site EUI target met

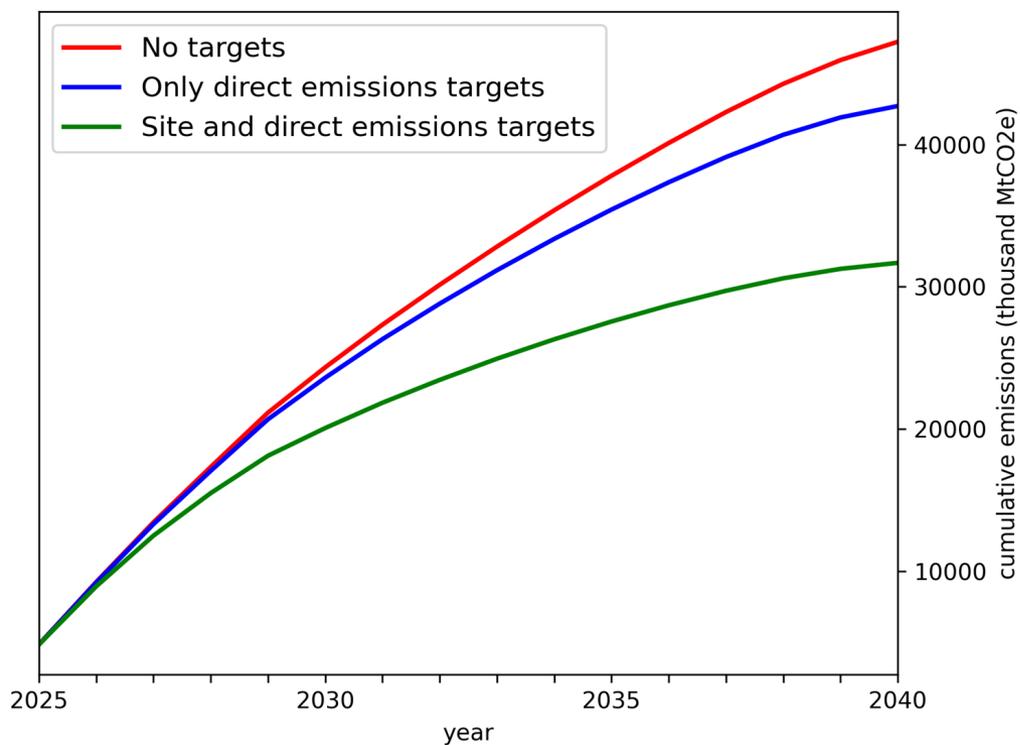
# Energy and Emissions Reductions

- Majority of emissions savings due to cleaner grid
- Site vs. direct emissions targets: more electric energy savings than emissions



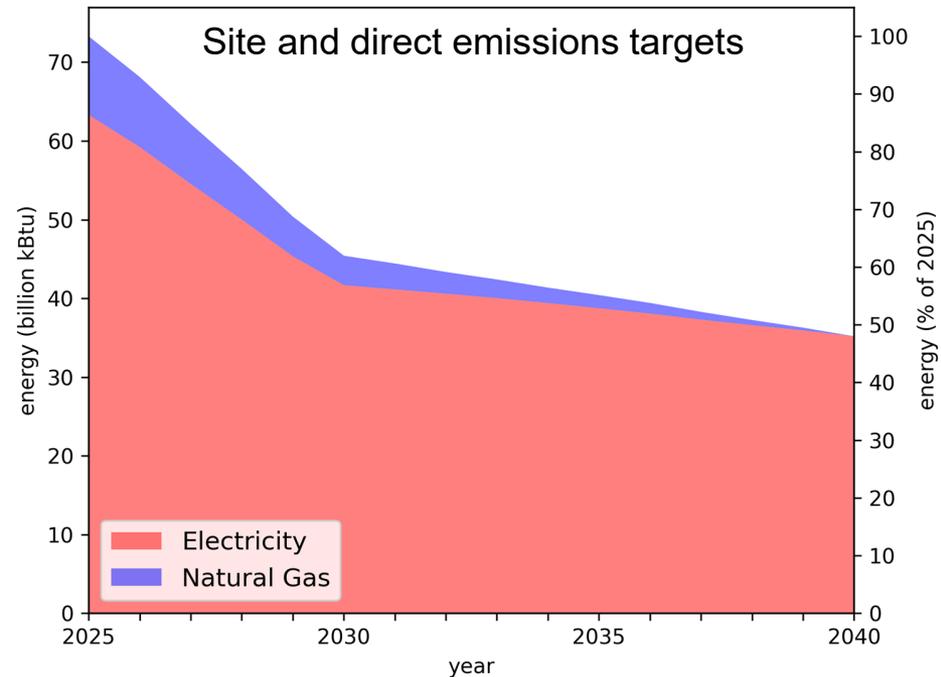
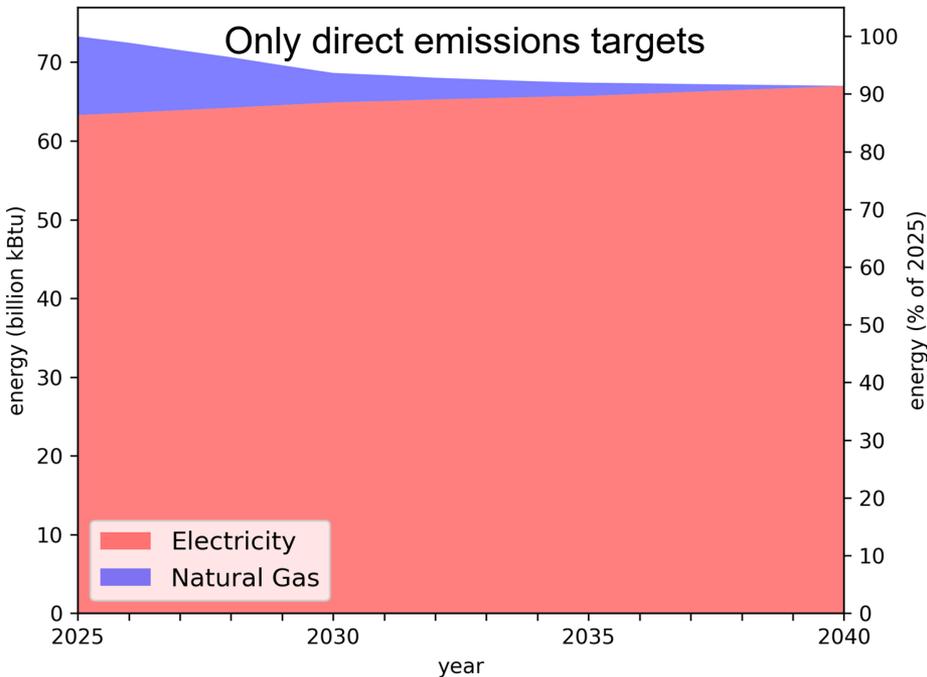
# Cumulative Emissions

- Only direct emissions targets vs. no targets: 9.6% decrease
- Site and direct emissions targets vs. no targets: 33% decrease



# Electricity and Gas Energy Reductions

- With only direct emissions targets: electricity use increases 5.8%
- With site and direct emissions EUI targets: electricity use decreases 44%



# Model Sensitivity Analyses

- Parameter variations:
  - Direct emissions targets over time (20,40,40% vs. 20,30,50%)
  - Site targets over time (33,33,33% vs. 20,40,40%)
  - Final site targets (MoCo EE vs. ZNC )
  - Max fuel space heating savings by efficiency (10% vs. 20% vs. 30%)
  - Max fuel water heating savings by efficiency (5% vs. 10% vs. 15%)
  - COP when electrifying space heating (2.5 vs. 3.0)
  - COP when electrifying water heating (2.2 vs. 3.0)
- Bottom line: Modeling results are minimally/not sensitive to parameter variations



# Outreach to Stakeholders

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In November and December 2022, MDE and IMT hosted 14 stakeholder engagement meetings with representatives from different sectors.

- Colleges and Universities
- State-Owned Buildings
- District Energy Providers
- Utilities and Fuel Distributors
- Environmental NGOs
- Hospitals
- Warehouses
- Laboratories
- Nursing Facilities
- Restaurants
- Offices
- Retail
- Hospitality
- Multifamily
- Affordable Housing
- Light Industrial
- Life Sciences
- Assisted Living
- Food Service Facilities
- Local Governments



# Stakeholder Meeting Participants



## Sample of Organizations Represented:

- Johns Hopkins University
- Vicinity Energy
- Baltimore City and County Governments
- Interfaith Power & Light
- Equity Residential
- Community Housing Partners
- Maryland Clean Energy Center
- BOMA
- Cushman & Wakefield
- NAIOP Maryland
- Prince George's County Government
- Avalon Energy Services
- Maryland Chamber of Commerce
- National Housing Trust
- Howard County Government
- Fidelity Engineering Corp
- Hill Management Services
- Montgomery County Government
- University of Maryland
- Loyola University Maryland
- Baltimore Gas and Electric
- Maryland League of Conservation Voters



# Stakeholder Input

<b>Stakeholders want clarity on:</b>	<b>Stakeholders want flexibility on:</b>	<b>Stakeholders recommended:</b>
<ul style="list-style-type: none"><li>● Net Direct Emissions vs Site EUI</li><li>● Setting Baselines and Targets</li><li>● Covered Building Definitions</li><li>● Portfolio Management</li><li>● District Energy</li><li>● Unique Ownership Structures</li><li>● Tenant Issues</li></ul>	<ul style="list-style-type: none"><li>● Backup Power</li><li>● Electric Vehicle Charging</li><li>● Renewable Generation</li><li>● Carbon Offsets</li><li>● Historic Buildings</li><li>● Project Timing</li><li>● Hospitals</li><li>● Laboratories</li></ul>	<ul style="list-style-type: none"><li>● State/Local Government Coordination</li><li>● Ensure Easy Access to Utility Data</li><li>● Provide Help Desk Assistance</li><li>● Provide Case Studies and Best Practices</li></ul>



# Target Schedule

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**Mar. 2023** - Update AQCAC on the status of the rulemaking

**Jun. 2023** - Present the proposed regulation to AQCAC

**Jul. 2023** - Submit the Notice of Proposed Action (NPA) to the Joint Committee on Administrative, Executive, and Legislative Review (AELR)

**Sep. 2023** - Publish the NPA in the MD Register

**Oct./Nov. 2023** - Public hearings

**Dec. 2023** - Adopt the regulation



## Contact

### **MDE BEPS website:**

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

### **MDE BEPS email:**

[BEPS.MDE@maryland.gov](mailto:BEPS.MDE@maryland.gov)

Appendix M – June 2023 BEPS Stakeholder Comments

***Via Electronic Mail***

June 5, 2023

Maryland Department of Environment  
1800 Washington Blvd.  
Baltimore, MD 21230  
BEPS.MDE@maryland.gov

**Re: Maryland Building Energy Performance Standards**

Dear Secretary McIlwain:

Potomac Electric Power Company (Pepco) and Delmarva Power and Light appreciate the opportunity to provide feedback, ask questions and request additional clarification on the draft Building Energy Performance Standards (BEPS). Pepco and Delmarva Power recognize the critical role we play in helping Maryland achieve its climate change goals and are committed to taking immediate action and partnering with our customers and communities to combat climate change. Below you will find our suggested comments for consideration.

**.02 Definitions**

- **COMMENTS:** Add a definition for “Web Services”
  - **Suggestion:** Web services is a data programming tool that facilitates the safe and secure exchange of data between the Portfolio Manager database and either a data provider (e.g., a utility) or a data consumer (e.g., a third-party energy services company). "
- The definition for “Site Energy Use” should include the word "metered" in the definition. If it is not metered, utilities should not have to calculate usage for EVs, food service, (defined in .02Reporting Requirements of Buildings owners: 5A-D.)

**.04 Reporting Requirements of Utility Companies and District Energy Providers**

(1) Starting no later than July 1, 2024, electric and gas companies shall retain for a period of not less than seven years digital records of all customer meter-specific energy consumption, including the date and time of such consumption for any data captured at intervals of more than four minutes. Electric and gas companies shall conduct meter-to-building mapping and maintain aggregate energy consumption data for all covered buildings, and provide to the building owner accurate and timely information on the actual amount of electricity and/or gas delivered to a covered building. The data shall be provided via web-based delivery capable of being uploaded to the benchmarking tool.

- **COMMENTS:** The seven-year retention period conflicts with the three-year billing data retention period in the PSC regulations in COMAR 20.50.04.04. Amending the period to three years from the proposed seven years will align with the current billing data retention period.
  - **Suggestion:** Strike “seven” and replace with “three” in each instance.

- The EPA Portfolio Manager was designed before AMI data was widely available. Most Utilities can now use AMI data to automatically provide energy density benchmarking data to customers. This would save building owners time and money and should be explored further.
- Define meter as “Utility Owned Revenue Meter”
- Requiring 4-minute interval data creates excessive data storage requirements.

(2) Within 30 days of a request from a building owner, an electric or gas utility company shall digitally transmit as a free service to the building owner energy data through the benchmarking tool. The data shall include aggregate energy consumption data, as well as a complete list of the meter numbers included in the aggregate energy consumption data to ensure accuracy of the meter-to-building mapping, and shall continue to transmit such data until otherwise directed. Building owners shall have the option to submit requests digitally.

- **COMMENTS:** This requirement is to have a complete list of the meter numbers and that additional detail is not necessary.
  - **Suggestion:** Strike “to ensure accuracy of the meter-to-building mapping. Strike the word “free.”

(3) Electric and gas companies shall maintain a record of all meters that populate a given building’s aggregate energy consumption data in any given month. The utility shall ensure that meter-to-building mapping is accurate and updated on an ongoing basis. Within 30 days of discovering that any data or meter mapping that it has reported was erroneous, the utility shall digitally provide to the building owner, the Department, and the Public Service Commission a report detailing the errors, corrective measures, and steps the utility has taken and will take to prevent a recurrence of the error.

- **COMMENTS:** Incidents outside of our control, such as theft of a meter could impact the accuracy of meter-to-building mapping.
  - **Suggestion:** Strike everything after the first sentence in this section

(5) Electric and gas companies shall provide a customer service option, including but not limited to a phone number for building tenants to call-in, relating to data access questions and any perceived data misuse.

- **COMMENTS:** This language is unnecessary. Customers and building tenants can already access their usage through MyAccount. Customers can also call our customer service number about anything pertaining to their account. Given that the purpose of this regulation is to set forth how utilities are to get usage data to building owners, this provision is unnecessary.
  - **Suggestion:** Strike all the language in this section.

Finally, further engagement with the broader business community is needed. Different businesses are starting at different places when it comes to compliance. Greater impact could be felt by longer-standing businesses and those with older buildings in the state.

Pepco and Delmarva Power are committed to partnering with our state governments, counties and municipalities, industry leaders, community development organizations and labor to reach our climate goals and appreciate the opportunity to weigh in on these proposed regulations.

If you have any questions or concerns related to these comments, please do not hesitate to contact me.

Sincerely,

*Anne Klase*

Anne Klase

Senior Manager, State Legislative Affairs, Pepco Holdings

Rubin Rakovsky

June 5, 2023

Via Email [BEPS.MDE@maryland.gov](mailto:BEPS.MDE@maryland.gov)

Maryland Department of Environment  
1800 Washington Boulevard  
Baltimore, Maryland 21230

Re: Comments on draft Building Energy Performance Standards  
Offsets should be incorporated

Dear Sirs:

I am commenting on the draft proposed building energy performance standards regulations and while there is much that can be said about what is proposed, in the interest of highlighting the need to include offsets for greenhouse gas emissions, I will discuss that alone.

I am advocating that the regulations include offsets for composting, which when implemented at scale, has the potential to significantly reduce GHG emissions, especially when targeted towards food waste. Through carbon sequestration, diversion of organic waste from landfills, and soil improvement, composting offers a multifaceted approach to mitigating climate change. However, successful implementation requires addressing technical, regulatory, and financial challenges, as well as fostering engagement and awareness. These regulations can accomplish much of that.

In addition to the Building Energy Performance Standards provisions of SB 528, the bill calls for expanded composting facilities, so this idea is not unrelated. Additionally, when the bill excludes schools and first floor restaurants from the statutes it strikes me as unlikely the state will achieve its goal of being carbon neutral by 2045. Schools and restaurants create large quantities of food waste and those operations should be required to offset their GHGs through composting food waste.

By maximizing the benefits of composting, society can take a significant step towards reducing GHG emissions and creating a more sustainable future.

Add offsets, including by composting to the regulations.

Thank you,

Rubin Rakovsky

Alexis Ear



June 5, 2023

Via Email [BEPS.MDE@maryland.gov](mailto:BEPS.MDE@maryland.gov)

Maryland Department of Environment  
1800 Washington Boulevard  
Baltimore, Maryland 21230

Re: Comments on draft Building Energy Performance Standards

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By maximizing the benefits of composting, society can take a significant step towards reducing GHG emissions and creating a more sustainable future.

Add offsets, including by composting to the regulations.

Thank you,

Alexis Earl

Jordan Katz  
CHESAPEAKE LANDSCAPE MATERIALS  
8217 Baltimore Annapolis Blvd, Pasadena, MD 21122  
443-869-0528 | Jordan@Mulchman.com | Mulchman.com

June 4, 2023

Via Email [BEPS.MDE@maryland.gov](mailto:BEPS.MDE@maryland.gov)

Maryland Department of Environment  
1800 Washington Boulevard  
Baltimore, Maryland 21230

Re: Comments on draft BEPS regulation  
Add offsets by way of nutrient rich soil amendment and compost

To Whom it May Concern:

This letter is to offer comments on the draft proposed building energy performance standards regulation.

My family owns and I work at Chesapeake Landscape Materials in Pasadena. Our business will be impacted by the SB 528 of 2022, including that we are a wholesale recyclable materials business with an extensive organics recycling operation that among other products produces soil and compost. As part of our business, we produce and sell composted materials and we are finalizing plans to expand to accommodate more and additional food waste which will accomplish several of the aims of SB 528, but matters that the regulations ignore.

Food waste is the single most common material landfilled in the U.S., comprising almost 25% of landfilled solid waste and of note, resulting in more than 14% of total U.S. methane emissions. Globally, food loss and waste represent between 8 – 10% of anthropogenic GHG emissions, offering an opportunity for meaningful reductions.

SB 528 identifies pursuing organics recycling facilities, and we offer a private option, in lieu of the state purchasing land for such a purpose and then operating those facilities. The regulations should provide those operations can exist by contracting with private businesses in lieu of the state trying to own and operate them.

I am writing to suggest that it is a mistake to not include offsets anywhere in the proposed regulations. That is, I recommend that the final regulations provide for the use of environmental offsets, including by means of organics recycling, including food waste contributed to nutrient rich soil amendment and compost.

I believe offsets through organics recycling facilities including food waste based compost offer Maryland businesses, including small businesses a viable alternative for those that can't accomplish GHG reductions at their own facility, allows businesses to do more to reduce their GHG, provides for flexibility in meeting the statutory requirements while allowing for ease in auditing.

Maryland Department of Environment

Page Two

Additionally, and maybe beyond the scope of regulations implementing existing statutes, by excluding schools and first floor restaurants from this entire regulatory scheme it strikes me as unlikely the state will hit its goal to be carbon neutral by 2045. Schools and restaurants create large quantities of food waste and those operations should be required to offset their GHGs through composting food waste.

And beyond that, many businesses will not be able to reasonably comply with the required GHG emission reductions, such that environmental offsets, including by means of organics recycling should be an optional compliance path. Add offsets to the final regulations.

Thank you,  
Chesapeake Landscape Materials

*Jordan Katz*

By: \_\_\_\_\_  
Jordan Katz

Neil A. Katz & Associates  
Business & Real Estate Investor

Neil@NeilAKatz.com | (410) 952-9400 | NeilAKatz.com

June 4, 2023

Via Email [BEPS.MDE@maryland.gov](mailto:BEPS.MDE@maryland.gov)

Maryland Department of Environment  
1800 Washington Boulevard  
Baltimore, Maryland 21230

Re: Comments on draft BEPS regulation  
Add offsets by way of nutrient rich soil amendment and compost

Dear Sirs:

Please find below my preliminary comments on the draft building energy performance standards regulation dated May 15, 2023.

I am writing as a business investor and owner in Maryland. Apparently, several of our businesses may be impacted by the SB 528 of 2022, including that we are owners of an organics recycling operation. As part of that business we produce and sell composted material and we are finalizing plans to expand to accommodate more and additional food waste which will accomplish several of the aims of SB 528, but matters that the regulations ignore.

Food waste is the single most common material landfilled in the U.S., comprising almost 25% of landfilled solid waste and of note, resulting in more than 14% of total U.S. methane emissions. Globally, food loss and waste represent between 8 – 10% of anthropogenic GHG emissions, offering an opportunity for meaningful reductions.

SB 528 (including on page 103) identifies pursuing organics recycling facilities, and we offer a private option, in lieu of the state purchasing land for such a purpose and then operating those facilities. The regulations should provide those operations can exist by contracting with private businesses in lieu of the state trying to own and operate them.

I am writing to suggest that it is a failure to not include offsets anywhere in the proposed regulations. That is, I recommend that the final regulations provide for the use of environmental offsets, including by means of organics recycling, including food waste contributed to nutrient rich soil amendment and compost.

I believe offsets through organics recycling facilities including food waste based compost offer Maryland businesses, including small businesses a viable alternative for those that can't accomplish GHG reductions at their own facility, allows businesses to do more to reduce their GHG, provides for flexibility in meeting the statutory requirements while allowing for ease in auditing.

Additionally, and maybe beyond the scope of regulations implementing existing statutes, by excluding schools and first floor restaurants from this entire regulatory scheme it strikes me as unlikely the state will hit its goal to be carbon neutral by 2045. Schools and restaurants create large quantities of food waste and those operations should be required to offset their GHGs through composting food waste.

Please add environmental offsets, including by means of organics recycling to the final regulations.

Thank you,  
Neil A. Katz & Associates

*Neil Katz*

---

Neil A. Katz



Messick & Associates  
Consulting Engineers,  
Planners, Surveyors  
& Landscape Architects

7 Old Solomons Island Road • Suite 202 • Annapolis, MD 21401  
(410) 266-3212 • Fax (410) 266-3502 • [www.messickandassociates.com](http://www.messickandassociates.com)

June 2, 2023

Via Email [BEPS.MDE@maryland.gov](mailto:BEPS.MDE@maryland.gov)  
Maryland Department of Environment  
1800 Washington Boulevard  
Baltimore, Maryland 21230

Re: Comments on draft BEPS regulation  
Add offsets by way of nutrient rich soil amendment and compost

Greetings:

I am commenting on the draft building energy performance standards regulation dated May 15, 2023.

I am a licensed professional engineer and business owner in Maryland. I am a co-owner in Chesapeake Landscape Materials, a business that will be impacted by the SB 528 of 2022, including that we have an organics recycling operation that among other products produces soil and compost. As part of that business we produce and sell composted materials and we are finalizing plans to expand to accommodate more and additional food waste which will accomplish several of the aims of SB 528, but matters that the regulations ignore.

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Maryland Department of Environment  
Page Two

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7 Old Solomons Island Road • Suite 202 • Annapolis, MD 21401  
(410) 266-3212 • Fax (410) 266-3502 • [www.messickandassociates.com](http://www.messickandassociates.com)

Please add environmental offsets, including by means of organics recycling to the final regulations.

Thank you,  
**Messick Group, Inc.**  
**T/A Messick & Associates**

*Wayne A. Newton*

**Wayne A. Newton, P.E.**

Mitchell Needle



June 5, 2023

Via Email [BEPS.MDE@maryland.gov](mailto:BEPS.MDE@maryland.gov)

Maryland Department of Environment  
1800 Washington Boulevard  
Baltimore, Maryland 21230

Re: Comments on draft Building Energy Performance Standards

Dear Sirs:

I am commenting on the draft proposed building energy performance standards regulations and while there is much that can be said about what is proposed, in the interest of highlighting the need to include offsets for greenhouse gas emissions, I will discuss that alone.

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By maximizing the benefits of composting, society can take a significant step towards reducing GHG emissions and creating a more sustainable future.

Add offsets, including by composting to the regulations.

Thank you,

Mitchell Needle

**Knott Realty Group**  
One Texas Station Court  
Suite 200  
Timonium, MD 21093  
443.689.8000 MAIN  
443.689.8008 FAX  
[knottrealty.com](http://knottrealty.com)

June 5, 2023

Maryland Department of Environment  
1800 Washington Blvd, Suite 755  
Baltimore, MD 21230  
Email: BEPS.MDE@maryland.gov

Subject: Proposed Changes to Draft Maryland BEPS Regulation

To whom it may concern,

I am writing to provide our suggested changes to the draft Maryland BEPS (Building Energy Performance Standards) regulation. While we understand that the Maryland Department of Environment (MDE) is currently only accepting suggested changes to the draft regulation language, we would like to express our strong concerns regarding the overall legislation.

We remain opposed to the proposed legislation and firmly believe that, at a minimum, the tenant should be responsible for reporting their energy usage. However, if MDE is unwilling to shift the responsibility of reporting energy usage to the tenant, we suggest that it would be appropriate for the building owner to be provided with copies of the necessary utility bills/statements monthly.

In light of the above concerns, we propose the following change to the draft Maryland BEPS regulation:

*Chapter 02: Benchmarking and Reporting*

*Section .04: Reporting Requirements of Utility Companies and District Energy Providers*

*Item A. Electric and Gas Companies:*

*Require Electric and Gas Companies to provide, on a monthly basis, all building owners with a courtesy copy of all relevant monthly utility bills/statements for each meter/account within a "Covered Building."*

This provision will ensure that building owners have access to the necessary information to accurately report energy usage and comply with the BEPS requirements. Furthermore, it will promote transparency and facilitate better communication between utility companies and building owners.

We firmly believe that incorporating this change will enhance the effectiveness of the BEPS Benchmarking and Reporting requirements and alleviate some of the concerns surrounding its implementation.

Additionally, we want to express a concern raised in the Stakeholder Questionnaire regarding the current setup of the EPA's Energy Star Portfolio Manager, which has been designated as the "benchmark tool." It is our observation that this tool, in its current form, is not conducive to warehouse and industrial buildings, thereby limiting its applicability to a diverse range of building types. To ensure fair and accurate assessments of energy performance, it is crucial that the benchmarking tool supports all building types. We strongly recommend modifying EPA's Energy Star Portfolio Manager or implementing a more inclusive and efficient benchmarking tool that can accommodate a diverse range of buildings.

Thank you for considering our suggested changes to the draft Maryland BEPS regulation. We appreciate the opportunity to provide input, and we hope that our concerns regarding the overall legislation are considered. Please do not hesitate to reach out to us if you require any further information or clarification. We look forward to a productive dialogue and the development of an improved and effective BEPS regulation.

Sincerely,



Katherine W. Sanft  
Development Manager  
Knott Realty Group

Knott



*An Affordable  
Housing Corporation*

June 5, 2023

Secretary Serena McIlwain  
Maryland Department of the Environment  
Montgomery Park Business Center  
1800 Washington Blvd.  
Baltimore, MD 21230

RE: Maryland Proposed BEPS Regulations

Dear Secretary McIlwain:

I write this letter on behalf of AHC Inc., a nonprofit regional affordable housing provider active in Maryland. We appreciate the opportunity to comment on the draft Building Energy Performance Standards (BEPS) regulations. Overall, AHC supports, encourages, and celebrates the concept of energy efficiency and environmental quality across our region and for the vulnerable residents we serve. We appreciate Maryland's initiative and commitment to climate solutions.

However, the proposed regulations have a direct and material impact on several communities we operate. AHC owns communities, particularly in the Baltimore region, which serve very low-income families. We do this through financing directed toward affordable housing, particularly the Low-Income Housing Tax Credit (LIHTC) program. Under that program and following our mission, we always strive to improve energy efficiency and resident quality of life at every renovation and recapitalization opportunity. Under the LIHTC structure, properties can recapitalize with new investment every 15-20 years.

Some of our communities are garden-style properties built in the 1960s era and have gas connections for various utilities. One example is a community in Baltimore County where we plan a renovation to occur in the next one to two years. With rising construction costs and interest rates, we are scrambling for resources to do the customary renovations to upgrade HVAC, kitchens, bathrooms, roofs, windows, and common areas. Our general contractor determined the cost to add conversion from gas to electric in the magnitude of \$2-3 million above the planned renovation that will create vastly improved energy efficiency on site.

Another example is a similar vintage property in Baltimore City. It just finished its periodic recapitalization in the last two years where all plumbing, HVAC, fixtures, etc. were replaced and Enterprise Green Communities certification was achieved. We will not be able to refinance that community for another 15 years at least. There are no resources as a nonprofit affordable housing provider to achieve electrification in the next several years.

AHC is not alone. Many other affordable housing owners in Maryland have a comparable situation with their affordable housing communities. With long-term commitments and regulatory



*An Affordable  
Housing Corporation*

requirements to keep communities affordable for at least 30 years or more, there is limited cash flow due to restricted rents and often restrictions on using reserves under the affordable housing financing programs.

Again, we acknowledge that the intention of BEPS is to reduce emissions and improve residents air quality. We support that goal. However, our mission is to provide affordable housing to vulnerable Marylanders and communities we already own and operate have existing restrictions on their financing and do not generate the income to support the expensive project to convert their gas utilities to electric. We do not know how we will fulfill this obligation.

We strongly encourage MDE to consider accommodation for communities providing much needed affordable housing in Maryland in this process. One conceivable way is to clarify the definition of a Campus to exclude two or more multifamily residential buildings under these regulations.

AHC and many of our colleague organizations doing the challenging work to create and maintain affordable housing want to be good partners, stewards, and resident focused. But our communities and our mission restrict our ability to fund this requirement.

Sincerely,

Mary Claire Davis  
Vice President, Real Estate  
Director, AHC Greater Baltimore



4 June, 2023

Mark Stewart  
Maryland BEPS Standards Review Panel  
Maryland Department of the Environment  
Annapolis, Maryland

Re: Building Energy Performance Standards – draft, comments  
AIA Maryland

Dear Mark and panel members reviewing Maryland Energy Performance Standards

I am writing to share comments from AIA Maryland, regarding the Draft Performance Standards. While we have had limited feedback collectively from members, I assume some members may have sent comments in directly.

**Chapter 01 Definitions and Documents incorporated by Reference**

Section 02 Definitions / B. Terms Defined / line 20 (page 3)

1. Should “final performance standard” mention incremental steps required per “interim standard” to meet the required 2040 EUI? (interim standard is mentioned on page 4, item 27)

Section 02 Definitions / B. Terms Defined / line 32 (page 5)

1. Should item 7 in this same section be tied to this definition too – as line 7 (page 2) references occupied at least 50% for a period of 180 days or more?

**Chapter 02 – Benchmarking and Reporting**

Section 02 Reporting Requirements of Building Owners / B. Benchmarking Report / line 8 (Page 8)

1. How is an inaccuracy flagged?
2. 60 day timeline seems more consistent with corrective measures requirements in other jurisdictions.

Section 02 Reporting Requirements of Building Owners / B. Benchmarking Report / line 10 (Page 8)

1. Should a line 11 be added that addresses penalties?
2. Will there be a penalty identified for failure to report? (as there is in some other jurisdictions)
3. Will there be a penalty identified for false statements in reporting? (as there is in some other jurisdictions)

Section 02 Reporting Requirements of Building Owners / C. Third party Verification of Benchmarking Reports / line 1 (Page 8)

1. Third party verification will be performed by a Professional Engineer.... (or other specifically identified & qualified individuals)

Section 04 Reporting Requirements of the Utility Companies and District Energy Providers / A. Electric and Gas Companies / line c (Page 10)

1. Should there be a requirement of providers to flag a spike in energy use inconsistent with owner history – to enable means of calling attention to possible inaccuracies?

### **Chapter 03 – Performance Standards and Compliance Demonstration**

#### Section 02 Performance Standards (Page 12)

1. Under Net Direct Emissions Standards....I think most people who look at this will have no frame of reference for understanding these...is it possible to provide some guidance to enable some means of comparison/reference?
2. Would it make sense to show similar site EUI standards as interim steps too?
3. Do the EUI standards track toward zero energy facilities?

### **Chapter 04 – Alternative Compliance and Special Provisions**

#### Section 01 Alternative Compliance Pathway for Net Direct Emission Standards / A. Alternative Compliance Pathway for Net Direct Emission Standards / 1. In Lieu of meeting standards (page 17)

1. Shouldn't non-compliant buildings be required to produce a decarbonization plan...outlining steps and timeline to meet standards?

#### Section 03 Option for Campus-Level Compliance / A. The owner may choose to meet site EUI....(Page 18)

1. It seems the standard should still be to track individual buildings to separately meter - even if part of a larger campus....to provide a better comparative analysis and identify potential issues?

### **General Comment**

1. Are there plans for "Carrots" or any means of identifying/recognizing High Performers through the website or some sort of annual reporting?
2. It would be great if "standards" also created an outline of enhanced programs of education/outreach/access to resources to make needed changes.

AIA Maryland appreciates the opportunity to comment on the proposed standards.

Sincerely,

A handwritten signature in black ink, appearing to read 'C. Parts', with a long horizontal line extending to the right.

Chris Parts, AIA  
Director, Past President, AIA Maryland

cc: AIA Maryland Board of Directors



## MARYLAND DEPARTMENT OF ENVIRONMENT

### PROPOSED REGULATIONS IMPLEMENTING BUILDING ENERGY PERFORMANCE STANDARDS - SUBTITLE XX

#### COMMENTS OF THE APARTMENT AND OFFICE BUILDING ASSOCIATION OF METROPOLITAN WASHINGTON

The Apartment and Office Building Association of Metropolitan Washington (“AOBA”) represents members who own or manage 23 million square feet of commercial office space and 133,000 multifamily housing units in the State of Maryland. AOBA welcomes the opportunity to Comment on the Draft Building Energy Performance Standards (“BEPS”) issued by Maryland Department of the Environment (“DOE”) in May 2023. AOBA also commends the Staff of DOE for their diligent and patient effort to adopt fair and balanced BEPS regulations. AOBA looks forward to further discussions with the Staff and the other stakeholders on the improvement, refinement, and final adoption of the BEPS regulations.

#### I. SUMMARY

In summary and after review of the proposed BEPS Regulations, AOBA concludes:

- First, implementation of the BEPS Regulations should be delayed;
- Second, the proposed regulations are fundamentally unfair to owners of multifamily buildings;
- Third, electrification is not a panacea. To the contrary, electrification will take time and will likely cost more than anticipated;
- Fourth, the proposed regulations should be amended to consider building owners under financial duress;
- Fifth, the proposed regulations should be amended to authorize adjustments to the baseline year for existing and new buildings; and



- Sixth, preemption of the proposed regulations must be finally resolved.

## II. COMMENTS

### A. BEPS IMPLEMENTATION SHOULD BE DELAYED

The financial environment and fiscal health in 2023 for building owners and property managers could not be more different from pre-pandemic conditions when BEPS legislation was first considered in Maryland. The pandemic completely upended the nature of work, ushering in the mass adoption of hybrid and remote work schedules that have left office buildings with significantly depressed occupancy levels.

Moreover, the federal government's attempts to lower inflation by the adoption of rapid increases in interest rates have significantly increased the cost of capital to the highest levels since 2007, severely degrading the ability of building owners to finance costly upgrades that yield the highest energy savings. For comparison, the Federal Reserve cut interest rates throughout 2019, bottoming out in October at 1.5-1.75 percent, reducing the cost of borrowing money to almost unprecedented levels. The current, high cost of capital, however, cannot be discounted when asking building owners to try to borrow significant capital to comply with the regulations.

Given the current sky-high cost of borrowing and tightening credit markets, financial assistance programs are essential to helping buildings comply with BEPS. Absent such assistance, BEPS implementation should be delayed to allow building owners to adjust to a new and permanent business environment. There is also currently a severe lack of available incentives to encourage electrification, which is a key reason why the bill's goals are not feasible and why it threatens affordability. The amount of money that the state should have available once the Inflation Reduction Act funding is doled out might help change the equation to fund a move



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towards electrification. The uncertainty of available funds is another reason for a delay in the BEPS implementation. Specifically, DOE should implement a compliance delay for multifamily buildings so that BEPS compliance does not affect the parallel goals of providing affordable housing. Accelerated compliance with these targets will lead to increased rents due to the owners need to invest significant capital to meet the requirements. Examples of other cities using this delayed approach for all residential covered buildings are found in Seattle, WA and Cambridge, MA.

**B. THE PROPOSED REGULATIONS GOVERNING MULTIFAMILY HOUSING ARE FUNDAMENTALLY UNFAIR**

The proposed standards for multifamily housing are far too low and an unlikely attainable goal for many multifamily properties, but more acutely, affordable housing buildings will be most adversely impacted by this legislation. Specifically, the MDE proposed final Site EUI Standard for Multifamily Housing is 29.0 / kBTU per square foot, which is half of what the national average is for these buildings (59.6 kBTU per square foot). In buildings where the tenant controls the individual energy usage for heating and cooling, there is little incentive for the tenants in master-metered buildings to react to price signals from the market.

The building owner is responsible for the compliance payments and, although the building owner might be able to pass those compliance payments on to tenants, there could be a significant impact to the affordability status of those housing units as the rent increase to include compliance payments.

**C. ELECTRIFICATION IS NOT A PANACEA**

A switch from a natural gas heating to an all-electric building is a costly undertaking and, in some cases, existing buildings are constrained by space limitations to install heat pump or other technology. Additionally, state-wide electrification will likely overwhelm the utilities and their ability to plan and approve these switches as well as the lack of resources available for building owners. Further complicating matters is the fact that there are only so many qualified contractors that can perform this type of conversion. Electrification of all multifamily housing, in sum, is costly and in some cases a switch from natural gas heating to an electric heat pump is not feasible from a sizing and technical perspective.

**D. THE PROPOSED REGULATIONS MAKE NO PROVISION FOR FINANCIAL DURESS**

The MDE proposal does not include any alternative provisions for buildings owners who are under significant financial duress through no fault of their own. Other jurisdictions with BEPS legislation in place or in process, including the District of Columbia and Montgomery County, are including alternative compliance pathways and exemptions for buildings enduring financial hardships post pandemic. Failure to adopt a flexible alternative for building owners under significant financial duress, therefore, will undermine the effectiveness of the proposed regulations.

**E. BASELINE YEAR DETERMINATIONS NEED TO BE ADJUSTED**

The current regulations state a newly constructed building with new construction would have its baseline set when the building is 50% occupied. This is very problematic, as the targets are based on a baseline and if the baseline is set at 50%, it will be impossible to reduce below a true baseline. DOE should adjust the regulations to set the baseline for new construction buildings when occupancy is 90%. Additionally, the regulations



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currently call for the baseline year to be set using 2025 data, which could disincentivize owners from making energy efficient repairs until after the baseline year is set.

**F. THE ISSUE OF PREEMPTION REMAINS UNRESOLVED**

AOBA notes, finally, that whether state legislation enacted to reduce statewide greenhouse gas emissions preempted local ordinances enacted to improve building performance remains unresolved. Informing the preemption issue is the fact that, in passing the state legislation, the Maryland General Assembly deleted a statutory provision that would have authorized local counties to adopt building performance standards “at least as stringent” as statewide standards.

Moreover, the Montgomery County Attorney and the Maryland Office of County Attorney (“OCA”) appear to have reached contradictory positions on the preemption issue: on the one hand, the Montgomery County Attorney has declared that local BEPS ordinances may proceed because the state legislation “does not provide a clear preemption.” On the other hand, the OCA has declared that the deleted statutory provision “may indicate” that local ordinances are preempted, but “may not be definite.” Before building owners are required to charge and disburse significant funds for BEPS compliance, AOBA strongly suggests that the preemption issue should be finally resolved.

**III. CONCLUSION**

By these Comments, AOBA has advanced six separate suggestions that must be addressed prior to final adoption of the BEPS Regulations. And, while AOBA has concluded that each suggestion will improve and inform the regulations as proposed, the most important suggestion is the requested stay or delay in implementation of



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BEPS. AOBA fully supports BEPS, yet counsels against implementing BEPS Regulations simply to implement BEPS Regulations; against being one of the first to adopt comprehensive BEPS regulations simply to be the first.

The COVID-19 pandemic and the concomitant economic, legislative and lifestyle dislocations have forever changed that way owners market, price, repair, improve, staff and, if permitted, retake possession of buildings and building units in the State Of Maryland. This change – this new paradigm – conclusively establishes that more time is needed both to reassess the building data previously provided by building owners *and* to recalculate the expense to be incurred by building owners – and ultimately the expense to building residents and occupants – to comply with the final regulations.

**THE APARTMENT AND OFFICE BUILDING  
ASSOCIATION OF METROPOLITAN WASHINGTON**

A handwritten signature in blue ink, appearing to read "KDC", positioned above a horizontal line.

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Kevin Carey  
Vice President Of Operations  
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Dated: June 5, 2023



Rick Briemann  
Atlantic Realty Group  
11426 York Road, 1<sup>st</sup> Floor  
Cockeysville, MD 21030

June 5, 2023

*Via Email* [BEPS.MDE@maryland.gov](mailto:BEPS.MDE@maryland.gov)  
Maryland Department of Environment  
1800 Washington Boulevard  
Baltimore, Maryland 21230

Re: Comments on draft BEPS Regulation

Dear Sirs:

The comments in this letter pertain to the draft Buildings Energy Performance Standards regulation. My profession is Vice President of Atlantic Realty Group and our organization owns and operates nearly 2,000 multifamily residential units in Maryland.

Comments:

1. On page 2 in the benchmarking section may present concerns as the benchmarking is limited to Energy Star Portfolio Manager. This benchmarking system compares buildings that are similar and these benchmarks are fluid. The concern is that Portfolio Manager is data collection driven and not necessarily goal driven. There should and can be other methods to measure properties in order to achieve the set goal.
2. Building owners may be presented with opportunities to reduce greenhouse gas emissions today. However, owners could be faced with a dilemma to wait on the improvement in order to meet the future requirements in regards to reduction goals by the statute. Knowing the future expectation for the Energy Star score would be helpful.
3. On page 9, the section on maintenance of historical data is problematic in the real estate industry as assets change ownership regularly. Records used for benchmarking in Energy Star should be the document of record. Relying on the transfer of historical documents such as

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these could be burdensome for buyers and sellers. Requirements for sale disclosures on page 11 should be eliminated.

4. With regards to exemptions, the proposed regulations do not take into account limitations of current building infrastructure. Considering the majority of multifamily stock in Maryland is over 40 years old, there is simply nowhere to install new equipment without a major change in the building. This can be seen in utility closets of multifamily units in that these do not have enough space to support a high-efficiency water heater and heat pump. Furthermore, owners can be faced with an intrusive electrical wiring upgrade in order to comply with the reductions in emissions in order energize any new equipment installations. The exemption section misses the mark on other exemptions that should be considered.
5. As mentioned above, the option to pay a compliance fee in lieu of the reduction of greenhouse gas emissions is an ever changing number. The fee is based on social cost and not actual cost. Future administrations in Washington DC have incredible control over what the EPA determines the cost per metric ton. It should be noted at the time SB 528 went into law in 2022, the cost per metric ton was \$51 and today it is expected to be \$230 per metric ton.
6. In addition to compliance fee alternatives the regulations do not address property owners that have green space and forestation on their property. Vegetation such as this greatly reduces GHG emissions. Maintaining or increasing these elements on properties should be considered in the regulations as should other offsets that could ameliorate the harsh impacts of strict compliance.
7. The exemption on page 9 of not reporting of electric vehicle charging does not appear to be consistent with the law. Only food service and engaging in commercial cooking is exempt from the reporting.

The proposed regulations contemplated out of the passing of the Climate Solutions Now Act of 2022 are a major change for housing providers. The regulations could have a sweeping impact on property values and compliance. Additionally, property owners will be faced with enormous costs to comply. This could dramatically increase rents for tenants unless money is allocated to adhere to the benchmarks that are desired. Revisions will be necessary to the proposed regulations in order meet these goals. Thank you for the opportunity to comment.

Sincerely,

A handwritten signature in black ink, appearing to read "Rick Briemann", with a wavy, cursive style.

Rick Briemann



JOHN A. OLSZEWSKI, JR.  
*County Executive*

STACY L. RODGERS  
*County Administrative Officer*

To: Maryland Department of the Environment

From: Louisa Rettew, Engineer IV, Bureau of Property Management, Baltimore County  
Seth Blumen, Energy and Sustainability Coordinator, Office of the County Executive,  
Baltimore County.

Subject: Baltimore County Comments on Draft Maryland BEPS regulations & requirements

Date: May 31, 2023

Dear Maryland Department of the Environment,

Please find herein Baltimore County's comments on the draft State of Maryland Building Energy Performance Standards regulations/requirements as part of the May 2023 draft for stakeholder review. Thank you for the opportunity to provide comments and questions.

Sincerely,

Seth Blumen

Baltimore County

Date	31 May 2023	Building/Facility Name	
Engineer	A. Louisa Rettew	Project	Maryland Building Energy Performance Standards
		Phase/Submittal	Draft Regulations

1. It would be helpful to see the Technical Memo (under development) to understand how some uses, such as kitchens and EV chargers, will be excluded if they are not sub-metered.
2. 01.02.B.15: We have created a preliminary list of Baltimore County-owned buildings that we believe fall under the definition of "covered" buildings. When and how will we be notified of the buildings that the state believes we own that are covered, and what is the process for appeal if we believe a building is not covered?
3. 01.02.B.35.b: It's good to see that on-site renewables ARE included in calculating site EUI, since it forces buildings to be energy efficient and not just be an energy hog with PV panels plastered on the roof or parking lot.
4. 01.02.B.35.c: Some of our facilities have extensive use of energy on-site that is not directly for the use in the building but which is not separately metered or sub-metered; e.g., parks that have lighting of playing fields and outlets and lights in auxiliary buildings. How will this be excluded?



JOHN A. OLSZEWSKI, JR.  
*County Executive*

STACY L. RODGERS  
*County Administrative Officer*

5. 01.02.B.37 and 02.02: I believe clarification is going to be needed for more complex owner/tenant relationships. For example, suppose tenant is responsible for maintenance and equipment replacement; will tenant then be responsible for meeting EUI/GHG requirements? Or if one entity owns land and another has a long-term lease on the structure and pays for all utilities? Who clarifies responsibilities for meeting new BEPS?
6. 02.02.B.5.a: Please provide confirmation; if there is heated water that is ONLY used for food service portion of building, the heating of that water is excluded? For facilities where the food service portion of the building is small (such as a kitchen within a senior center), there will likely not be a dedicated water heater nor separate water metering. How will the amount of that exclusion be determined?
7. 02.02.B.5: What about commercial laundry facilities, either as a business (say, handling hospital or hotel accounts) or on-site for residents (in our case, detention centers or shelters)? If water heating is being excluded for food service, why not for laundry?
8. 02.02.B.5.d: So generators are only excluded if facilities are REQUIRED to have a generator? Could clarification or specifics be provided as to what facilities fall under these requirements? Baltimore County government has a variety of facilities that use generators during outages (911, police, fire, emergency operations and shelters, detention, board of elections) but I don't know if there are specific regulations that say they have to have generators; we provide them as a public safety measure. Would something work like "emissions from an emergency generator that runs less than X hours per year may be excluded" with back-up information to be provided showing number of run hours?
9. 02.02.C: It would be helpful to define the requirements/qualifications of a third-party verifier within these regulations. For example, is use of an energy management service sufficient or is there a higher threshold being required?
10. 02.04: Requirements for reporting data are provided for electric and gas companies and district energy providers. However, no requirements are provided for fuel oil and propane providers. Many of our more rural facilities or those in areas that historically had no gas service utilize fuel oil or propane.
11. 03.02 Table 1: I understand that if our facilities contain a mix of uses, we will use a weighted average based on type. However, some of our facilities do not fall clearly under a particular property type and we've been kind of winging it with E\*PM. Who will provide clarification as to the property type used for a particular facility when there are questions about appropriateness?
12. 03.02 Table 1: I understand why food service facilities are exempt from GHG (since we're not restricting cooking with gas, wood, etc.), but why shouldn't they meet an EUI standard?
13. 03.02 Table 1: Could you share the reasoning behind the specific targets for interim net direct emissions and final site EUI standards?
14. 03.02 Table 1: In particular, the figures for Prison/Incarceration appear very low, considering that this is a facility providing 24/7 housing, food, laundry, etc. for individuals.
15. 03.02 Table 1: The CSNA indicated that some consideration may be given to building age. While there are not necessarily clear-cut differences in building energy use between a building that's 100 years old and one that's 30 years old, there are likely to be significant differences between an existing building and one being built in 2024. Direct GHG emissions are primarily a function of space and water heating, which can be addressed through equipment selection and replacement.



JOHN A. OLSZEWSKI, JR.  
County Executive

STACY L. RODGERS  
County Administrative Officer

- However, site EUI is also a function of building envelope, which is much more difficult to change for existing buildings. Should there be a different ultimate EUI for existing buildings than for new?
16. 03.02.B, C, D: Shouldn't some sort of provision be made for buildings that have recently made improvements to their performance prior to the 2025 baseline year? We can't stop maintenance and equipment replacement until we benchmark energy use in 2025 and we want to try and install more appropriate and efficient equipment now.
  17. 03.02.B, C, D and 01.02.B.6,7: Even with weather normalization, is it wise to only use one years' worth of data to establish a baseline, rather than, say, an average of three years (similar to LEED-EBOM)? Couldn't this lead to some twitchy sort of numbers? Since the baseline is what's being used to establish targets that facilities need to hit in the interim, for both GHG and EUI, we need a LOT of confidence in our starting point.
  18. 04.02.A.3: How will partial demolition, say of one wing or section, be addressed, with or without the complication of reconstructions and additions?
  19. 01.02.B.38: Please note that the weather normalization function within Energy Star Portfolio Manager does not function if there are two or more months between utility bills, which may cause problems for facilities with sporadic billing, including oil and propane.

Date	31 May 2023	Building/Facility Name	
Staff contact	Seth Blumen	Project	Maryland Building Energy Performance Standards
		Phase/Submittal	Draft Regulations

1. .02 Definition- 26b. Gross Floor Area definition. I had asked EnergyStar how my organization should be properly documenting the square footage of floor space for an open atrium that essentially serves as a ramp that wraps around and provides foot access to three different floors in a library facility. I asked if the space should be counted once or triple counted for the three floors. Energy Star's response is that if the ramp wraps around each of the 3 floors of the building then it should be counted within each level's GFA.
2. .02 Definitions- 37- "Tenant"- I gather from the draft regulation language that if the County is the tenant through an arrangement where the County leases a space from another owner/entity, we are not responsible for reporting/tracking data. However, if the County leases a space to another party and the County owns the facility, the County maintains responsibility of reporting and tracking data for the leased space. I would like to receive confirmation of this.
3. .02 Reporting Requirements of Building Owners (7)- EnergyStar does not automatically run data quality validation, this requirement will require consultation services of a 3<sup>rd</sup> party data management software solution at significant cost.
4. .02 Reporting Requirements of Building Owners (8)- I do not believe the Department will have the resources or sophistication to identify errors in complex data, this will require third party services as mentioned in comment #3.
5. .04 Reporting Requirements of Utility Companies and District Energy Providers- the requirements will help in the goal of resolving a discrepancy in which zero values are being



JOHN A. OLSZEWSKI, JR.  
*County Executive*

STACY L. RODGERS  
*County Administrative Officer*

recorded in output data for the net-meter aggregated accounts that are being credited to the host meter of the methane gas-to-energy project at Eastern Sanitary Landfill. BGE is working on this, but now must meet the requirement.

6. 04 Reporting Requirements of Utility Companies and District Energy Providers- are propane and petroleum fuel providers exempt because all data that can be provided is gallons and cost? If not, what is the reason for exempting those industries/uses?
7. .02 Performance Standards

We have data centers, but they are part of facilities and we assumed their energy use is not calculated separately. According to EnergyStar Portfolio Manager, **Data Center** refers to buildings specifically designed and equipped to meet the needs of high density computing equipment, such as server racks, used for data storage and processing. These facilities require dedicated uninterruptible power supplies and cooling systems.



## DIVISION OF PUBLIC WORKS

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Maryland Department of the Environment  
1800 Washington Blvd  
Baltimore, MD 21230  
[BEPS.MDE@maryland.gov](mailto:BEPS.MDE@maryland.gov)  
(electronic delivery)

June 15, 2023

RE: 2023 Draft Maryland Building Energy Performance Standards Comments

Washington County Division of Public Works is providing the following comments and questions related to the May 2023 Draft Maryland Building Energy Performance Standards (BEPS). The program outlines very ambitious goals, schedule and fees for noncompliance that will severely impact not only Washington County Government but create a hardship for many building owners in the County. A question raised by the Washington County Board of Commissioners was how will the Maryland Department of the Environment send notification of the BEPS to all potentially affected owners?

As the only Maryland county bordering three states (PA, WV, & VA), Washington County must compete economically with its neighbors who do not have these burdensome regulatory requirements. Considering the global and national impact of atmospheric carbon concentrations and the underlying reason for the BEPS such standards would be more effectively set at the federal level to provide the desired outcome in an equitable manner. The BEPS will have the effect of disincentivizing higher density commercial business growth and multifamily housing development in Washington County and encourage lower density growth and sprawl into surrounding communities that offer access to the same markets and ability to provide affordable housing opportunities without the additional financial impact.

Specific questions, areas of clarification and concerns about the BEPS include:

1. Page 3. Further clarify what is meant by “individually designated as a historic property under federal, state, or local law”. Shall properties be individually listed on the national register of historic places or do contributing resource buildings within designated historic districts qualify for exemption?
2. Page 3. Consider excluding pre-k and early education facilities and their effective building square footage from the covered buildings similar to public or nonpublic elementary school buildings. Pre-school/daycare facilities are listed on page 15 as a property type covered by the standards. There are already severe strains placed on these systems and following COVID the number of providers in the state reduced 892 and

placing the BEPS standards on this category represents another cost burden to early education programs that are needed in the community<sup>1</sup>. These programs are already low pay for employees and high cost for parents. The cost to provide the service should not be dependent upon the size of the building in which they are located as many are tenants in employment centers and faith-based organizations. Rising early education costs will have the effect of reducing the available workforce in Washington County and programs closing diminishes kindergarten readiness.

3. Page 6. When will the MDE Technical Memorandum 23-01 June 2023 referenced in the document be released and will there be a similar comment period?
4. Page 7. Consider extending the period to submit the Benchmark Reports for the prior year from 6 months to 9 months. Utility statements can lag 1-2 months, followed by staff's time to compile and then Third Party availability to review warrants more time.
5. Page 8. What professional qualifications are required of the Third Party providing verification of the Benchmarking Reports?
6. How will MDE handle buildings that have shared ownership arrangements where the land and/or building is owned by one entity, but the building operation, HVAC, and utilities are owned or the responsibility of a tenant or another owner?
7. Will failure to pay the noncompliance fee result in a lien on the property and potential tax sale or other civil penalty?
8. Will alternative compliance fee funds be used to reinvest in supporting program compliance grants, loans or tax credits for clean energy building technologies?

Thank you for the opportunity to provide feedback on the BEPS. Please contact me if you need additional information or have questions.

Sincerely,



Andrew Eshleman, P.E.  
Director, Public Works  
100 West Washington Street  
Hagerstown MD, 21740  
240-313-2252

cc: Michelle Gordon, Interim County Administrator  
Dawn Marcus, County Clerk  
Christine Casey, Office Manager Public Works

1. Weingarten, Dwight. (2023, December 21). With Maryland in a child care crisis, what can turn trend around? The Herald-Mail. <https://www.heraldmillmedia.com/story/news/state/2022/11/28/daycare-maryland-hopes-to-slow-childcare-closures/69674439007/>

From: **Kayla S** [REDACTED]  
Date: Mon, Jun 5, 2023 at 3:52 PM  
Subject: Comments on draft Building Energy Performance Standards  
To: <[BEPS.MDE@maryland.gov](mailto:BEPS.MDE@maryland.gov)>

Kayla Scott



June 5, 2023

*Via Email* [BEPS.MDE@maryland.gov](mailto:BEPS.MDE@maryland.gov)  
Maryland Department of Environment  
[1800 Washington Boulevard](#)  
[Baltimore, Maryland 21230](#)

Re: Comments on draft Building Energy Performance Standards

Dear Sirs:

I am commenting on the draft proposed building energy performance standards regulations and while there is much that can be said about what is proposed, in the interest of highlighting the need to include offsets for greenhouse gas emissions, I will discuss that alone.

I am advocating that the regulations include offsets for composting, which when implemented at scale, has the potential to significantly reduce GHG emissions, especially when targeted towards food waste. Through carbon sequestration, diversion of organic waste from landfills, and soil improvement, composting offers a multifaceted approach to mitigating climate change. However, successful implementation requires addressing technical, regulatory, and financial challenges, as well as fostering engagement and awareness. These regulations can accomplish much of that.

In addition to the Building Energy Performance Standards provisions of SB 528, the bill calls for expanded composting facilities, so this idea is not unrelated. Additionally, when the bill excludes schools and first floor restaurants from the statutes it strikes me as unlikely the state will achieve its goal of being carbon neutral by 2045. Schools and restaurants create large quantities of food waste and those operations should be required to offset their GHGs through composting food waste. By maximizing the benefits of composting, society can take a significant step towards reducing GHG emissions and creating a more sustainable future.

Add offsets, including by composting to the regulations.

Thank you,

Kayla Scott

Please see below for comments on the draft Building Energy Performance Standards from the University of Maryland, Baltimore.

1. 02.B 26(b) Page 4 *Definitions – Gross Floor Area* – By stating “...base level of atriums...” you are exempting the air space in the upper, open floor levels of a multi-level atrium. The University of Maryland, Baltimore (UMB) cannot find an Architect who will NOT design a multi-level atrium into all new capital building projects. By exempting these upper level, open spaces you are assuming the air space does not require conditioning and consume energy. Please change wording to allow ALL floor levels of an atrium.
2. 01.A(2) Page 17 *Alternative Compliance Pathway* – What is the inflation rate that should be used when converting 2020 dollars to present value?
3. 02.C(1) Page 8 Data must be verified by a third party every five years beginning in 2025. Where will funding come from for this added cost of hiring a third-party firm to verify data?
4. 02.B 5 (d) Page 8 Emissions from generators are only exempt if legally required to operate with fuel-based backup and federal/state laws do not allow for battery backup power. Again, what funding sources will be available to replace existing fuel-based generators?



June 5, 2023

The Honorable Serena McIlwain  
Secretary of Environment  
Maryland Department of Environment  
1800 Washington Blvd.  
Baltimore, MD 21230

Via email – [BEPS.MDE@maryland.gov](mailto:BEPS.MDE@maryland.gov)

**Re: Building Energy Performance Standards – Comments on May 2023 Draft Regulations**

Dear, Secretary McIlwain:

The NAIOP Maryland Chapters represent more than 700 companies involved in all aspects of commercial, industrial, and mixed-use real estate, including some of the largest property owners in Maryland. On behalf of our member companies, I write to provide comments on MDE's draft Building Energy Performance Standards. (BEPS)

➤ **Summary Points**

As detailed below, NAIOP has serious concerns about the regulation in its current form. The proposal presents an unreasonably short, technically narrow, financially severe compliance pathway.

The regulation includes new requirements such as the regulation of electricity use (EUI) that serves to reduce off-site utility sector emissions, and a new interim emissions limit in 2035 that essentially brings forward the net zero requirement from 2040 to 2035. Both provisions are beyond the scope of authority granted by the Climate Solutions Now Act (CSNA).

The regulation does not include provisions that are required by the CSNA such as allowances for the use of biofuels, provisions for the very common situation when tenants control utility use and building mechanical equipment, nor does the regulation appear to set its emissions limits by comparing buildings of like construction instead doing so only by building use type.

The civil penalties for electricity use are punitive (\$25,000 / day) and the Alternative Compliance Fees (\$360 / ton) are unnecessarily high, setting the stage for building owners and occupants to pay ten times more than a public utility would pay in the RGGI market per ton of CO<sup>2</sup> emitted. The proposed \$360 / ton Alternative Compliance Fee is higher than the \$190 central value proposed by EPA, the \$127 / ton fee adopted by New York State and more than three times the \$100 fee used by MDE in modeling the program. There is no indication of how that money will be spent to benefit the fee-paying public.

For buildings in Montgomery County, the regulation does not provide guidance on how overlapping and contradictory requirements between the state and local regulations will be reconciled.

Together the provisions in the proposed regulation will put extreme, unsustainable financial pressure on the owners and occupants of covered buildings, including thousands of apartment renters, condominium owners, and small businesses that are responsible for the utilities and mechanical systems in covered buildings.

This mandate arrives at a time when office occupancy is declining, and retail is still recovering from COVID restrictions. Interest rates are rising and bank loans to commercial real estate for any purpose are limited.

Multifamily apartments and condominiums which have higher emissions rates than other types of covered buildings will require expensive, disruptive renovations to replace in-unit gas stoves, hot water heaters and furnaces or boilers. Over the same period the BEPS requirements will interact with separate state legislation that requires condominium associations to complete reserve studies and fully fund future replacement and repair costs in reserve accounts.

Building owners and occupants need a technically feasible and financially realistic building energy transition. A feasible building energy transition would set 2030 emissions targets that can be met through energy conservation and operational efficiencies or through the purchase of offsets at market rates.

Once past the 2030 emissions reduction, building owners and occupants need the ability to gather resources for major renovations and mechanical replacements necessary to meet the 2040 net zero deadline specified in the CSNA. They need breathing room to do so without diverting capital to exorbitant annual Alternative Compliance Fees, meeting incremental emissions deadlines and additional mandates to limit electricity use.

A reasonable guide to amending the BEPS regulation proposed for privately owned buildings is the pragmatic and flexible [executive order for publicly owned buildings](#) recently signed by Governor Moore.

Below please find detailed comments and rationale for our perspective on these most critical issues. Also please note that NAIOP was a contributor to Michael Powell's written comments submitted separately. In the interest of brevity, we do not repeat those points in this letter but want to make clear that NAIOP endorses Mr. Powell's [comments which are linked here](#).

We appreciate the opportunity to comment at this early stage and hope that we will have the opportunity to recraft a technically feasible and financially realistic building energy transition before the regulation is sent to the Air Quality Advisory Committee for review.

➤ 60% reduction by 2035 essentially moves the net zero requirement forward by five years - it should be removed

The regulation proposes that covered buildings achieve a 60% emissions reduction by 2035. This is a new requirement that is not included in the CSNA but is the result of the regulation seeking to impose a straight-line trajectory of emissions reductions.

The straight-line trajectory approach incorrectly assumes emissions reductions can and will be implemented on a gradual, equalized basis and in five-year increments. Because mechanical systems are ideally replaced at the end of their service life, and major renovations are disruptive and capital-intensive, emissions reductions will be inconsistent - achieved in bunches.

Recent case studies of emissions reductions indicate that, in most cases, energy conservation and operational efficiencies can achieve a 13% - 15% reduction in emissions. In most cases, deeper emissions reductions can only be accomplished through major renovations and by electrifying fossil fuel powered heating, hot water, or both. A 60% reduction essentially dictates that covered buildings will have to electrify mechanical systems within 12 years – not the 17 years indicated by the 2040 deadline in the CSNA.

- Regulating Energy Use Intensity (EUI) reduces off-site emissions and is not authorized by the CSNA - it should be removed.

BEPS regulations focus on either carbon emissions (Boston, New York City) or energy use intensity. (Denver, Washington State, Montgomery County). The proposed regulation seeks to regulate both. The proposed addition of energy use (Energy Use Intensity – or EUI) to the BEPS is in direct contradiction to the provisions of the Climate Solutions Now Act (CSNA) which authorize MDE to adopt regulations that reduce *net direct greenhouse gas emissions* from covered buildings.

Section 2-1602 of the CSNA does indicate that the regulations include energy use intensity targets. This provision is contained in a section authorizing the regulation of *net direct greenhouse gas emissions* and therefore was intended to mean a building's *fossil fuel* EUI. Building EUI is commonly divided between gas and electric energy use. The source documents referenced in MDE's BEPS briefing slides ([Building Energy Performance Standards Development – Technical Analysis, Steven Winter Associates, 02.2022](#)) illustrate how EUI can be set for fuel type. MDE should use a fossil fuel EUI target to assist in reducing greenhouse gas emissions produced on-site by covered buildings.

Montgomery County benchmarking data shows 68% of office buildings are already fully electric and therefore have no direct emissions. Applying an EUI limit to these buildings breaks with MDE's long-standing method of emissions inventory and assignment of mitigation responsibilities where building owners and occupants are responsible for direct emissions and the utility sector is responsible for emissions from power generation.

Without amendments, the regulation of EUI would require building owners and occupants (including those with no direct greenhouse gas emissions) to mitigate the emissions of in-state and-out-of-state power generating facilities. MDE's Berkeley Lab briefing slides show that 64% of the emissions reductions expected from Maryland's BEPS are off-site utility emissions reductions that result from regulating EUI in covered buildings. These are additional reductions achieved beyond those achieved by the building sector reaching net zero direct emissions.

- Allowed emissions levels are unexpectedly low, regulators should ensure the method of setting emissions limits compares buildings of like kind construction not just use type

Appropriate target setting will be critical to the feasibility of this regulation. The proposed emissions limits set for 2030 seem low when compared to emissions intensities reported as part of the Montgomery County benchmarking data. For example, the regulation proposes a .22 kg CO<sub>2</sub>/sq. ft. emissions limit for office buildings in 2030. 84% of office floor area that reported emissions to Montgomery County in 2021 would need to reduce direct emissions 45% or more to reach the proposed 2030 limit – 76% would need to achieve reductions of 60% or more. This level of emissions reduction can only be achieved by electrifying all mechanical systems. For these buildings, the proposed targets essentially bring the net zero deadline forward to 2030 not 2040 as indicated in the CSNA.

A contributing factor seems to be that the method used to set the targets does not compare with buildings of similar construction. The CSNA requires that emissions reductions be measured by how a building's emissions compare to buildings of like construction. This requirement differs from energy use focused BEPS regulations that only compare buildings of the same use type i.e., all offices or hotels are compared to each other regardless of construction characteristics. The fuel used by a building's space and water heating systems is one of the most important attributes of a building's construction and essential to target setting as directed by the CSNA.

Comparing like-kind buildings when setting emissions limits will have a major effect on the ability of building owners and occupants to reach the targets. The Montgomery County benchmarking data indicated 68% of office buildings were all electric and therefore reported direct greenhouse gas emissions of 0 kg CO<sub>2</sub>/sq. ft. This high percentage of zero emissions office buildings lowers the average emissions for all office buildings – both fossil fuel and electric - to .65 kg CO<sub>2</sub>/sq. ft. Office buildings that reported emissions averaged 1.72 kg CO<sub>2</sub>/sq. ft. Including all electric construction in the calculation makes the gap to 20% below the office use group average insurmountable for most fossil fuel powered buildings. Not making the performance comparison between fossil fuel office buildings forces electrification to meet the 2030 requirements. We do not believe this is how the General Assembly intended the 2030 target to work.

NAIOP requests that MDE make publicly available copies of the building stock data, a description of the methodology used for setting emissions limits, emissions reduction modeling data and a copy of the guidance manual.

- The regulation needs to better reflect the division of responsibility between building owners and tenants

Although required by the CSNA, the regulation does not address circumstances where tenants are the utility customer and have control over mechanical equipment. The regulation proposes that compliance, fines, and fees be the responsibility of the building owner, but it is common for commercial, industrial, and retail lease agreements to make the tenant responsible for utilities as well as operation, maintenance, and replacement of mechanical equipment. The set point of thermostats is often outside the control of the building owner. Even in full-service leases, electricity used for appliances and other equipment (plug loads) often makes up much of the energy used in a building but is under the control of tenants. Building owners should not be fined for the failure of tenants to meet energy use or emissions limits.

➤ Fees and Penalties are Punitive and Unreasonably High

The electricity use limitations are written so that existing civil penalties for violation of air quality regulations apply. This means that commercial and multifamily building owners and occupants are subject to penalties of up to \$25,000 per day for failing to meet electricity use limitations in the regulation.

The proposed Alternative Compliance Fee imposed for failure to meet emissions limits is inflated. At \$360 it is much higher than the \$190 / ton central value of the three options EPA options proposed for a nationwide social cost of carbon and much higher than the \$127 / ton carbon fee New York State recently adopted. The fee is more than ten times higher than what a public utility will pay on the REGGI market per ton of emissions.

➤ District energy customers should not be required to mitigate off-site emissions at power generating stations

The regulations allocate the emissions of power generating facilities owned by district energy companies to their customers' buildings. This requires the owners and occupants of buildings served by district energy in Baltimore City and other locations to mitigate the off-site emissions of utility power generating stations. These are not considered direct emissions by EPA Energy Star Portfolio Manager and should be mitigated by the companies that own the emissions.

➤ Miscellaneous Items

- + The language limiting backup power generation using fossil fuels is concerning. Backup power equipment is a safety issue that should be exempt at least during the initial stages of BEPS.
- + The definition of financial distress is far too limiting. Loans on bank watchlists or other criteria need to be developed.
- + There are product types in the Maryland market that are not recognized by Energy Star Portfolio Manager. Customization of the program may be necessary.
- + Targets may need to be adjusted to account for high occupancy activities, longer operating hours, data centers or other uses.
- + Counting on-site renewables in energy use is a misjudgment. The state should be encouraging installation of on-site renewables by excluding on-site renewable energy from use calculations.
- + Buildings that cannot meet emissions standards on schedule or have equipment that is not near the end of its service life should have the option of entering into an agreement with MDE setting an individual compliance schedule.

Thank you for considering NAIOP's perspective.

Sincerely,

A handwritten signature in blue ink, appearing to read "T.M. Ballentine".

Tom Ballentine, Vice President for Policy

NAIOP Maryland Chapters -*The Association for Commercial Real Estate*



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(410) 666-1000 • FAX: (410) 628-2700

VIA EMAIL: BEPS.MDE@maryland.gov

June 5, 2023

Maryland Department of the Environment  
1800 Washington Boulevard  
Baltimore, Maryland 21230

To Whom It May Concern,

As a local, commercial Landlord and developer in Maryland owning and managing over 4 million square feet of office, retail and flex, over 10,000 apartment units, multiple self-storage facilities and hotels, I am writing to express my deep concern about the Maryland Department of the Environment's (MD DOE) proposed Building Energy Performance Standards (BEPS). Meeting the Standards within the required timeframe is absolutely impossible leading undoubtedly to having to opt for "Alternative Compliance Pathways", which are fines that will have a significant financial impact on our business and our tenants, leading over time to the financial ruin of our business.

The proposed standards are unachievable because the only means Building Owners of Covered Buildings have to comply with the mandatory percent reduction of GHG emissions, in accordance with the Interim and Final Net Direct Emissions and final site EUI Standards, are to: 1) immediately dramatically reduce usage of gas fired equipment; 2) turn off all equipment and appliances fueled by natural gas by immediate replacement of all systems (whether beyond its useful life or not) with electric powered systems; or 3) turn off all equipment and appliances fueled by natural gas by immediate replacement of all systems (beyond useful life or not) with alternative energy powered systems such as unreliable solar or wind. None of these options are viable within the mandated timeframes.

If a landlord decided to dramatically reduce gas consumption in commercial buildings (option 1), the Landlord would have to turn the heat down and not have hot water in the building. Commercial leases mandate maintaining hot water and interior building air temperatures must be maintained in accordance with their leases and building code. Buildings must be heated to set temperatures to prevent domestic water lines and fire sprinkler systems from freezing and bursting and water heated for handwashing etc. Also, depending on the lease structure, the Landlord may have no control over reduction of temperature as the tenant is separately metered and pays its own utility bills. This option would create great liability for the Landlord and trigger defaults as well as violations of insurance policies and mortgages. The tenants would also incur great liability to their employees.

If a landlord decides to turn off and replace gas fired systems immediately (whether beyond its useful life or not) with all electric powered systems (option 2) there must be enough power available in the main to support the conversion. We have been told, with no uncertainty, by our electricians and BG&E

HILL MANAGEMENT SERVICES, INC.  
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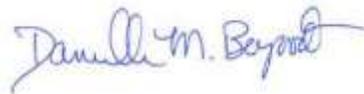
representatives that there is no possible way that the electrical service in the streets can provide the power needed to the buildings for such conversion now or in the foreseeable future. This option 2, would cost millions of dollars for the systems conversion (between boilers, hot water heaters, dryers, and stoves in 10,000 apartment units, etc.) and then the current electric main service couldn't support the electric capacity needed to run such new systems.

Option 3, if a landlord decides to turn off and replace gas fired systems immediately (whether beyond its useful life or not) there must be an alternative power source readily available which is also problematic. The option for solar on existing buildings is not possible for most existing buildings due to long term antenna leases (25+ years) for rooftop space and existing roof structures not having the structural capacity to hold solar panels. If not placed on the existing buildings roof, existing properties do not have enough excess land to install solar panels, to provide enough solar power to replace gas fired systems.

The mandates are unachievable under any circumstance, making the Alternative Compliance fines unavoidable. Additionally, I believe that these regulations will be unmanageable and difficult to mobilize and enforce with our tenants, causing further noncompliance. With over 1,000 commercial tenants and 10,000 residential tenants throughout Maryland, collection of data would require a team of individuals to collect, manage and report the data, adding extraordinary personnel costs to the already exorbitant fines. Please minimize reporting requirements and extend timeframes for any reporting.

Unfortunately, if this law (SB528) stays in effect, it will be devastating to Maryland businesses, employers, employees, and families. Noncompliance is inevitable and absolute.

Sincerely,



Danielle Beyrodt  
Vice President & COO  
Hill Management Services, Inc



Angela D. Alsobrooks  
County Executive

# THE PRINCE GEORGE'S COUNTY GOVERNMENT

## Department of the Environment



Andrea L. Crooms  
Director

June 5, 2023

The Honorable Serena McIlwain  
Secretary  
Maryland Department of the Environment  
1800 Washington Boulevard  
Baltimore, Maryland 21230

Dear Secretary McIlwain:

Thank you for the opportunity to provide comments on the Maryland Department of the Environment (MDE), draft Building Energy Performance Standard regulations released for comments on May 15, 2023. As set forth in the Climate Solutions Now Act of 2022, MDE is to develop Building Energy Performance Standards (BEPS) that, among other requirements, achieve the following:

1. A 20% reduction in net direct greenhouse gas (GHG) emissions by January 1, 2030, as compared with 2025 levels for average buildings of similar construction and;
2. Net-zero direct GHG emissions by January 1, 2040.

Covered buildings are buildings that are 35,000 square feet or larger (excluding the parking garage area). Owners of covered buildings are to report data to MDE annually, beginning in 2025.

Prince George's County, Department of the Environment (DoE) submits the following comments for your consideration.

- *Section .02 Definitions:* The section is missing a definition for Affordable Housing.
- *Section .02 Definitions:* The section is missing a definition for Net Direct Greenhouse Gas emissions.
- *Section .02 Definition 14 page 3:* The section defines commercial building as any building subject to provisions of the International Energy Conservation Code (IECC). IECC 2021 simply defines a commercial building as those not included in the definition of "Residential building". Local governments may define commercial buildings differently by its use (e.g., retail or office) which is consistent with Energy Star Portfolio Manager. Additional clarification is needed.
- *Section .02 Definitions:* Please define newly constructed covered buildings.
- *Section .02 Reporting Requirements of Building Owners (C)(1) page 7:* Please provide the minimum qualifications of a Third-Party verifier for benchmarking reports.
- *Section .02 15(d) page 3* states public and nonpublic elementary or secondary school buildings are not "covered buildings". Please clarify if this exemption applies to other building types (e.g., offices) owned by public or nonpublic schools.
- *Section .01 Alternative Compliance Pathway page 17:* Please include language specifying how the fees will be utilized by the State. Please consider directing funds to assist building owners with performing energy upgrades to meet the final approved performance standards.

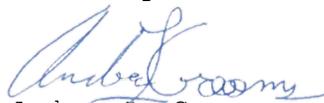
1801 McCormick Drive, Largo, Maryland 20774

The Honorable Serena McIlwain  
June 5, 2023  
Page Two

- *Section .03 Incorporation by Reference, B.(3)page 6:* This section references MDE's *Technical Memorandum 23-01, Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards, June 2023* as a document incorporated. Upon review of the BEPS website, this document does not appear to be publicly available. DoE request access to this document to fully understand the methodologies utilized to construct the performance standards listed in *Section .02 Performance Standards, Table 1. Performance Standards pages 12 -16.* Moreover, we hope the Technical Guidance document will help us understand why the Site EUI Standards listed in Table 1 for some property types are less stringent and more stringent than the U.S. Environmental Protection Agency's [US Energy Use Intensity by Property Type](#) April, 2021 document.
- DoE requests that MDE develop a website or other tool to publicly disclose benchmarking data, performance standards data, and other compliance data and/or reports on an annual basis. The disclosed benchmarking reports should include, but not limited to building names; full addresses including applicable cities and zip codes; year built; primary property types; benchmarking reporting statuses (e.g., compliance or noncompliance); energy star score; all onsite fuel consumption such as electricity, natural gas, and fuel oil; current site EUI; total GHG emissions in metric tons of CO2e; and GHG intensity in kgCO2e per square foot.
- DoE requests a list of proposed *covered buildings* within Prince George's County. This listed should include, but not limited to the covered building names, square footage, full addresses including cities and zip codes, and property types as listed in *Section .02 Performance Standards, Table 1. Performance Standards pages 12 -16.*

Thank you for your consideration of the enclosed comments. Please feel free to contact me by email at [ACrooms@co.pg.md.us](mailto:ACrooms@co.pg.md.us) or Erica Bannerman at [esbannerman@co.pg.md.us](mailto:esbannerman@co.pg.md.us) or (240) 412-4352 if you have questions or concerns.

Sincerely,



Andrea L. Crooms  
Director

Enclosure



June 5, 2023

VIA EMAIL ([BEPS.MDE@maryland.gov](mailto:BEPS.MDE@maryland.gov))

Maryland Department of Environment  
1800 Washington Blvd.  
Baltimore, MD 21230

### **Re: Maryland Building Energy Performance Standards**

Baltimore Gas and Electric Company (BGE) appreciates this opportunity to provide comments on the 2023 proposed Building Energy Performance Standards (BEPS). BGE is a supportive partner of the State and is dedicated to supporting the State's decarbonization goals and efforts to reduce greenhouse gas emissions. This is evident by our active participation in the Maryland Department of Environment's (MDE) Climate Change Commission and the Greenhouse Gas Mitigation Workgroup.

We agree that significant electrification will be necessary to achieve Maryland's decarbonization goals, and in support of this, BGE filed its second multi-year rate plan, which is currently under review with the Public Service Commission. We have proposed significant new incentives for building electrification for commercial building owners, residential homeowners, and trade allies and manufacturers totaling \$265M.

Also, the company announced our Path to Clean: a commitment to cut our own operational emissions by at least 50% by 2030 and achieve net-zero operations emissions by 2050, in line with the ambitions of the State. To achieve these goals, BGE will implement a series of initiatives designed to modernize our energy delivery systems; reduce energy use in our offices and buildings; increase our use of renewable-powered energy; and electrify our company's vehicle fleet.

However, BGE has concerns with the proposed building energy performance standards (BEPS) regulations. The BGE territory is 54% of Maryland residential gas customers, and 55% of commercial and industrial gas customers. Collectively, these customers represent half of the statewide natural gas use in buildings and industry in Maryland. We urge MDE to give more time to analyze the economic impacts of these proposed standards and to ensure that the State is equipped for the changes and investments necessary to reach these goals.

BGE raises the following concerns, focused on the reporting requirements of the utility companies and district energy providers.

### **Chapter 02 -Benchmarking and Reporting**

#### **.04 Reporting Requirements of Utility Companies and District Energy Provider**

*(A)(1) Starting no later than July 1, 2024, electric and gas companies shall retain for a period of not less than seven years digital records of all customer meter-specific energy consumption, including the date and time of such consumption for any data captured at intervals of more than four minutes. Electric and gas companies shall conduct meter-to-building mapping and maintain aggregate energy consumption data for all covered buildings and provide to the building owner accurate and timely information on the actual amount of electricity and/or gas delivered to a covered building. The data shall be provided via web-based delivery capable of being uploaded to the benchmarking tool.*

##### **COMMENTS:**

- The seven-year retention period conflicts with the three-year billing data retention period in the PSC regulations in COMAR 20.50.04.04
- **Recommendation:** Amend the period to three years from the proposed seven years. This aligns with the current billing data retention period.
- The EPA Portfolio Manager was designed before AMI data was widely available. Most Utilities can now use AMI data to automatically provide energy density benchmarking data to customers. This would save building owners time and money and should be explored further.

*a.) Data shall include aggregate energy consumption, accounting for all electric and gas company meters that measure energy consumption at the covered building, regardless of whether the meters serve tenant-paid or owner-paid accounts.*

##### **COMMENTS:**

- This meets requirements in BGE Benchmarking Tool, BEM, and BGE.com

*(2) Within 30 days of a request from a building owner, an electric or gas utility company shall digitally transmit as a free service to the building owner energy data through the benchmarking tool. The data shall include aggregate energy consumption data, as well as a complete list of the meter numbers included in the aggregate energy consumption data to ensure accuracy of the meter-to-building mapping and shall continue to transmit such data until otherwise directed. Building owners shall have the option to submit requests digitally. transmit*

##### **COMMENTS:**

- Requiring 4-minute interval data creates excessive data storage requirements.
- **Recommendation:** Delete “to ensure accuracy of the meter-to-building mapping.” This requirement is to have a complete list of the meter numbers, and that additional detail is not necessary.
- **Recommendation:** Define meter as Utility owned Revenue Meter

- **Recommendation:** Delete the word “free” and insert language that recognizes the need for timely recovery of utility costs through rates. The expenditures incurred by a utility to facilitate the State’s reduction of statewide greenhouse emissions (albeit transmitting digital energy data) is a useful service to the public and should be recoverable.

*(3) Electric and gas companies shall maintain a record of all meters that populate a given building’s aggregate energy consumption data in any given month. The utility shall ensure that meter-to-building mapping is accurate and updated on an ongoing basis. Within 30 days of discovering that any data or meter mapping that it has reported was erroneous, the utility shall digitally provide to the building owner, the Department, and the Public Service Commission a report detailing the errors, corrective measures, and steps the utility has taken and will take to prevent a recurrence of the error.*

**COMMENTS:**

- Strike everything after the first sentence in this section. Incidents outside of BGE’s control, such as the theft of a meter, could impact the accuracy of meter-to-building mapping.

*(5) Electric and gas companies shall provide a customer service option, including but not limited to a phone number for building tenants to call-in, relating to data access questions and any perceived data misuse.*

**COMMENTS:**

- Utilities have current data tracking tools that allow customers to access their usage; therefore, this proposed requirement is unnecessary. Customers and building tenants can already access their usage through the “MyAccount” feature on BGE.com or via telephone to obtain specific benchmarking tool information ([410.290.1202](#)). Given that the purpose of this regulation is to set forth the method by which utilities provide usage data to building owners, this provision is unnecessary.

## **Broader Comments regarding the Draft Maryland Building Energy Performance Standards**

BGE supports electrification and decarbonization, and we believe that these concerns should be addressed within the regulations to ensure that the State can successfully transition to a highly electrified building sector. We strongly urge MDE to consider engaging with the broader business community to understand the potential impact to many property owners and businesses. We also suggest building owner education as an alternative compliance pathway to help businesses minimize the impacts associated with the fines and increase their awareness of GHG mitigation techniques. BGE offers its customers a highly successful utility *Building Operator Training program*. Educational opportunities could provide a strong pathway for building owners as they work to comply with the regulations.

For the foregoing reasons, BGE also asks for an extension of the comment period, given the broad impact of these regulations.

BGE is committed to being a strong partner with all parties as we progress toward meeting the new climate goals.

Sincerely,



Mark D. Case  
Vice President, Regulatory Policy and Strategy

# MONTGOMERY COUNTY BUILDING PERFORMANCE IMPROVEMENT BOARD

## Comments of the Montgomery County Building Performance Improvement Board on the Maryland Department of the Environment Draft Regulations for the Maryland BEPS

### Background

Montgomery County's Building Performance Improvement Board was created by the Building Energy Use benchmarking and Performance Standards Law. Details about board membership, terms, procedures, duties and responsibilities in the law, are available in the Montgomery County Code at [18A-42A. Building Performance Improvement Board](#). The Board is made of up 15 voting members who advise Montgomery County's Department of Environmental Protection on implementation of building energy performance standards (BEPS).

### Comments on the Draft Regulations for the Maryland BEPS

The Board confirmed that in their advisory capacity to the Montgomery County Department of Environmental Protection (DEP), they would like DEP to pass along discussion items and notes on behalf of the board to the Maryland Department of the Environment (MDE).

The Board reviewed various elements of the MDE draft regulations:

- **Benchmarking Requirements**

Board members noted that there are no designations in the regulations for what qualifies someone to serve as a third-party data verifier and suggested that MDE adopt the same credentials used in Montgomery County.

Members also felt that it would be helpful if MDE and Montgomery County could somehow align the required verification periods. MD requires verification in 2026, 2031, 2036, 2041, and every 5 years thereafter. Montgomery County requires verification the first years that buildings are reported and every 3 years thereafter.

In the MDE regulations, benchmarkers are instructed to omit energy consumption data for separately metered food service facilities that engage in commercial cooking and water heating or to exclude it based on a standard deduction formula in accordance with the forthcoming technical guidance. Members were curious why MDE opted to omit this end use for both GHG and EUI, and noted that Montgomery County's benchmarking guidance does not have an EUI exemption for this end use.

- **Direct Emissions Targets**

MDE's direct emissions targets require that buildings meet targets by property type in 2030, 2035, and 2040.

## MONTGOMERY COUNTY BUILDING PERFORMANCE IMPROVEMENT BOARD

Some members noted there is no carveout for multifamily gas cooking. There was concern that replacing gas cooking would be difficult and costly. A suggestion was made that this be included as an exemption, similar to commercial cooking. Alternatively, the suggestion was made that sufficient incentives need to be available to support the transition. It was also noted that the proposed regulation differentially affects multifamily tenants and homeowners while not impacting single family homes. Challenges to transitioning from gas cooking may include amperage/electrical service upgrades for each unit and that tenants often see electric cooking as a downgrade. The view was also shared that, unlike other technologies, electric cooking has zero payback.

With regard to another aspect of electrification in multifamily applications, a member noted that heat pump water heaters cannot always fit within existing unit retrofits in terms of their size, need for a heat source, or other specifications.

Members noted that multifamily dwellings tend to house lower income individuals compared to single-family homes. Help should be provided to aid low-income families in making the transition, or ensuring that increased costs to landlords are offset and not passed through.

Another member recommends additional consideration be given to Common Ownership Communities (i.e., residential condominium and cooperative associations). Specifically, a recognition that the Association can only control the “Common Elements,” and cannot control the equipment and operations that pertain solely to the “Units.” Changes may be required to the Maryland Condominium Act allowing for the Association to mandate and/or assist with changes to the Units that may be needed to comply with this law.

Some members were also concerned about operating costs of electric equipment relative to gas as electricity is more expensive than gas on a per-unit basis today. However, other members noted that the cost of gas is projected to rise more than electricity as customers leave the grid, and therefore provide cost savings. An additional concern was noted, in that depending on how units are metered, switching from gas to electricity could switch the burden of utility payment from the landlord or central building onto the tenant unit.

- **Alternative Compliance Payments**

Per MD’s law, in lieu of meeting the net direct emissions standards, the building owner shall come into compliance with the net direct emissions standards by paying an alternative compliance fee for the greenhouse gas emissions in excess of the net direct emissions standards.

The Board discussed these compliance payments. Some members felt that the alternative compliance payments will be far less than the cost of doing a full electrification conversion. Members felt this was especially true in multifamily settings and other building types with large central systems where heat pump replacements and technology are not as clear-cut as unitized applications.

Members noted that these recurring payments can impact buildings’ valuation as they are factored into pro forma calculations, increase operating expenses, and reduce net operating income. A few members noted that commercial offices, in particular, are struggling with high

## MONTGOMERY COUNTY BUILDING PERFORMANCE IMPROVEMENT BOARD

vacancy rates as pre-Covid leases expire and tenants reevaluate their leasing needs. Securing financing is also becoming more difficult.

In general, members felt that significant incentives would need to be provided to reduce the costs of efficiency and electrification to compel owners to make these desired upgrades rather than complying via the alternative compliance payment.

Members also noted that Montgomery County's law includes the provision of a Building Performance Improvement Plan (BPIP) for buildings that face circumstances outside of the owner's control or economic infeasibility. These Plans require the owner to document and commit to cost-effective upgrades, meaning that some beneficial projects are completed, even if the building does not fully achieve the performance standards. As such, some members suggested that the State consider such an alternative compliance pathway that would achieve some efficiency improvements/emissions reductions. This would allow owners, who might use the alternative compliance payment, to better align with the spirit of the legislation to reduce GHG emissions.

One member noted that MD's alternative compliance payment provides a clear path for owners to get into compliance, while Montgomery County's BPIP is still being developed and as yet is less of a clear assurance of compliance. However, the BPIP binds the building, via record the building performance improvement plan as a covenant in the County land records, to a set of measures.

- **Site EUI Targets**

MDE's regulations include interim site EUI standards in 2030 and 2035, calculated using a straight-line trajectory from a covered building's CY 2025 baseline performance, to the final performance standards in 2040. The Board noted that the MDE regulations are absent of any discussion on if or how site EUI targets are enforced or what, if any, alternative compliance options exist. If there is a generic civil penalty or other enforcement mechanism that MDE would plan to use for site EUI targets, these should be noted in the regulation.

The Board reviewed MDE's draft EUI targets. In particular, several members noted that the multifamily site EUI target of 29 stood out as being unrealistic. These members noted that they have never seen data for existing multifamily buildings benchmarking correctly that come close to reaching these targets. One member noted that the national average site EUI for multifamily buildings is 59.6. Among multifamily buildings in Montgomery County benchmarked by 5/24/2023, the median site EUI reported was 51.8. Since the target setting methodology outlined in MDE's video on the topic relied on 2019 statewide benchmarking data, members suggested that MDE revisit this target, either using benchmarking data reported in Montgomery County, or following the first statewide reporting in CY 2024 (reported in 2025).

One member also pointed out that the State's EUI target of 7 for self-storage facilities also seems unrealistic. That may reflect the low energy usage of drive-up, non-climate-controlled properties but would seem unrealistic for a multistory, climate-controlled facility.

In general, members felt that a more thorough technical overview of how the targets were arrived at would be useful.

## MONTGOMERY COUNTY BUILDING PERFORMANCE IMPROVEMENT BOARD

Though MDE utilized the ZNC target setting methodology from Montgomery County's BEPS Technical Report, the Board had previously voiced varying opinions on which target setting methodology was most appropriate, as described in the Technical Report – the energy efficiency (EE), zero-net carbon compatible (ZNC), or EE-ZNC mid-point (mid-point).

Members' polling on the EUI targets from the BEPS Technical Report are outlined below. Some members supported one EUI target across all building types, while others suggested that some exceptions should be made based on specific building types, as captured below:

- **EE**
  - No exceptions – 1 member
- **EE/ZNC Midpoint**
  - No exceptions – 5 members
  - With exceptions – 1 member
    - EE for multifamily and houses of worship, ZNC for County-owned building group types like courthouse, library, and public order and safety, and custom targets for laboratories and manufacturing/industrial facilities
- **ZNC**
  - No exceptions – 6 members
  - With exceptions – 2 members
    - EE for multifamily
    - EE/ZNC Midpoint for multifamily

In previous discussions, multifamily housing was most often identified as a challenging building type for setting EUI goals. For example, there are challenges for reaching an overall EUI in a building where the residents control their own energy use for heating and cooling. In situations where there is a central system, the cost of the upgrades to reduce energy use may be transferred to the individual renters and potentially challenge housing affordability. Members again expressed concerns about equity in applying BEPS to the multifamily sector. However, also noted were the available technologies to regulate energy use even in multifamily housing with individual controls, and that incentives need to be available such that the costs of meeting the EUI targets do not substantially adversely affect rent.

One member also expressed concerns that the ZNC target calculation methodology using COP and site EUI reduction potential based on the best-case or highest-efficiency electrification scenario of utilizing heat pumps and hot water heat pumps, when for some applications heat pumps may be difficult or impossible to install given space limitations and other technical constraints.

For additional information, please visit the Building Energy Performance Standards website at <https://www.montgomerycountymd.gov/green/energy/beps.html> or contact DEP at [energy@montgomerycountymd.gov](mailto:energy@montgomerycountymd.gov).



June 5, 2022

TO: Mark Stewart  
Climate Change Program Manager, Maryland Department of the Environment

FROM: Berke Attila  
Director, Department of General Services, City of Baltimore

RE: Mayor and City Council of Baltimore Comments on Building Energy  
Performance Standards – May 2023 Draft Regulation

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The Mayor and City Council of Baltimore, represented in this letter by the Department of General Services ("DGS"), would like to reiterate its support for the Climate Solutions Now Act of 2022 (the "Act") as it will be implemented by the Building Energy Performance Standards ("BEPS" or the "Regulations"). At the direction of Mayor Brandon Scott, the City set a carbon neutrality goal by 2045 and BEPS is a crucial tool to support the built environment's transition to achieve the Mayor's goal of net-zero carbon emissions.

DGS has identified multiple points of ambiguity and request that the Maryland Department of the Environment ("MDE" or "Department") provide clarifications and/or consider revisions that we believe are necessary for the feasible and equitable implementation of the Regulations. Within the boundaries of Baltimore City, we have up to 1,400 potentially-regulated buildings. The City owns or controls fifty-nine (59) potentially regulated buildings. We ask that the Department review our comments and consider our revisions so that the Regulations provide clear guidance and allow the City and its constituents to abide and help achieve future emissions reductions.

### **I. Building Ownership - Page 2 – Chapter 1 - .02(12)**

Fundamentally, the Regulations place reporting and emissions reduction obligations on a "Building Owner." The Regulations define a "Building Owner" as "an individual or legal entity possessing title to a property ...."

The clause "possessing title to a property" is legally ambiguous. As you are aware, there are many instances where the landowner is separate and distinct from the building owner. In such situations, the landowner has no control over the actions of its land tenant, who may also vary from the utility account holder. It would seem impracticable, if not unjust, to hold the landowner liable for the emissions of its land tenant or other party generating such emissions, particularly as parties entered these agreements without contemplation of such reporting or financial liability.

While the Regulations provide a means of information sharing (26.XX.02.03(A)), no similar shift of liability is provided.

For the City's municipally owned portfolio, there are eleven (11) instances where the City owns the land but private parties have title to the buildings under long term leases or developer agreements.

*Requested change:* Building ownership should be defined by possession of a building title, nor land title, or by parties possessing the use and occupancy permit. In addition, the Regulations should define a process for ownership disputes against MDE datasets by submitting the most recent building title documentation or use and occupancy permit.

Further, specificity should be added in scenarios where commercial tenants control the building energy systems despite title of the building or land. This definition more closely matches the enabling law. In the Climate Solutions Now Act, it required the Department to consider Regulations where the owners of covered buildings are, "not responsible for the design, modification, fixtures, or equipment of commercial tenants," and "do not have access to or control over building energy systems that are used or controlled by commercial tenants." Alternative Compliance Fees must be connected to the updated ownership definition and process.

## **II. Federal Exemption - Page 3 – Chapter 1 - .02(15)(d)(v)**

Federal exemptions are defined as a "building owned by the Federal Government." This does not clearly define building ownership for entities fully funded, but separate from the Federal Government, such as Housing Authorities that are funded by the United States Department of Housing and Urban Development ("HUD") to provide affordable housing for eligible low-income households within a particular jurisdiction. For example, the Housing Authority of Baltimore City ("HABC"), established in 1937, and its instrumentalities, own and maintain properties, which are subsidized with capital and operating funds awarded to HABC by HUD for operation of the federally-funded public programs. There are twelve public housing developments, which are federally-funded and owned by HABC or its instrumentalities. Since HABC is regulated by HUD and receives federal funds to maintain the public housing properties that it owns, HABC is unable to pay state penalties, the same as a Federal Agency, for which the Draft Regulation federal exemption was intended. Additionally, all of the HABC-owned properties are subject to recorded Declarations of Trust for the benefit of HUD.

*Requested change:* The Regulations should update the exemption to include Housing Authorities in the State by stating "a building owned by the Federal Government or Housing Authorities."

## **III. Historic Properties - Page 3 – Chapter 1 - .02(15)(c)**

In Subtitle 16 of the enabling Act, Subsection 2-1601(D)(2)(I) a Covered Building does not include, "a building designated as a historic property under Federal, State, or Local Law." The enabling legislation provides a direct and broad definition of that historic property exemption, however, that exemption is narrowed in the Regulations, such that the Regulations now include,

rather than exclude, a building “that meets the criteria for a covered building as described in this section and is located in a historic district but where the building is not individually designated as a historic property under federal, state, or local law.” We think this creates a direct conflict between 26.xx.01.02.(B)(15)(c) and ... (15)(d)(i) of the Regulations.

As you may be aware, the National Historic Preservation Act of 1966 treats a contributing property as equivalent for compliance review of federal undertakings, as does the tax code for preservation tax credits. Historic Districts, if not entirely composed of historic properties, do individually list excluded properties of a non-historic nature, also implying the legislative intent of treating all historic properties, contributing to a historic district and individually designated, as legally equivalent.

*Requested change:* Use the exemption language in the enabling Climate Solutions Now Act in the Regulations.

#### **IV. Food Service - Page 4 – Chapter 1 - 02(22)**

The draft Regulations define “food services facilities as having the same meaning stated in COMAR 10.15.03.02B,” and they are exempted from benchmarking, reporting, and emissions standards when submetered. We are concerned that the regulations are both over-inclusive and under-inclusive to the point that a significant ambiguity exists. Following the existing definition from COMAR 10.15.03.02B, a “food service facility” includes any “place where food or drink is prepared for sale or service on the premises or elsewhere...” and includes a “cafeteria.” The definition also makes significant inclusions in the definition of a food service facility such as “institutions” and industry” (COMAR 10.15.03.02(B)(34)(b)(ii)). However, in many instances, facilities are designed for consumption in multiple locations throughout the building, not limited to a defined “cafeteria” space. Further, food services facilities may not always be submeterable from the building at large, with shared electricity, water, heating, and other infrastructure. As a result, we believe that such vague definitions create the possibility that either whole facilities intended to be regulated will not be, or that buildings not intended to be regulated could be where submetering is impossible or economically infeasible.

*Requested change:* The Regulations must more clearly draw a line for food service facilities and support equipment where submetering isn’t feasible and more clearly define what may be included as a food service facility within a greater facility. We also propose MDE consider either energy use calculations or a broader exemption.

#### **V. Manufacturing – Page 4 – Chapter 1 - 02(28)**

The Regulations exclude from being a “Covered building” a “manufacturing building,” however alternative definitions create ambiguity as to the scope of such exclusion. The draft Regulations define “manufacturing” as, “the same meaning as defined and described in Environmental Article, §2-1202(h)(1-3), Annotated Maryland Code,” which excludes from the definition of manufacturing “public utility services, including gas, electric, water, and steam production services.” *Id.* at (3)(iii). Alternatively, the Regulations define a “Manufacturing building” as, “a

building classified as a manufacturing building in North American Industry Classification System (NAICS) or otherwise designated as a manufacturing building by the Department.”

While the Regulations already recognize the need to exclude certain critical infrastructure facilities, the definition is not expansive enough to cover wastewater treatment facilities and it is the City’s fear that strict compliance would require a cost-prohibitive transfer of responsibility onto its taxpayers. To a lesser extent, the City is also concerned about its facilities for vehicle maintenance, water infrastructure maintenance, and waste transfer stations. It should be noted, the Draft Regulations include EUI standards for facilities type, and excludes these industrial facilities.

*Requested change:* The Regulations should clearly define the scope of the exemption for “manufacturing building(s).” Additionally, exemptions should be expanded to include critical publicly operated/owned industrial facilities for water, wastewater, and waste. Please also provide clarification on how BEPS would apply to industrial processes that are not manufacturing but would similarly represent major process loads beyond the EUI standards included in the Draft Regulations such as vehicle maintenance facilities.

## **VI. District Energy Systems - Page 5 – Chapter 1 (31)(a)(ii)**

The draft Regulations require a building owner of a building connected to a district energy system to disclose both its “direct greenhouse gas emissions **PLUS** the greenhouse gas emissions attributable to ... the district energy system” (emphasis added). We believe that this regulation will create an unjust shift of responsibility and liability onto building owners for the actions (or inaction) of a third-party over which they have no control.

The Act repeatedly looks at the question of control for determining emissions responsibility, but these Regulations do not reflect such allocation. For example, the Act instructs the Department promulgating regulations to “consider the needs owners of covered buildings, who[] ... are not responsible for the design, modification, fixtures, or equipment of commercial tenants;” and who “do not have access to or control over building energy systems that are used or controlled by commercial tenants.” We do not find any evidence from the text of the Regulations that the Department has taken such considerations.

It should be noted that it is long recognized as the auto industry’s best practice to regulate only the party responsible for the manufacture of emissions, not the end user consumer. In the successful Vehicle Emissions Standards framework, the auto manufacturers are the party regulated, not the drivers individually. Similar such programmatic design should be followed here. For example, the City of Baltimore has a franchise agreement with a district operator to operate a district steam system that provides heating to many public and private party customers; in our situation, the operator is responsible for their equipment and is independent of the City. If consumers are left to assume responsibility for the reporting and emissions of others, City residents will be forced to choose between incurring such fees or leaving the district energy system entirely.

*Requested change:*

The Department should consider reallocating the responsibility for the reporting of greenhouse emissions for buildings which are connected to district energy systems, such that the building owner is only responsible for reporting its direct greenhouse gas emissions, and the district energy system reports its emissions separately by its owner or operator.

**VII. Vacant Property Exemptions - Page 18 - Chapter 4 - .02(B)(2)**

Benchmarking exemptions note “a building owner may apply for an exemption from the requirement to establish baseline performance when, during the baseline year, less than 50% of the covered building was occupied for at least 180 days,” but “a covered building may not receive an exemption from the requirement to establish baseline performance for more than three years.” Baltimore City has received control of three facilities that have been vacant for more than three years and are predicted to be indefinitely.

*Requested Change:* The Regulations should remove the term limit of the second clause exempting vacant properties for as long as they qualify as vacant, not three years.

**VIII. Alternative Compliance Pathway – Page 17 - Chapter 4**

Included in the Regulations is a pathway for alternative compliance by payment of a fee, as prescribed by the Act. The Regulations, however, provide no guidance on the administrative procedure by which such alternative compliance fees will be calculated, assessed, and levied. The Regulations also fail to define the fees’ general nature as either civil penalties, additional taxes, property liens, or otherwise. Further, as discussed above, to the extent that a party challenges liability, the Regulations fail to specify how a party may seek such redress, and whether any such administrative procedure exists prior to seeking relief via the judicial branch.

*Requested Change:* Clarify the nature of the administrative compliance fee as either a civil penalty, tax, lien, or otherwise. Specify administrative procedures for the Department’s calculation and assessment of fees, owners appeal of such fees, and other procedures as necessary for administrative exhaustion and judicial review.

**IX. Alternative Compliance Payments – Page 17 - Chapter 4**

The Regulations do not address how alternative compliance payments will be used to support the compliance with BEPS.

*Requested Change:* The Mayor and City Council strongly request that regulations define payments to be used to support BEPS compliance in the jurisdiction from which those payments are made, particularly those payments should be focused on small business and/or minority building owners to comply.

City of Baltimore  
Re: May 2023 Draft BEPS Regulations  
June 5, 2023

We appreciate your understanding in these matters and respectfully request that the Maryland Department of the Environment update the Buildings Energy Performance Standards Regulations to address these necessary clarifications.

Sincerely,

A handwritten signature in black ink that reads "Berke Attila". The signature is written in a cursive, flowing style.

Berke Attila  
Director  
Department of General Services

cc:

Ava Richardson, Director, Baltimore City Office of Sustainability  
James B. Anderson, Vice President, Housing Authority of Baltimore City of Baltimore  
Nina Themelis, Deputy Director, Mayors Office of Government Relations  
Simone Johnson, Deputy City Administrator

## **The Climate Coalition, Montgomery County**

### **20 organizations targeting climate, environment, equity**

June 5, 2023

To: Secretary Serena McIlwain, Maryland Department of the Environment:  
From: The Climate Coalition, Montgomery County  
Re: Draft Regulations Building Energy Performance Standards

The Climate Coalition of Montgomery County is a group of 20 member organizations whose primary purpose is to help the County reach its ambitious goals of reducing greenhouse gas emissions 80% by 2027 and 100% by 2035 in an equitable way. We strongly supported passage of the Climate Solutions Now Act of 2022. As part of this act, the Maryland Department of the Environment is required to develop Building Energy Performance Standards that achieve: 1) a 20% reduction in net direct greenhouse gas (GHG) emissions by January 1, 2030, as compared with 2025 levels for average buildings of similar construction and; 2) Net-zero direct GHG emissions by January 1, 2040.

We reviewed the draft regulations released by Maryland Department of the Environment (MDE) on May 15, with comments due by June 5. We are in strong support of a number of aspects of the proposed regulations. The linear reduction from the initial GHG emissions target for each building type in 2030 through the interim standard in 2035 with the final goal of net zero emissions in 2040 is an appropriate way to keep building owners accountable for reducing their emissions leading up to 2040. Further, requiring payment of the Alternative Compliance Fee for every year the emissions targets are not achieved is also appropriate. The site EUI targets presented in the draft align with the Zero Net Energy EUI targets defined in Montgomery County's BEPS Technical Report, which are sufficiently low to require electrification of most systems. We are appreciative of the regulations aligning the EUI targets with this stringent standard.

However, there are several aspects to the draft regulations that we are concerned about, or that can be further expanded on to enhance the effectiveness of these regulations to eliminate GHG emissions from the covered buildings in an equitable manner. We respectfully submit the comments below and trust that MDE will consider these as the regulations are further revised ahead of their being published in the Maryland Register in the Fall of this year.

Sincerely,

Diana Younts (djyounts@gmail.com), Kevin Walton (kmwalton@gmail.com)  
on behalf of the Climate Coalition Montgomery County  
(formerly Montgomery County Climate Action Plan Coalition)

## **Climate Coalition, Montgomery County: Comments on Draft BEPS Regulations**

**NOTE:** specific language to be added to the draft regulations are in *italics*.

### **Chapter 01 Definitions and Documents Incorporated by Reference**

#### **.02 Definitions**

Additional definitions are needed in order to address specific issues in sections further in the draft regulations.

*“Disproportionately Impacted Communities” means communities identified using the methodology recommended by the Commission of Environmental Justice and Sustainable Communities under Sec. 1-702 of the Environment Article.*

*“Climate Catalytic Capital Fund” has the same meaning as provided in 2022 Md. Laws, Ch. 38, Sec. 4.*

*“Building Energy Transition Implementation Task Force means the same as defined in 2-1603 of the Environment Article.*

### **Chapter 02 Benchmarking and Reporting**

#### **.02 Reporting Requirements of Building Owners.**

##### **B. Benchmarking Report.**

We have concerns that there are no specific qualifications identified for individuals that develop and submit the technical information that are required from building owners. Setting these standards is necessary in order to ensure the quality and accuracy of this information. Please note the recommended additional language:

(10) The building owners of a covered building that is connected to district energy systems shall submit additional information to supplement the annual benchmarking report in accordance with the Department’s TM 23-01, "Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards". *Calculation shall be prepared by a Professional Engineer, Certified Energy Manager, ASHRAE Building Energy Auditing Professional, Investor Confidence Project provider listed firm, or [other suitable professional].*

(11) *Non-standard conditions shall be calculated in accordance with the Department’s TM 23-01, "Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards". Non-standard conditions include occupancy hours greater than calculated for each occupancy type, building occupancy adjustment for building occupancy between 50% and 85%, Calculation shall be prepared by a Professional Engineer, Certified Energy Manager, ASHRAE Building Energy Auditing Professional, Investor Confidence Project provider listed firm, or [other suitable professional].*

##### **C. Third Party Verification of Benchmarking Reports.**

In this section, there is a requirement for verification by a “third party”. This verification should be performed by the same type of qualified professionals as detailed above for **Benchmarking and Reporting**.

## **Chapter 03 Performance Standards and Compliance Demonstration**

### **.02 Performance Standards**

Standard multipliers should be provided as a list for fossil fuels to calculate KG CO<sub>2</sub>e. The list should include natural gas, propane, fuel oil, diesel, wood pellets, and coal as a minimum. The method for determining how to calculate KG CO<sub>2</sub>e for recovered hydrogen or methane (i.e., biogas) should also be provided.

Several classes of buildings have been identified as being exempt for achieving both net-zero GHG emissions and EUI. While the legislation indicates that professional kitchens can continue with their use of gas for cooking and hot water, which generates GHG, it is unclear why there is an exemption from achieving a lower EUI. Continued use for fossil fuels and reaching lower energy use are not necessarily incompatible, depending on the EUI target. Since the Climate Solutions Now Act required including EUI targets, reduced energy use is inherently a central part of the legislation. We urge you to include specific EUI targets for all building types.

#### **Table 1. Performance Standards:**

*Insert interim and final EUI targets for all building types, including those exempted from GHG targets.*

## **Chapter 04 Alternative Compliance and Special Provisions**

### **.01 Alternative Compliance Pathway.**

The Alternative Compliance Pathway provides a fee structure for GHG emissions above the targets set for each building type. Depending on the size of the fee, the Alternative Compliance Pathway allows building owners to choose to not comply, in whole or part, with the goal of eliminating emissions, and to just pay this fee. While this type of action is within the letter of the law, it is clearly outside the spirit of the law. Building owners should be required to submit a detailed plan on how they intend to bring the building into compliance. In addition, the Building Energy Performance Standards legislation in Montgomery County, MD, has a method to address buildings that are out of compliance with the EUI targets in situations where owners are unable to bring the building into compliance due limited financial resources or other constraints outside of their control. The Building Performance Improvement Plan allows building owners, under specific conditions, to work with the county to identify an alternative target and how this will be achieved. Having buildings reduce their GHG emissions and energy use, even if not to the original target, is better than having no reduction at all.

In order to provide such a pathway in the state legislation, the following is recommended for inclusion in the regulations:

*C. Buildings that have not achieved the GHG emissions and EUI targets will provide a plan for achieving decarbonization and energy efficiency compliance by the next benchmarking deadline. Buildings that are unable to come into compliance due limited financial resources or other constraints outside of their control may propose alternative targets, subject to*

## **Climate Coalition, Montgomery County: Comments on Draft BEPS Regulations**

*review by MDE. All plans should include a schedule for implementation of the upgrades. An ASHRAE Level 2 audit is required to document the current emissions and efficiency. The plan must include a retrocommissioning plan and an Operations and Maintenance plan, as appropriate. The plan must be sufficiently detailed to allow independent assessment and provided by a Professional Engineer, Certified Energy Manager, ASHRAE Building Energy Auditing Professional, Investor Confidence Project provider listed firm, or [other suitable professional]. MDE will review the plan and require resubmission if the MDE analysis indicates emissions or energy use intensity is greater than 25% above the submitted plan's target. The plan should be submitted at least 6 months prior to the benchmarking deadline, to provide sufficient time for review.*

There are notable omissions from the regulations regarding the EUI target. There are no interim standards and no fees associated with missing the EUI targets. Without these two requirements, is it unclear what is the value of having EUI targets in the regulations. We urge you to include interim EUI targets [suggested language *supra*], as well as alternative compliance fees for the EUI targets at a sufficient level that would compel building owners to reduce their EUI.

### **(2) An alternative compliance fee**

The fee imposed is directed by the legislation to be based on the social cost of GHG emissions. However, noting the current emissions of many buildings, the fee described in the draft regulations may be substantially lower than the cost of replacing the fossil fuel-based equipment. We recommend increasing the fee to a multiple of the social cost of GHG emissions. Alternatively, the BEPS law in the District of Columbia uses a cost per square foot to compel building owners to comply. A fee in the range of \$6-10/sq ft in addition to the social cost of GHG emissions should approach a level sufficient to encourage most building owners to reduce GHG emissions rather than to pay the fee.

We are also concerned about the disposition of the fees collected. All fees should be used to support building owners to transition. A particularly glaring omission in the draft regulations is a lack of support for Disproportionately Impacted Communities. These communities have historically had difficulties in obtaining loans and other resources. The alternative compliance fees should be placed in a Climate Catalytic Capital Fund administered by the Maryland Clean Energy Center. The funds should be used to assist in bringing those buildings with higher GHG emissions into compliance with the Buildings Energy Performance standards. Additionally, a percentage of those funds should be specifically directed for covered buildings in Disproportionately Impacted Communities.

### **Suggested Regulation Language:**

Ch. 4, .01:

#### **.01 Alternative Compliance Pathway.**

## **Climate Coalition, Montgomery County: Comments on Draft BEPS Regulations**

(1) In lieu of meeting the net direct emissions standards in COMAR 26.xx.03 *and the site energy use intensity targets*, the building owner shall come into compliance with the net direct emissions standards and the site energy use intensity targets by paying an alternative compliance fee for the greenhouse gas emissions in excess of the net direct emissions standards *and paying the percentage by which the building owner fails to meet the site energy use intensity targets.*

*(2) An alternative compliance fee shall be \$[6-10] per square foot of gross floor area for every year the building is out of compliance with its site energy use intensity target, which amount can be adjusted downward by the Department based on the percentage by which the building owner meets its site energy use intensity target; and additionally,*

*(3), for every metric ton of net direct emissions in excess of the net direct emissions standard in a given calendar year, the fee shall include 3x the social cost of carbon:*

*B. The Department shall require that:*

- 1. All Alternative Compliance fees shall be placed in the Climate Catalytic Capital Fund administered by the Maryland Clean Energy Center, and the Building Energy Transition Implementation Task Force shall make recommendations concerning the percentage of those funds shall be used for covered buildings in Disproportionately Impacted Communities to assist in bringing those buildings in compliance with the Buildings Energy Performance standards.*

### **03 Option for Campus-Level Compliance.**

The draft regulations state that, “The owner of a campus may choose to meet site EUI and net direct emissions standards, as specified under this regulation, at the campus level instead of the individual building level.” *We recommend that this should only be for a certain period of time and that eventually all buildings over 35,000 should have a plan to have its own separate whole building meter.*

# marylandclimateaction

June 5, 2023

To: Secretary Serena McIlwain  
Maryland Department of the Environment  
Montgomery Park Business Center  
1800 Washington Blvd.  
Baltimore, MD 21230

CC: Director Paul Pinsky, Maryland Energy Administration  
Chris Rice, Chief of Staff, Maryland Energy Administration  
Suzanne Dorsey, Deputy Secretary, Maryland Department of the Environment  
Mark Stewart, Manager, Climate Change Program, Maryland Department of the Environment  
Chris Hoagland, Director, Air & Radiation Administration, Maryland Department of the Environment

Dear Secretary McIlwain:

The undersigned organizations commend the Maryland Department of the Environment (MDE)'s rapid development of Building Energy Performance Standards (BEPS). Publishing a strong BEPS regulation is critical for not only ensuring MDE's compliance with the Climate Solutions Now Act (CSNA), but also improving public health by, among other pathways, reducing indoor air pollution from gas combustion in buildings. We urge MDE to draft and implement these regulations in a manner that prioritizes protecting low- and moderate-income Marylanders from higher pollution and financial burdens.

The undersigned organizations provide the following recommendations, described in greater detail below, for increasing the specificity of several broad requirements in the draft BEPS regulations and creating stronger enforcement mechanisms:

- Expand the definition of "Covered Building" to include rental apartment buildings;
- Clarify ambiguities in the reporting requirements, including the process for third-party verification of benchmarking reports and enforcement mechanisms for failure to comply with the reporting requirements;
- Provide MDE with authority to adjust performance standards over time if their initial stringency is not optimal;
- Develop additional compliance and enforcement measures that serve as alternatives to the "alternative compliance fees"; and
- Provide more specific definitions of qualifying exemptions, primarily for affordable housing units facing financial constraints.

Thank you in advance for considering these comments, as well as the earlier set of BEPS recommendations that a number of the undersigned organizations shared with MDE in March 2023. We still remain committed to the measures that we recommended in that earlier set of comments, which can be found in the Appendix to this document.

## **Substantive Recommendations for BEPS Regulations**

### **1. Expand the Definition of “Covered Building”**

At the outset, we urge MDE to modify the definition of a “covered building” to clarify that it encompasses all types of apartment buildings. Currently, the category of “covered building” includes multiple buildings with units that are owned as condominiums with a single board of managers, as well as multiple buildings that are served “in whole or in part by the same electric or gas meter or are served by the same heating or cooling system(s), which is not a district energy system.”<sup>1</sup> We are concerned that definition does not encompass an entire category of buildings that may be burning gas and emitting high amounts of greenhouse gas pollution. In apartment buildings where units are rented or owned, but are not classified as condominiums, there may not be shared meters, or heating or cooling systems, that would place those buildings under the purview of the BEPS regulations. For instance, a complex containing garden-style apartments could certainly total more than 35,000 square feet in area, but may not meet the requirement of having a shared meter or system. It would be better to explicitly state that “covered buildings” include apartment buildings. This can be done by adding a new subsection—Section (.2)(15)(a)b(iv) in Chapter 1—defining “Two or more residential buildings with a combined gross floor area of 35,000 square feet or more that share the same owner” as a type of covered building.

Applying the requirements in the BEPS standards to buildings and complexes with smaller rental units, such as garden-style apartments, is important for reducing Maryland buildings’ greenhouse gas emissions in an equitable manner. It is critical that building owners take steps to reduce air pollution—such as the particulate matter and nitrogen oxide pollution that emanates from burning gas—not only in neighborhoods with condominium buildings where higher-income Marylanders own homes, but also in communities where lower- and moderate-income residents live in rental units.

### **2. Clarify Multiple Ambiguities In the Reporting Requirements**

There are several terms and requirements in Chapter 2 of the proposed BEPS regulations that MDE should clarify in its final regulations. First, with respect to the third party verification requirement, it is unclear which entities would count as “third parties” for the purpose of verifying the accuracy of benchmarking reports. We recognize the clear benefit of having an outside party ensure the accuracy of buildings’ reports of their greenhouse gas emissions—but

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<sup>1</sup> Proposed BEPS Regulations (“BEPS Regs.”) Ch. 01§ .02(15) (2023).

it would be helpful for building owners to have more clarity on which outside parties can serve the role of “verifier.”

It is also unclear how this third party verification is supposed to take place. The regulations instruct building owners to provide “to the third party verifier all utility bills, delivered fuel receipts, and other documentation needed by the verifier for the calendar year covered by the benchmarking report.”<sup>2</sup> This provision does not clarify which entity(ies) are intended to serve in that role, including whether utilities themselves could qualify as third-party verifiers. Additionally, it is unclear what “other documentation” might be deemed “needed” by a third party verifier, and what the consequences would be if a building owner does not have that information on hand. It is important to resolve these questions so building owners know where to send their data for verification and which types of documentation to proactively maintain. It is also important to provide members of the public with an opportunity to confirm that the third party verifiers are unbiased and possess sufficient technical expertise.

Another point that MDE should clarify is the process by which tenants may have to report their buildings’ benchmarking information in lieu of landlords. Section .03 in Chapter 2 of the proposed regulation reads, “A tenant of a covered building shall, within 30 days of a request by the building owner, provide all requested benchmarking information that cannot otherwise be acquired by the building owner from other sources.”<sup>3</sup> Either in the final regulations or a subsequent guidance document, MDE should clarify under what circumstances a building owner will be considered unable to acquire benchmarking information, as well as how a tenant would keep track of and provide that benchmarking information to a building owner. Perhaps utilities should offer customers an option to opt-in to a system of automated collection of energy usage and emissions data, so that tenants would have that information available for their landlords if they are asked to provide it.

It is unclear how MDE intends to enforce the reporting requirement. Would there be legal consequences for a tenant that refuses to—or is unable to—provide this benchmarking information? The BEPS regulations do not set forth any penalties for tenants that do not provide this information. The regulations also provide no means for recourse if a tenant disagrees with a landlord’s assessment that the tenant’s data is needed. Tenants may object that this “need” to share their data violates their right to privacy, but it is unclear how a tenant could make that objection and how MDE would address such an issue. MDE should consider the implications of this potential issue and possible solutions to address it.

Energy data access discussions in the multi-tenant market segment often raise valid privacy concerns, but providing building owners with aggregated and anonymized whole building energy usage data is a great solution for these concerns. The main goal of aggregation is to find a threshold that will incorporate the greatest number of buildings without putting the privacy of tenants at risk. Aggregating whole building data provides the building owner with a single monthly consumption value representing total building energy consumption by fuel type,

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<sup>2</sup> *Id.* Ch. 02 § .02(C)(3).

<sup>3</sup> *Id.* Ch. 02 § .03(A).

leaving out information about which tenants consumed energy and when.<sup>4</sup> Further, this policy can alleviate the need for tenant consent to share energy usage data. For example, most utility benchmarking programs offer aggregated and anonymized data and only require tenant consent if a building has a small number of tenants and/or no single tenant uses a significant proportion of the building's energy.<sup>5</sup>

Aggregation at the building level should still have some limits to protect privacy. An industry standard to determine if a building can be included in benchmarking is 4/50. This refers to any building with more than four units and no single unit accounting for over 50 percent of the total building energy use. This standard includes a greater number of buildings while still protecting individual tenants' privacy through secure access to information. It can also be applied to residential and commercial buildings.<sup>6</sup>

Another concept that remains unclear is how a building owner or tenant would register their greenhouse gas emissions from delivered fuels, which gas and electric utilities would not have data on. For instance, if a tenant in a residential building burns substances like propane or oil as fuel, it is not clear that their propane or oil company can provide their usage data in the same importable format provided by gas and electric utilities. MDE would assist building owners and tenants in more easily complying with the reporting requirement—and increase MDE's own ability to acquire the data it seeks—by clarifying all of these outstanding ambiguities in the reporting process.

### **3. Provide MDE With Flexibility For Adjusting Performance Standards Over Time**

We acknowledge that the timeline for CSNA compliance necessitates setting specific performance standards without first collecting benchmarking data. However, we still urge MDE to create some flexibility for itself to adjust the numerical requirements for greenhouse gas emission reductions based on reported data that it receives in the first two years of BEPS implementation. More specifically, MDE should state in its BEPS regulations that it may revise the net direct emissions and energy use intensity (EUI) standards following the benchmarking process.

MDE should retain the authority to adjust future performance standards because those are key to the success of the entire BEPS program. If it turns out that most buildings within a given "property type" have emissions well below the set of interim net direct emissions standards for 2030-2034, there should be a mechanism for requiring lower net direct emissions in the interim standards for 2035-2039. Providing itself with authority to adjust the stringency of net direct emissions and EUI standards will enable MDE to better meet the CSNA's ambitious

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<sup>4</sup> Environmental Protection Agency, *Data Access: A Fundamental Element for Benchmarking and Building Performance Standards* (Feb. 2021), [https://www.epa.gov/sites/default/files/2021-02/documents/benchmarking\\_building\\_performance\\_standards\\_section4.pdf](https://www.epa.gov/sites/default/files/2021-02/documents/benchmarking_building_performance_standards_section4.pdf).

<sup>5</sup> Northeast Energy Efficiency Partnerships, *Data Aggregation Best Practices*, [https://neep.org/sites/default/files/resources/Data%20Aggregation%20Best%20Practices%20and%20Exemplar\\_Formatted.pdf](https://neep.org/sites/default/files/resources/Data%20Aggregation%20Best%20Practices%20and%20Exemplar_Formatted.pdf).

<sup>6</sup> *Id.*

requirement of reducing greenhouse gas emissions economy-wide 60% by 2031.<sup>7</sup> As another illustration, it may turn out that reducing emissions is particularly costly for a certain “property type,” and most buildings in that category will choose to make alternative compliance payments rather than meet the performance standards. In that event, MDE should retain some discretion to increase the emissions standards for those property types—or potentially increase the alternative compliance payments, as discussed in the next section.

In general, MDE should take advantage of federal resources, to the fullest extent possible, in altering and implementing its BEPS regulations. As one example, if MDE chooses to revise its BEPS standards in the near future, there are millions of dollars in federal grants available to help it do so. The federal Inflation Reduction Act allocates \$1 billion toward U.S. Department of Energy grants to help state and local governments develop building codes,<sup>8</sup> and the Infrastructure Investment and Jobs Act allocates \$225 million for similar support measures,<sup>9</sup> \$180 million of which will be available in future funding opportunities.

#### **4. Provide Alternative Compliance and Enforcement Measures**

Our primary concern with the BEPS regulations is that inflexible monetary penalties appear to be the sole enforcement mechanism. Chapter 4 of the regulations provides that building owners may avoid “meeting the net direct emissions standards . . . by paying an alternative compliance fee for the greenhouse gas emissions in excess of the net direct emissions standards.”<sup>10</sup> (Separately, the regulations leave unclear whether any penalties would apply if a building’s EUI exceeds the performance standards for EUI, as this section applies only to net direct emissions standards).

Also problematic is the fact that, as with all of the performance standards described above, MDE has afforded itself no flexibility to adjust the numerical value of the payments enumerated under the alternative compliance pathway. If it turns out that the costs of emission reductions beyond a certain point exceed the cost of the alternative compliance payments, MDE’s inability to increase the alternative compliance payments could lead to widespread noncompliance with the regulations—which could violate the CSNA’s emission reduction requirements and endanger public health in communities with noncompliant buildings. MDE should clarify where the 2030 penalty payment of \$230/metric ton of emissions stems from. Assuming it is based on the U.S. Environmental Protection Agency’s estimate of the social cost of carbon in 2030,<sup>11</sup> that social cost of carbon has been deemed a probable underestimate, and

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<sup>7</sup> See Md. S.B. 528 (2022).

<sup>8</sup> Inflation Reduction Act § 50131(a)-(c) (2022).

<sup>9</sup> Infrastructure Investment and Jobs Act § 40511 (2021).

<sup>10</sup> BEPS Regs. Ch. 04 § .01(A)(1).

<sup>11</sup> U.S. Environmental Protection Agency, *Supplementary Material for the Regulatory Impact Analysis for the Supplemental Proposed Rulemaking, “Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources: Oil and Natural Gas Sector Climate Review”* at 73 (Sept. 2022), [https://www.epa.gov/system/files/documents/2022-11/epa\\_scghg\\_report\\_draft\\_0.pdf](https://www.epa.gov/system/files/documents/2022-11/epa_scghg_report_draft_0.pdf) (listing an estimated social cost of carbon, in 2020 dollars, as \$230/metric ton of CO<sub>2</sub> emissions in 2030).

other jurisdictions have developed higher estimates of the true social cost of carbon. For example, in New York City’s building performance standards, the social cost of carbon that is used in assigning penalties for noncompliance is set at the higher value of \$268/metric ton.<sup>12</sup> Even if \$230/metric ton were the best estimate available *today* of the 2030 social cost of carbon, new information and methodologies could emerge in the next decade that would show that the \$230 value is a drastic underestimate of the true social cost of carbon—and MDE should have a mechanism to adjust the alternative compliance payments if that occurs.

Another issue with the BEPS regulations’ compliance provisions is that building owners are severely constrained in terms of potential pathways for coming into compliance. While paying a fine ostensibly provides MDE with additional revenue that may be usable for climate-friendly measures, it does not contribute to reduced greenhouse gas emissions from buildings. Rather than being limited to paying a predetermined fine for every metric ton of carbon dioxide emissions that exceeds the limit set in the performance standards, building owners should have an option to seek an extension of the compliance timeline if they can show they are taking measures to bring their building into compliance. For instance, in the area of affordable housing, there might be delays in compliance because building owners will try to make emission reduction measures simultaneous with retrofits to affordable housing units. If a building owner can show that it is taking significant steps toward complying with the regulations, and it is set to fully comply with the 2030 emission levels by 2031, for example, the building owner should be able to receive a temporary exemption from paying a penalty to MDE (or at least an opportunity to pay a discounted penalty). As an example, in Colorado, a task force making recommendations for the state’s building performance regulations advises including an adjusted compliance timeline for “[a]ffordable housing that needs to align work with recapitalization or refinancing timelines.”<sup>13</sup>

Given that our goal—as well as MDE’s goal—is for building owners to achieve the required reductions in greenhouse gas emissions, rather than simply paying to avoid complying with the BEPS regulation, it also seems problematic that there is no ramp-up in the monetary penalty for a building owner that fails to adopt any emissions-reducing measures year after year. If a building owner is simply paying to avoid application of the BEPS regulations, and not taking any good-faith steps toward compliance, it should receive an enhanced monetary penalty or be required to produce a detailed plan (perhaps verified by a third party) outlining measures that it will take to reduce emissions in future years.

In general, MDE should ensure that it provides technical support to building owners to assist them in meeting the performance standards outlined in the regulations. MDE should provide educational resources about steps that building owners can take to reduce greenhouse gas emissions and sources of federal and state funding that are available to defray the costs of electrification and energy efficiency measures. The federal Inflation Reduction Act, for instance, provides an unprecedented amount of rebates and tax credits for procuring electric appliances,

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<sup>12</sup> N.Y.C. Local Law No. 97, § 28-320.6.

<sup>13</sup> *Colorado’s Building Performance Standards (BPS) Task Force Recommendations* (Oct. 1, 2022), [https://drive.google.com/file/d/110pvRfosqdSOQyXrBAzh0vJTQH5Uc\\_nN/view](https://drive.google.com/file/d/110pvRfosqdSOQyXrBAzh0vJTQH5Uc_nN/view).

electric heating systems, and other retrofits and upgrades that would directly reduce a building's greenhouse gas emissions.<sup>14</sup> MDE should provide an educational packet for each covered building that (1) explains the importance of reducing greenhouse gas emissions as rapidly as possible from both an equity and public health perspective; (2) provides information about available financial resources from the state and federal governments; and (3) provides building owners with technical support and contact information for state government energy auditors or other third parties that can inspect covered buildings and make specific recommendations about how to reduce their greenhouse gas emissions. Generally, MDE should coordinate with other agencies to ensure that covered buildings are made aware of all state programs that could help them comply with the BEPS regulations, such as rebates that may be administered by the Maryland Energy Administration (MEA) or Department of Housing and Community Development (DHCD).

Another element that is missing from the alternative compliance provisions is the destination of the funds that are collected through alternative compliance payments. It is unclear if the payments acquired as penalties from non-complying building owners will simply be remitted back to a general fund, or whether MDE will use these payments only for facilitating building electrification. We strongly recommend that the pool of funds collected through the alternative compliance payment process be used for assisting low- and moderate-income owners of covered buildings—such as owners of affordable housing units—in electrifying their buildings to comply with the BEPS regulations. Even if many affordable housing units are already on track to meet the performance standards in these regulations, it is still critical, from an equity perspective, to direct more funding toward electrifying those buildings in order to protect more vulnerable populations from air pollution that would pose a threat to their health.

As a general matter, it would be helpful to see additional details in the final BEPS regulations, or at least in a technical support document, about enforcement. At this point, it is not entirely clear what the penalties are—or if there even are penalties—if a building owner or tenant reports benchmarking information that a third party verifier finds is incorrect; if a third party verifier fails to detect incorrect information; if a building owner or tenant does not file benchmarking reports; or if a utility does not provide required information.

## **5. Provide More Specific Definitions of Qualifying Exemptions**

The undersigned organizations are concerned about the lack of a permissible good-faith delay in compliance for affordable housing units that may be unable to meet the precise deadlines set forth in the BEPS regulations, as described above. The BEPS regulations contain an exemption for “financially distressed” buildings, but that is limited to buildings that are in a foreclosure-related process.<sup>15</sup> Undergoing a foreclosure or bankruptcy process is distinct from having insufficient capital to make upgrades in time to meet the regulation's deadlines—which is an issue that owners of affordable housing units are prone to face. We urge MDE to add to

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<sup>14</sup> See, e.g., Inflation Reduction Act, §§ 13303; 50121(c); 50122(c).

<sup>15</sup> BEPS Regs. Ch. 01 § .02(21); Ch. 04 § .02(A)(1).

Section .02 in Chapter 4 a provision excusing a delay in compliance for good cause that is based on financial constraints unique to affordable housing units. Washington, DC's Compliance and Enforcement Guidebook for its Building Energy Performance Standards provides a helpful example of how to phrase a financial distress exemption that is unique to affordable housing units:

In reference to BEPS, financial distress means a building owner cannot honor financial obligations, including payment of ordinary and necessary business and/or living expenses, that would prevent timely compliance with energy performance requirements. When claiming financial distress, the building owner should demonstrate that it has made good faith efforts to pursue available financial support mechanisms. For qualifying affordable housing, this circumstance can also be demonstrated if a building can document cash flow constraints, restrictions on the usage of its net cash flow, or prohibition from utilizing a portion of existing cash reserves for EEMs.<sup>16</sup>

One additional recommendation pertaining to the "Exemptions" section is that MDE should explain what it means for a covered building to be "not occupied during the calendar year being reported."<sup>17</sup> It is not clear how long a building needs to be unoccupied in order to qualify for this exemption. With respect to reporting requirements, the regulations clarify that "[t]he owner of a newly constructed covered building shall submit a benchmarking report to the Department by June 1st of each calendar year, beginning the year following the first calendar year the newly constructed building *was occupied for at least one day*."<sup>18</sup> Given that there is a precedent for determining a building to be occupied after having been occupied "for at least one day" elsewhere in the regulations, we recommend that MDE define occupancy in a similar way in the "Exemptions" section. Thus, this exemption should read: "The covered building was not occupied *for even one day* during the calendar year being reported."

...

Thank you for taking the time to consider the above recommendations, and for continuing to take into account the recommendations outlined in our earlier set of comments and included in the Appendix.

Sincerely,

Advance Maryland  
CASA  
Cedar Lane Environmental Justice Ministry, Unitarian Universalist Congregation, Bethesda  
Chesapeake Climate Action Network

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<sup>16</sup> D.C. Department of Energy and Environment, *Building Energy Performance Standards Compliance and Enforcement Guidebook for Compliance Cycle 1*, § 5.2.1.

<sup>17</sup> BEPS Regs. Ch. 04 § .02(A)(2).

<sup>18</sup> *Id.* Ch. 02 § .02(A)(2) (emphasis added).

Climate Communications Coalition  
Climate Reality Greater Maryland  
Climate XChange  
Elders Climate Action Maryland  
Green & Healthy Homes Initiative  
Howard County Climate Action  
Indivisible Howard County  
Maryland League of Conservation Voters  
Maryland Legislative Coalition  
Maryland Legislative Coalition Climate Justice Wing  
National Housing Trust  
Policy Foundation of Maryland  
Rebuild Maryland Coalition  
Sierra Club, Maryland Chapter  
Unitarian Universalist Legislative Ministry of Maryland

## APPENDIX

March 21, 2023

To: Secretary Serena McIlwain  
Maryland Department of the Environment  
Montgomery Park Business Center  
1800 Washington Blvd.  
Baltimore, MD 21230

CC: Director Paul Pinsky, Maryland Energy Administration  
Chris Rice, Chief of Staff, Maryland Energy Administration  
Suzanne Dorsey, Deputy Secretary  
Mark Stewart, Manager, Climate Program Program, Maryland Department of the Environment  
Chris Hoagland, Director, Air & Radiation Administration, Maryland Department of the Environment

Dear Secretary McIlwain,

The Maryland Climate Partners appreciate the opportunity to comment on the Building Energy Performance Standards (BEPS). We write to commend the Maryland Department of Environment (MDE)'s work to develop regulations and aligned implementation programs for BEPS policy, as required by the Climate Solutions Now Act of 2022. Impactful, equitable implementation of BEPS is vital to the success of the Climate Solutions Now Act and Maryland's plans to act on climate change.

We support rooting BEPS regulations and implementation in equity considerations to maximize the benefits to Maryland's frontline environmental justice and low-income communities. Protecting housing affordability through the BEPS regulations, expanded retrofit support programs, and potential future policies should be a primary goal of this work. To that end we are providing the following recommendations.

### **A. Building Energy Performance Standard Regulations**

To maximize the equitable impact of the BEPS regulations themselves, we offer three recommendations.

#### **(1) Infeasibility Criteria for Regulated Affordable Housing**

Regulated affordable housing faces unique financial challenges, such as an inability to take on new debt between recapitalizations, limited cash flow due to restricted rents, and restrictions on using reserves for building improvements in regulated housing. MDE should adopt financial hardship and economic infeasibility criteria that are specific to regulated affordable housing. For example, the Department of Energy and Environment of Washington, DC allows affordable housing owners to apply for a delay in compliance if they can document constraints on using cash flow for energy efficiency measures, such as deed or covenant restrictions on the usage of their net cash flow, or prohibitions on utilizing a portion of their existing cash reserves.

## **(2) Direct Emissions and Site Energy Use Intensity**

Improving overall efficiency of buildings is important not only for lowering emissions, but also for lowering energy cost burdens for low-income residents. We recommend that MDE use both emissions and energy use intensity (EUI) metrics for setting BEPS requirements. Emissions metrics are important in terms of climate impacts and building electrification, while EUI can more directly encourage cost-saving efficiency measures for owners and tenants.

## **(3) High Standards for Usability and Accessibility**

Regulations and supportive information, such as how-to guides and trainings, will be building owners' and tenants' windows into BEPS policy. MDE should prioritize these resources' clarity and accessibility. BEPS regulations should require that resources and guides are translated into the languages spoken and read by their target audiences. Resources should be written in as plain language as possible, acknowledging data regarding residents' reading proficiency and numeracy. The building data acquired from BEPS-related reporting should be made easily accessible to the public through an easy-to-use public-facing disclosure page in multiple languages.

## **B. Implementation and Complementary Policy**

MDE must ensure building owners, tenants, and contractors learn about and comply with the regulations through sound implementation. Systemic thinking about how BEPS interacts with other energy and built-environment policy will maximize success. For example, MDE should prioritize the following:

### **(1) Streamlined Access to Incentives and Financing**

We urge MDE and other state agencies to work to expand incentives and financial assistance programs with a focus on alleviating cost concerns for affordable housing, both regulated and naturally occurring. The State should seek to provide or facilitate access to funds to cover as high a proportion of multifamily retrofit costs as possible, to alleviate the risk of owners increasing rents to cover BEPS compliance costs.

We suggest the creation of a Retrofit Accelerator Hub focused on providing technical assistance, resources, and information to facilitate BEPS compliance. The Hub should conduct community and covered building outreach regarding expanded state-issued EmPower and federal Inflation Reduction Act funding opportunities in the language and media most appropriate to each community. The Hub should also direct funding to affordable housing building owners; coordinate access to other energy programs available through the Department of Housing and Community Development and the Maryland Clean Energy Center; and streamline access to green banks and financing options available from local, state, and federal programs. MDE may draw on the experience and outcomes of existing programs such as Washington, DC's Retrofit Accelerator and the NYC Accelerator. Such a Hub should also provide workforce development opportunities in the form of training and apprenticeship programs for installation of heat pumps, electrical infrastructure, and other vital building trades. MDE should coordinate with State programs involving navigators, or individuals who facilitate access to energy-saving programs, such as that proposed in House Bill 904.

## **(2) Tenant Protections**

To the extent possible, the State should condition retrofit support for multi-family dwellings on building owners' commitment to maintain affordable rents for a certain duration. Pennsylvania's Whole Home Repair Act, for example, offers grants as well as loan forgiveness to small landlords who offer 3-year lease extensions to tenants and do not raise rents by more than 3% annually.

## **C. Potential Future Policy**

We encourage the Maryland state legislature to take additional steps to further strengthen BEPS and ensure it benefits low-income frontline communities first and foremost.

### **(1) Enforcement of EUI Requirements**

The text of the Climate Solutions Now Act limits the methods MDE can use to incentivize compliance with EUI requirements. Strengthening the enforcement measures of BEPS for EUI metrics will help to encourage whole building energy efficiency solutions that lower energy cost burdens. At a minimum, the enforcement of EUI requirements should reach parity with the enforcement of direct emissions standards.

### **(2) Expanded Tenant Protections**

In the public disclosure for BEPS, future policy updates should require the publishing of average electrical and gas costs for current or past building occupants so prospective renters can make housing decisions based on the true cost of occupancy. Tenants should be guaranteed the right to have environmental tests on mold, radon, methane, and other indoor air quality risks completed at no cost through State programs, and these assessments should be integrated, when feasible, with work undertaken by landlords to comply with BEPS. Finally, MDE's authority to protect tenants from retrofit cost pass-through should be expanded.

Tenant protections and affordability of rental properties should be a key focus for the Building Energy Transition Implementation Task Force. MDE should compile questions, concerns, and recommendations on this topic that are received during the BEPS regulation process, especially strategies exceeding its current authority, and transmit these to other agencies and as part of any report to the General Assembly.

Thank you for considering these comments. We look forward to continuing to support MDE's implementation of the Climate Solutions Now Act and the Building Energy Performance Standards.

Sincerely,

Tom Taylor  
Beaverdam Creek Watershed Watch Group

Lee McNair  
Cedar Lane Environmental Justice Ministry

Jose Coronado-Flores  
CASA

Katlyn Schmitt

Center for Progressive Reform

Mike Tidwell  
Chesapeake Climate Action Network

Frances Stewart  
Climate Reality Greater Maryland

Leslie Wharton  
Elders Climate Action Maryland

Nanci Wilkinson  
Environmental Justice Ministry  
Cedar Lane Unitarian Universalist Church

Kathy Bartolomeo  
Greenbelt Climate Action Network

Ruth White  
Howard County Climate Action

Richard Deutschmann  
Indivisible Howard County  
Climate Action Team

Lotte Schlegel  
Institute for Market Transformation

Jonathan Lacock-Nisly  
Interfaith Power & Light (DC.MD.NoVA)

Nina Beth Cardin  
Maryland Campaign for Environmental  
Human Rights

Rebecca Rehr  
Maryland League of Conservation Voters

Laurie McGilvray  
Climate Justice Wing  
Maryland Legislative Coalition

Cecilia Plante  
Maryland Legislative Coalition

Josh Tulkin  
Maryland Sierra Club

Karl Held  
Montgomery County Chapter  
The Climate Mobilization

Staci Hartwell  
Environmental and Climate Justice  
Committee  
NAACP Maryland State Conference

Todd Nedwick  
National Housing Trust

NANCY C. HUDES, ESQUIRE



June 2, 2023

Via Email [BEPS.MDE@maryland.gov](mailto:BEPS.MDE@maryland.gov)

Maryland Department of Environment

1800 Washington Boulevard

Baltimore, Maryland 21230

Re: Comments on draft BEPS regulation

Dear Sirs:

This letter includes my preliminary comments on the draft Building Energy Performance Standards regulation dated May 15, 2023.

I am an attorney and while we have worked with clients and other stakeholders in environmental matters including greenhouse gas emissions and otherwise in this space, these comments are my own and not on behalf of a particular client.

That the released draft regulations do not include what is identified as MDE "Technical Memorandum 23-01" dated June 2023, is more than just a little problematic, but may make all of this irrelevant? That document should be released, in draft or otherwise, promptly.

There is much I could comment on, but in the interest of efficacy, I will make only 11 comments:

1. That the schedule for these regulations, described in the legislation, has not been followed is problematic for the business community including the real estate industry which thrives on certainty. The prolonged uncertainty in implementing this sweeping program will no doubt suppress commercial real estate values in the State. Serious consideration should be given to moving out the hard dates for businesses to act as prescribed in the statute.
2. On page 2, the definition of the benchmarking tool and as the sole method to report data as Portfolio Manager is problematic for several reasons including: will Energy Star scores be tempered to rank each building against 'average buildings of similar construction' in Maryland (i.e., not nationally)? Energy Star scores are a moving target that increase over time, which is not something the statute permits. Energy Star presents very real concerns about who owns the GHG emission data, including confidentiality (see more on this below). At a minimum, there should be more than one way to benchmark and report data.

Moreover, if a building actually reduces its GHG emissions by 20% in advance of January 1, 2030, such should be in compliance with the requirement irrespective of Energy Star. Of course, without more information from MDE it is not possible to know what is contemplated but if the expectation is that all covered buildings will have an Energy Star score of 80 or better by January 1, 2030, such is not what the statute contemplates and is simply not practicable.

3. On page 8, the concept of “third party verification” of benchmarking reports is introduced, but today only EPA allows a broad breadth of those third parties, but across the country it may be attorneys at law who most often provide that type of verification (e.g., opinions of counsel on green bonds on Fannie Mae green project mortgages, etc.); and accountants provide it in SEC matters and the like. Any definition should be broad including that attorneys, accountants and others can provide those verifications.
4. Apparently, the proposed regulations are devoid of the statute’s required “special provisions or exceptions” including for buildings where the commercial tenant installed, owns and is responsible for the building energy systems. This is a major void.
5. Similarly, that section of the statute could be used to address residential condominiums where the law burdens the building owner, but the building energy systems are owned and controlled by individual unit owners.
6. The regulations do not include variance or waiver provisions and not only would such ameliorate the harsh effects of the law, but could provide real and good alternative compliance paths to achieving Maryland’s ultimate net zero goals.
7. The regulations do not provide for compliance by way of offsets. Offsets through Maryland based organics recycling facilities including food waste based compost allows Maryland businesses to do more to reduce their GHG, and provides for flexibility in meeting the State’s requirements while allowing for ease in auditing. By way of example, reducing food waste is another of the several of the aims of SB 528 of 2022, not only from the perspective that it is the single most common material landfilled in the U.S., but results in more than 14% of total U.S. methane emissions and more than 8% of anthropogenic GHG emissions, offering an opportunity for meaningful reductions. SB 528 identifies pursuing organics recycling facilities, and offsets associated by means of organics recycling, including food waste contributed to nutrient rich soil amendment and compost should be provided for in these regulations.
8. Significantly, these regulations do not address who owns the GHG emissions data the State now wants calculated, collected and reported? SB 528 of 2022, only provides,

**(D) ELECTRIC COMPANIES AND GAS COMPANIES SHALL PROVIDE ENERGY DATA, INCLUDING WHOLE-BUILDING AND AGGREGATE DATA, TO THE OWNERS OF COVERED BUILDINGS FOR BENCHMARKING PURPOSES.**

And then these regulations add on page 7

Nothing in this regulation shall be construed to permit a building owner to use tenant energy usage data for purposes other than evaluation of the performance of the building.

If there is any one issue that must be addressed, it is this. Matters of accuracy, transparency, and incentives are key considerations for ensuring that this data is effectively used to address the challenges

of climate change. Today, organizations must mitigate the risk associated with keeping their own data safe and this regulation must address that but it does not.

9. On page 8, excluding electric vehicle charging from the benchmarking report is not authorized by statute and will not only result in a jaundice report but has MDE picking winners and losers in forms of transportation. The legislature chose to protect first floor restaurants, but it did not choose to protect electric vehicle charging. This should be deleted.

10. On page 11, the entire new subsection requiring disclosures before a contract of sale is entered into for a covered building is inappropriate, not authorized by any statute and could only negatively alienate the sale of real estate across the state. I know of no similar requirement promulgated by regulation and not authorized by statute. And requiring a buyer's signature on the addendum simply does not reflect the reality of how contracts are entered into and real estate transferred. This provision should be deleted.

11. On page 17, the alternative compliance pathway is abusive and not what the legislature contemplated. When the General Assembly enacted SB 528 in April 2022, the social cost of CO<sub>2</sub> as estimated by the EPA was \$51 a metric ton. Politics in Washington DC being what it is, as a result of a change of the party in the White House, the social cost of greenhouse gas is now estimated at between \$180 and \$230 a metric ton; so to use that larger measurement (i.e., GHG versus CO<sub>2</sub>) and higher dollar (not \$51 but \$230) and to add an annual CPI escalation is not what the legislature enacted and is not supported by fact.

Maryland has enacted the most rigorous state law in the country reducing GHG emissions and otherwise addressing climate change. The real estate industry can and should treat this as the greatest responsibility and opportunity of our time. But for such to be implemented, substantial revisions to the proposed regulations are necessary and proper.

Thank you,

Nancy C. Hudes

NCH:tbm



## FOUNDERS

David Gottfried  
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June 2, 2023

Maryland Department of the Environment  
1800 Washington Blvd.  
Baltimore, MD 21230

### RE: Draft Maryland BEPS regulation

To the Maryland Department of the Environment:

On behalf of the [U.S. Green Building Council](#) (USGBC) and our community of over 1,400 LEED-credentialed professionals and 134 member organizations located in Maryland, **thank you for the opportunity to provide comments on the draft building energy performance standard regulation.**

USGBC is a nonprofit organization dedicated to transforming the way buildings and communities are designed, built and operated, enabling an environmentally and socially responsible, healthy, and prosperous world. Best known for our flagship green building rating system [Leadership in Energy & Environmental Design \(LEED\)](#), which is a nationally recognized standard that takes a holistic approach to whole-building performance. LEED enjoys strong market uptake in Maryland: it has been consistently featured on USGBC's [Top 10 States for LEED](#) list, which ranks states based on new LEED-certified gross square footage per capita in a calendar year, since the list's inception in 2010.

We are deeply supportive of a building performance standard to improve the performance of Maryland's existing buildings. Across the country, existing buildings remain a blind spot in policy, with most building policies targeting new construction, whose volume is minimal compared to the existing building stock.

While tackling energy use intensity is a critical component of increasing building performance, we hope that the Department will encourage eligible buildings to reach the highest level of building performance – net zero. USGBC conceived [LEED Zero](#), a complement to LEED that verifies the achievement of net zero goals in existing buildings, including net zero energy, carbon, water, and waste. Project teams can rely upon the mature support systems, extensive resources and education, system updates reflecting emerging practices, use of performance measures, and market feedback.

Moreover, to maximize positive impact, we recommend including a requirement for non-complying buildings to create a plan for future compliance.

Thank you again for the opportunity to provide comments on this draft. We are greatly appreciative of the Department's commitment to transparency during this process.

Sincerely,

*Rebecca Price*

Rebecca Price  
State Advocacy Specialist  
[Rprice@usgbc.org](mailto:Rprice@usgbc.org)



The affected buildings should not only prioritize energy efficiency but include provisions for bird safety when renovated or newly built. The Sustainable Buildings Act of 2023 outlines provisions for bird safety which also increase energy efficiency, accomplishing two goals with one effort that will reduce greenhouse gas emissions. Appropriately placed patterned line decals, shaded windows, no unnecessary lights indoors at night, and outside lights directed downward will reduce bird deaths and injuries greatly with no significant cost differential for new buildings and only limited costs for renovated buildings. We cannot afford to lose more birds from unnecessary bird glass collisions and the cost for preventing these atrocities is minimal,



June 5, 2023

Maryland Department of the Environment  
1800 Washington Boulevard  
Baltimore, Maryland 21230

Re: Comments on Draft Building Energy Performance Standards Regulations

TradePoint Atlantic (“TPA”) is a 3,300-acre global logistics center, featuring an unmatched combination of access to deepwater berths, rail, and highways. TPA is the largest and most strategically important multi-modal industrial tract on the eastern seaboard and is home to thirty-six world-class tenants, who employ over 12,000 people who travel to the site daily.

For your consideration are the following proposed regulation revisions:

Page 1, item (2) - Definition of “Agricultural building”: please include structures for the “storage or distribution” of agricultural items.

Page 2, item (12) - Definition of “Building owner”: please include that a ground lease tenant that owns the improvements is the “Building owner”.

Page 2, item (13) & Page 18 – Chapter 04, Section .03 (A): please revise both the definition of “Campus” and the “Option for Campus-Level Compliance” to include industrial parks or collection of buildings within 100 miles of one another under common beneficial ownership. Remove language related to a single cohesive property with a single shared primary function.

Page 5, item (37) - Definition of “Tenant”: please clarify that a “Tenant” is not intended to include a ground lease tenant that owns the building.

Page 7 - Chapter 02, Section .05 (Disclosure of Covered Building Benchmarking and Performance Standards Information: With respect to information/materials that must be provided to a buyer, how far back (i.e., how many years) does the seller need to provide this information? And what are the consequences for failing to make the necessary disclosures (including the requirement contract language) or to deliver the information to the buyer? Is the contract void, voidable, are their civil damages, etc.?)

Page 17 – Chapter 04, Section .01 A (3) - annual fee rates are set to increase by the “Consumer Price Index”- which CPI category and geographical region would apply?

Recognizing that wind and solar projects can create carbon offsets, please include language to Chapter 04 Alternative Compliance and Special Provisions that includes renewable energy credits.

Once the technical guidance is available for review related to the Department’s TM 23-01, “Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards”, we request the opportunity to review the information and to provide additional comments prior to regulation adoption.

Sincerely,

*Kristin King*

Kristin King  
Director of Corporate Affairs

GORDON·FEINBLATT<sup>LLC</sup>  
ATTORNEYS AT LAW

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June 2, 2023

VIA EMAIL ([BEPS.MDE@maryland.gov](mailto:BEPS.MDE@maryland.gov))

Maryland Department of Environment  
1800 Washington Blvd.  
Baltimore MD 21230

Re: Stakeholder Comments from MBIA and NAIOP on Draft BEPS

These comments on the May 2023 Draft are submitted on behalf of the Maryland Building Industry Association and endorsed by NAIOP. (NAIOP will also be submitting separate comments.) Together the two organizations represent the vast majority of building owners who will be directly impacted by the draft regulations.

Although both organizations support appropriate efforts to responsibly reduce greenhouse gas emissions from buildings, they strongly object to the proposed draft for the following reasons.

I. Energy Use Intensity Targets should not be mandatory and should be significantly amended.

In direct contradiction to the provisions of the Climate Solutions Now Act (CSNA or the Act), the draft imposes an entirely new and separate regulatory regime that conflicts with the clear intent of the CSNA to regulate “net direct greenhouse gas emissions.” Instead of limiting itself to the provisions directly authorized by the CSNA, the draft seeks to regulate Energy Use Intensity (EUI) without including any of the carefully crafted provisions concerning buildings established in the CSNA.

The draft seems to rely upon a single reference in the CSNA indicating that the regulations adopted under section 2-1602 “include energy use intensity *targets* by building types” (emphasis added). MDE seems to ignore the fact that the authority granted by section 2-1602 was solely to adopt regulations that reduced “direct greenhouse gas emissions”. Identifying an EUI “target” was simply a minor component of regulations directed to those greenhouse gas reductions.

Even the authority to adopt regulations, as pointed out below, was carefully defined and limited by numerous additional provisions. The Department skipped these limitations and, instead,

decided that a “target” gave the Department the authority to adopt an entirely different regulatory scheme to run parallel with the reduction in direct greenhouse gas emissions.

The Department should, instead, have followed the express provisions of the CSNA and included EUI targets that owners of buildings would use to voluntarily access the efficiency of their buildings compared to similar buildings. At no point did the legislature suggest that the Department should subject building owners to potential fines of up to \$25,000 per day for failing to meet an EUI “target.”

First, the Department should start with the plain language of the statute. The legislature did not direct MDE to adopt enforceable standards, or limits, or mandates, or requirements for EUI. MDE was directed to adopt “targets.” Targets are items that are aimed for and often missed.

Indeed, the draft regulation calls for building owners to use EPA’s Energy Star® Portfolio Manager® which expressly states that it is designed to “Benchmark Your Building.” It is intended to be a voluntary tool for use by a building owner; not an enforceable mechanism for Maryland agencies. EPA describes the Manager as “an interactive resource management tool that enables *you* [the building owner] to benchmark use of any type of building, *all in a secure online environment*” (emphasis added). MDE’s draft requires public reporting of the EUI results – hardly a secure environment – and is to be used by the Department to force action. The listed purposes of the tool by EPA are all actions to be voluntarily taken by the building owners – for example, identifying best practices and earning recognition for success. None of the uses involve governmental enforcement.

The Department should use the reporting provisions of the CSNA to record direct building emissions and use the Portfolio Manager, if at all, solely for its intended purpose - to provide data for the voluntary use of building owners. This also means that separate reports from tenants would not be required. The third-party verification provisions should also be stricken as those provisions are not needed for a voluntary report nor authorized by the Act.

Second, in putting together the draft, MDE clearly relied heavily on a non-profit called the Institute for Market Transformation or IMT. IMT promoted an EUI regulatory scheme that closely mirrors the provisions grafted on to the net greenhouse gas emissions provisions of the draft regulation. However, IMT itself recognized that the schemes are different. As IMT’s Cliff Majersik states in an article comparing the EUI scheme adopted by Montgomery County: “On April 9, Maryland’s Climate Solution Now Act became law; it includes *a very different BEPS* with a similar goal of building related carbon reduction. ... *There are important differences between the two laws.*” (Emphasis added.) The April 22, 2022, publication then goes on to point out that the EUI standard discourages building owners from using electric resistance heating while “Maryland BEPS’s narrow focus on direct emissions” would allow owners to use electric resistance heating. In other words, the EUI scheme is designed to prevent building owners from using a type of heating (resistance) that the CSNA specifically allows.

Third, the General Assembly carefully limited the costs that building owners would incur in attempting to comply with the CSNA. The costs were capped by allowing an alternative compliance fee that could be paid by the building owner in lieu of making expensive alterations that might otherwise be required by the Act. Although we believe that the proposed fees in the draft are too high, the draft does, at least, preserve the option of paying a fee if the cost of meeting the net greenhouse gas reduction requirements is prohibitive.

However, under the draft, the compliance fees are not an alternative for meeting the EUI “targets.” Instead, building owners who fail to meet those targets would be violating an air quality regulation and therefore subject to potential civil penalties of \$25,000 a day under Env 2-610 or administrative penalties of \$2,500 a day under Env 2-610.1. Hopefully the Department would not routinely assess such large penalties, but no building owner wants to voluntarily violate an environmental regulation and every building owner would be aware of the size of the potential penalties.

This is not simply a drafting error. The Act makes it clear that the compliance fee is only for failure to meet the net greenhouse gas reduction requirements. No mention is made of EUI *because the General Assembly never contemplated that EUI would be a regulatory mandate.*

Fourth, the General Assembly repeatedly made it clear that the building provisions of the Act were designed to deal with “direct emissions” defined as “gas emissions produced *on-site* by covered buildings. (Env 2-1601 (F), emphasis added). For example, page 91, lines 24 to 26 provide that the Department shall require the owners of covered buildings “to measure and report *direct* emissions” (emphasis added).

Significantly, the legislature specifically deleted the requirement that the reports would “use the energy star portfolio manager ... to collect and report benchmarking data.” The reason is obvious, EUI and the portfolio manager is designed to reduce electricity use even if the electricity is produced off-site. In other words, the EUI standard is directed at all emissions, whether “direct” or not. That is the reason why IMT emphasizes that the EUI standard would penalize resistance heating – which does not produce any direct emissions and is therefore permissible under the Act.

This clearly is contrary to the legislative intent and also exceeds the authority in Env. 2-1602 to develop building energy performance standards for covered buildings that achieve “direct” greenhouse gas emissions. Indeed, the legislature specifically amended the Act to specify that only “direct” emissions could be the subject of the new regulations. (Page 91, lines 10 and 13).

This departure from the General Assembly intent is also clearly shown in the treatment of district energy. The draft expressly makes buildings connected to district energy systems responsible for greenhouse gas emissions that are *not* “direct.” The Assembly made it clear, again and again, that the purpose of the building provisions was to make building owners responsible only for their own emissions, not for emissions at a generating plant. The same issue, of course, applies to the entire concept of requiring building owners to pay environmental penalties because their buildings consume ‘too much’ electricity generated off-site.

Fifth, the Act clearly defined a set of “special provisions or exceptions” that were to be accounted for. These included “regional differences.” However, the EUI standards do not include any regional differences in requirements – even though resistance heating may offer significant cost advantages compared to heat pumps in colder regions of the state. Also included was a special provision or exception for the use of biofuels. The EUI standard has no provision treating biofuels or electricity produced by biofuels differently. Similarly, the Act provides a \$5 million dollar grant program to assist multifamily residential buildings in dealing with “direct greenhouse emissions.” No provision was made for grants to deal with EUI – because the legislature did not anticipate mandates to deal with EUI.

Finally, the Act specifies that the regulation must “provide maximum flexibility to the owners of covered buildings to comply with building energy performance standards.” (Env. 2-1602((a)(iv)). The EUI standard provides no flexibility, instead imposing a “straight-line trajectory” set in accordance with a “Technical Guidance” document which has not been issued. The only exemption from the benchmarking requirement is a building which is unoccupied, is forfeited to a tax lien sale or in bankruptcy. Surely those items do not reflect “maximum flexibility.”

One clear example of the failure of the draft to provide “maximum flexibility” is the adoption of IMT’s use of a “straight-line” improvement in building efficiency. That is not the way that the real world works.

Building owners typically upgrade HVAC equipment when it nears the end of the equipment’s useful life. Efficiency improvements therefore occur in steps as equipment is upgraded. Upgrading each year would be expensive and wasteful since fully useful equipment would be scrapped. The Act allowed for this possibility by allowing owners to pay an alternative compliance fee until the equipment could be upgraded. The reductions in greenhouse gases would be achieved but at a reasonable cost and with “maximum flexibility.” The draft completely ignores this requirement in violation of the legislative instruction. This also indicates that the 2035 interim mandate should be removed from the draft.

The establishment of interim direct emission standards by building types before the 2025 data is gathered also violates the provisions of the Act. The Act requires reporting by building owners of direct emissions starting in 2025. *Using that data*, the Act then requires the Department to develop baselines for buildings “of similar construction” (SB528, page 91, line 12). The Act then requires a 20% reduction *from those baselines* by building type for 2030. The reductions were to be based on real-world data gathered from Maryland buildings.

The draft simply skips the gathering of data to establish the baseline and selects an interim standard. It is not clear what data was used for that standard. Is it local? Is it based on information from geographic locations with different climates? Different average building ages? The one thing that is clear is that the interim standards are not based on the 2025 data which has not yet been gathered. The interim standards should be deleted and added back only once the 2025 data is compiled.

## II. The Plain Language of the Statute Cannot be Ignored.

It is a well-settled principle that the primary objective of statutory interpretation is “to ascertain and effectuate the intention of the legislature.... The first step in this inquiry is to examine the plain language of the statute, and “[i]f the words of the statute, construed according to their common and everyday meaning, are clear and unambiguous and express a plain meaning, we will give effect to the statute as it is written.” *Dept. of Human Resources v. Hayward*, 426 Md. 638, 649-650 (2012) (citations omitted).

As discussed above, the statute refers to an EUI “target,” not a limit or a mandate or a requirement. In contrast, the statute requires the Department to adopt “energy performance standards” to “achieve ... net direct greenhouse gas emissions” (SB 528, page 91, lines 7 to 10). Significantly, the only place where the direct greenhouse gas emission reductions are referred to as a “target” rather than a “standard” is the section which allows the building owner to pay a fee in order to avoid complying with the reductions – in other words, the section that makes it clear that the building owner does not have to meet the “standard” if the fee is paid (SB528, page 93, line 2).

On the other hand, the bill used the word “target” to refer to items that were not obligatory and used for planning purposes. *See*: “low-income household holistic retrofit *targets* and heat pump sales *targets*” (SB528, page 99, lines 17 and 18).

The use of the word “target” is plain language that the energy intensity provision was not meant to be a binding requirement subject to penalties. But the context also makes it clear.

In determining the legislative intent, the courts look at the language in the context of the entire statutory scheme. “The legislative intent can be ascertained through an analysis of the plain language of the statute and from consideration of its context within the statutory scheme as a whole.” *Comptroller v. Clyde’s of Chevy Chase, Inc.* 377 Md 471, 483 (2003).

As discussed above, the elaborate regulatory scheme established by the Act – with alternative compliance fees and special consideration of certain types of buildings and activities, makes it clear that the legislature’s focus was on direct emissions from buildings. Indeed, the bill refers to “direct” emissions at least nine times as compared to the passing reference to including an EUI “target.”

“In addition to legislative history, we may and often must consider other external manifestations or persuasive evidence in order to ascertain the legislative purpose behind a statute. Specifically, [courts] should consider the context of the bill, including the title and function paragraphs, the amendments to the legislation as well as the bill request form. [Courts’] may also analyze the statute’s relationship to earlier and subsequent legislation, and other material that fairly bears on the fundamental issue of legislative purpose or goal, which becomes the context within which we read the particular language before us in a given case.” Unreported decision in *Frederick County v. Maryland Public Service Commission*, 2022 WL 17578907 (2022), quoting *Blackstone v. Sharma*, 461 Md. 87, 113 (2018).

Nothing in the title of the bill refers to energy use intensity. Significantly, the Department's only grant of authority to issue building regulations is to "develop building energy performance standards" ... that "achieve ... a ... net reduction in direct greenhouse gas emissions..." (SB528, page 93, line 31 to page 94, line 2). The language about EUI is not for a new, separate, regulatory scheme but, instead, an inclusion in the regulations to be adopted about direct greenhouse gas emissions. Clarifying that EUI was not the focus of the regulatory requirement, the words were stricken from language about alternative compliance fees (SB 528, page 95, line 22).

From this context, it is clear that the legislature never intended to establish the wide ranging EUI regulatory scheme promoted by a non-profit and proposed for adoption by the Department in the draft regulations.

III. The Alternative Compliance Fee is too High

The Act provides some guidance to the Department is setting the alternative compliance fee. Specifically, the Act provides that the fee may not be "less than the social cost of greenhouse gases" as adopted by EPA. The draft regulations, of course, propose fees that are multiple times the current EPA published number. Compared to EPA's current published number of \$51 a ton, or even the \$190 a ton expected by many commentators, the draft imposes fees that climb from \$230 to \$270 – and then adjusts those fees upwards for inflation.

This completely ignores the requirement in the statute that the Department provided "maximum flexibility" to building owners. Instead, it attempts to bludgeon owners with the highest possible fees.

IV. Summary

The Department should delete the sections that make energy use intensity a mandate and, instead, should include the reporting of the portfolio results as a target for use by building owners to voluntarily improve building efficiency. The draft could include voluntary targets for building owners to self-assess their progress. The interim standards should be removed from the draft and added back only once the 2025 baseline is established. All requirements that make building owners responsible for off-site emissions should be deleted. The Department should also reduce the alternative compliance fee to a reasonable number properly tied to EPA's current estimated social costs, perhaps with a mechanism for adjustments if and when EPA readjusts their cost estimate.

Sincerely,

*Michael C. Powell*

Michael C. Powell

MCP/dms

June 5, 2023

**VIA EMAIL: BEPS.MDE@maryland.gov**

Mr. Mark Stewart, Program Manager  
Climate Change Program  
Maryland Department of Environment  
1800 Washington Boulevard  
Baltimore, MD 21230

RE: Housing Authority of Baltimore City  
Comments on the May 2023 Draft Regulations  
Building Energy Performance Standards

Dear Mr. Stewart:

On behalf of the Housing Authority of Baltimore City (“**HABC**”), this letter sets forth HABC’s comments to the 2023 draft regulations regarding the Building Energy Performance Standards (the “**Regulation**”). HABC was created under Maryland law as a public body corporate and politic, pursuant to Md. Code Housing and Community Development Article, Division II to provide housing to eligible low-income families in Baltimore City. HABC receives operating and capital funds from the U.S. Department of Housing and Urban Development (“**HUD**”) to operate and maintain public housing developments and units owned by HABC, and its instrumentalities. Accordingly, HABC is required to comply with all applicable federal regulations in connection with the use of the federal funds.

HABC is providing the following comments on the BEPS Regulations.

1. Page 3, Chapter 01, Section .02 Definitions. B (15)(d)(v) A building owned by the Federal government.

The draft Regulation exempts “[a] building owned by the Federal government.” Although the phrase “owned by the Federal government” is not further defined, this exemption appears to apply only to buildings for which the Federal government holds title to the property. HABC requests that this definition be modified to include housing authorities. As stated above, HABC, as a housing authority receives federal operating and capital funds to provide housing for low-income families in Baltimore City. The draft Regulation requires the owners pay a compliance fee or penalty for buildings that do not meet the net direct emissions standards. Pursuant to 2 CFR 200.441, federal funds cannot be used to pay fines and penalties. Therefore, HABC requests the definition be modified to include housing authorities so that the definition will read: “A building owned by the Federal government **and housing authorities**”.

2. Page 3, Chapter 01, Section .02 Definitions. (B)(18) “District Energy”

It is observed that this definition appears to be intended to apply to a “District Energy Provider” as subsequently presented in Section “.04” (Reporting Requirements of Utility Companies and District Energy Providers) rather than the concept of district energy. The following language is suggested:

“District Energy Provider” means an entity that provides to customers thermal energy generated at one or more central facilities that provides heating or cooling through a network of insulated underground pipes to provide hot water, steam, space heating, air conditioning, or chilled water to nearby buildings.”

3. Page 7, Chapter 02 Section .02 Reporting Requirements of Building Owners. A. Data Collection

This section proffers that building owners should enter energy consumption data in the benchmarking tool.

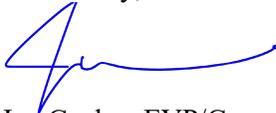
The apparent question to be considered is that of readiness, availability and compatibility of such workable benchmarking tool to be used, e.g., the existing BG&E Benchmarking Tool currently presents a challenge(s) when extracting data.

4. Page 10, Chapter 02 Section .04 Reporting Requirements of Utility Companies and District Energy Providers. B. District Energy Providers

This section addresses a requirement for district energy providers to provide energy consumption data and greenhouse gas factors to owners for benchmarking and compliance purposes. It is observed that the district energy provider is the entity responsible for generating/controlling CO2 emissions not the owner of the building(s). However, the regulations appear to make the building owner the responsible party.

Thank you for the opportunity for HABC to provide comments on the draft Regulation. We hope the draft Regulations will be revised to reflect the recommendations provided herein by HABC.

Yours truly,



Jan Goslee, EVP/General Counsel

cc: Janet Abrahams, HABC President and Chief Executive Officer  
Monica Watkins, HABC EVP/Chief Operating Officer  
Michael Wodka, HABC SVP Engineering, Energy and Capital Improvements  
James Anderson, HABC VP of Energy, Environment & Special Maintenance  
Rick Rentz, TA Engineering



# HUNT VALLEY BUSINESS FORUM

VIA EMAIL: BEPS.MDE@maryland.gov

June 5, 2023

Maryland Department of the Environment  
1800 Washington Boulevard  
Baltimore, Maryland 21230

To Whom It May Concern,

I am writing on behalf of the Hunt Valley Business Forum (HVBF), the business association that represents the Greater Hunt Valley Area, comprised of local property owners and business owners (Stakeholders), from Lutherville to Sparks. The Public Policy Committee (PPC) of the HVBF has met on multiple occasions and reviewed the Maryland Department of the Environment's (MD DOE) proposed Building Energy Performance Standards (BEPS) and have grave concerns regarding the aggressive timelines set forth in the BEPS on the mandatory percent reduction of GHG emissions and reporting requirements. In addition, local stakeholders have expressed concerns regarding the financial ramifications the above will have on their businesses.

The proposed standards are unachievable. Stakeholders will be forced to convert all gas fired equipment and appliances to electric in order to dramatically reduce their GHG emissions to attempt to comply with the Interim and Final Net Direct Emissions and final site EUI Standards referenced in the BEPS. In this instance, Stakeholders could potentially need to remove energy efficient gas fired systems (recently installed in some cases) and replace them with electric after incurring significant expense upgrading necessary electrical service. Systems such as boilers used for heating and hot water heaters have a useful life of 15-20 years. The cost to replace these systems is staggering especially if a system is only a few years into its useful life. Stakeholders have not received any confirmation that the electrical infrastructure can accommodate the capacity required for this conversion nor have they been given a plan for how they are expected to achieve the mandatory percent reduction of GHG emissions. Failure to comply with these standards results in draconian fines referred to as "Alternative Compliance Pathways" which could result in the financial ruin of Stakeholders businesses.

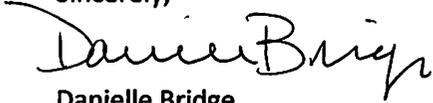
Additionally, the reporting requirements forced upon Stakeholders will inevitably require the hiring of third parties or additional staff to collect, manage and track energy consumption data adding additional administrative costs otherwise required by their day-to-day operations. With no information from the MD DOE on how to collect this data and no general reference material available on how to input the collected data into the Benchmark Tool, Stakeholders are not prepared operationally nor financially for these requirements beginning January 1, 2024.

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If this law must continue to be enforced, please extend timeframes in coordination with the electricity providers and provide a plan outlining how Stakeholders are expected to achieve the mandatory standards as well as minimize reporting requirements and extend timeframes for any reporting so that compliance is possible.

Sincerely,

A handwritten signature in black ink that reads "Danielle Bridge". The signature is written in a cursive style with a large initial "D" and "B".

Danielle Bridge  
Chairperson, HVBF Public Policy Committee  
& Board Member, HVBF

cc: HVBF Board of Directors

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[www.hvbf.org](http://www.hvbf.org)

June 5, 2023

Maryland Department of the Environment  
1800 Washington Blvd.  
Baltimore, MD 21230  
[BEPS.MDE@maryland.gov](mailto:BEPS.MDE@maryland.gov)



Dear Secretary McIlwain:

ICSC is the member organization for the advancement of the Marketplaces Industry, made up of shopping centers, malls and main streets, and the commerce they drive and the communities they create. Our member network includes property owners, developers, financial institutions, professional service providers and, importantly, shopping center tenants such as retailers, restaurants, gyms, childcare providers, and health centers. In Maryland, 1900 marketplaces with over 525,000 jobs, make up nearly 14% of the State's job force. For over 65 years, ICSC has promoted and elevated the marketplaces and spaces where people shop, dine, work, play and gather as foundational and vital ingredients to everyday life. On behalf of our Maryland membership, we are submitting the comments below that focus on our concerns with the currently proposed building energy performance regulations.

Our initial concerns are related to increased costs of new construction, increased administrative burdens and intricate compliance requirements.

Last year the State of Maryland passed the most aggressive greenhouse gas emissions goals in the nation. While the Climate Solutions Now Act (CSNA) of 2022 was designed to address net direct GHG emissions, Energy Use Intensity (EUI) standards were not a requirement in the statute. EUI standards are both costly and confusing and include GHG emissions from energy delivered to covered buildings from off-site generation. We would suggest the Department focus on net direct GHG emissions and remove EUI as a requirement.

The CSNA gives building owners the option to pay an alternative compliance fee if they cannot meet or exceed the GHG emissions standards. In the current draft of the Building Energy Performance Standards, there are no alternative compliance fees for failing to meet the EUI, only fines and significant civil penalties. While an applicable and reasonable compliance fee for net direct GHG emissions may be appropriate, we recommend removing the unnecessarily high fees for failing to meet EUI standards in the event it remains mandatory.

Finally, we have concerns that the proposed regulations will use the EPA's ENERGY STAR Portfolio Manager for both benchmarking data and as an enforcement tool. This will put additional administrative burden on building tenants, owners, and utility companies. ENERGY STAR should be used as a reporting tool to track and understand building efficiency and not as an enforcement mechanism.

We appreciate the opportunity to submit these comments and look forward to continuing to work with the Department to help clarify and define the new regulations contained in the MD Building Energy Performance Standards.

Sincerely,

Jim Hill  
ICSC  
VP, State and Local Government Affairs  
Office of Global Public Policy  
[jhill@icsc.com](mailto:jhill@icsc.com)

*If you have any questions regarding this document or ICSC please do not hesitate to contact Jim Hill ([jhill@icsc.com](mailto:jhill@icsc.com)), Sushant Sidh ([Sushant.Sidh@capitol-strategies.com](mailto:Sushant.Sidh@capitol-strategies.com)), or Michael Walsh ([Michael.Walsh@capitol-strategies.com](mailto:Michael.Walsh@capitol-strategies.com))*



June 5, 2022

Maryland Department of the Environment  
1800 Washington Blvd,  
Baltimore, MD 21230  
*Delivered electronically*

Re: Johns Hopkins University Comments on Draft Building Energy Performance Standard Regulations

To whom it may concern,

On behalf of Johns Hopkins University, I would like to sincerely thank you for the opportunity to provide feedback on the regulations regarding Maryland's Building Energy Performance Standards (BEPS). Johns Hopkins University (JHU) was a proud supporter of the Climate Solutions Now Act mandating the development of the regulations. Additionally, we committed to the fight against climate change by setting our own goal to reduce our greenhouse gas emissions by 51% from 2008 to 2025, which our university exceeded three years early in 2022. Therefore, we are now looking at setting a new goal to achieve net zero.

JHU believes the draft regulations are consistent with the statute and Maryland State Department of the Environment over the years. As such, JHU is simply requesting clarity on certain proposed provisions. Our questions and comments are outlined below by section.

## **Chapter 01 Definitions and Documents Incorporated by Reference**

### **.02 Definitions**

- If an owner has multiple geographically distinct campuses, should they be reported separately? For example, JHU has multiple primary campuses in north central Baltimore (Homewood Campus), East Baltimore, and the Applied Physics Laboratory in Laurel, should JHU submit three reports?
- If an owner chooses to report as a "campus" due to two or more covered buildings being connected to a central plant, should they include *all* buildings within the "campus" area regardless of whether they are connected to the central plant or operated as a standalone building?
- Please confirm whether covered buildings, not connected to a district energy system, are only reporting direct GHG emissions (Scope 1).
- Please clarify how to compute "Net Direct Greenhouse Gas Emissions" section (31) of this Chapter in the case of a covered building connected to a district energy system.

## **Chapter 02 Benchmarking and Reporting**

### **.02 Reporting Requirements of Building Owners**

- Please clarify the meaning of "beginning in 2025...". Will the first data collection be due June 1, 2025 for 2024 data or will the first report due by due June 1, 2026 for 2025? How does this relate to the establishment of 2025 as the "baseline year" also noted in 02(7)?
- Where can we find the Department's TM 23-01, *Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards*?

**Johns Hopkins Facilities & Real Estate**

3910 Keswick Road - N3100 | Baltimore, Maryland 21211 | 443 997 5302 | [www.fm.jhu.edu](http://www.fm.jhu.edu)

- We respectfully request that there be consideration for:
  - The age of buildings in Net Direct Emissions and Site EUI Standards;
  - The need for backup generators for certain building categories (as specified in the draft regulations) as well as the technical feasibility of replacing generators with battery storage or other systems that would lead to an exemption.
- Will MDE supply an approved list of third-party verifiers or stipulations as to what qualifications a third-party verifier must meet?

### **Chapter 3 Performance Standards and Compliance Demonstration**

#### **.02 Performance Standards**

- For all the Site EUI and Net Direct Emissions performance standards, please identify how the targets were derived? Can MDE point to a national standard or resource that was used to determine these performance thresholds?
- Please clarify what is a “college/university” property type and how would different building types be accounted for on a campus? If college or university owners report by building, can owners choose another (e.g. library? laboratory?) building type based on primary building use?
- Please explain the distinction and varying performance standards between Multifamily Housing, Residence Hall/Dormitory and Senior Living Community as they appear to be very similar in use.

### **Chapter 4 Alternative Compliance and Special provisions**

#### **.01 Alternative Compliance Pathway**

- Is the alternative compliance pathway only for net direct emissions standards as specified in section 01.A(1) or does this also include meeting the EUI performance standards?
- MDE should consider putting all collected fines into a fund for building owners within the same county/jurisdiction to access for capital improvements to bring buildings into BEPS compliance.

If you have any questions for JHU, please contact, Annie Coble, Assistant Director for State Affairs at [annie.coble@jhu.edu](mailto:annie.coble@jhu.edu). Thank you for your partnership.

Sincerely,

Robert McLean  
Vice President, Johns Hopkins Facilities & Real Estate



***Via Electronic Mail***

June 5, 2023

Maryland Department of the Environment  
1800 Washington Blvd.  
Baltimore, MD 21230

**Re: Draft Maryland Building Energy Performance Standards Regulation for Buildings  
35,000 Square Feet and Larger**

Dear Secretary McIlwain:

Thank you for the opportunity to comment on the May 2023 draft Maryland Building Energy Performance Standards (BEPS) Regulations posted to the Department's website on May 15, 2023. Columbia Gas of Maryland (Columbia) and Chesapeake Utilities Corporation (Chesapeake Utilities) recognize this proposed regulation was a significant undertaking by stakeholders and staff and we appreciate the ability to provide comments and ask questions for further clarification as the proposal continues through the rulemaking process.

As you may know, Columbia is a natural gas utility providing energy to more than 34,000 residential, commercial and industrial customers in the western Maryland counties of Garrett, Allegany and Washington. Chesapeake Utilities operates natural gas local distribution companies that serve approximately 32,000 customers on Maryland's Eastern Shore in Caroline, Cecil, Dorchester, Somerset, Wicomico, and Worcester Counties.

As public utilities, we are regulated by the Maryland Public Service Commission and have provided in the coldest months of the year safe, reliable, resilient and affordable service in the State for decades. As companies, Columbia and Chesapeake Utilities serve as a positive and informed resource in the ongoing energy and climate change discussions. In fact, the natural gas industry in general (and Columbia and Chesapeake Utilities in particular) have been a part of the largest reduction in greenhouse gas emissions in this country and will continue to drive the practical solutions needed to move forward.

The Columbia and Chesapeake Utilities leadership team believe climate change is real, and we are committed to reduce the greenhouse gas emissions of our operations and pursue opportunities to reduce customer emissions. However, such reductions must happen within the confines of the reality with which our energy is produced and consumed.

Diversity ensures the strength and resilience of any system - commercial, economic, ecological, social or political. That's why it is essential for Maryland's energy industry to leverage a diverse array of energy sources to ensure an equitable energy future for all.

Thanks to Maryland's existing natural gas system, the state is fortunate to have extensive existing infrastructure that can be used to store and deliver a range of energy resources, such as renewable natural gas (RNG) and/or hydrogen blended with natural gas. In addition to being more ecologically sound, these diverse fuel options ensure that energy providers can continue to deliver a dependable supply of energy to everyone across the socioeconomic spectrum. Natural gas remains a critical part of Maryland's diverse energy mix.

A number of key environmental and economic factors ensure that natural gas should continue to play a key role as a dependable and well-established Maryland source of energy in the years to come. For example:

- On a national average basis, natural gas today is 3.4 times more *affordable* than electricity for the same amount of energy delivered and more reliable with significantly less outages.
- Natural gas is an *essential energy resource* contributing to the nation's efforts to reduce greenhouse gas emissions. Since 1990, the miles of natural gas mains made of improved materials has more than tripled, and emissions from the natural gas distribution system have declined by 70 percent over that period.
- Moves across the energy industry to substitute natural gas for coal *improves air quality*. In fact, according to the International Energy Agency, switching from coal to natural gas reduces CO2 emissions by around 40 percent per unit of energy output.
- The natural gas industry is helping to *lead the way* into our shared energy future by investing millions of dollars to advance low- and zero-carbon energy technologies that will further reduce or eliminate emissions, and finally:
- According to the U.S. Energy Information Administration (EIA), the natural gas delivery system is 92% efficient from production to customer, where the electricity delivery system is less than 60% efficient.

Columbia and Chesapeake Utilities' specific comments on the proposed BEPS regulations are primarily focused on the reporting requirements of utility companies and district energy providers. The companies have the following comments and questions based on proposed requirements:

**Innovative Pathways for Compliance** – The companies urge the Maryland Department of the Environment (MDE) to not limit a gas utility's ability to be innovative to help customers reduce greenhouse gas emissions. The use of promising new technologies such as Renewable Natural Gas (RNG) and hydrogen, as well as emissions offsets, to reduce greenhouse gas emissions should be allowed as compliance pathways in the regulation.

The goal of the Climate Solutions Now Act of 2022 is to achieve net zero greenhouse gas emissions by 2045, and the Act does not prohibit the use of RNG, hydrogen, and emissions offsets to achieve this goal. In fact, the law states that "in developing and implementing the plans required by § 2-1205 of this subtitle, the Department shall... Provide for the use of offset credits generated by alternative compliance mechanisms executed within the State, including carbon sequestration projects, to achieve compliance with the greenhouse gas emissions reductions required by this subtitle...[and] encourage new employment opportunities in the

State related to energy conservation, alternative energy supply, and greenhouse gas emission reduction technologies, particularly in areas of the State experiencing low rates of employment or high concentrations of poverty.” Therefore, MDE should specify clear methodologies for compliance in the Department’s TM 23-01, “Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards” for RNG (i.e., biogenic emissions), hydrogen, and emissions offsets.

**Financial Impact To Our Customers and Regulatory Impact Analysis** – The companies have discussed the proposed regulations with a number of customers and stakeholders who think they might be impacted by the proposal, and there is significant concern related to potential future costs (administrative and civil penalties, compliance fees) building owners may be subject to for non-compliance or fuel/energy appliance switching in order to be in compliance. The companies urge MDE to reduce the proposed compliance fees and penalties on building owners. Furthermore, the companies request that the MDE publish a comprehensive Regulatory Impact Analysis that estimates the financial impact on energy customers and energy providers as a result of the proposed regulations. Please note the Climate Solutions Now Act of 2022 requires that “in developing and implementing the plans required by § 2–1205 of this subtitle, the Department shall... Consider whether the measures would result in an increase in electricity costs to consumers in the State... [and] Produce a net economic benefit to the State’s economy and a net increase in jobs in the State.”

**Cost Recovery** - Utility companies will incur new costs to implement the requirements of the proposed regulations. Can MDE confirm from their perspective that such reasonable and prudent costs incurred by utilities to track, maintain and provide to building owners aggregate energy consumption data for all covered buildings are considered recoverable in a base rate proceeding, subject to the Maryland Public Service Commission approval?

**Meter-To-Building Mapping** – Pages nine and ten of the proposed regulations reference “meter-to-building mapping” and utilities shall conduct it and ensure its accuracy. However, there is no definition of the term in the proposed regulation and the companies are unsure of what they may be required to do. Can the proposed regulation or MDE provide more information related to “meter-to-building mapping”?

**Privacy Of Customer Information** – The reporting requirements state utilities are required to “provide to the building owner accurate and timely information on the actual amount of electricity and/or gas delivered to a covered building”. In regards to multi-family rental unit buildings with individual meters, the companies are concerned the privacy rights of individual account holders/customers may be violated if a utility is required to provide the building owner with detailed customer usage information. The companies urge the regulations to allow aggregate building data in multi-family unit buildings to be provided to the building owner without the release of individual data that may violate privacy rights of our customers.

**Cyber Security** – The draft regulations on page ten state an “electric or gas utility company shall digitally transmit as a free service to the building owner energy data through the benchmarking tool.” The companies are unfamiliar with using the benchmarking tool. Has its mandated use been reviewed from a cyber security perspective by MDE? Columbia requests the department ensure the use of the tool by utilities meets all of the state of Maryland’s and the Maryland Public Service Commission’s cyber security requirements before our company’s technology platforms connect to the benchmarking tool.

**Identifying Buildings 35,000 Square Feet and Larger** – Columbia and Chesapeake Utilities have no detailed information or data on the size of its customers' buildings because customers are under no obligation to provide such information to us. Will the MDE provide a list of Maryland buildings 35,000 square feet and larger to utilities?

**Energy Use Intensity (EUI)** – A number of stakeholders the companies have engaged with recently regarding the proposed BEPS have expressed concerns regarding the inclusion of Energy Use Intensity (EUI) standards/provisions in the proposed regulations. Why was EUI included in the proposed regulations when the Climate Solutions Now Act of 2022 does not mandate EUI standards/provisions to be included?

**Additional Time For Comments** – The newly proposed regulations are complex and complicated. The companies recommend either extending the current comment period or adding an additional comment period before the proposed regulations move to the next step in the process to ensure Maryland's large building owners are aware of the proposal and what the potential financial and logistical impacts may be. Issuing a substantial proposed regulation such as the BEPS on May 15<sup>th</sup> and requesting comments within 14 business days that contains a national holiday weekend is unfair.

Thank you for your consideration of our comments and questions. We are available to answer any questions you may have.

Sincerely,



Scott M. Waitlevertch  
Manager, Government & Public Affairs  
Columbia Gas of Maryland  
(C) 724-888-9774



Steve Baccino  
Director, Regulatory & Government Affairs  
Chesapeake Utilities Corporation  
(C) 302-528-2169



# MARYLAND AFFORDABLE HOUSING COALITION

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Executive Director

*Miranda Darden-Willems*

June 5, 2023

Secretary Serena McIlwain

Maryland Department of the Environment

Montgomery Park Business Center

1800 Washington Blvd.

Baltimore, MD 21230

Dear Secretary McIlwain:

Thank you for the opportunity to provide comments on the draft BEPS regulations. The Maryland Affordable Housing Coalition (MAHC) is the leading advocacy organization for the affordable rental housing development industry in Maryland and represents over 185 member organizations, including nonprofit and for-profit developers, community action groups, State and local housing authorities, property management companies, financial institutions, community development organizations, contractors, investors, consultants and individuals. These regulations will directly impact our members affordable housing properties, and the limited income families and households who live in those properties. We were extremely disappointed that the draft regulations did not include any flexibility for these unique properties that provide much needed housing for the lowest income Marylanders. We highly encourage your office to coordinate with the Department of Housing and Community Development to ensure that subject affordable housing properties are provided adequate time and financial resources to become compliant. We encouraged such collaboration when we participated in your Affordable Housing Stakeholder meeting.

We recognize that BEPS is an important policy tool for Maryland to reduce emissions and improve air quality as well as to achieve better health outcome for residents. However, affordable housing property owners are unique in that the financing used to construct these properties limits the rents for 30 – 40 years. The limited incomes these properties generate means they have very limited operating dollars to improve or upgrade their properties, so large scale renovations must be planned years in advance and often only occur when the property is refinanced. If one of these properties needed to convert their utilities from gas to electric to comply with BEPS, the estimated cost is \$2+ million. According to CoStar data, there are over 600 affordable,



multifamily properties that are 35,000 sf and larger in Maryland that will be subject to BEPS, so the combined cost to bring them all into compliance grossly exceeds the grant resources that were included in the Climate Solutions Act. Therefore, **flexibility around compliance timelines and additional funds to cover the necessary upgrades are essential** to help affordable housing property owners accommodate these challenges and meet the intent of the regulations. We encourage you to include a provision in the regulations that allows deed restricted affordable housing properties to defer full compliance until such time as the building is recapitalized, so that the necessary improvements can be planned. Recapitalization generally occurs every 15-20 years and includes significant capital upgrades as recommended by a Capital Needs Assessment. Alternatively, **affordable housing properties should also be subject to lower non-compliance fees**, recognizing their very limited income streams and the inability of older buildings to become full compliant.

Other states that have adopted or are considering BEPS regulations have provided flexibility and deferment for affordable housing properties, and we highly encourage Maryland to offer similar provisions to ensure that property owners have adequate time to plan for any necessary retrofits and can secure financial resources.

Finally, we ask that you clarify the definition of a Campus (.02 Definitions (13)) and to exclude two or more multifamily residential buildings from being considered as a Campus for purposes of applying the regulations. Each building should be considered separately based on floor area.

Sincerely,

*Miranda Darden-Willems*

Miranda Darden-Willems  
Executive Director

Cc: Jake Day, Secretary, Department of Housing and Community Development



Mid-Atlantic Petroleum Distributors Association  
P.O. Box 711 ★ Annapolis, MD 21404  
410-693-2226 ★ www.mapda.com

June 5, 2023

Serena McIlwain, Secretary  
Maryland Department of the Environment  
1800 Washington Blvd.  
Baltimore, MD 21230

**RE: Building Energy Performance Standards – Draft Regulations**

Dear Secretary McIlwain:

The Mid-Atlantic Petroleum Distributors Association (MAPDA) is a regional trade association representing energy marketers throughout Maryland, Delaware, and the District of Columbia. MAPDA member companies supply all finished motor and heating fuel products sold in the region including gasoline, diesel fuel and heating fuels. MAPDA members also own and operate Maryland, Delaware, and DC's gas stations and convenience stores.

MAPDA members provide a required and necessary energy, directly and as a backup source, to key institutions like colleges, schools, hospitals, farms, military bases, and more. They are small and family-owned businesses employing hundreds of Marylanders and supplying thousands of customers with the fuel that keep them warm, fed, and on the road.

On behalf of its members, MAPDA respectfully files these comments in response to the *draft* regulations for Maryland's Building Energy Performance Standards (BEPS).

**Energy Use Intensity (EUI) Targets**

The authority for these regulations is derived from the Climate Solutions Now Act (CSNA) that was passed by the General Assembly and enacted without the Governor's signature in 2022. Under § 2-1602, the CSNA explicitly states that regulations created under this law must "include energy use intensity *targets* by building types." The current draft of regulations exceeds this authority by setting *mandates* for net direct greenhouse gas emissions standards that subject building owners to \$25,000 per day fines for failing to meet energy use intensity (EUI) targets. The department was not given the authority through the CSNA to set these mandates but only to set forth targets for building owners.

Adding EUI as a mandate as the draft regulations currently do creates confusion and the potential for massive fines on building owners who fail to meet what the statute identifies as "targets" *not* mandates.

**Feeding and fueling the economy through gas, coffee, food, heating oil and propane.**

MAPDA is an association of convenience stores and energy distributors in Maryland, Delaware & the District of Columbia.



Mid-Atlantic Petroleum Distributors Association  
P.O. Box 711 ★ Annapolis, MD 21404  
410-693-2226 ★ [www.mapda.com](http://www.mapda.com)

## **Biofuels**

The CSNA created a special provision for biofuels, which includes propane and heating oil products, to be considered when drafting the EUI targets. The draft regulations, specifically the EUI standard, does not provide for this statutory requirement. Biofuels represent a burgeoning opportunity in the home heating industry – it is currently testing products that are 100% renewable with the national standards being written.

## **Conclusion**

Collectively, our industries continue to stress the importance of a diverse energy portfolio in Maryland. That means avoiding the overreliance or commitment to a single-source policy such as electricity. Our industries have been investing in product development, logistics, and infrastructure for over 150 years and will continue to do so. These draft regulations encumber those investments and could potentially close the door on other technologies. MAPDA urges the Department to consider these comments and make the necessary changes so that Marylanders continue to have access to proven and reliable technologies to heat their homes, offices, and buildings.

Sincerely,

Mid-Atlantic Petroleum Distributors Association (MAPDA)

**Feeding and fueling the economy through gas, coffee, food, heating oil and propane.**

MAPDA is an association of convenience stores and energy distributors in Maryland, Delaware & the District of Columbia.



June 2, 2023

Maryland Department of the Environment  
1800 Washington Blvd.  
Baltimore, MD 21230

**Re: 2023 Draft Maryland BEPS Regulation**

**Comments of the Mid-Atlantic Propane Gas Association**

On behalf of the Mid-Atlantic Propane Gas Association (MAPGA), which represents propane marketers, suppliers, distributors and equipment manufacturers across the Old Line State, we appreciate the opportunity to provide comment on the Maryland Department of the Environment's Building Energy Performance Standards (BEPS) regulation.

Our members provide clean-burning and critical energy to residential, commercial, agricultural and industrial customers in the state. The State of Maryland boasts a robust propane market, having more than 243,000 retail accounts and 80,000 primary home heating customers.<sup>1</sup> Maryland's propane industry generates more than \$794 million in economic activity annually.<sup>2</sup>

Regarding the requirements in Chapter 3 of the draft Building Energy Performance Standard, the propane industry is pleased that the reliance on the EPA's Energy Star Portfolio Manager will be used, as it calculates the Energy Use Intensity<sup>3</sup> and CO<sub>2</sub>e<sup>4</sup> factors based on full fuel cycle, or "source energy." Source energy calculations will level the playing field between various energy sources.

A 2009 National Academy of Science, Engineering, and Medicine (NASEM) study recommended the following as its first recommendation:

*"DOE/EERE should consider moving over time to use of the full-fuel-cycle measure of energy consumption for assessment of national and environmental impacts, especially levels of greenhouse gas emissions, and to providing more comprehensive information to the public through labels and other means including an enhanced website. DOE/EERE efforts should address the data collection and analysis needed to accurately estimate full-fuel-cycle energy consumption as well as to assess and improve consumer understanding and use of information on full-fuel-cycle energy consumption."*<sup>5</sup>

This consensus finding of the NASEM study underpins the importance of using energy efficiency metrics (source energy consumption being essentially equivalent to full fuel cycle energy

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<sup>1</sup> *Propane's Impact on Economy: 2018 Maryland*, National Propane Gas Association, [https://www.npga.org/wp-content/uploads/2020/06/Maryland\\_Propane-1-Page\\_2020.pdf](https://www.npga.org/wp-content/uploads/2020/06/Maryland_Propane-1-Page_2020.pdf)

<sup>2</sup> *Id.*

<sup>3</sup> *How the 1-100 Energy Star Score is Calculated*, Energy Star, U.S. Department of Environmental Protection, [https://www.energystar.gov/buildings/benchmark/understand\\_metrics/how\\_score\\_calculated](https://www.energystar.gov/buildings/benchmark/understand_metrics/how_score_calculated)

<sup>4</sup> *How Portfolio Manager Calculates Greenhouse Gas Emissions*, Energy Star, U.S. Department of Environmental Protection, [https://www.energystar.gov/buildings/benchmark/understand\\_metrics/how](https://www.energystar.gov/buildings/benchmark/understand_metrics/how)

<sup>5</sup> "Review of Site (Point-of-Use) and Full-Fuel-Cycle Measurement Approaches to DOE/EERE Building Appliance Energy-Efficiency Standards," National Academy of Science, Engineering, and Medicine, May 15, 2009.



consumption) that go beyond energy efficiency at the building site, particularly in accounting for carbon emissions potential from building energy consumption.

The approach for using source energy as the basis for determining the energy conservation performance in buildings without question will provide the most important information from the standpoint of limiting carbon dioxide equivalent emissions into the atmosphere. It is well recognized that electricity generation throughout most of the United States and also Maryland involves the combustion of fuels and in order to effectively address the emissions of CO<sub>2e</sub>, any analysis should include the upstream losses from electricity and other fuels used to provide energy to a building. In fact, 50 percent of all utility-scale electricity produced in the state comes from fossil fuels, including natural gas, petroleum and coal.<sup>6</sup>

With the aforementioned in mind, we recommend that the state revise the draft Building Energy Performance Standard by substituting “Source EUI” for “Site EUI” in every location where that term is currently used. The Energy Star Portfolio Manager has the capability to address the “root cause” emissions for all of the electricity being generated. The state should not forego this opportunity to level the playing field for all energy sources and at the same time have the largest impact that it can on curtailing emissions from buildings.

MAPGA looks forward to continuing to engage with MDE as the agency begins the formal BEPS promulgation process later this year.  
Thanks again for the opportunity to provide comment.

A handwritten signature in black ink, appearing to read 'Jonathan R. Williams'.

Jonathan R. Williams  
Executive Director

Mid-Atlantic Propane Gas Association  
250 W. Main Street, Suite 100  
Charlottesville, Virginia  
[jonathan.williams@easterassociates.com](mailto:jonathan.williams@easterassociates.com)  
Telephone: 434-906-1779

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<sup>6</sup> *Electricity Data Browser: 2021 Annual Maryland*, U.S. Energy Information Administration, <https://www.eia.gov/electricity/data/browser/#/topic/0?agg=2,0,1&fuel=vtvv&geo=00000008&sec=008&linechart=ELEC.GEN.ALL-MD-98.A&columnchart=ELEC.GEN.ALL-MD-98.A&map=ELEC.GEN.ALL-MD-98.A&freq=A&start=2021&end=2022&ctype=linechart&ltype=pin&rtype=s&pin=&rse=0&maptype=0>

Ryan Schwabenbauer



June 5, 2023

Maryland Department of the Environment  
Maryland BEPS Regulation – Senate Bill 528  
Written comments pertaining to the May 2023 draft regulations  
Sustainability Professional Response

To Whom it may Concern,

I am responding to SB528 Draft guidance as a long time sustainability professional in Maryland. I ask that you do not quote me on the following, but use these ideas strategically to enhance the sustainability of buildings in Maryland. The ideas are mine and have not been endorsed by my employer, St. John Properties.

I'd like to thank MDE for getting the draft standards out in advance of the deadline for review. The definitions are clear and the intent of keeping things as simple as possible is noticeable and appreciated. For the sake of similar simplicity, I will focus on a few key items that I think can be improved to align with the intent of the legislation and drive environmental enhancement. Please interpret of reminder of the letter as constructive as I will try to keep the points direct and concise.

The bill had many requirements but the three that I would like to focus on are:

1. 20% reduction of (scope one) GHG emissions by 2030, net zero by 2040
    - Senate Bill 528 (Page 91, Section 5, A, 1,2)
  2. Economic/Carbon Analysis for HVAC system upgrades
  3. Utility must provide aggregate building data to building owners
    - Timeline needs amended
    - Link of BGE data to ENERGY STAR Portfolio manager should be required
    - May 2023 Draft (Page 9, .04, A, 1-2)
    - May 2023 Draft (Page 10, .04, A, a & b)
- Item 1: 20% reduction of scope one GHG emissions by 2030, net zero by 2040
    - MDE is calculating fines (alternate compliance path) for natural gas and other fossil fuel use, but there is no consequence if a reduction or increase in overall energy use occurs.
    - Example: a building can eliminate modest natural gas use, but increase electricity use 200% and have no fine.
      - This example and similar scenarios will create a loophole and increase climate impacts as we all know that (scope 2) emissions are not carbon free
    - Possible concession: **If a reduction of 20% electricity is met, there should be a reduction or elimination of the natural gas fine (alternate compliance path)**

- Item 2: Economic/Carbon Analysis for HVAC system upgrades
  - There is no economic (or carbon) analysis for the replacement of HVAC equipment
    - Replacing equipment is always carbon intensive (redesign, demo, logistics and people involved, including all the carbon intensity to build new units) which has enormous scope 2 and 3 implications
  - If systems are replaced in advance of their useful life this will have a climate change impacts that far outweighs benefits proposed by the legislation/MDE guidance
  - **There should be an economic/carbon analysis that take into account scope 2 and scope 3 emissions, and if conditions are met, fines should be reduced/eliminated.**
  
- Item 3: Utility must provide aggregate building data to business owners
  - I have been in direct contact with sustainability professionals in other jurisdictions that have BEPS rules and sadly most have their work and focus has shifted from performing energy reduction projects to focusing on utility data collection, data reconciliation and reporting.
  - Timeline: The law states that “Within 30 days of a request from a building owner, an electric or gas utility company shall digitally transmit as a free service to the building owner energy data through the benchmarking tool” - May 2023 Draft (Page 9, .04, A, 2).
    - If implemented properly, this can be very helpful to avoid administrative hassles on many levels. However, the utilities are currently not responding to requests.
  - Requested Timeline Update: **I recommend that data should be provided by the utility within 30 days of request, starting immediately.**
  - ENERGY STAR Portfolio Manager Link to utility data: In the past, BGE data *automatically* linked to ENERGY STAR Portfolio Manager. That link has been severed over the last several years and must be reinstated. Please make this part of the guidance to eliminate unnecessary labor and errors. May 2023 Draft (Page 2, 10)
  - Requested Update: “Within 30 days of a request from a building owner, an electric or gas utility company shall digitally transmit as a free service to the building owner energy data through the benchmarking tool. ***The digital transmission from the utility to the ENERGY STAR Portfolio Manager benchmarking tool shall be automatic.***”
    - May 2023 Draft (Page 9, .04, A, 2)

Sincerely,



Ryan Schwabenbauer, LEED AP



CLEAN FUELS ALLIANCE AMERICA COMMENTS TO MARYLAND DEPARTMENT OF THE ENVIRONMENT ON DRAFT BUILDING ENERGY PERFORMANCE STANDARDS  
JUNE 6, 2023  
SUBMITTED BY STEPHEN DODGE, DIRECTOR OF STATE REGULATORY AFFAIRS

Thank you for the opportunity to offer comments on MDE’s Draft Building Energy Performance Standards (BEPS).

Clean Fuels Alliance of America (Clean Fuels) is the industry’s primary organization for technical, environmental, and quality assurance programs for biomass-based diesel (BMBD), and is the strongest voice for its advocacy, communications, and market development. CFAA represents the farmers, producers, distributors, and end-users of BMBD including biodiesel, Bioheat<sup>®</sup> fuel, renewable diesel, and sustainable aviation fuel. Clean Fuels has been actively engaged with legislators and regulators in all of the states that have biomass-based diesel (BMBD) policies in effect, as well as states where policies which are being considered for both the home heating and transportation sectors. Those states include Vermont, Massachusetts, New York, California, Vermont, Connecticut, Oregon, and Washington. In addition, Clean Fuels is engaged in at least fifteen mid-western states that have or are contemplating BMBD tax-incentive policies.

As you know, the Maryland Climate Solutions Now Act of 2022 requires the state to study biofuels as part of a transition to an all-electric building code as well as in the development of energy performance standards. We are disappointed that the draft BEPS includes no such language.

It should be noted that through the Inflation Reduction Act of 2022, Congress has created a \$600 consumer income tax credit for the installation of renewable fuels-compatible liquid fuel appliances. With this act, non-fossil low-carbon liquid fuel heating appliances have been identified as a viable path for GHG reductions.

Our industry supports efforts to phase out petroleum-based diesel for thermal heating, but we encourage it’s replacement with biodiesel and renewable diesel (otherwise known as BMBD).

As Maryland looks to advance the phase-out of fossil fuel heating equipment in new construction, Clean Fuels urges policymakers to embrace the technological advances in fuel development and equipment that will allow heating oil consumers to reduce their building’s carbon emissions by simply utilizing non-fossil, biomass-based diesel – with no additional fuel

Missouri Headquarters	Washington, D.C. Office	California Office	Massachusetts Office
605 Clark Avenue	1331 Pennsylvania Ave., NW	1415 L Street	36 Jonspin Road
PO Box 104898	Suite 505	Suite 460	Suite 235
Jefferson City, MO 65110	Washington, D.C. 20004	Sacramento, CA 95814	Wilmington, MA 01887
800.841.5849	888.246.3437	916.760.8870	978.267.3020

costs and utilizing existing technology. Electricity may not be a viable or affordable option in some new construction.

Current heating systems can use a blend of biodiesel and renewable diesel, and as you will read below, home heating equipment manufacturers will be producing new equipment for renewable liquid fuels beginning this year.

Please know that there are options for reducing carbon in buildings other than heat pumps. This should not be taken as opposition to electrification, but rather as an alternative renewable liquid fuel pathway to decarbonizing difficult-to-electrify sectors using currently available heating equipment.

The phase-out of fossil petroleum diesel is happening now. Many of the largest liquid heating appliance equipment manufacturers for all different sizes and equipment applications have worked with Underwriters Laboratories (UL) on B100 UL-rated heating appliance protocols, which were recently approved for home heating appliances<sup>[1]</sup>. Their efforts are leading to the production of B100 UL-rated components in 2023 that can be put immediately into use throughout the marketplace. Indeed, manufacturers such as Beckett Corporation have already begun producing B100-compatible burner equipment.<sup>[2]</sup> Thus, a 100% renewable liquid fuel for thermal heat in both home and commercial applications can save upwards of 80% carbon emissions is here, and ready to use now.

In September 2019, the National Energy Fuels Institute (NEFI) hosted the Heating Oil Industry Summit in Providence, RI, at which the industry unanimously resolved to move to a cleaner burning fuel and transition away from conventional heating oil. The *Providence Resolution*<sup>1</sup> commits the industry to reduce the carbon emissions of heating systems in line with the many state GHG reduction goals of 40% by 2030 and Net-Zero by 2050. Bioheat® fuel is that future renewable, low-carbon liquid heating fuel available now.

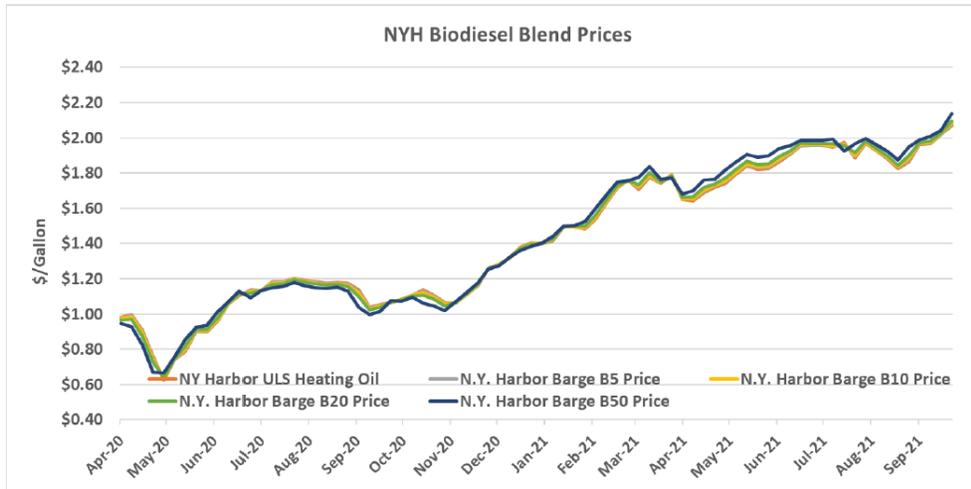
At the New York State Winter Fuels Outlook Meeting on October 28, 2021, the New York State Energy Research and Development Authority (NYSERDA) showed the chart below (excerpted from the NYSERDA PowerPoint Presentation) which depicts its tracking of biodiesel pricing. The Authority's data shows that biodiesel prices track those of diesel fuel, thus proving biodiesel to be an economic and affordable fuel for heating oil customers. NYSERDA's Weekly Heating Fuels Report and Dashboard tracks retail pricing and an examination of historical data also shows no discernable price differential in the areas of the state where biodiesel is required versus where it is not.

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[1] See [UL296, Nov. 14, 2022 Update to Include Biodiesel Blends Up to B100, NORAwab.org](#).

[2] Production began the week of Jan. 30, 2023. See Beckett announcement at <https://www.beckettcorp.com/product-announcements/r-w-beckett-oil-burners-approved-for-b100-r100-blends/>.

<sup>1</sup> <https://nefi.com/news-publications/recent-news/heating-oil-industry-commits-net-zero-emissions-2050/>



- > After accounting for the value of the associated RIN (D4) and the biodiesel tax credit, biodiesel prices are competitive with ultra-low sulfur heating oil, with just slightly higher prices.
  - B5 +\$0.01/gal
  - B20 +\$0.03/gal
  - B50 +\$0.07/gal
- > B100 biodiesel prices are affected by the price of soybeans as the primary feedstock as well as the value of the D4 RIN

Clean Fuels, through a partnership with the National Oilheat Research Alliance (NORA), authorized by Congress in 2000, has invested tens of millions of dollars for research, development, and educational outreach that has led to the phasing out of petroleum diesel and the use of biodiesel at levels ranging from B5 to B100 (100% biodiesel)

Through NORA's continued leadership and guidance from Clean Fuels, the heating oil industry has proactively pursued all legislative and regulatory opportunities to transition to renewable fuel blends for thermal heat and transportation in the Northeast. This includes New York City (the first to transition), and the states of New York, Pennsylvania, Connecticut, Massachusetts, Rhode Island, and Vermont.

The state and the city of New York have been supportive of the use of liquid renewable fuels for home heating as a method of immediately reducing the carbon emissions of heating appliances with the recent state law (Chapter 750 of L.2021) requiring a 20% blend of Bioheating fuel. The City of New York's law (Local Law 119-2016) also embraced a 20% blend level and has also resulted in the City fleet's transition to biodiesel and renewable diesel.

As you can see from the chart below, Biodiesel use provides additional benefits beyond the immediate reduction of carbon. Co-pollutants such as PM, NOx and So2 are also significantly reduced.

Emissions Improvements of Biodiesel versus Low Sulfur (LS) and Ultra Low Sulfur (ULS) Heating Oil<sup>2, 3, 4, 5, 6</sup>

Average Change	PAH	PM	CO	NO <sub>x</sub>	SO <sub>2</sub>	CO <sub>2</sub>
Percent	-90 to -95%	- 86%	Similar to -15%	Similar to -25%	-98% (LS) Similar (ULS)	-74%

Note: PAH-Polycyclic Aromatic Hydrocarbons; PM-Particulate Matter; CO-Carbon Monoxide; NO<sub>x</sub>-Nitrogen Oxides; SO<sub>2</sub>-Sulfur Dioxide; CO<sub>2</sub>-Carbon Dioxide

The health benefits of using biodiesel in place of petroleum heating oil have been studied and quantified by Trinity Consultants. Trinity studied a number of census tract areas (including a tract encompassing Philadelphia, PA, Reading, PA and Camden, NJ) and the surrounding 5- to 7-mile radius that are near and impacted by high-distillate use sites, so these results are granular and neighborhood specific. The Trinity Study shows the use of biodiesel in transportation and space heating reduces cancer rates by 45% to 85% in surrounding areas, as well as providing dramatic reductions in cases of asthma, premature deaths, and lost workdays.

Links to the Trinity study:

- <https://cleanfuels.org/resources/health-benefits-study>
- [https://www.biodiesel.org/docs/default-source/trinity-study/trinity-v2-final-report-.pdf?sfvrsn=5d3a35c3\\_12](https://www.biodiesel.org/docs/default-source/trinity-study/trinity-v2-final-report-.pdf?sfvrsn=5d3a35c3_12)

Since BMBD is a drop-in fuel for transportation and home heating, these public health benefits begin accruing immediately upon the use of BMBD in place of petroleum diesel. This means the asthma attacks, premature deaths avoided, and work loss days can be reduced every year starting today and for the next 10, 20, 30 or more years it will take the state to deploy deep electrification in either sector. For poor and disadvantaged communities that are heavily reliant on petroleum heating fuels or have numerous commercial depots and heavy-duty truck traffic, switching to biodiesel can provide substantial improvements in the health of those communities.

It should be noted that Trinity Consultants is a multi-national firm with 69 offices across the U.S., Canada, United Kingdom, Ireland, Australia and China, and over 40 years of expertise in air dispersion modeling and health risk assessments. The Trinity Study, commissioned in 2020, completed in 2021 and updated in 2022, quantified the local community health benefits of switching from petroleum diesel or distillate to 100% biodiesel in 28 sites across 21 states in the U.S., with a focus on the transportation sector and space heating sector.

<sup>2</sup> Macor, A., Pavanello, P., Performance and Emissions of Biodiesel in a Boiler for Residential Heating, *Energy*, vol. 34, 2009.C

<sup>3</sup> Krishna, C.R., Biodiesel Blends in Space Heating Equipment, Brookhaven National Laboratory, 2001.

<sup>4</sup> USDA/DOE 1998, Life Cycle Inventory of Biodiesel and Petroleum Diesel for Use in an Urban Bus.

<sup>5</sup> Lee, S. Win, He, I., Heritage, T., Young B., Laboratory Investigations on the Cold Temperature Combustion and Emissions Performance of Biofuels Blends, 2003.

<sup>6</sup> [https://www.edf.org/sites/default/files/10071\\_EDF\\_BottomBarrel\\_Ch3.pdf](https://www.edf.org/sites/default/files/10071_EDF_BottomBarrel_Ch3.pdf) at 5. Studies cited showed PM reduction from the use of B100 in place of fossil distillate heating oil is proportional to biodiesel content (e.g., 20% reduction for B20 blend, 50% reduction for B50 blend). To be conservative, Clean Fuels estimates the PM reduction from using B100 would be approximately 86% in heating applications.

In conclusion, as referenced above, the Climate Solutions Now Act requires MDE to “include special provisions or exceptions” for the use of biofuels by covered buildings. The enabling regulations should include such provisions. We would be happy to work with staff on appropriate language that fulfills this legislative requirement. Such language could include the following provisions:

“In calculating direct greenhouse emissions and energy use intensity, building owners and tenants shall:

1. Deduct emissions from the combustion of biomass-based biofuels from the calculation of direct greenhouse emissions and
2. Exempt energy produced by the combustion of renewable biofuels from calculations of energy efficiency.”

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▶ **Maryland Department of the Environment (MDE)**

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**Comments on the draft Maryland BEPS regulation**

**Section: Chapter I, Section .02 Definitions (30)**

**Page: 5**

**Draft Language:**

“Mixed-use building” means a building that contains two or more property types.

**Suggested Language:**

A Mixed-use property is one that contains multiple property types, none of which are greater than 50% of the total Gross Floor Area (GFA), including parking GFA.

**Explanation:**

As currently written, any building with more than one property use type qualifies as Mixed-Use. This would make virtually every office building with retail or restaurants on the first floor a Mixed-Use property. Using the EPA's definition of Mixed-Use provides more clarity.

(30) as currently written also conflicts with (34) where Energy Star Portfolio Manager is referenced for building classifications but provides an alternative definition.

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**Section: Chapter 2, Section .02 Reporting Requirements of Building Owners A (5)**

**Page: 7**

**Draft Language:**

The building owner shall exclude from the benchmarking report sub metered and separately metered energy consumption data for:

- (a) Food service facilities that engage in commercial cooking and water heating;
- (b) Electric vehicle charging;
- (c) Other electricity uses excluded from site energy use by the benchmarking tool; and
- (d) Emissions from required combustion equipment under the following conditions:

**Suggested Language:**

The building owner shall exclude from the benchmarking report sub metered and separately metered energy consumption data for:

- ~~(a) Food service facilities that engage in commercial cooking and water heating;~~
- (a) Electric vehicle charging;
- (b) Other electricity uses excluded from site energy use by the benchmarking tool; and
- (c) Emissions from required combustion equipment under the following conditions:

**Explanation:**

It is unclear why restaurants would be excluded from the emission requirements. All commercial cooking equipment is available in electric versions today. Consider adding language around electrification requirements for new restaurant tenants or major restaurant remodels and renovations.

If energy use data for a Restaurant can be excluded, its GFA should also be excluded as emission limits are calculated in kg CO<sub>2</sub> per square foot. However, that may conflict with the Energy Star requirements below for excluding space types from the building profile:

For ENERGY STAR certification you may exclude a Property Use from a building if ALL of the following four conditions are met:

1. The Property Use must be less than 10% of the building's Gross Floor Area (GFA)
2. The Property Use must not be a property type eligible to receive an ENERGY STAR score
3. The Property Use must be sub-metered so that both the Property Uses energy consumption and GFA can be excluded

- ▶
- 
4. The Property Uses energy use patterns must be significantly different than those of the rest of the building (ex: A cell phone tower on a building)

Creating rules for what can be excluded from a building that do not align with ESPM rules may lead to confusion and property teams having to maintain multiple profiles for the same building. E.g. one for BEPS benchmarking and reporting, and one for Energy Star Certifications. Aligning benchmarking requirements with the ESPM rules would simplify benchmarking for building owners and property managers.

**Section: Chapter 2, Section .02 Reporting Requirements of Building Owners C (I)**

**Page: 8**

**Draft Language:**

The building owner shall have a third party verify the accuracy of benchmarking reports for calendar years:

- (a) 2025 (benchmarking report due in 2026);
- (b) 2030 (benchmarking report due in 2031);
- (c) 2035 (benchmarking report due in 2036);

**Suggested Language:**

The building owner shall have a qualified third party verify the accuracy of benchmarking reports for calendar years:

- (a) 2025 (benchmarking report due in 2026);
- (b) 2030 (benchmarking report due in 2031);
- (c) 2035 (benchmarking report due in 2036);

The qualified third-party verifier must possess at least one of the following licenses, credentials, or certifications, and be in good standing with the licensing, credentialing, or certifying entity at the time that the data verification is conducted:

- (a) Professional Engineer (PE) issued within the United States;
- (b) Licensed Architect issued within the United States;
- (c) Certified Energy Manager (CEM);
- (d) Carbon Auditing Professional (CAP);
- (e) Building Energy Assessment Professional (BEAP)

**Title 26 DEPARTMENT OF THE ENVIRONMENT**

**Subtitle XX BUILDING ENERGY PERFORMANCE STANDARDS**

**Chapter 01 Definitions and Documents Incorporated by Reference**

Authority: Environment Article, §§1-404, 2-301, 2-302, 2-1205, 2-1602, Annotated Code of Maryland

**.01 Purpose**

The purpose of this chapter is to define the terms used in this subtitle and identify the documents that are incorporated by reference.

**.02 Definitions**

A. In this subtitle, the following terms have the meanings indicated.

B. Terms Defined.

(1) "Aggregate energy consumption data" means energy data that has been summed for an entire building, which may include a single occupant or a group of separately metered tenants, representing the cumulative total of energy used in the covered building.

(2) "Agricultural building" means a structure that is used primarily to cultivate, manufacture, process, or produce agricultural crops, raw materials, products, or commodities. Agricultural building includes a greenhouse.

(3) "Alternative compliance fee" means a fee paid by the building owner to come into compliance with this regulation as specified in Regulation.01A of COMAR 26.xx.04.

(4) "Area-weighted standard" means an interim or final performance standard that is calculated based on the floor area proportion of the property types within a covered building.

(5) Authorized occupant.

(a) "Authorized occupant" means a person other than a full-time-equivalent employee that is approved by a building owner to be within a covered building for no less than 40 person-hours per week throughout a calendar year.

(b) "Authorized occupant" does not include:

(i) Security guards;

(ii) Janitors;

(iii) Construction workers;

(iv) Landscapers; and

(v) Other maintenance personnel.

(6) “Baseline performance” means the weather-normalized numeric values of net direct greenhouse gas emissions and site EUI of a covered building for the covered building’s baseline year.

(7) “Baseline year” means either calendar year 2025 for a covered building that was constructed and occupied prior to calendar year 2025 or the first calendar year in which a newly constructed covered building was at least 50% occupied for at least 180 days.

(8) “Benchmark” means to track and input a building’s energy consumption data and other relevant building information on a monthly basis for at least 12 consecutive months, as required by the benchmarking tool, to quantify the building’s energy use and greenhouse gas emissions.

(9) Benchmarking information.

(a) “Benchmarking information” means descriptive information about a building, its operating characteristics, and information generated by the benchmarking tool regarding the building’s energy consumption, efficiency, and performance.

(b) “Benchmarking information” includes but is not limited to the building identification number, address, gross floor area, and separate energy consumption totals for each fuel type.

(10) “Benchmarking tool” means the website-based software, commonly known as ENERGY STAR Portfolio Manager, or any successor system, approved by the United States Environmental Protection Agency.

(11) “Building” has the meaning and interpretation set forth in the International Building Code.

(12) “Building owner” means:

(a) An individual or legal entity possessing title to a property including but is not limited to a board of the owners’ association, master association, board of directors, or an agent authorized to act on behalf of a community association, cooperative housing corporation, or condominium.

(b) A representative of a building owner.

(13) “Campus” means a collection of two or more buildings, of any building type or size, that act as a single cohesive property with a single shared primary function and are owned and operated by the same party, such as, but not limited to, higher education or hospital campuses.

(14) “Commercial building” means a building that is subject to the commercial provisions of the International Energy Conservation Code regardless of the nature of the entity or government that owns the building.

(15) “Covered building” means a building that:

(a) Is a commercial or multifamily residential building in the State of Maryland or is owned by the State of Maryland; and

(b) Has a gross floor area of 35,000 square feet or more, excluding the parking garage area; and is:

(i) A single building;

(ii) One or more buildings held in the condominium form of ownership with a combined gross floor areas of 35,000 square feet or more (excluding the parking garage area) and governed by a single board of managers; or

(iii) Two or more buildings with a combined gross floor area of 35,000 square feet or more (excluding the parking garage area) that are served in whole or in part by the same electric or gas meter or are served by the same heating or cooling system(s), which is not a district energy system.

(c) A building that meets the criteria for a covered building as described in this section and is located in a historic district but where the building is not individually designated as a historic property under federal, state, or local law is a covered building.

(d) "Covered building" does not include:

(i) A building, or space within a building, individually designated as a historic property under federal, state, or local law;

(ii) A public or nonpublic elementary or secondary school building;

(iii) A manufacturing building;

(iv) An agricultural building; or

(v) A building owned by the Federal government;

(16) "Department" means the Maryland Department of the Environment.

(17) "Direct greenhouse gas emissions or direct emissions" means greenhouse gas emissions produced on-site by covered buildings, as calculated by the benchmarking tool unless otherwise specified by the Department.

(18) "District energy" means thermal energy generated at one or more central facilities that provides heating or cooling through a network of insulated underground pipes to provide hot water, steam, space heating, air conditioning, or chilled water to nearby buildings.

(19) "Electric company" has the meaning stated in Public Utilities Article, §1-101, Annotated Code of Maryland.

(20) "Final performance standard or final standard" means the numeric values of net direct greenhouse gas emissions and site EUI that each covered building must ultimately achieve on an annual basis in 2040 and beyond.

(21) "Financial distress" means:

(a) A property that is the subject of a tax lien sale or public auction due to property tax arrearages;

(b) A property that is controlled by a court appointed receiver; or

(c) A property that was acquired by a deed in lieu of foreclosure in the last calendar year.

(22) “Food service facility” has the meaning stated in COMAR 10.15.03.02B.

(23) Full-time-equivalent employee.

(a) “Full-time-equivalent employee” means a person that occupies a covered building for no less than 40 person- hours per week throughout a calendar year.

(b) “Full-time-equivalent employee” excludes:

(i) Security guards;

(ii) Janitors;

(iii) Construction workers;

(iv) Landscapers; and

(v) Other maintenance personnel.

(24) “Gas company” has the meaning stated in Public Utilities Article, §1-101, Annotated Code of Maryland.

(25) “Greenhouse gas emissions or emissions” means gasses released into the atmosphere that contribute to climate change, including but not limited to carbon dioxide (CO<sub>2</sub>), as calculated by the benchmarking tool unless otherwise specified by the Department.

(26) Gross floor area.

(a) “Gross floor area” means the total building square footage measured between the principal exterior surfaces of the enclosing fixed walls of a building.

(b) “Gross floor area” consists of all areas inside the building, including but not limited to lobbies, tenant areas, common areas, meeting rooms, break rooms, the base level of atriums, restrooms, elevator shafts, stairwells, mechanical equipment areas, basements, and storage rooms.

(c) “Gross floor area” does not include exterior spaces, balconies, bays, patios, exterior loading docks, driveways, covered walkways, outdoor play courts (e.g., tennis, basketball), parking, the interstitial space between floors (which house pipes and ventilation), and crawl spaces.

(d) “Gross floor area” is not the same as rentable space, but rather includes all areas inside the building(s).

(27) “Interim performance standard or interim standard” means the numeric values of net direct greenhouse gas emissions and site EUI which covered buildings must achieve by a specified calendar year that is prior to 2040.

(28) “Manufacturing” has the same meaning as defined and described in Environment Article, §2-1202(h)(1-3), Annotated Code of Maryland.

(29) “Manufacturing building” means a building classified as a manufacturing building in North American Industry Classification System (NAICS) or otherwise designated as a manufacturing building by the Department.

clarify excludes parking garage

(30) “Mixed-use building” means a building that contains two or more property types.

(31) Net direct greenhouse gas emissions or net direct emissions.

(a) “Net direct greenhouse gas emissions or net direct emissions” means:

(i) Direct greenhouse gas emissions; or

(ii) For a covered building connected to a district energy system, direct greenhouse gas emissions plus the greenhouse gas emissions attributable to thermal energy inputs from the district energy system used by the covered building, as calculated using the methodology provided in this regulation.

(b) “Net direct greenhouse gas emissions or net direct emissions” does not include greenhouse gas emissions from a food service facility located within a covered building.

reference / coordinate w/ definition 7 which state 50% occupied for 180 days.

(32) “Newly constructed covered building” means a covered building that was constructed after 2024 and occupied by at least one full-time-equivalent employee or authorized occupant.

(33) “Occupied” means a covered building with at least one full-time equivalent employee or authorized occupant.

(34) “Property type” means the primary use of a building space as specified in ENERGY STAR Portfolio Manager.

(35) Site energy use.

(a) “Site energy use” means all energy used on-site by a covered building to meet the energy loads of the building.

(b) “Site energy use” includes electricity delivered to the building through the electric grid and/or generated on-site with renewable sources; thermal energy delivered to the building through a district energy system; and natural gas, diesel, propane, fuel oil, wood, coal, and other fuels used on-site.

(c) “Site energy use” excludes electricity used to charge vehicles and other electricity uses excluded from site energy use by the benchmarking tool.

(36) “Site energy use intensity or site EUI” is calculated by the benchmarking tool by dividing the total energy consumed in one calendar year by the gross floor area of the building and reported as a value of a thousand British thermal units (kBtu) per square foot per year.

(37) “Tenant” means a person or entity occupying or holding possession of a building, part of a building, or premises pursuant to a rental or lease agreement.

provide new definition for third party verifier

(38) “Weather normalized” means a method for modifying the measured building energy use in a specific calendar year to estimate energy use under normal weather conditions as calculated by the benchmarking tool.

**.03 Incorporation by Reference.**

A. In this subtitle, the following documents are incorporated by reference.

B. Documents Incorporated.

(1) International Building Code (IBC), Sixth Version: Nov 2021, Chapter 2 “Definitions”, Section 202 “Definitions”, [A] Building.

(2) International Energy Conservation Code (IECC), Second Version: Sep 2021, Chapter 4 “[CE] Commercial Energy Efficiency”.

(3) Maryland Department of the Environment Technical Memorandum 23-01, "Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards", June, 2023.

**Title 26 DEPARTMENT OF THE ENVIRONMENT**  
**Subtitle XX BUILDING ENERGY PERFORMANCE STANDARDS**

**Chapter 02 Benchmarking and Reporting**

**Authority: Environment Article, §§1-404, 2-301, 2-302, 2-1205, 2-1602, Annotated Code of Maryland**

**.01 Purpose.**

The purpose of this chapter is to establish reporting requirements for building owners, tenants, electric and gas companies, fuel distributors, and district energy providers.

**.02 Reporting Requirements of Building Owners.**

**A. Data Collection.**

(1) Each calendar year beginning in 2025 or in the first calendar year after which a newly constructed covered building is occupied, the building owner shall collect and enter all required benchmarking information for the previous calendar year into the benchmarking tool.

(2) Nothing in this regulation shall be construed to permit a building owner to use tenant energy usage data for purposes other than evaluation of the performance of the building.

**B. Benchmarking Report.**

(1) A building owner shall submit a benchmarking report to the Department by June 1<sup>st</sup> of each calendar year, beginning in 2025, using the benchmarking tool.

(2) The owner of a newly constructed covered building shall submit a benchmarking report to the Department by June 1<sup>st</sup> of each calendar year, beginning the year following the first calendar year the newly constructed building was occupied for at least one day, using the benchmarking tool.

reference / coordinate w/ definition 7 which state 50% occupied for 180 days.

(3) The annual benchmarking report shall include, at a minimum, the benchmarking information spanning January 1<sup>st</sup> to December 31<sup>st</sup> of the previous calendar year or for all of the days in a calendar year that a newly constructed covered building was occupied.

(4) The building owner shall enter data into the benchmarking tool such that the benchmarking report shall be based on an assessment of the energy consumed by the building for the entire calendar year being reported or for all of the days in a calendar year that a newly constructed covered building was occupied.

(5) The building owner shall exclude from the benchmarking report submetered and separately metered energy consumption data for:

- (a) Food service facilities that engage in commercial cooking and water heating;

- (b) Electric vehicle charging;
- (c) Other electricity uses excluded from site energy use by the benchmarking tool; and
- (d) Emissions from required combustion equipment under the following conditions:

- (i) Emissions from generators shall be excluded from the net direct emissions requirements if a federal or state regulation requires a covered building including a health care facility, laboratory, assisted living and nursing facility, military building, critical infrastructure, and a building used in life sciences to use a backup generator or other equipment that must run on combustible fuels.

- (ii) A covered building is required to include emissions from a combustion generator/equipment if the relevant federal or state regulation is updated to allow battery storage and/or other types of systems that do not produce direct emissions.

(6) Energy consumption for food service facilities can be excluded using a standard deduction formula in accordance with the Department's TM 23-01, "Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards," when such energy consumption cannot be excluded using submetered or separately metered data.

(7) Before submitting a benchmarking report, the building owner shall run all automated data quality checker functions available within the benchmarking tool and shall verify that all data has been accurately entered into the tool. The building owner shall correct all missing or incorrect information as identified by the data quality checker prior to submitting the benchmarking report to the Department.

(8) If a building owner is notified of an inaccuracy by the Department, electric company, or other third party, then the building owner shall amend the information reported within the benchmarking tool, and shall provide the Department with an updated benchmarking submission within 30 days of learning of the inaccuracy.

(9) The building owner of a mixed-use covered building shall use the benchmarking tool to report the gross floor area for all property types in the building.

(10) The building owners of a covered building that is connected to district energy systems shall submit additional information to supplement the annual benchmarking report in accordance with the Department's TM 23-01, "Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards".

C. Third Party Verification of Benchmarking Reports.

provide new definition  
for third party verifier in  
Definition Section

(1) The building owner shall have a third party verify the accuracy of benchmarking reports for calendar years:

- (a) 2025 (benchmarking report due in 2026);
- (b) 2030 (benchmarking report due in 2031);
- (c) 2035 (benchmarking report due in 2036);

(d) 2040 (benchmarking report due in 2041); and

(e) every five years thereafter.

(2) The building owner of a newly constructed covered building shall have a third party verify the first required benchmarking report and then comply with the schedule in this chapter for verification of subsequent reports.

(3) The building owner shall provide to the third party verifier all utility bills, delivered fuel receipts, and other documentation needed by the verifier for the calendar year covered by the benchmarking report.

(3) The building owner shall submit a copy of a third party verification to the Department when submitting the associated benchmarking report in accordance with the Department's TM 23-01, "Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards."

#### D. Maintenance of Historical Data.

(1) The building owner shall maintain adequate records demonstrating compliance with this Chapter, including but not limited to, energy bills, reports, forms, and records received from tenants or utilities and records.

(2) Such records shall be preserved for a period no less than seven years.

(3) At the request of the Department, such records shall be made available for inspection and audit by the Department.

#### **.03 Reporting Requirements of Tenants.**

A. A tenant of a covered building shall, within 30 days of a request by the building owner, provide all requested benchmarking information that cannot otherwise be acquired by the building owner from other sources.

#### **.04 Reporting Requirements of Utility Companies and District Energy Providers.**

##### A. Electric and Gas Companies.

(1) Starting no later than July 1, 2024, electric and gas companies shall retain for a period of not less than seven years digital records of all customer meter-specific energy consumption, including the date and time of such consumption for any data captured at intervals of more than four minutes. Electric and gas companies shall conduct meter-to-building mapping and maintain aggregate energy consumption data for all covered buildings, and provide to the building owner accurate and timely information on the actual amount of electricity and/or gas delivered to a covered building. The data shall be provided via web-based delivery capable of being uploaded to the benchmarking tool.

(a) Data shall include aggregate energy consumption, accounting for all electric and gas company meters that measure energy consumption at the covered building, regardless of whether the meters serve tenant-paid or owner-paid accounts.

(b) Data shall be provided in a manner that aggregates energy consumption data across all electric and gas company meters at the covered building. Prior to the delivery of aggregate energy consumption data, utilities shall coordinate with the building owner as necessary to review and confirm an accurate accounting of the meters that will be used to calculate the aggregated total.

(c) The utility process will also include a mechanism by which the building owner can work with the utility to correct any inaccuracies regarding the list of constituent accounts and/or meters.

(2) Within 30 days of a request from a building owner, an electric or gas utility company shall digitally transmit as a free service to the building owner energy data through the benchmarking tool. The data shall include aggregate energy consumption data, as well as a complete list of the meter numbers included in the aggregate energy consumption data to ensure accuracy of the meter-to-building mapping, and shall continue to transmit such data until otherwise directed. Building owners shall have the option to submit requests digitally.

(3) Electric and gas companies shall maintain a record of all meters that populate a given building's aggregate energy consumption data in any given month. The utility shall ensure that meter-to-building mapping is accurate and updated on an ongoing basis. Within 30 days of discovering that any data or meter mapping that it has reported was erroneous, the utility shall digitally provide to the building owner, the Department, and the Public Service Commission a report detailing the errors, corrective measures, and steps the utility has taken and will take to prevent a recurrence of the error.

(4) All requests for aggregate energy consumption data shall be kept for reference by the gas company or electric company for at least 24 months, including verification that the request was made by a building owner. Requests submitted via a new or previously existing password-protected web portal using the account of a building owner shall require no additional identity verification.

(5) Electric and gas companies shall provide a customer service option, including but not limited to a phone number for building tenants to call-in, relating to data access questions and any perceived data misuse.

#### B. District Energy Providers.

(1) Starting no later than July 1, 2024, district energy providers shall maintain all records that are necessary to comply with this regulation for a period of not less than seven years. At the request of the Department, such records shall be made available for inspection and audit by the Department.

(2) District energy providers shall provide energy consumption data and greenhouse gas emissions factors per unit of district energy input (steam, hot water, chilled water, etc.) to the owners of covered buildings and to the Department for benchmarking and compliance purposes.

(3) Emissions factors and a full and detailed accounting of their calculation must be provided by the district energy provider by March 1<sup>st</sup> of each calendar year and cover the previous calendar year based on actual fuel consumption and system performance data. The Department may require a third party review of such calculations paid for by the district energy provider.

(4) District energy providers shall use methodology for allocating emissions that will be based on the "Efficiency Method" in the World Resources Institute's "Calculation tool for direct emissions from stationary combustion: Allocation of GHG Emissions from a Combined Heat and Power (CHP) Plant."

**.05 Disclosure of Covered Building Benchmarking and Performance Standards Information.**

A. Before a buyer signs a contract for the purchase of a covered building, the building owner selling the covered building must:

(1) Disclose to the prospective buyer that the building is subject to requirements under this Subtitle;

(2) Transfer the following records to the prospective buyer:

(a) A copy of the complete benchmarking record from the benchmarking tool;

(b) Documentation of data verification;

(c) Documentation of any alternative compliance payments made to the Department;

and

(d) Any other records relevant to maintain compliance under this Subtitle.

(3) Provide to the prospective buyer the following information:

(a) Performance baseline; and

(b) Interim and final performance standards.

B. The prospective buyer must indicate, by signing an addendum to the contract or a separate section of the contract printed in boldface type, that the seller has made the disclosures and provided the information required by Regulation .03 A of this chapter.

**Title 26 DEPARTMENT OF THE ENVIRONMENT**

**Subtitle XX BUILDING ENERGY PERFORMANCE STANDARDS**

**Chapter 03 Performance Standards and Compliance Demonstration**

**Authority: Environment Article, §§1-404, 2-301, 2-302, 2-1205, 2-1602, Annotated Code of Maryland**

**.01 Purpose.**

The purpose of this chapter is to establish performance standards for covered buildings.

**.02 Performance Standards**

A. Interim and final net direct emissions and final site EUI standards are:

suggest adding EUI target for all interim steps

Table 1. Performance Standards.

Property Type	Net Direct Emissions Standards kg CO <sub>2</sub> e per square foot			Site EUI Standards kBtu per square foot
	Interim Standard for 2030-2034	Interim Standard for 2035-2039	Final Standard for 2040 and beyond	Final Standard for 2040 and beyond
Adult Education	2.34	1.17	0	46
Aquarium	1.03	0.52	0	41
Automobile Dealership	2.23	1.12	0	61
Bank Branch	1.01	0.50	0	85
Bar/Nightclub	1.70	0.85	0	220
Barracks	0.57	0.29	0	38
Bowling Alley	2.07	1.03	0	84
Casino	1.03	0.52	0	41
College/University	2.43	1.21	0	57
Convenience Store with Gas Station	2.25	1.13	0	137
Convenience Store without Gas Station	2.25	1.13	0	137

Property Type	Net Direct Emissions Standards kg CO <sub>2</sub> e per square foot			Site EUI Standards kBtu per square foot
	Interim Standard for 2030-2034	Interim Standard for 2035-2039	Final Standard for 2040 and beyond	Final Standard for 2040 and beyond
Convention Center	0.39	0.19	0	40
Courthouse	1.14	0.57	0	47
Data Center	1.26	0.63	0	145
Distribution Center	0.58	0.29	0	19
Enclosed Mall	0.24	0.12	0	44
Fast Food Restaurant	exempt	exempt	exempt	exempt
Financial Office	0.32	0.16	0	58
Fire Station	1.70	0.85	0	47
Fitness Center/Health Club/Gym	2.87	1.43	0	59
Food Sales	2.25	1.13	0	137
Food Service	exempt	exempt	exempt	exempt
Hospital (General Medical & Surgical)	6.10	3.05	0	144
Hotel	1.47	0.74	0	60
Ice/Curling Rink	2.07	1.03	0	84
Indoor Arena	1.03	0.52	0	41
K-12 School	exempt	exempt	exempt	exempt
Laboratory	5.35	2.68	0	144
Library	1.92	0.96	0	55
Lifestyle Center	0.91	0.46	0	58
Mailing Center/Post Office	0.92	0.46	0	48
Medical Office	0.18	0.09	0	70
Movie Theater	0.78	0.39	0	57

Property Type	Net Direct Emissions Standards kg CO2e per square foot			Site EUI Standards kBtu per square foot
	Interim Standard for 2030-2034	Interim Standard for 2035-2039	Final Standard for 2040 and beyond	Final Standard for 2040 and beyond
Multifamily Housing	0.82	0.41	0	29
Museum	0.75	0.38	0	29
Non-Refrigerated Warehouse	0.11	0.06	0	31
Office	0.22	0.11	0	55
Other - Education	1.59	0.80	0	45
Other - Entertainment/Public Assembly	0.54	0.27	0	48
Other - Lodging/Residential	0.002	0.001	0	37
Other - Office	0.22	0.11	0	55
Other - Other	1.60	0.80	0	54
Other - Public Service	2.12	1.06	0	61
Other - Recreation	0.70	0.35	0	78
Other - Restaurant/Bar	1.70	0.85	0	219
Other - Retail/Mall	1.40	0.70	0	81
Other - Services	2.63	1.31	0	51
Other - Specialty Hospital	6.10	3.05	0	144
Other - Stadium	0.31	0.16	0	23
Other - Technology/Science	0.001	0.001	0	183
Outpatient Rehabilitation/Physical Therapy	1.76	0.88	0	46
Parking	exempt	exempt	exempt	exempt
Performing Arts	2.38	1.19	0	57

Property Type	Net Direct Emissions Standards kg CO <sub>2</sub> e per square foot			Site EUI Standards kBtu per square foot
	Interim Standard for 2030-2034	Interim Standard for 2035-2039	Final Standard for 2040 and beyond	Final Standard for 2040 and beyond
Personal Services (Health/Beauty, Dry Cleaning, etc)	2.17	1.09	0	47
Police Station	1.52	0.76	0	54
Pre-school/Daycare	2.45	1.23	0	48
Prison/Incarceration	0.57	0.29	0	38
Race Track	1.03	0.52	0	41
Refrigerated Warehouse	1.37	0.69	0	38
Repair Services (Vehicle, Shoe, Locksmith, etc)	2.16	1.08	0	52
Residence Hall/Dormitory	0.70	0.35	0	38
Residential Care Facility	1.43	0.72	0	50
Restaurant	exempt	exempt	exempt	exempt
Retail Store	0.60	0.30	0	48
Roller Rink	2.07	1.03	0	84
Self-Storage Facility	0.19	0.10	0	7
Senior Living Community	1.43	0.72	0	50
Social/Meeting Hall	1.53	0.76	0	39
Stadium (Closed)	0.31	0.16	0	23
Stadium (Open)	0.32	0.16	0	21
Strip Mall	1.90	0.95	0	58
Supermarket/Grocery Store	2.25	1.13	0	137
Swimming Pool	2.07	1.03	0	84
Transportation Terminal/Station	2.22	1.11	0	56

Property Type	Net Direct Emissions Standards kg CO <sub>2</sub> e per square foot			Site EUI Standards kBTU per square foot
	Interim Standard for 2030-2034	Interim Standard for 2035-2039	Final Standard for 2040 and beyond	Final Standard for 2040 and beyond
Urgent Care/Clinic/Other Outpatient	1.76	0.88	0	46
Veterinary Office	1.76	0.88	0	46
Vocational School	2.34	1.17	0	46
Wholesale Club/Supercenter	0.60	0.30	0	48
Worship Facility	0.87	0.44	0	32
Zoo	1.03	0.52	0	41

B. Interim Site EUI Standards. Interim site EUI standards are calculated using a straight-line trajectory from a covered building’s baseline performance to the final performance standards in 2040, set by the compliance tool as specified in the Department’s TM 23-01, "Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards".

C. Interim and Final Standards for Mixed-Use Covered Buildings. Area-weighted standards for net direct emissions and site EUI for mixed-use buildings will be set by the compliance tool as specified in the Department’s TM 23-01, "Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards".

D. Achieving and Maintaining the Standards.

(1) Each covered building must be at or below the interim site EUI and net direct emissions standards for 2030-2034 in each calendar year including 2030, 2031, 2032, 2033, and 2034.

(2) Each covered building must be at or below the interim site EUI and net direct emissions standards for 2035-2039 in each calendar year including 2035, 2036, 2037, 2038, and 2039.

(3) Each covered building must be at or below the final site EUI and net direct emissions standards in calendar year 2040 and each calendar year thereafter.

Add more information and details about compliance.  
 If do not meet interim targets, then require submission of a "plan" about how they can ultimately meet the 2040 goal/ with new interval steps.  
 Clarify the Alternate compliance pathway.  
 Suggest implementing penalty fees if one does not benchmark, and also a fee if you do not report.



**Title 26 DEPARTMENT OF THE ENVIRONMENT**  
**Subtitle XX BUILDING ENERGY PERFORMANCE STANDARDS**  
**Chapter 04 Alternative Compliance and Special Provisions**

**Authority: Environment Article, §§1-404, 2-301, 2-302, 2-1205, 2-1602, Annotated Code of Maryland**

Clarify that this does not mean they can choose to pay in lieu of benchmarking/ interim step reporting, and is a fee if they benchmark/ report and do not meet standards.

**.01 Alternative Compliance Pathway.**

**A. Alternative Compliance Pathway for Net Direct Emissions Standards.**

(1) In lieu of meeting the net direct emissions standards in COMAR 26.xx.03, the building owner shall come into compliance with the net direct emissions standards by paying an alternative compliance fee for the greenhouse gas emissions in excess of the net direct emissions standards.

(2) An alternative compliance fee shall be paid for every metric ton of net direct emissions in excess of the net direct emissions standard in a given calendar year. The fee shall be:

- (a) \$230 per metric ton of excess CO<sub>2</sub>e in 2020 dollars, adjusted for inflation, for 2030;
- (b) \$234 per metric ton of excess CO<sub>2</sub>e in 2020 dollars, adjusted for inflation, for 2031;
- (c) \$238 per metric ton of excess CO<sub>2</sub>e in 2020 dollars, adjusted for inflation, for 2032;
- (d) \$242 per metric ton of excess CO<sub>2</sub>e in 2020 dollars, adjusted for inflation, for 2033;
- (e) \$246 per metric ton of excess CO<sub>2</sub>e in 2020 dollars, adjusted for inflation, for 2034;
- (f) \$250 per metric ton of excess CO<sub>2</sub>e in 2020 dollars, adjusted for inflation, for 2035;
- (g) \$254 per metric ton of excess CO<sub>2</sub>e in 2020 dollars, adjusted for inflation, for 2036;
- (h) \$258 per metric ton of excess CO<sub>2</sub>e in 2020 dollars, adjusted for inflation, for 2037;
- (i) \$262 per metric ton of excess CO<sub>2</sub>e in 2020 dollars, adjusted for inflation, for 2038;
- (j) \$266 per metric ton of excess CO<sub>2</sub>e in 2020 dollars, adjusted for inflation, for 2039;
- (k) \$270 per metric ton of excess CO<sub>2</sub>e in 2020 dollars, adjusted for inflation, for 2040;

and

(l) The fee rate increases by \$4 per metric ton of CO<sub>2</sub>e per calendar year in 2020 dollars, adjusted for inflation, in each calendar year following 2040.

(3) The annual fee rate set forth in this chapter shall be increased each calendar year by the percentage, if any, by which the Consumer Price Index for the most recent calendar year exceeds the Consumer Price Index for the previous calendar year.

B. Other Provisions. If covered building ownership changes in 2030 or any calendar year thereafter, then the owner of the building on December 31 is responsible for compliance with this regulation and paying alternative compliance fees or penalties for the calendar year ending on December 31 and every calendar year thereafter until that person is no longer the owner of the covered building.

**.02 Exemptions.**

A. Exemptions from Benchmarking and Performance Standard Requirements. A building owner may apply for an exemption from the requirements of this regulation for one calendar year when the building owner can provide documentation showing that one of the following conditions are met:

- (1) Financial distress;
- (2) The covered building was not occupied during the calendar year being reported; and
- (3) The covered building was demolished during the calendar year for which benchmarking is required.

B. Exemption from Establishing Baseline Performance.

- (1) A building owner may apply for an exemption from the requirement to establish baseline performance when, during the baseline year, less than 50% of the covered building was occupied for at least 180 days.
- (2) A covered building may not receive an exemption from the requirement to establish baseline performance for more than three years.

clarify for a certain period of time - and eventually all buildings over 35,000 should have its own separate whole building meter.

**.03 Option for Campus-Level Compliance.**

A. The owner of a campus may choose to meet site EUI and net direct emissions standards, as specified under this regulation, at the campus level instead of the individual building level when two or more covered buildings are:

- (1) Connected to a district energy system;
- (2) Served by the same electric or gas meter; or
- (3) Served by the same heating or cooling system(s), which is not a district energy system.

B. Campus-level reporting shall include energy consumption and greenhouse gas emissions for all buildings and stationary equipment located on the campus, including all central plants, except as provided in §.03B(1) of this Chapter.

(1) Campus-level reporting does not include energy consumption and greenhouse gas emissions from activities/sources that are excluded from the benchmarking report requirements in Chapter 2 of this regulation.

(2) The owner of a campus shall report to the Department at least annually:

(a) Any permits to build new buildings or change the footprint or usage of existing buildings on the campus; and

(b) Any buildings have received new certificates of occupancy.

(3) The Department shall, in consultation with the principal owner of a campus, determine whether the affected buildings will be included in campus-level compliance following the rules established in this chapter and whether and how to adjust the campus' interim and final performance standards.

(4) By January 1, 2025, or within one year after a new campus is occupied, the principal owner of a campus that contains one or more buildings that principal owner does not own or does not control shall deliver to the Department for approval that contains the following information:

(a) A list and a map identifying each building located on the campus that the principal owner does not own or does not control;

(b) The name, location, size, and ownership of each such building; and

(c) A recommendation to the Department as to which buildings should comply with this regulation as part of the campus-level compliance option and which should comply individually.

#### C. Performance Standards for Campus-Level Compliance.

(1) For a campus that consists of one property type, the interim and final net direct emissions and site EUI standards are those that correspond with that property type.

(2) For a campus that consists of more than one property type, the interim and final net direct emissions and site EUI standards are based on area-weighted standards as specified in the Department's TM 23-01, "Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards".

(3) Interim site EUI standards are calculated using a straight-line trajectory from baseline performance to the final performance standards as specified in the Department's TM 23-01, "Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards".

(4) Achieving and Maintaining the Standards.

(a) Campus-level energy use must be at or below the interim site EUI and net direct emissions standards for 2030-2034 in each calendar year including 2030, 2031, 2032, 2033, and 2034.

(b) Campus-level energy use must be at or below the interim site EUI and net direct emissions standards for 2035-2039 in each calendar year including 2035, 2036, 2037, 2038, and 2039.

(c) Campus-level energy use must be at or below the final site EUI and net direct emissions standards in calendar year 2040 and each calendar year thereafter.

**Title 26 DEPARTMENT OF THE ENVIRONMENT**

**Subtitle XX BUILDING ENERGY PERFORMANCE STANDARDS**

**Chapter 01 Definitions and Documents Incorporated by Reference**

Authority: Environment Article, §§1-404, 2-301, 2-302, 2-1205, 2-1602, Annotated Code of Maryland

**.01 Purpose**

The purpose of this chapter is to define the terms used in this subtitle and identify the documents that are incorporated by reference.

**.02 Definitions**

A. In this subtitle, the following terms have the meanings indicated.

B. Terms Defined.

(1) "Aggregate energy consumption data" means energy data that has been summed for an entire building, which may include a single occupant or a group of separately metered tenants, representing the cumulative total of energy used in the covered building.

(2) "Agricultural building" means a structure that is used primarily to cultivate, manufacture, process, or produce agricultural crops, raw materials, products, or commodities. Agricultural building includes a greenhouse.

(3) "Alternative compliance fee" means a fee paid by the building owner to come into compliance with this regulation as specified in Regulation.01A of COMAR 26.xx.04.

(4) "Area-weighted standard" means an interim or final performance standard that is calculated based on the floor area proportion of the property types within a covered building.

(5) Authorized occupant.

(a) "Authorized occupant" means a person other than a full-time-equivalent employee that is approved by a building owner to be within a covered building for no less than 40 person-hours per week throughout a calendar year.

(b) "Authorized occupant" does not include:

(i) Security guards;

(ii) Janitors;

(iii) Construction workers;

(iv) Landscapers; and

(v) Other maintenance personnel.

(6) “Baseline performance” means the weather-normalized numeric values of net direct greenhouse gas emissions and site EUI of a covered building for the covered building’s baseline year.

(7) “Baseline year” means either calendar year 2025 for a covered building that was constructed and occupied prior to calendar year 2025 or the first calendar year in which a newly constructed covered building was at least 50% occupied for at least 180 days. [Coordinate with 4.02.B.1.](#)

(8) “Benchmark” means to track and input a building’s energy consumption data and other relevant building information on a monthly basis for at least 12 consecutive months, as required by the benchmarking tool, to quantify the building’s energy use and greenhouse gas emissions.

[Also allow at least 12 consecutive months' worth of data to be added to the benchmarking tool on an annual basis](#)

(9) Benchmarking information. [OR separately mandate that utilities provide this data monthly, perhaps in section 2.04.A.2.](#)

(a) “Benchmarking information” means descriptive information about a building, its operating characteristics, and information generated by the benchmarking tool regarding the building’s energy consumption, efficiency, and performance.

(b) “Benchmarking information” includes but is not limited to the building identification number, address, gross floor area, and separate energy consumption totals for each fuel type.

(10) “Benchmarking tool” means the website-based software, commonly known as ENERGY STAR Portfolio Manager, or any successor system, approved by the United States Environmental Protection Agency.

(11) “Building” has the meaning and interpretation set forth in the International Building Code.

(12) “Building owner” means:

(a) An individual or legal entity possessing title to a property including but is not limited to a board of the owners’ association, master association, board of directors, or an agent authorized to act on behalf of a community association, cooperative housing corporation, or condominium.

(b) A representative of a building owner.

(13) “Campus” means a collection of two or more buildings, of any building type or size, that act as a single cohesive property with a single shared primary function and are owned and operated by the same party, such as, but not limited to, higher education or hospital campuses.

(14) “Commercial building” means a building that is subject to the commercial provisions of the International Energy Conservation Code regardless of the nature of the entity or government that owns the building.

(15) “Covered building” means a building that:

(a) Is a commercial or multifamily residential building in the State of Maryland or is owned by the State of Maryland; and

(b) Has a gross floor area of 35,000 square feet or more, excluding the parking garage area; and is:

(i) A single building;

(ii) One or more buildings held in the condominium form of ownership with a combined gross floor areas of 35,000 square feet or more (excluding the parking garage area) and governed by a single board of managers; or

(iii) Two or more buildings with a combined gross floor area of 35,000 square feet or more (excluding the parking garage area) that are served in whole or in part by the same electric or gas meter or are served by the same heating or cooling system(s), which is not a district energy system.

(c) A building that meets the criteria for a covered building as described in this section and is located in a historic district but where the building is not individually designated as a historic property under federal, state, or local law is a covered building.

(d) "Covered building" does not include:

(i) A building, or space within a building, individually designated as a historic property under federal, state, or local law;

(ii) A public or nonpublic elementary or secondary school building;

(iii) A manufacturing building;

(iv) An agricultural building; or

(v) A building owned by the Federal government;

(16) "Department" means the Maryland Department of the Environment.

(17) "Direct greenhouse gas emissions or direct emissions" means greenhouse gas emissions produced on-site by covered buildings, as calculated by the benchmarking tool unless otherwise specified by the Department.

(18) "District energy" means thermal energy generated at one or more central facilities that provides heating or cooling through a network of insulated underground pipes to provide hot water, steam, space heating, air conditioning, or chilled water to nearby buildings.

(19) "Electric company" has the meaning stated in Public Utilities Article, §1-101, Annotated Code of Maryland.

(20) "Final performance standard or final standard" means the numeric values of net direct greenhouse gas emissions and site EUI that each covered building must ultimately achieve on an annual basis in 2040 and beyond.

(21) "Financial distress" means:

(a) A property that is the subject of a tax lien sale or public auction due to property tax arrearages;

(b) A property that is controlled by a court appointed receiver; or

(c) A property that was acquired by a deed in lieu of foreclosure in the last calendar year.

(22) “Food service facility” has the meaning stated in COMAR 10.15.03.02B.

(23) Full-time-equivalent employee.

(a) “Full-time-equivalent employee” means a person that occupies a covered building for no less than 40 person- hours per week throughout a calendar year.

(b) “Full-time-equivalent employee” excludes:

(i) Security guards;

(ii) Janitors;

(iii) Construction workers;

(iv) Landscapers; and

(v) Other maintenance personnel.

(24) “Gas company” has the meaning stated in Public Utilities Article, §1-101, Annotated Code of Maryland.

(25) “Greenhouse gas emissions or emissions” means gasses released into the atmosphere that contribute to climate change, including but not limited to carbon dioxide (CO<sub>2</sub>), as calculated by the benchmarking tool unless otherwise specified by the Department.

(26) Gross floor area.

(a) “Gross floor area” means the total building square footage measured between the principal exterior surfaces of the enclosing fixed walls of a building.

(b) “Gross floor area” consists of all areas inside the building, including but not limited to lobbies, tenant areas, common areas, meeting rooms, break rooms, the base level of atriums, restrooms, elevator shafts, stairwells, mechanical equipment areas, basements, and storage rooms.

(c) “Gross floor area” does not include exterior spaces, balconies, bays, patios, exterior loading docks, driveways, covered walkways, outdoor play courts (e.g., tennis, basketball), parking, the interstitial space between floors (which house pipes and ventilation), and crawl spaces.

(d) “Gross floor area” is not the same as rentable space, but rather includes all areas inside the building(s).

(27) “Interim performance standard or interim standard” means the numeric values of net direct greenhouse gas emissions and site EUI which covered buildings must achieve by a specified calendar year that is prior to 2040.

(28) “Manufacturing” has the same meaning as defined and described in Environment Article, §2-1202(h)(1-3), Annotated Code of Maryland.

(29) “Manufacturing building” means a building classified as a manufacturing building in North American Industry Classification System (NAICS) or otherwise designated as a manufacturing building by the Department.

(30) “Mixed-use building” means a building that contains two or more property types.

(31) Net direct greenhouse gas emissions or net direct emissions.

(a) “Net direct greenhouse gas emissions or net direct emissions” means:

(i) Direct greenhouse gas emissions; or

(ii) For a covered building connected to a district energy system, direct greenhouse gas emissions plus the greenhouse gas emissions attributable to thermal energy inputs from the district energy system used by the covered building, as calculated using the methodology provided in this regulation.

(b) “Net direct greenhouse gas emissions or net direct emissions” does not include direct greenhouse gas emissions from a food service facility located within a covered building.

(32) “Newly constructed covered building” means a covered building that was constructed after 2024 and occupied by at least one full-time-equivalent employee or authorized occupant.

(33) “Occupied” means a covered building with at least one full-time equivalent employee or authorized occupant. Clarify that “occupied” occurs after U&O and does not include full time construction workers.

(34) “Property type” means the primary use of a building space as specified in ENERGY STAR Portfolio Manager.

(35) Site energy use.

(a) “Site energy use” means all energy used on-site by a covered building to meet the energy loads of the building.

(b) “Site energy use” includes electricity delivered to the building through the electric grid and/or generated on-site with renewable sources; thermal energy delivered to the building through a district energy system; and natural gas, diesel, propane, fuel oil, wood, coal, and other fuels used on-site.

(c) “Site energy use” excludes electricity used to charge vehicles and other electricity uses excluded from site energy use by the benchmarking tool.

(36) “Site energy use intensity or site EUI” is calculated by the benchmarking tool by dividing the total energy consumed in one calendar year by the gross floor area of the building and reported as a value of a thousand British thermal units (kBtu) per square foot per year.

(37) “Tenant” means a person or entity occupying or holding possession of a building, part of a building, or premises pursuant to a rental or lease agreement.

(38) “Weather normalized” means a method for modifying the measured building energy use in a specific calendar year to estimate energy use under normal weather conditions as calculated by the benchmarking tool.

**.03 Incorporation by Reference.**

A. In this subtitle, the following documents are incorporated by reference.

B. Documents Incorporated.

(1) International Building Code (IBC), Sixth Version: Nov 2021, Chapter 2 “Definitions”, Section 202 “Definitions”, [A] Building.

(2) International Energy Conservation Code (IECC), Second Version: Sep 2021, Chapter 4 “[CE] Commercial Energy Efficiency”.

(3) Maryland Department of the Environment Technical Memorandum 23-01, "Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards", June, 2023.

**Title 26 DEPARTMENT OF THE ENVIRONMENT**  
**Subtitle XX BUILDING ENERGY PERFORMANCE STANDARDS**  
**Chapter 02 Benchmarking and Reporting**

**Authority: Environment Article, §§1-404, 2-301, 2-302, 2-1205, 2-1602, Annotated Code of Maryland**

**.01 Purpose.**

The purpose of this chapter is to establish reporting requirements for building owners, tenants, electric and gas companies, fuel distributors, and district energy providers.

**.02 Reporting Requirements of Building Owners.**

**A. Data Collection.**

(1) Each calendar year beginning in 2025 or in the first calendar year after which a newly constructed covered building is occupied, the building owner shall collect and enter all required benchmarking information for the previous calendar year into the benchmarking tool.

(2) Nothing in this regulation shall be construed to permit a building owner to use tenant energy usage data for purposes other than evaluation of the performance of the building.

**B. Benchmarking Report.**

(1) A building owner shall submit a benchmarking report to the Department by June 1<sup>st</sup> of each calendar year, beginning in 2025, using the benchmarking tool.

(2) The owner of a newly constructed covered building shall submit a benchmarking report to the Department by June 1<sup>st</sup> of each calendar year, beginning the year following the first calendar year the newly constructed building was occupied for at least one day, using the benchmarking tool. [An example would be helpful.](#)

[Data may not be obtainable if the building is occupied for 1 day during the year. Require that utilities provide this data.](#)

(3) The annual benchmarking report shall include, at a minimum, the benchmarking information spanning January 1<sup>st</sup> to December 31<sup>st</sup> of the previous calendar year or for all of the days in a calendar year that a newly constructed covered building was occupied.

(4) The building owner shall enter data into the benchmarking tool such that the benchmarking report shall be based on an assessment of the energy consumed by the building for the entire calendar year being reported or for all of the days in a calendar year that a newly constructed covered building was occupied.

(5) The building owner shall exclude from the benchmarking report submetered and separately metered energy consumption data for:

- (a) Food service facilities that engage in commercial cooking and water heating;

- (b) Electric vehicle charging;
- (c) Other electricity uses excluded from site energy use by the benchmarking tool; and
- (d) Emissions from required combustion equipment under the following conditions:

- (i) Emissions from generators shall be excluded from the net direct emissions requirements if a federal or state regulation requires a covered building including a health care facility, laboratory, assisted living and nursing facility, military building, critical infrastructure, and a building used in life sciences to use a backup generator or other equipment that must run on combustible fuels.

- (ii) A covered building is required to include emissions from a combustion generator/equipment if the relevant federal or state regulation is updated to allow battery storage and/or other types of systems that do not produce direct emissions.

(6) Energy consumption for food service facilities can be excluded using a standard deduction formula in accordance with the Department's TM 23-01, "Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards," when such energy consumption cannot be excluded using submetered or separately metered data.

(7) Before submitting a benchmarking report, the building owner shall run all automated data quality checker functions available within the benchmarking tool and shall verify that all data has been accurately entered into the tool. The building owner shall correct all missing or incorrect information as identified by the data quality checker prior to submitting the benchmarking report to the Department.

(8) If a building owner is notified of an inaccuracy by the Department, electric company, or other third party, then the building owner shall amend the information reported within the benchmarking tool, and shall provide the Department with an updated benchmarking submission within 30 days of learning of the inaccuracy.

(9) The building owner of a mixed-use covered building shall use the benchmarking tool to report the gross floor area for all property types in the building.

(10) The building owners of a covered building that is connected to district energy systems shall submit additional information to supplement the annual benchmarking report in accordance with the Department's TM 23-01, "Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards".

**C. Third Party Verification of Benchmarking Reports. [Paid for by whom? \(See 2.04.B.3\)](#)**

(1) The building owner shall have a third party verify the accuracy of benchmarking reports for calendar years:

- (a) 2025 (benchmarking report due in 2026);
- (b) 2030 (benchmarking report due in 2031);
- (c) 2035 (benchmarking report due in 2036);

(d) 2040 (benchmarking report due in 2041); and

(e) every five years thereafter.

(2) The building owner of a newly constructed covered building shall have a third party verify the first required benchmarking report and then comply with the schedule in this chapter for verification of subsequent reports.

(3) The building owner shall provide to the third party verifier all utility bills, delivered fuel receipts, and other documentation needed by the verifier for the calendar year covered by the benchmarking report.

(3) The building owner shall submit a copy of a third party verification to the Department when submitting the associated benchmarking report in accordance with the Department's TM 23-01, "Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards."

#### D. Maintenance of Historical Data.

(1) The building owner shall maintain adequate records demonstrating compliance with this Chapter, including but not limited to, energy bills, reports, forms, and records received from tenants or utilities and records.

(2) Such records shall be preserved for a period no less than seven years.

(3) At the request of the Department, such records shall be made available for inspection and audit by the Department.

#### **.03 Reporting Requirements of Tenants.**

A. A tenant of a covered building shall, within 30 days of a request by the building owner, provide all requested benchmarking information that cannot otherwise be acquired by the building owner from other sources.

#### **.04 Reporting Requirements of Utility Companies and District Energy Providers.**

##### A. Electric and Gas Companies.

(1) Starting no later than July 1, 2024, electric and gas companies shall retain for a period of not less than seven years digital records of all customer meter-specific energy consumption, including the date and time of such consumption for any data captured at intervals of more than four minutes. Electric and gas companies shall conduct meter-to-building mapping and maintain aggregate energy consumption data for all covered buildings, and provide to the building owner accurate and timely information on the actual amount of electricity and/or gas delivered to a covered building. The data shall be provided via web-based delivery capable of being uploaded to the benchmarking tool.

Thank you!

(a) Data shall include aggregate energy consumption, accounting for all electric and gas company meters that measure energy consumption at the covered building, regardless of whether the meters serve tenant-paid or owner-paid accounts.

For uses excluded covered by 2.02.B.5, either require that the utility remove this use from the aggregate data first or provide a second sum for these excluded uses.

(b) Data shall be provided in a manner that aggregates energy consumption data across all electric and gas company meters at the covered building. Prior to the delivery of aggregate energy consumption data, utilities shall coordinate with the building owner as necessary to review and confirm an accurate accounting of the meters that will be used to calculate the aggregated total.

(c) The utility process will also include a mechanism by which the building owner can work with the utility to correct any inaccuracies regarding the list of constituent accounts and/or meters.

(2) Within 30 days of a request from a building owner, an electric or gas utility company shall digitally transmit as a free service to the building owner energy data through the benchmarking tool. The data shall include aggregate energy consumption data, as well as a complete list of the meter numbers included in the aggregate energy consumption data to ensure accuracy of the meter-to-building mapping, and shall continue to transmit such data until otherwise directed. Building owners shall have the option to submit requests digitally. "Shall continue to transmit such data MONTHLY until otherwise directed." This change would be in alignment with definition 8, benchmarking.

(3) Electric and gas companies shall maintain a record of all meters that populate a given building's aggregate energy consumption data in any given month. The utility shall ensure that meter-to-building mapping is accurate and updated on an ongoing basis. Within 30 days of discovering that any data or meter mapping that it has reported was erroneous, the utility shall digitally provide to the building owner, the Department, and the Public Service Commission a report detailing the errors, corrective measures, and steps the utility has taken and will take to prevent a recurrence of the error.

(4) All requests for aggregate energy consumption data shall be kept for reference by the gas company or electric company for at least 24 months, including verification that the request was made by a building owner. Requests submitted via a new or previously existing password-protected web portal using the account of a building owner shall require no additional identity verification.

(5) Electric and gas companies shall provide a customer service option, including but not limited to a phone number for building tenants to call-in, relating to data access questions and any perceived data misuse.

#### B. District Energy Providers.

(1) Starting no later than July 1, 2024, district energy providers shall maintain all records that are necessary to comply with this regulation for a period of not less than seven years. At the request of the Department, such records shall be made available for inspection and audit by the Department.

(2) District energy providers shall provide energy consumption data and greenhouse gas emissions factors per unit of district energy input (steam, hot water, chilled water, etc.) to the owners of covered buildings and to the Department for benchmarking and compliance purposes.

(3) Emissions factors and a full and detailed accounting of their calculation must be provided by the district energy provider by March 1<sup>st</sup> of each calendar year and cover the previous calendar year based on actual fuel consumption and system performance data. The Department may require a third party review of such calculations paid for by the district energy provider.

(4) District energy providers shall use methodology for allocating emissions that will be based on the "Efficiency Method" in the World Resources Institute's "Calculation tool for direct emissions from stationary combustion: Allocation of GHG Emissions from a Combined Heat and Power (CHP) Plant."

**.05 Disclosure of Covered Building Benchmarking and Performance Standards Information.**

A. Before a buyer signs a contract for the purchase of a covered building, the building owner selling the covered building must:

(1) Disclose to the prospective buyer that the building is subject to requirements under this Subtitle;

(2) Transfer the following records to the prospective buyer:

(a) A copy of the complete benchmarking record from the benchmarking tool;

(b) Documentation of data verification;

(c) Documentation of any alternative compliance payments made to the Department;

and

(d) Any other records relevant to maintain compliance under this Subtitle.

(3) Provide to the prospective buyer the following information:

(a) Performance baseline; and

(b) Interim and final performance standards.

B. The prospective buyer must indicate, by signing an addendum to the contract or a separate section of the contract printed in boldface type, that the seller has made the disclosures and provided the information required by Regulation .03 A of this chapter.

**Title 26 DEPARTMENT OF THE ENVIRONMENT**

**Subtitle XX BUILDING ENERGY PERFORMANCE STANDARDS**

**Chapter 03 Performance Standards and Compliance Demonstration**

**Authority: Environment Article, §§1-404, 2-301, 2-302, 2-1205, 2-1602, Annotated Code of Maryland**

**.01 Purpose.**

The purpose of this chapter is to establish performance standards for covered buildings.

**.02 Performance Standards**

A. Interim and final net direct emissions and final site EUI standards are:

Table 1. Performance Standards.

Property Type	Net Direct Emissions Standards kg CO <sub>2</sub> e per square foot			Site EUI Standards kBtu per square foot
	Interim Standard for 2030-2034	Interim Standard for 2035-2039	Final Standard for 2040 and beyond	Final Standard for 2040 and beyond
Adult Education	2.34	1.17	0	46
Aquarium	1.03	0.52	0	41
Automobile Dealership	2.23	1.12	0	61
Bank Branch	1.01	0.50	0	85
Bar/Nightclub	1.70	0.85	0	220
Barracks	0.57	0.29	0	38
Bowling Alley	2.07	1.03	0	84
Casino	1.03	0.52	0	41
College/University	2.43	1.21	0	57
Convenience Store with Gas Station	2.25	1.13	0	137
Convenience Store without Gas Station	2.25	1.13	0	137

Property Type	Net Direct Emissions Standards kg CO <sub>2</sub> e per square foot			Site EUI Standards kBtu per square foot
	Interim Standard for 2030-2034	Interim Standard for 2035-2039	Final Standard for 2040 and beyond	Final Standard for 2040 and beyond
Convention Center	0.39	0.19	0	40
Courthouse	1.14	0.57	0	47
Data Center	1.26	0.63	0	145
Distribution Center	0.58	0.29	0	19
Enclosed Mall	0.24	0.12	0	44
Fast Food Restaurant	exempt	exempt	exempt	exempt
Financial Office	0.32	0.16	0	58
Fire Station	1.70	0.85	0	47
Fitness Center/Health Club/Gym	2.87	1.43	0	59
Food Sales	2.25	1.13	0	137
Food Service	exempt	exempt	exempt	exempt
Hospital (General Medical & Surgical)	6.10	3.05	0	144
Hotel	1.47	0.74	0	60
Ice/Curling Rink	2.07	1.03	0	84
Indoor Arena	1.03	0.52	0	41
K-12 School	exempt	exempt	exempt	exempt
Laboratory	5.35	2.68	0	144
Library	1.92	0.96	0	55
Lifestyle Center	0.91	0.46	0	58
Mailing Center/Post Office	0.92	0.46	0	48
Medical Office	0.18	0.09	0	70
Movie Theater	0.78	0.39	0	57

Property Type	Net Direct Emissions Standards kg CO2e per square foot			Site EUI Standards kBtu per square foot
	Interim Standard for 2030-2034	Interim Standard for 2035-2039	Final Standard for 2040 and beyond	Final Standard for 2040 and beyond
Multifamily Housing	0.82	0.41	0	29
Museum	0.75	0.38	0	29
Non-Refrigerated Warehouse	0.11	0.06	0	31
Office	0.22	0.11	0	55
Other - Education	1.59	0.80	0	45
Other - Entertainment/Public Assembly	0.54	0.27	0	48
Other - Lodging/Residential	0.002	0.001	0	37
Other - Office	0.22	0.11	0	55
Other - Other	1.60	0.80	0	54
Other - Public Service	2.12	1.06	0	61
Other - Recreation	0.70	0.35	0	78
Other - Restaurant/Bar	1.70	0.85	0	219
Other - Retail/Mall	1.40	0.70	0	81
Other - Services	2.63	1.31	0	51
Other - Specialty Hospital	6.10	3.05	0	144
Other - Stadium	0.31	0.16	0	23
Other - Technology/Science	0.001	0.001	0	183
Outpatient Rehabilitation/Physical Therapy	1.76	0.88	0	46
Parking	exempt	exempt	exempt	exempt
Performing Arts	2.38	1.19	0	57

Property Type	Net Direct Emissions Standards kg CO <sub>2</sub> e per square foot			Site EUI Standards kBtu per square foot
	Interim Standard for 2030-2034	Interim Standard for 2035-2039	Final Standard for 2040 and beyond	Final Standard for 2040 and beyond
Personal Services (Health/Beauty, Dry Cleaning, etc)	2.17	1.09	0	47
Police Station	1.52	0.76	0	54
Pre-school/Daycare	2.45	1.23	0	48
Prison/Incarceration	0.57	0.29	0	38
Race Track	1.03	0.52	0	41
Refrigerated Warehouse	1.37	0.69	0	38
Repair Services (Vehicle, Shoe, Locksmith, etc)	2.16	1.08	0	52
Residence Hall/Dormitory	0.70	0.35	0	38
Residential Care Facility	1.43	0.72	0	50
Restaurant	exempt	exempt	exempt	exempt
Retail Store	0.60	0.30	0	48
Roller Rink	2.07	1.03	0	84
Self-Storage Facility	0.19	0.10	0	7
Senior Living Community	1.43	0.72	0	50
Social/Meeting Hall	1.53	0.76	0	39
Stadium (Closed)	0.31	0.16	0	23
Stadium (Open)	0.32	0.16	0	21
Strip Mall	1.90	0.95	0	58
Supermarket/Grocery Store	2.25	1.13	0	137
Swimming Pool	2.07	1.03	0	84
Transportation Terminal/Station	2.22	1.11	0	56

Property Type	Net Direct Emissions Standards kg CO <sub>2</sub> e per square foot			Site EUI Standards kBTU per square foot
	Interim Standard for 2030-2034	Interim Standard for 2035-2039	Final Standard for 2040 and beyond	Final Standard for 2040 and beyond
Urgent Care/Clinic/Other Outpatient	1.76	0.88	0	46
Veterinary Office	1.76	0.88	0	46
Vocational School	2.34	1.17	0	46
Wholesale Club/Supercenter	0.60	0.30	0	48
Worship Facility	0.87	0.44	0	32
Zoo	1.03	0.52	0	41

B. Interim Site EUI Standards. Interim site EUI standards are calculated using a straight-line trajectory from a covered building's baseline performance to the final performance standards in 2040, set by the compliance tool as specified in the Department's TM 23-01, "Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards".

C. Interim and Final Standards for Mixed-Use Covered Buildings. Area-weighted standards for net direct emissions and site EUI for mixed-use buildings will be set by the compliance tool as specified in the Department's TM 23-01, "Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards".

D. Achieving and Maintaining the Standards.

(1) Each covered building must be at or below the interim site EUI and net direct emissions standards for 2030-2034 in each calendar year including 2030, 2031, 2032, 2033, and 2034.

(2) Each covered building must be at or below the interim site EUI and net direct emissions standards for 2035-2039 in each calendar year including 2035, 2036, 2037, 2038, and 2039.

(3) Each covered building must be at or below the final site EUI and net direct emissions standards in calendar year 2040 and each calendar year thereafter.

**Title 26 DEPARTMENT OF THE ENVIRONMENT**  
**Subtitle XX BUILDING ENERGY PERFORMANCE STANDARDS**  
**Chapter 04 Alternative Compliance and Special Provisions**

**Authority: Environment Article, §§1-404, 2-301, 2-302, 2-1205, 2-1602, Annotated Code of Maryland**

**.01 Alternative Compliance Pathway.**

A. Alternative Compliance Pathway for Net Direct Emissions Standards.

(1) In lieu of meeting the net direct emissions standards in COMAR 26.xx.03, the building owner shall come into compliance with the net direct emissions standards by paying an alternative compliance fee for the greenhouse gas emissions in excess of the net direct emissions standards.

(2) An alternative compliance fee shall be paid for every metric ton of net direct emissions in excess of the net direct emissions standard in a given calendar year. The fee shall be:

- (a) \$230 per metric ton of excess CO<sub>2</sub>e in 2020 dollars, adjusted for inflation, for 2030;
- (b) \$234 per metric ton of excess CO<sub>2</sub>e in 2020 dollars, adjusted for inflation, for 2031;
- (c) \$238 per metric ton of excess CO<sub>2</sub>e in 2020 dollars, adjusted for inflation, for 2032;
- (d) \$242 per metric ton of excess CO<sub>2</sub>e in 2020 dollars, adjusted for inflation, for 2033;
- (e) \$246 per metric ton of excess CO<sub>2</sub>e in 2020 dollars, adjusted for inflation, for 2034;
- (f) \$250 per metric ton of excess CO<sub>2</sub>e in 2020 dollars, adjusted for inflation, for 2035;
- (g) \$254 per metric ton of excess CO<sub>2</sub>e in 2020 dollars, adjusted for inflation, for 2036;
- (h) \$258 per metric ton of excess CO<sub>2</sub>e in 2020 dollars, adjusted for inflation, for 2037;
- (i) \$262 per metric ton of excess CO<sub>2</sub>e in 2020 dollars, adjusted for inflation, for 2038;
- (j) \$266 per metric ton of excess CO<sub>2</sub>e in 2020 dollars, adjusted for inflation, for 2039;
- (k) \$270 per metric ton of excess CO<sub>2</sub>e in 2020 dollars, adjusted for inflation, for 2040;

and

(l) The fee rate increases by \$4 per metric ton of CO<sub>2</sub>e per calendar year in 2020 dollars, adjusted for inflation, in each calendar year following 2040.

(3) The annual fee rate set forth in this chapter shall be increased each calendar year by the percentage, if any, by which the Consumer Price Index for the most recent calendar year exceeds the Consumer Price Index for the previous calendar year.

B. Other Provisions. If covered building ownership changes in 2030 or any calendar year thereafter, then the owner of the building on December 31 is responsible for compliance with this regulation and paying alternative compliance fees or penalties for the calendar year ending on December 31 and every calendar year thereafter until that person is no longer the owner of the covered building.

**.02 Exemptions.**

A. Exemptions from Benchmarking and Performance Standard Requirements. A building owner may apply for an exemption from the requirements of this regulation for one calendar year when the building owner can provide documentation showing that one of the following conditions are met:

- (1) Financial distress;
- (2) The covered building was not occupied during the calendar year being reported; and
- (3) The covered building was demolished during the calendar year for which benchmarking is required.

B. Exemption from Establishing Baseline Performance.

- (1) A building owner may apply for an exemption from the requirement to establish baseline performance when, during the baseline year, less than 50% of the covered building was occupied for at least 180 days. [Coordinate with definition 7, baseline year.](#)
- (2) A covered building may not receive an exemption from the requirement to establish baseline performance for more than three years.

**.03 Option for Campus-Level Compliance.**

A. The owner of a campus may choose to meet site EUI and net direct emissions standards, as specified under this regulation, at the campus level instead of the individual building level when two or more covered buildings are:

- (1) Connected to a district energy system;
- (2) Served by the same electric or gas meter; or
- (3) Served by the same heating or cooling system(s), which is not a district energy system.

B. Campus-level reporting shall include energy consumption and greenhouse gas emissions for all buildings and stationary equipment located on the campus, including all central plants, except as provided in §.03B(1) of this Chapter.

(1) Campus-level reporting does not include energy consumption and greenhouse gas emissions from activities/sources that are excluded from the benchmarking report requirements in Chapter 2 of this regulation.

- (2) The owner of a campus shall report to the Department at least annually:

(a) Any permits to build new buildings or change the footprint or usage of existing buildings on the campus; and

(b) Any buildings have received new certificates of occupancy.

(3) The Department shall, in consultation with the principal owner of a campus, determine whether the affected buildings will be included in campus-level compliance following the rules established in this chapter and whether and how to adjust the campus' interim and final performance standards.

(4) By January 1, 2025, or within one year after a new campus is occupied, the principal owner of a campus that contains one or more buildings that principal owner does not own or does not control shall deliver to the Department for approval that contains the following information: (missing a word?)

(a) A list and a map identifying each building located on the campus that the principal owner does not own or does not control;

(b) The name, location, size, and ownership of each such building; and

(c) A recommendation to the Department as to which buildings should comply with this regulation as part of the campus-level compliance option and which should comply individually.

#### C. Performance Standards for Campus-Level Compliance.

(1) For a campus that consists of one property type, the interim and final net direct emissions and site EUI standards are those that correspond with that property type.

(2) For a campus that consists of more than one property type, the interim and final net direct emissions and site EUI standards are based on area-weighted standards as specified in the Department's TM 23-01, "Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards".

(3) Interim site EUI standards are calculated using a straight-line trajectory from baseline performance to the final performance standards as specified in the Department's TM 23-01, "Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards".

(4) Achieving and Maintaining the Standards.

(a) Campus-level energy use must be at or below the interim site EUI and net direct emissions standards for 2030-2034 in each calendar year including 2030, 2031, 2032, 2033, and 2034.

(b) Campus-level energy use must be at or below the interim site EUI and net direct emissions standards for 2035-2039 in each calendar year including 2035, 2036, 2037, 2038, and 2039.

(c) Campus-level energy use must be at or below the final site EUI and net direct emissions standards in calendar year 2040 and each calendar year thereafter.



**June 5, 2023**

**Secretary Serena Mcllwain  
Maryland Department of the Environment  
Montgomery Park Business Center  
1800 Washington Boulevard  
Baltimore, MD 21230**

**RE: Building Energy Performance Standards, May 2023 Draft for Stakeholder Review**

Dear Secretary Mcllwain,

On May 15, the Maryland Department of the Environment (MDE) published a draft rule to implement Maryland's Building Energy Performance Standards (BEPS) and invited comments from stakeholders regarding the draft rule. This letter responds to that request for comments.

RMI is an independent nonprofit founded in 1982 that transforms global energy systems through market-driven solutions to align with a 1.5°C future and secure a clean, prosperous, zero-carbon future for all. RMI joins energy efficiency, public health, and climate action proponents across the state in commending MDE for its swift action to align Maryland's building sector with its ambitious climate goals. Well-implemented BEPS will deliver not only greenhouse gas emission reductions, but also immediate benefits to Marylanders in the form of improved indoor and outdoor air quality, lower energy costs, and more functional working and living spaces.

MDE should prioritize outcomes experienced by low- and moderate-income Marylanders both through this rule and all supporting documents and implementation. The below actions would improve the proposed rule. This letter expands on each recommendation below.

- Ensure that the occupants of all covered buildings, affordable housing and other capital-constrained buildings realize the benefits of a zero-emission BEPS by:
  - Developing compliance and enforcement adjustments and fair, transparent rules for their administration
  - Improving the payment schedule for alternative compliance
  - Including rental apartment buildings unambiguously in the definition of a "covered building"
  - Supporting compliance with all available regulatory and programmatic tools
- Clarify the third-party verification, reporting, and enforcement processes
- Recognize MDE's authority to adjust performance standards and alternative compliance payments over time in response to lessons learned in implementation and market changes

Some of these recommendations, as well as additional prudent programmatic actions to maximize BEPS success, require significant resources. MDE should take full advantage of federal resources in

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devising and implementing its BEPS regulations. For example, the Inflation Reduction Act allocates \$1 billion toward U.S. Department of Energy grants to help state and local governments adopt and work toward full compliance with building codes, and the Infrastructure Investment and Jobs Act allocates \$225 million for similar support measures, \$180 million of which will be available in future funding opportunities. Both programs will likely fund applications seeking support for building performance standards such as Maryland BEPS.

Thank you in advance for your consideration of these comments.

## **Details on BEPS Recommendations**

### **1. Ensure occupants of all covered buildings realize the benefits of BEPS**

MDE's commendable goals of reducing climate- and health-harming pollution and energy costs in covered buildings will be best served by policies that influence as many buildings as possible to eliminate their direct greenhouse gas emissions. To that end, MDE should develop fair compliance and enforcement adjustments, improve alternative compliance payment structures, ensure the definition of "covered building" is appropriately inclusive, and provide high-quality information and assistance to building owners to reach full compliance.

#### **A. Develop fair compliance and enforcement adjustments**

In the draft regulations, inflexible monetary penalties appear to be the sole enforcement mechanism. Chapter 4 of the regulations provides that building owners may avoid "meeting the net direct emissions standards . . . by paying an alternative compliance fee for the greenhouse gas emissions in excess of the net direct emissions standards."<sup>1</sup> (Separately, the regulations leave unclear whether any penalties would apply if a building's Energy Use Intensity (EUI) exceeds the performance standards for EUI, as this section applies only to net direct emissions standards.) While a fee in lieu could ostensibly provide MDE with additional revenue that may be usable for climate-friendly measures, the desirable policy outcome is not payment of such a fee, but reduced greenhouse gas emissions from buildings. (An adequately high fee would incentivize compliance; see section 3 on this point.) Building owners should have an option to seek an extension of the compliance timeline if they can show that meaningful constraints prevent them from complying on time, and they are taking measures within those constraints to bring their building into compliance.

It is especially important that buildings occupied by disadvantaged community members are not excluded from emission reduction requirements and are encouraged to comply in a workable manner. For instance, programmatically developed affordable housing may operate with a variety of cash flow and capital constraints. Rather than exempting affordable housing from requirements, the building owner should be able to receive a temporary exemption from paying a penalty to MDE (or at least an opportunity to pay a discounted penalty) if they demonstrate a plan and steps toward full compliance by the final compliance period. As an example, in Colorado, a task force making recommendations for the state's building performance regulations advised including an adjusted compliance timeline for "[a]ffordable housing that needs to align work with recapitalization or refinancing timelines."<sup>2</sup>

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<sup>1</sup> Proposed BEPS Regulations ("BEPS Regs.") Ch. 04 § .01(A)(1) (2023).

<sup>2</sup> *Colorado's Building Performance Standards (BPS) Task Force Recommendations* (Oct. 1, 2022), [https://drive.google.com/file/d/110pvRfosqdSOQyXrBAzh0vJTQH5Uc\\_nN/view](https://drive.google.com/file/d/110pvRfosqdSOQyXrBAzh0vJTQH5Uc_nN/view).



Specifically, affordable housing units may be unable to meet the precise deadlines set forth in the BEPS regulations, as described above. The BEPS regulations contain an exemption for “financially distressed” buildings, but that is limited to buildings that are in a foreclosure-related process. Undergoing a foreclosure or bankruptcy process is distinct from having insufficient capital to make upgrades in time to meet the regulation’s deadlines—which is an issue that owners of affordable housing units are prone to face. MDE should add to Section .02 in Chapter 4 a provision excusing a delay in compliance for good cause that is based on financial constraints unique to affordable housing units. Washington, DC’s Compliance and Enforcement Guidebook for its Building Energy Performance Standards provides a helpful example of how to phrase a financial distress exemption that is unique to affordable housing units:

In reference to BEPS, financial distress means a building owner cannot honor financial obligations, including payment of ordinary and necessary business and/or living expenses, that would prevent timely compliance with energy performance requirements. When claiming financial distress, the building owner should demonstrate that it has made good faith efforts to pursue available financial support mechanisms. For qualifying affordable housing, this circumstance can also be demonstrated if a building can document cash flow constraints, restrictions on the usage of its net cash flow, or prohibition from utilizing a portion of existing cash reserves for EEMs.<sup>3</sup>

Equity and fairness may be advanced through enumeration of exemptions and acceptable compliance adjustment reasons. Some jurisdictions preceding Maryland in implementing a building performance standard have chosen to administer compliance and enforcement adjustments in an opaque and inconsistent manner. A transparent, straightforward, evenly applied guide to when and why building owners may receive compliance adjustments is a superior approach to ensure equitable treatment across all covered buildings. Maryland should develop such a guide, document any exceptions in provision of its rules in the intended fair and consistent manner, report publicly on both regular and irregular compliance adjustments, and revise its rules and guide to improve fairness and effectiveness over time.

#### **B. Improve alternative compliance payment structures**

Given MDE’s goal of influencing building owners to achieve the required reductions in greenhouse gas emissions, the agency should implement enforcement mechanisms that will ratchet up in stringency over time, rather than simply allowing building owners to keep emitting year after year without any additional consequences. If a building owner is evading the intended requirements of the BEPS regulations, or not satisfactorily demonstrating steps toward compliance, it should be required to produce a detailed plan (perhaps verified by a third party) outlining measures that it will take in the near-term and long term to reduce emissions or else pay additional penalties.

MDE should also distinguish alternative compliance from financial or legal penalties and explicitly promulgate rules regarding the latter. At this point, it is not clear what the penalties are—or if there even are penalties—if a building owner or tenant reports benchmarking information that a third party verifier finds is incorrect; if a third party verifier fails to detect incorrect information; if a building owner or tenant does not file benchmarking reports; if a party required to provide or verify data intentionally

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<sup>3</sup> D.C. Department of Energy and Environment, *Building Energy Performance Standards Compliance and Enforcement Guidebook for Compliance Cycle 1*, § 5.2.1.



or knowingly misrepresents benchmarking information; or if a utility does not provide required information, as examples of potential violations.

### **C. Define “covered buildings” inclusively and equitably**

MDE should reexamine and consider modifying the definition of a “covered building” to clarify that it encompasses all types of apartment buildings. Currently, the category of “covered building” includes multiple buildings with units that are owned as condominiums with a single board of managers, as well as multiple buildings that are served “in whole or in part by the same electric or gas meter or are served by the same heating or cooling system(s), which is not a district energy system.”<sup>4</sup> As phrased, the definition risks excluding apartment buildings where units are rented or owned, but are not classified as condominiums, or where there may not be shared meters, or heating or cooling systems, that would place those buildings under the purview of the BEPS regulations. For instance, a complex containing garden-style apartments could certainly total more than 35,000 square feet in area, but may not meet the requirement of having a shared meter or system. To ensure “covered buildings” explicitly include apartment buildings, MDE should add a new subsection—Section (.2)(15)(a)b(iv) in Chapter 1—defining “Two or more residential buildings with a combined gross floor area of 35,000 square feet or more that share the same owner” as a type of covered building.

Applying the requirements in the BEPS standards to buildings and complexes with smaller rental units, such as garden-style apartments, is important for reducing Maryland buildings’ greenhouse gas emissions in an equitable manner. Combustion of fossil fuels also releases pollutants such as nitrogen oxides and fine particulates (PM2.5) that harm respiratory and cardiovascular health. Such pollutants disproportionately affect Black, indigenous, and other people of color (BIPOC) in the United States; for example, BIPOC communities are exposed to nearly twice the concentrations of PM2.5 from gas appliances compared to white communities.<sup>5</sup> It is critical that building owners take steps to reduce air pollution not only in neighborhoods with condominium buildings where higher-income Marylanders own homes, but also in communities where lower- and moderate-income residents live in rental units.

### **D. Provide high-quality information and assistance**

Whether by rule or through programmatic implementation, MDE should provide technical support to building owners to assist them in meeting the performance standards outlined in the regulations. First, MDE should make every effort to ensure building owners are aware of BEPS requirements and of consequences for failures to comply.

Second, to support full compliance, MDE should provide educational resources about steps that building owners can take to reduce greenhouse gas emissions and sources of federal and state funding that are available to defray the costs of electrification and energy efficiency measures. The federal Inflation Reduction Act, for instance, provides an unprecedented quantity of rebates and tax credits for procuring electric appliances, electric heating systems, and other retrofits and upgrades that would directly reduce a building’s greenhouse gas emissions.<sup>6</sup>

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<sup>4</sup> BEPS Regs. Ch. 01 § .02(15).

<sup>5</sup> Christopher W. Tessum et al. ,PM2.5 pollutants disproportionately and systemically affect people of color in the United States. *Sci. Adv.*7, eabf4491 (2021). DOI:10.1126/sciadv.abf4491

<sup>6</sup> See, e.g., Inflation Reduction Act, § 13303; 50121(c); 50122(c).



Third, MDE should provide building owners with technical support and contact information for qualified energy auditors or other third parties that can inspect covered buildings and make specific recommendations about how to reduce their greenhouse gas emissions. Generally, MDE should coordinate with other agencies to ensure that covered buildings are made aware of all state programs that could help them comply with the BEPS regulations, such as rebates that may be administered by the Maryland Energy Administration (MEA) or Department of Housing and Community Development (DHCD). Maryland should braid financing and incentive provision and coordinate support for building performance standard compliance through a centralized “hub,” like Washington, D.C.’s High-Performance Building Hub.

## **2. Clarify third-party verification, reporting, and enforcement processes**

There are several terms and requirements in Chapter 2 of the regulations that MDE should clarify in its final BEPS regulations.

### **A. Third-party verification**

MDE should clarify two aspects of the third-party verification process. First, MDE should define which entities qualify as “third parties” for the purpose of verifying the accuracy of benchmarking reports. A disinterested party should verify the accuracy of buildings’ reports of their greenhouse gas emissions—but it would be helpful for building owners to have more clarity on which parties can serve this role.

Second, MDE should clarify how this third-party verification may take place. The regulations instruct building owners to provide “to the third party verifier all utility bills, delivered fuel receipts, and other documentation needed by the verifier for the calendar year covered by the benchmarking report.”<sup>7</sup> This provision does not clarify which entity(ies) are intended to serve in that role, including whether utilities themselves could qualify as third-party verifiers. Additionally, it is unclear what “other documentation” might be deemed “needed” by a third-party verifier, and what the consequences would be if a building owner does not have that information on hand. It is important to resolve these questions so building owners know where to send their data for verification and which types of documentation to proactively maintain. It is also important to provide members of the public with an opportunity to confirm that the third-party verifiers are unbiased and possess sufficient technical expertise.

### **B. Tenant benchmarking obligations**

MDE should clarify the process by which tenants may have to report their buildings’ benchmarking information in lieu of landlords. Section .03 in Chapter 2 of the proposed regulation reads, “A tenant of a covered building shall, within 30 days of a request by the building owner, provide all requested benchmarking information that cannot otherwise be acquired by the building owner from other sources.”<sup>8</sup> Either in the final regulations or a subsequent guidance document, MDE should clarify under what circumstances a building owner will be considered unable to acquire benchmarking information, as well as how a tenant would keep track of and provide that benchmarking information to a building owner. Perhaps utilities should offer customers an option to opt-in to a system of automated collection of energy usage and emissions data, so that tenants would have that information available for their landlords if they are asked to provide it. Utilities could alternatively

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<sup>7</sup> BEPS Regs. Ch. 02 § .02(C)(3).

<sup>8</sup> *Id.* Ch. 02 § .03(A).



provide tenants' data directly to building owners with informed tenant consent in certain situations, taking care to address privacy concerns through mechanisms such as aggregating and anonymizing building-wide data.<sup>9</sup>

MDE should also clarify how it intends to enforce the tenant reporting requirement. Would there be legal consequences for a tenant that refuses to—or is unable to—provide this benchmarking information? The BEPS regulations do not set forth any penalties for tenants that do not provide this information. The regulations also provide no means for recourse if a tenant disagrees with a landlord's assessment that the tenant's data is needed. Tenants may object that this "need" to share their data violates their right to privacy, but it is unclear how a tenant could make that objection and how MDE would address such an issue. MDE should consider the equity and policy efficacy implications of this potential issue and possible solutions to address it.

Energy data access discussions in the multi-tenant market segment often raise valid privacy concerns; MDE should require utilities to provide building owners with aggregated and anonymized whole building energy usage data to ameliorate these concerns, when possible. Aggregated data provides the building owner with a single monthly consumption profile, leaving out information about which tenants consumed energy and when. Most utility benchmarking programs offer aggregated and anonymized data and only require tenant consent if a building has a small number of tenants and/or no single tenant uses a significant proportion of the building's energy.

### **C. Delivered fuel usage reporting**

MDE should clarify how a building owner or tenant must report their greenhouse gas emissions from delivered fuels, which gas and electric utilities would not have data on. For instance, if a tenant in a residential building burns substances like propane or oil as fuel, it is not clear that their propane or oil company can or will be required to provide their usage data in the same importable format provided by gas and electric utilities.

### **3. Recognize MDE's authority to make informed improvements over time**

The timeline for Climate Solutions Now Act (CSNA) compliance necessitates setting specific performance standards without first collecting benchmarking data. For this reason, it is critical that MDE explicate its authority to adjust direct greenhouse gas emission reduction requirements based on reported data that it receives in the first two years of BEPS implementation and thereafter. MDE should state in its BEPS regulations that it may revise the net direct emissions and energy use intensity (EUI) standards in response to data collected through the benchmarking process.

If most buildings within a given "property type" have emissions well below the set of interim net direct emissions standards for 2030-2034, there should be a mechanism for requiring lower net direct emissions in the interim standards for 2035-2039. Clarifying its plans to use its authority to adjust the

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<sup>9</sup> Energy data access discussions in the multi-tenant market segment often raise valid privacy concerns; MDE should require utilities to provide building owners with aggregated and anonymized whole building energy usage data to ameliorate these concerns, when possible. Aggregated data provides the building owner with a single monthly consumption profile, leaving out information about which tenants consumed energy and when. Most utility benchmarking programs offer aggregated and anonymized data and only require tenant consent if a building has a small number of tenants and/or no single tenant uses a significant proportion of the building's energy.



stringency of net direct emissions and EUI standards will enable MDE to better meet the CSNA's ambitious requirement of reducing greenhouse gas emissions economy-wide 60% by 2031. As another illustration, it may turn out that reducing emissions is particularly costly for a certain "property type," and most buildings in that category will choose to make alternative compliance payments rather than meet the performance standards. In that event, MDE should retain some discretion to increase the stringency of emissions standards for those property types.

Related to recommendations in section 1.B. above, MDE should additionally retain and explicate its authority to adjust compliance adjustments and penalties in response to lessons learned during BEPS administration. If the costs of emission reductions exceed the cost of the alternative compliance payments, MDE's inability to increase the alternative compliance payments could lead to widespread noncompliance with the regulations; this could violate the CSNA's emission reduction requirements and endanger public health in communities with noncompliant buildings. The U.S. Environmental Protection Agency's estimate of the social cost of carbon,<sup>10</sup> which appears to have provided a guideline for alternative compliance payments, is very likely to be an underestimate for two reasons. First, it does not yet account for the federal Office of Information and Regulatory Affairs' likely reduction of the discount rates to be used in cost benefit analysis calculations, published in the April 7, 2023 draft update to Circular A-4.<sup>11</sup> Second, it is not possible to quantify numerous forms of climate-related loss and damage in a linear manner that could be incorporated into a per-unit social cost of carbon. Other jurisdictions have developed higher estimates of the social cost of carbon in 2030. For example, in New York City's building performance standards, the social cost of carbon referenced by penalties for noncompliance is \$268/metric ton.<sup>12</sup> Supposing that \$230/metric ton is the best estimate available *today* of the 2030 social cost of carbon, new information and methodologies could emerge in the next decade that would show that the \$230 value underestimates the true social cost of carbon. MDE should have a mechanism to adjust the alternative compliance payments if that occurs.

Many thanks for your time and consideration regarding this matter.

Sincerely,

Erin Sherman  
Senior Associate  
Carbon-Free Buildings Team

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<sup>10</sup> U.S. Environmental Protection Agency, *Supplementary Material for the Regulatory Impact Analysis for the Supplemental Proposed Rulemaking, "Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources: Oil and Natural Gas Sector Climate Review"* at 73 (Sept. 2022), [https://www.epa.gov/system/files/documents/2022-11/epa\\_scghg\\_report\\_draft\\_0.pdf](https://www.epa.gov/system/files/documents/2022-11/epa_scghg_report_draft_0.pdf) (listing an estimated social cost of carbon, in 2020 dollars, as \$230/metric ton of CO<sub>2</sub> emissions in 2030).

<sup>11</sup> Office of Management and Budget Office of Information and Regulatory Affairs, *Request for Comments on Proposed OMB Circular No. A-4, "Regulatory Analysis."* (Apr. 2023), <https://www.federalregister.gov/documents/2023/04/07/2023-07364/request-for-comments-on-proposed-omb-circular-no-a-4-regulatory-analysis>

<sup>12</sup> N.Y.C. Local Law No. 97, § 28-320.6.



RMI

CC: Director Paul Pinsky, Maryland Energy Administration  
Chris Rice, Chief of Staff, Maryland Energy Administration  
Suzanne Dorsey, Deputy Secretary  
Mark Stewart, Manager, Climate Program, Maryland Department of the Environment  
Chris Hoagland, Director, Air & Radiation Administration, Maryland Department of the Environment

June 5, 2023

**VIA EMAIL**

Maryland Department of the Environment  
1800 Washington Blvd.  
Baltimore, MD 21230

**RE: Maryland Department of the Environment's Proposed Draft Building Performance Standards**

**I. INTRODUCTION**

Thank you for the opportunity to comment on the Maryland Department of the Environment's ("MDE") Draft Building Energy Performance Standards ("BEPS" or "Standards") regulations for Maryland. Washington Gas is committed to helping the State reduce its greenhouse gas ("GHG") emissions while continuing to provide its customers in the State with affordable, reliable, safe, and secure energy. The draft BEPS sets forth aggressive targets for reducing GHG emissions from the commercial buildings sector by 2040 and presupposes electrification as the sole viable pathway for covered buildings to reduce their emissions and achieve the energy efficiency targets specified. Covered buildings that do not fully electrify in time would be subject to increasingly costly alternative compliance fees.

The Company is committed to supporting a continued reduction in the State's GHG emissions through the increased use of lower carbon fuels and efficient natural gas appliances, among other strategies. Energy efficiency has long been a cornerstone of U.S. energy policy and the Company believes that an important benefit of energy efficiency policy is the cost-effective reduction of GHG emissions. An effective emissions reduction and energy efficiency policy should reduce net GHG emissions and net energy consumption as measured on a full-fuel-cycle basis. Washington Gas supports energy efficiency codes and standards that are technologically feasible and economically justified, consistent with federal and state statutory requirements for minimum efficiency standards for buildings, appliances, and equipment. The outcomes of these proposed building standards must not compromise the principles of affordability, reliability, resiliency, safety, and energy security.

The draft Standards presume the complete electrification of covered buildings as the sole viable pathway to meeting the proposed energy performance and direct emissions targets. Without

the findings of the State’s Electrification Study<sup>1</sup>, the Power Plant Research Project (“PPRP”)<sup>2</sup>, and the final Building Codes Administration (“BCA”) report<sup>3</sup>—which will be critical to determining whether the significant electrification of the State’s building and transportation sectors is feasible, affordable, and materially supports the achievement of the desired GHG emissions reductions for its energy customers—implementing the BEPS is premature.

The commercial building sector is not among the largest contributors to the State’s emissions inventory, unlike other jurisdictions where emissions-based BEPS have been pursued to date. According to Maryland’s 2020 Greenhouse Gas Inventory, fuel use in the commercial sector makes up only ~6% of the State’s gross GHG emissions and commercial natural gas usage comprises only ~4.6%.<sup>4</sup> If passed, the draft BEPS would make Maryland the first state to have an emissions-based building performance standard.<sup>5</sup> Besides Montgomery County, the three (3) other places in the U.S. where emissions-based standards have either been implemented are Seattle, Boston, and New York City where commercial buildings sector make up ~30%<sup>6</sup>, ~70%<sup>7</sup>, and ~70%<sup>8</sup> of each city’s respective GHG emissions. Imposing such a policy on an entire state neglects the differences between such metropolitan areas and a State with a more diverse and distributed building stock.

The Company presents these comments to encourage MDE to:

- 1) Delay the Standards until after the findings of the Electrification Study, PPRP, and final BCA report are made available to the public and affirm that broad electrification is feasible, affordable, and materially supports the achievement of the State’s GHG reduction targets;

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<sup>1</sup> The Climate Solutions Now Act requires the Maryland Public Service Commission (“PSC”) to “complete a general system planning study, for gas and electric companies . . . assessing the capacity of each company’s gas and electric distribution systems to successfully serve customers under a managed transition to a highly electrified building sector.”

<sup>2</sup> The PPRP is studying the impacts of high degrees of electrification on the State’s bulk power system and will be an important input to determining whether the requisite electricity generation and transmission capacity exists to support electrification.

<sup>3</sup> Maryland Department of Labor Division of Labor and Industry, Building Codes Administration. Report to the Public Service Commission and Legislative Policy Committee (Jan. 1, 2023). The interim Building Codes Administration report was submitted to the Maryland Public Service Commission on January 1, 2023. The final report is due on or before December 1, 2023 and has not been released yet.

<sup>4</sup> Maryland Department of the Environment. [Greenhouse Gas Inventory \(2020\)](#). (2021).

<sup>5</sup> Department of Energy – Office of Energy Efficiency & Renewable Energy. [Building Performance Standards](#). 2023.

<sup>6</sup> City of Seattle Office of Sustainability & Environment. Buildings & Energy. (2023). Basis for calculation: “*In Seattle, buildings are one of the largest and fastest growing sources of climate pollution, responsible for more than a third of our city’s Greenhouse Gas emissions, with over 90% of these emissions resulting from burning fossil fuels like fracked gas for heat, hot water, and appliances.*”

<sup>7</sup> City of Boston. [Building Emissions Reduction And Disclosure](#). (1 Jun. 2023).

<sup>8</sup> New York City Office of Climate & Environmental Justice. [Energy Benchmarking – New York City Energy Water Performance Map](#).

- 2) Update the definition of “net direct emissions”<sup>9</sup> to fairly consider all GHG emissions attributable to energy use in covered buildings, including accounting for the emissions profile of electricity at an hourly level, and other viable emission reduction measures;
- 3) Amend the proposed Standards in accordance with the comments below to:
  - a. Allow for the like treatment of lower carbon fuels (renewable natural gas (“RNG”) and hydrogen); and
  - b. Avoid unfairly penalizing covered building owners for choosing cost-effective natural gas company measures and other advanced solutions (e.g., carbon capture) that (i) conserve energy and/or (ii) reduce GHG emissions;
- 4) Update the alternative compliance fees to (i) be more closely aligned with other GHG emissions payments in the State’s economy and (ii) reflect a role for innovative compliance mechanisms including lower carbon fuels, emission offsets, and other solutions; and
- 5) Clarify certain aspects of the Standards that are potentially unclear or misleading for covered building owners and other stakeholders and provide the basis for the proposed interim and final targets.

## II. COMMENTS ON DRAFT BEPS

There are several aspects of the draft BEPS that Washington Gas would like to call specific attention to in support of the Company’s above recommendations. The Company encourages MDE to:

- **Delay the implementation of BEPS until the findings of the Electrification Study, the PPRP, and the final BCA report confirm the viability of broad electrification in the State. See Chapter 03 Section .02 (A), pages 12-16.** The implementation of BEPS before this point risks locking the State’s energy customers into an electrification pathway without confidence that the grid will be able to supply increased electricity demand in an affordable, resilient, and reliable manner.
- **Base the interim and final BEPS targets on a metric that is inclusive of all GHG emissions from building energy use, including those from electricity markets, and amend the definition of “direct greenhouse gas emissions”<sup>10</sup> accordingly. See Chapter 01 Section .02 (B) (17), page 3.** The draft definition of “direct greenhouse gas emissions” unfairly penalizes building owners whose buildings are equipped with natural gas over those are dependent on electricity, regardless of the quantity of emissions tied to their operations. BEPS that are based on CO<sub>2</sub>e emissions metrics should also account for the emissions intensity of electricity produced offsite. Until such time as the grid, including peak electricity, is substantially powered by non-emitting energy resources, to do otherwise would unfairly penalize natural

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<sup>9</sup> “Direct greenhouse gas emissions or direct emissions” means greenhouse gas emissions produced on-site by covered buildings, as calculated by the benchmarking tool unless otherwise specified by the Department.”

<sup>10</sup> See above footnote.

gas appliances while failing to effectively reduce emissions. Many commercial energy customers require sophisticated, multi-system energy solutions at large campuses, healthcare facilities, and other operations. These customers depend on natural gas systems and appliances for their cost, reliability, and performance benefits. The draft BEPS penalizes these businesses over others that are less reliant on natural gas but that could also have a similar (or higher) emissions footprint. For illustration, data centers consume 10 to 15 times the energy per floor space of a typical commercial office building.<sup>11</sup> The draft BEPS sets the interim Net Direct Emissions Standard for the Data Center property type at 1.26 kg CO<sub>2</sub>e per square foot; this is lower than that for many other property types, including Library, Hotel, and others. In 2030, a 35,000 square foot library that is 15% out of compliance with the interim 2030 standard would pay ~\$2,318 in alternative compliance fees under the draft BEPS. Compare this to a 35,000 square foot data center that is similarly 15% out of compliance in 2030, which would pay only ~\$1,521, despite having an energy and emissions footprint that is potentially orders of magnitude greater than the library. An amended definition of net direct emissions should also include provisions that account for the use of lower carbon fuels (e.g., RNG, hydrogen), the use of advanced technologies (e.g., carbon capture), and other emissions offsetting measures that customers may choose. As defined, “net direct emissions” does not allow for measures that could offset some of the emissions associated with a covered building’s operations. Measures including rooftop solar, or other behind-the-meter energy resources, would receive no merit for their reduction of emissions under the draft Standards.

- **Consider the anticipated emissions profile of the State’s electricity supply over the time periods contemplated by the Standards. See Chapter 03 Section .02 (A), pages 12-16.** Renewables and other lower carbon energy resources may not come online fast enough for electrification to be as beneficial for reducing GHG emissions as hoped. As of 2020, the State imports roughly half of its electricity from PJM Interconnection, LLC (“PJM”) whose current electricity generation mix is over 55% fossil fuel<sup>12</sup> and has documented challenges in interconnecting new renewable energy resources.<sup>13</sup>
- **Establish more realistic and achievable emission reduction targets. See Chapter 03 Section .02 (A), pages 12-16.** The proposed interim targets set by the BEPS for 2030, 2035, and 2040 do not adequately consider the ability of owners and tenants of covered buildings to feasibly implement these changes. Supply chain challenges, prohibitively high upgrade and retrofit costs, and the limited availability of electricians and contractors able to implement such upgrades will all hinder the rate at which electrification measures are adopted. For example, Massachusetts recently made investments to train hundreds of technicians to install electric heat pumps and offered financial incentives to customers for conversions. Despite these efforts, only 7,100 heat pumps were installed in the state in 2021, well short of the annual target of 100,000 in Massachusetts’ [decarbonization strategy](#).<sup>14</sup> In parallel, electric utilities will be challenged to ensure their infrastructure (including substations and other distribution-level elements) are able to support widespread electrification on the timelines proposed.

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<sup>11</sup> Department of Energy. [Data Centers and Servers](#). (2023).

<sup>12</sup> PJM. [Markets & Operations](#) (last accessed May 5, 2023).

<sup>13</sup> PJM. [Energy Transition in PJM: Resource Retirements, Replacements & Risks](#) (Feb. 24, 2023).

<sup>14</sup> Energy News Network. [Massachusetts heat pump installer network has momentum in second year](#) (Mar. 3, 2023).

- **Recognize the challenges of building electrification already documented by the State.** *See Chapter 03 Section .02 (A), pages 12-16.* The State’s interim BCA report recognizes that “[technology for all-electric buildings] may not be at the stage where it’s reliable and readily available.”<sup>15</sup> The BCA report also documents the extensive challenges and costs associated with electrification retrofits and upgrading the State’s existing building stock. Any findings from the final BCA report that are applicable to the buildings covered by the draft BEPS should inform the next iteration of BEPS proposed by the State.
- **Amend the draft BEPS to provide “like treatment” for lower carbon fuels (including RNG<sup>16</sup> and hydrogen<sup>17</sup>) that leverage the existing natural gas infrastructure.** *See Chapter 01 Section .02 (B) (17), page 3.* Customers should have options in their decarbonization pathways to utilize RNG or hydrogen. The resulting reductions in the emissions intensity of the fuel supply should contribute towards compliance with BEPS targets for covered buildings. The Company firmly advocates that the treatment of site emissions from RNG or other lower carbon fuels under a BEPS framework should be in accordance with the degree to which it provides a net reduction in methane emissions. The World Resources Institute (“WRI”) recognizes that “*in many cases, renewable natural gas avoids more emissions than it generates, leading to a net-negative carbon intensity*”<sup>18</sup>; WRI’s guidelines for GHG emissions accounting consider this accordingly by RNG feedstock type.<sup>19</sup>
- **Amend the draft BEPS to capture the benefits of energy efficiency programs and emission reduction benefits offered by natural gas appliances (e.g., hybrid heat pumps and high-efficiency gas appliances).** *See Chapter 03 Section .02 (A), pages 12-16.* These high-efficiency technologies can lower emissions compared to traditional gas appliances without relying on major system upgrades and burdening customers with higher costs. Hybrid heat pump configurations may provide the right balance of performance attributes that have the greatest chance of garnering high levels of customer acceptance in the home and commercial building heating markets, helping to avoid the investment and reliability risk that could occur under a winter peaking scenario that demands high investment to support peak electricity demand that will occur only a few times per year. In these scenarios, under the draft BEPS rules, covered buildings that have hybrid heating solutions would be penalized beyond

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<sup>15</sup> Maryland Department of Labor Division of Labor and Industry, Building Codes Administration. Report to the Public Service Commission and Legislative Policy Committee (Jan. 1, 2023).

<sup>16</sup> RNG can displace fossil gas by productively utilizing locally-sourced biogas feedstocks from landfills, wastewater treatment plants, and sources of manure—collectively accounting for more than 9 million MT (over 10 percent) of the State’s GHG emissions—to produce pipeline-quality gas that can be injected into the existing gas distribution infrastructure. It can also mitigate the requirement to site, permit, and build electric infrastructure, as well as provide a locally sourced supply of lower carbon energy to customers.

<sup>17</sup> The Company continues to evaluate the compatibility of hydrogen with its existing infrastructure, including through collaborative research and development via its participation in the Gas Technology Institute’s pipeline-related material science and engineering programs and is exploring an onsite production pilot at its Operations Center.

<sup>18</sup> World Resources Institute. [7 Things To Know About Renewable Natural Gas](#). (Dec. 18, 2020).

<sup>19</sup> World Resources Institute. [Renewable Natural Gas As A Climate Strategy: Guidance For State Policymakers](#). (Dec. 2020).

2040 for any on-site combustion of natural gas, even if doing so 1) saves them money, 2) keeps their businesses or residences warm and safe, and 3) collectively saves the State’s electric utility ratepayers millions in avoided capital expenditures from expanding the electricity system to accommodate a greater system peak (including incremental generation capacity, transmission, and distribution system upgrades).

- **Amend the draft BEPS to capture the benefits of combined heat and power (“CHP”) solutions.** *See Chapter 02 Section .04 (B) (4), page 10.* Under the draft BEPS, CHP systems would be unfairly penalized because of where the combustion of natural gas occurs (i.e., in a covered building or CHP facility serving a covered building or buildings versus in a remote offsite power station). CHP solutions provide multiple benefits including increased efficiencies from avoided line losses and the productive use of heat that might otherwise be wasted during the production of electricity offsite.<sup>20</sup> These efficiencies, as well as the production and use of electricity on-site, help avoid the need to build additional electric infrastructure to serve that load.<sup>25</sup> The EPA recognizes that “*CHP can continue to provide benefits until regional grids have transitioned to more renewable energy. As regional grids continue to become cleaner, new and existing CHP using low-carbon fuels will continue to provide emissions benefits.*”<sup>21</sup> CHP also provides important resiliency benefits to critical infrastructure in the State. For instance, the Montgomery County Public Safety Headquarters chose an 865-kW packaged CHP and microgrid system (with 2 MW<sub>dc</sub> solar) for these benefits, but also notes that the system reduces the County’s GHG emissions by over 5,900 MT annually.<sup>22</sup>
- **Amend the draft BEPS to enable innovative technologies and new solutions, such as carbon capture, which can cost-effectively reduce energy consumption and emissions.** *See Chapter 04 Section .01 (A) (1), page 17.* For example, commercial-scale carbon capture technologies are being demonstrated and piloted in geographies where similar building standards are in place (e.g., New York) and building owners are seeing positive results.<sup>23</sup> Some building owners may find that installing and owning or financing such a system while continuing to use their natural gas equipment is cheaper than electrifying or paying the alternative compliance fees. An effective BEPS framework should be able to flexibly accommodate advanced technologies that reduce emissions at the source and encourage those technologies or solutions that customers will realistically choose to cost-effectively reduce their energy usage and emissions.
- **Consider the affordability of the implied compliance mechanisms (electrification, alternative compliance fees) and the potentially non-uniform impacts they can have on Maryland residents.** *See Chapter 03 Section .02 (D), page 16.* Older buildings, buildings that just installed new natural gas-powered equipment, and low- and medium-income energy customers are just some of the groups that may be disproportionately impacted by the proposed Standards. These building owners (and/or their occupants) would be forced to pay for the necessary electrification upgrades to comply with BEPS targets. In many cases, the costs of electrification will be passed through to tenants, resulting in rent increases. Many would be

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<sup>20</sup> EPA. [Combined Heat and Power \(CHP\) Partnership – CHP Benefits](#) (Apr. 2022).

<sup>21</sup> EPA. [CHP’s Role in Decarbonization](#). (May 12, 2023).

<sup>22</sup> CHP Technical Assistance Partnerships. [Montgomery County Public Safety Headquarters](#). (2019).

<sup>23</sup> Canary Media. [Carbon capture for New York high-rise apartments is a real thing now](#). (Dec. 8, 2022).

forced to borrow in a high-interest rate environment to cover the capital costs, putting a further strain on those commercial building owners who are already facing vacancy rates and struggling to meet mortgage payments and tenants who are facing rising rents. The aggressive nature of the regulations could also cause some economic dislocation: businesses and developers might choose to locate in jurisdictions besides Maryland to avoid the costs of compliance. According to a May MDE webinar, the BEPS Technical Report developed for Montgomery County, which was used to generalize an approach to BEPS for the State, provided “*an estimate of the total capital investment to reach the standards, which would inform both the cost to building owners and the level of economic impact of the recommended standards.*”<sup>24</sup> The Company believes it is important that its customers (and the broader State’s energy customers) have access to similar information that conveys the expected costs and level of economic impact of compliance with the BEPS , including both the costs of electrification measures and the cost of alternative compliance fees.

- **Reevaluate the alternative compliance fees given the potentially excessive burden on some building owners and the impact it could have on the State’s energy customers and businesses. See Chapter 04 Section .01, page 17.** A thorough analysis of the potential impact of the alternative compliance fees on covered buildings and the State’s residents and energy customers should predate the choosing of specific structure and amount of the alternative compliance fees (i.e., \$230/MT in 2030). Before moving forward with an alternative compliance fee, MDE should perform and make accessible analyses that demonstrate that the financial impact of the fee’s structure and amount is not severe or overly burdensome. The proposed structure for the alternative compliance fee lacks sufficient provisions to protect certain businesses and buildings from extreme economic impacts. While exemptions can be made for buildings in “Financial distress”, this definition is limited.<sup>25</sup> The other exemptions provided for in the draft BEPS are neither flexible nor expansive enough to prevent excessively burdensome outcomes for all building owners and types. Colorado’s Building Performance Standards provide more flexible “compliance adjustment options” for building owners that allow for adjusted timelines or targets for those buildings that have unique situations that may lead them to be acutely impacted by the implementation of the standards.<sup>26</sup> This rule should consider adding similar options for the State’s energy customers. Furthermore, the draft BEPS does not specify how site emissions reductions will be quantified. The potential utilization of RNG or hydrogen, blended with natural gas by a customer, or the use of advanced technologies to reduce site emissions, such as carbon capture systems, need to be properly accounted for in any alternative compliance fee payment that is forced on covered building owners.
- **Reassess the alternative compliance fees to align more closely to other greenhouse gas payment structures in the State’s economy. See Chapter 04 Section .01, page 17.** The EmPOWER Maryland energy efficiency program uses a lower social cost of carbon,

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<sup>24</sup> Maryland Department of the Environment. [Building Energy Performance Standards – Development of Maryland’s Standards](#). (May 2023).

<sup>25</sup> “Financial distress” means: (a) A property that is the subject of a tax lien sale or public auction due to property tax arrearages; (b) A property that is controlled by a court appointed receiver; or (c) A property that was acquired by a deed in lieu of foreclosure in the last calendar year. See draft BEPS pages 3-4.

<sup>26</sup> Colorado Energy Office. [Colorado’s Building Performance Standards \(BPS\) Task Force Recommendations](#). (Oct. 1, 2022).

~\$116/MT<sup>27</sup>, to value the benefits of resulting emission reductions. Additionally, throughout 2022, Regional Greenhouse Gas Initiative (“RGGI”) prices for CO2 emission allowances on their secondary market ranged from ~\$13.00-14.00 per short ton, or roughly ~\$14.00-\$15.50/MT.<sup>28</sup> This is less than one fifteenth of the \$230/MT CO2e alternative compliance fee proposed by the draft BEPS for 2030. Utilizing a penalty for Maryland businesses and energy customers in the BEPS that is higher than energy efficiency programs and the power generators in the region are charged under the RGGI, is inequitable. MDE should reformulate their analysis for the alternative compliance fee with the goal of fostering the fair treatment of all sources of emissions in the State, not unduly penalizing the commercial buildings sector.

- **Clarify the process for assessing emissions reductions made by covered buildings before the proposed interim standards come into effect (beginning in 2030).** *See Chapter 03 Section .02 (A), pages 12-16.* The Climate Solutions Now Act (“CSNA”) appears to require covered buildings to achieve a 20% reduction in their direct emissions from 2025 levels by 2030 under BEPS.<sup>29</sup> It is not clear how BEPS will measure and enforce this reduction for covered buildings and how these reductions will roll into the interim net direct emissions standards beginning in 2030. MDE should clarify whether a covered building that achieves or exceeds the 20% reduction but is still above the 2030 interim standard for direct emissions, would be penalized. Or, conversely, whether or not a covered building that achieves less than a 20% reduction would still be penalized if they are at or below the 2030 interim standard.
- **Provide a source of reference for the Net Direct Emissions Standards – Interim Standard for 2030-2034 values the Site EUI Standards – Final Standard for 2040 and beyond in Table 1. Performance Standards.**<sup>30</sup> *See Chapter 03 Section .02 (A), pages 12-16.* Building owners and other stakeholders should have transparency into MDE’s process for establishing these targets, including what the primary data sources are and what calculations (if any) were performed to arrive at these metrics.
- **Clarify what “meter-to-building mapping”<sup>31</sup> would mean for gas and electric utilities, what this process would entail, and what the desired outcome would be.** *See Chapter 02 Section .04 (A), pages 9-10.* The draft regulations would require that electric and gas companies have completed this exercise by July 1, 2024, and would also require these companies to be responsive to data requests from building owners that are predicated on its

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<sup>27</sup> Analyses from EmPOWER Maryland use the Federal Interagency Working Group (IWG) Social Cost of Carbon at a 2% discount rate.

<sup>28</sup> RGGI, Inc. [Annual Report on The Market For RGGI CO2 Allowances: 2022](#). (Apr. 2023). RGGI is a cooperative effort between a number of Eastern states (including Maryland) to reduce emissions of carbon dioxide from the power sector.

<sup>29</sup> Maryland Legislature. [Climate Solutions Now Act \(Senate Bill 528\)](#). (Jun. 1, 2022). “The Department shall develop Building Energy Performance Standards for covered buildings that achieve: (1) A 20% reduction in net direct greenhouse gas emissions on or before January 1, 2030, as compared with 2025 levels for average buildings of similar construction,” Article 2-1602.

<sup>30</sup> See draft BEPS pages 12-16.

<sup>31</sup> “Electric and gas companies shall conduct meter-to-building mapping and maintain aggregate energy consumption data for all covered buildings and provide to the building owner accurate and timely information on the actual amount of electricity and/or gas delivered to a covered building,” (page 9).

completion. The final regulations should consider any new standards, obligations, and costs on gas and electric companies and recognize that these new, incremental costs will be borne by ratepayers, impacting affordability.

- **Confirm that the data sharing activities proposed in the draft BEPS (i) limit sensitive customer information to the appropriate parties and (ii) are secure.** *See Chapter 02 Sections .02 A (2), (B), page 7.* The sharing of sensitive customer energy data should not infringe upon the privacy rights of individual customers; the release of detailed individual account holder data to a building owner, as opposed to aggregate building data (where the two are distinct, as in multi-family buildings), should be avoided. MDE should also ensure that the use of the benchmarking tool as envisioned in the draft BEPS meets all cyber security requirements for the State and the Maryland Public Service Commission.<sup>32</sup>
- **Provide a list of covered buildings to utilities and building owners and occupants.** *See Chapter 01 Section .02 (B) (15), pages 2-3.* The Company does not have a comprehensive list of which of its customers fit MDE’s definition of “covered building”<sup>33</sup> and would like to ensure its energy customers are made aware of the pending regulations in a timely manner.

### III. CONCLUSION

The Company recognizes the charge of MDE in developing the draft BEPS regulations per statutory requirements in the Climate Solutions Now Act and appreciates the BEPS focus on the buildings sector and its ultimate intent of reducing GHG emissions. However, the rule as proposed fails to consider the feasibility of achieving its targets and its impact on the State’s energy customers. Other progressive states and jurisdictions, including Colorado and Washington, have enacted similar BEPS regulations that provide for greater flexibility in achieving energy and emissions reductions and avoid penalizing energy customers to the degree that Maryland’s draft BEPS proposes. Washington Gas respectfully requests that you consider the recommendations outlined above when finalizing the BEPS rule.

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<sup>32</sup> Consider alignment of BEPS to the requirements in SB 0800: Public Service Commission – Cybersecurity Staffing and Assessments (Critical Infrastructure Cybersecurity Act of 2023).

<sup>33</sup> See draft BEPS pages 2-3.



***Via Electronic Mail***

June 5, 2023

Maryland Department of the Environment  
1800 Washington Blvd.  
Baltimore, MD 21230  
[BEPS.MDE@maryland.gov](mailto:BEPS.MDE@maryland.gov)

**Re: Building Energy Performance Standards - Proposed Regulations**

Dear Secretary McIlwain:

Founded in 1968, the Maryland Chamber of Commerce (the Chamber) is the leading voice for business in Maryland. We are a statewide coalition of more than 6,800 members and federated partners, and we work to develop and promote strong public policy that ensures sustained economic growth for Maryland businesses, employees, and families. On behalf of our members, we are submitting the comments below highlighting our concerns with the proposed building energy performance standards (BEPS) regulations.

**I. Mandatory Energy Use Intensity Standards**

The Energy Use Intensity (EUI) standards include energy delivered to the covered building from off-site generation, along with on-site generation. Direct greenhouse gas (GHG) emission requirements include on-site generation only. The Climate Solutions Now Act (CSNA or the Act) was designed to address net direct GHG emissions, and it includes an alternative compliance fee if it cannot be met. The statute was amended to include EUI “targets” by building type. EUI was not made a requirement in the statute.

**The Chamber is concerned that the proposed regulations go beyond the statute and add EUI as a requirement. It is confusing, costly and unnecessary to add EUI into regulation when it is not outlined in the statute as a requirement. We suggest focusing on net direct GHG emissions and removing EUI as a requirement and instead turning it into a target that building owners report to track efficiency, which will mirror the statute.**

**II. Alternative Compliance Fees, Penalties and Economic Impact**

CSNA outlines that building owners have the option to pay an alternative compliance fee in lieu of meeting the GHG emissions standards, and that the fee cannot be less than the social cost of greenhouse gases (GHGs) adopted by the U.S. Environmental Protection Agency (EPA).

Currently, EPA has this set at \$51 per ton of carbon dioxide. MDE's proposed regulations set the fee much higher than EPA's - at \$230 per metric ton (2030), which increases each year. By 2024 it will be \$270. This cost is also adjusted to inflation, which is currently at a record high. Even with EPA's recent proposal to increase the social cost of carbon to \$190 per ton, Maryland would still tower over the federal government's limits.

There are also no alternative compliance fees for failing to meet the EUI. If a business owner fails to meet the EUI standards, they would be subject to administrative fines of up to \$2,500 per day (Env. 2-610.1) or a civil penalty of up to \$25,000 per day (Env. 2-610). This is an excessive cost to building owners. For a sector that is under enormous pressure from the economic fallout of the lingering COVID-19 pandemic, elevated inflation, and tightening financial conditions, levying such immoderate costs will only further harm recovery and growth.

**The Chamber urges MDE to scale back the disproportionate alternative compliance fee for net direct GHG emissions. If EUI will remain mandatory, then building owners should also have the option to apply an alternative compliance fee. Lastly, we recommend removing the unnecessarily high administrative and civil penalties for failing to meet EUI standards.**

It is also important to point out that there is a grant program provided through the Act which offers grants for conservation projects for multi-family buildings, but that only applies to net direct GHG emissions. However, there are no grants available to help building owners come into compliance with the EUI requirements. There are many concerns over adding EUI as a requirement, but it seems unreasonable to not provide an alternative compliance fee option or grant opportunities for EUI.

Lastly, the Chamber urges the department to complete a study of the estimated financial costs to building owners, electricity consumers and energy providers because of the proposed regulations, as outlined in § 2-1205 of the CSNA. It is imperative to understand the impact on jobs, the cost of electricity and the economy.



### III. Reporting Requirements

The proposed regulations outline that EPA's ENERGY STAR Portfolio Manager will be used for building owners to enter benchmarking data into, but it will also be used as an enforcement tool. This also places a burden on tenants, as they will be required to provide benchmarking information requested by the building owner if the building owner cannot obtain it themselves. Third-party verification of a building owner's benchmarking report will be required every five years, but it is not clear who qualifies as a third-party. It is also unclear why a third-party verification is necessary, and why the department would not be considered a party to verify the report, as MDE has audit authority. It is also not required by statute and will be another added cost for building owners.

**The Chamber recommends that the department follow the reporting requirement that the CSNA requires, and not place a further administrative burden on building owners and electric and gas companies by using ENERGY STAR as an enforcement mechanism. Instead, it should be used as a reporting tool allowing building owners to track and understand the efficiency of their buildings. We are not aware of any other state that uses ENERGY STAR as an enforcement tool.**

**The Chamber also recommends the department remove the requirement of requiring third-party verification, or at a minimum define who qualifies as a third-party.**

### IV. Targets

The statute includes 2023 and 2040 targets for the reduction in net direct GHG emissions, however the proposed regulations also include a 2035 interim target. In order to reach net zero emissions by 2040, many buildings will need to allow their existing equipment to reach its useful life before doing a major, costly renovation. Interim steps make this more difficult for building owners. When equipment is at the end of its useful life and needs replacing, building owners will see a jump in efficiency with new equipment.

In this scenario, a building owner that extends the use of equipment over the rest of its useful life will become subject to penalties and then suddenly will overperform once it comes time to upgrade. Given that the standard is enforced through civil penalties, a 2035 interim target appears unworkable. **The Chamber recommends removing the 2035 interim target.**

It is also not clear if the targets outlined are achievable by 2030. A target should be set that is achievable and can be met without changing systems for at least the first target year of 2030. After 2030 results are recorded, a reevaluation of the targets should occur.



## V. District Energy

The proposed regulations require buildings connected to a district energy system to add a certain amount of the off-site facilities emissions in the building's on-site emissions. **The Chamber suggests that the department remove the requirement that a building owner account for and report off-site emissions. The regulations should not be designed to make building owners responsible for off-site emissions.**

## VI. Buildings of Similar Construction

No definition is included in the proposed regulations for “buildings of similar construction”, which is listed in the statute under § 2-1602.(A)(1). This is the measure of how building performance will be established. It will be nearly impossible to calculate the change in energy usage and performance without being able to interpret how a building compares to 2025 levels “for average buildings of similar construction.” If EUI will not be removed, then the definition will be even more important. **The Chamber recommends defining “buildings of similar construction.”**

## VII. Flexibility

The statute calls on MDE to include special provisions or exceptions to account for building age, regional differences, the unique needs of particular buildings or occupancy types, and the use of district energy systems and biofuels by covered buildings. None of this was included in the proposed regulations or considered with EUI. Older buildings will be subject to massive penalties. The statute also reads, “provide maximum flexibility to the owners of covered buildings to comply with building energy performance standards.” **The Chamber recommends that this be reflected in the proposed regulations.**

## VIII. Comment Period Timeline

**The Chamber requests that MDE extend the comment period or add another comment period before this goes to the Air Quality Control Advisory Council in September and before the regulations are published in the Register.** This comment period was only 15 working business days, and also fell over a long holiday weekend. Many building owners impacted by the proposed changes may be unaware this is taking place or may not have had the opportunity to put together and finalize their initial comments. We appreciate your consideration of this request.



Finally, in addition to the ambiguity in the proposed regulations and the host of concerns coming from businesses and large building owners, the primary concern of Maryland Chamber members is the increased cost burden that will be felt by businesses and consumers.

It is undisputable that the building owners and businesses these regulations impact will simply raise the price of their goods and services, leaving those relying on the affected businesses or housing to bear the burden. Maryland job creators continue to struggle with economic uncertainty while trying to maintain operations to serve the communities where they live and work. As a state, we should be doing all that we can to support our job creators and building owners in overcoming those challenges, not creating new obstacles to their survival by adding yet another hefty cost to doing business in Maryland.

This draft regulation proposes major changes to the state's building standards and creates significant challenges for existing business and future economic development in Maryland. It sets new goals out of line with our federal government and places Maryland at a significant regional economic competitiveness disadvantage. The proposed regulations stretch far beyond what is required in the statute, as including EUI as a mandate is not justified by the law.

We appreciate your consideration of these comments as it is our intention to provide clarity to the BEPS regulations so that building owners, electricity consumers and energy providers can comply with ease, without undue burden and cost increases. If you have any questions, please contact Hannah Allen at [hallen@mdchamber.org](mailto:hallen@mdchamber.org).

Sincerely,  
Maryland Chamber of Commerce





MARYLAND  
CATHOLIC  
CONFERENCE

**MEMORANDUM**

To: Maryland Department of Environment (**BEPS.MDE@maryland.gov**)  
c/o: Mark Stewart, MDE Climate Change Program Manager  
Randy Mosier, MDE Air Quality Planning Program Deputy Manager

From: Maryland Catholic Conference  
Contact: M.J Kraska ([mj@mdcatholic.org](mailto:mj@mdcatholic.org); 410-269-1155)

Re: Comment on proposed regulations for building energy performance standards required by the Climate Solutions Now Act of 2022 SB 528 (2022)

The Climate Solutions Now Act of 2022 (Chapter 38 of the Acts of the General Assembly of 2022) requires the Department of Environment to adopt regulations to achieve building energy performance standards. (Md. Code, Environment § 2-1602). The comments herein seek to address the unique and undue burden potentially placed on not-for-profit faith-based entities through these regulations and provide the “maximum flexibility” that Section 1602 requires of the Department.

We acknowledge that the Climate Solutions Now Act of 2022 puts forth some important reforms aligned with the positions of the Church on environmental stewardship and care for our common home. However, at the same time, we respectfully request this Department’s thoughtful consideration in ensuring protections for the faith-based entities in promulgating the aforementioned regulations, so as to ensure that their mission in serving Maryland communities is not inhibited. Maryland’s Catholic dioceses serve over one million Maryland Catholics and provide the second-largest number of statewide social services behind our state Government, and in doing so control a great deal of not-for-profit, faith-based service real property.

Many religious and faith-based organizations, parishes and churches, and religiously affiliated charities, as not-for-profit entities, operate on “break-even” annual budgets. Thus, the environmental mitigation proposed by any regulations should carefully balance narrowly-tailored means to achieving environmental stewardship with the potential burden placed on religious or faith-based entities’ First Amendment rights, as well as the ability to serve their respective communities.

To those ends, please consider the following comments and proposed amendments (new language in **bold type**):

- A.) Page 4 - Add a section (21)(d) to the top of page 4, which adds to the definition of “financial distress”, as follows:

*“(21) “Financial distress” means:*

- (a) A property that is the subject of a tax lien sale or public auction due to property tax arrearages;*
- (b) A property that is controlled by a court appointed receiver;*
- (c) A property that was acquired by a deed in lieu of foreclosure in the last calendar year; or*
- (d) A property that is owned by a not-for-profit entity recognized as tax-exempt under 501(C)3 of the Internal Revenue Code.***

***Or alternatively: “(d) real property owned by a bone fide faith-based or religious organization.”***

Explanation: This amendment would allow registered non-for-profit entities to apply for a “financial distress” exemption annually. It should be presumed that not-for-profit entities would incur financial distress in complying with the building energy performance standards, as many are 1.) housed in buildings that they may struggle to afford upkeep on in the first instance, 2.) make minimal income from donations, philanthropy or other sources that do not result in large surpluses at the end of the year, and 3.) are legally required to put any financial overages back into their nonprofit missions, resulting in service to millions of Marylanders annually.

- B.) Page 18 - In the “Alternative Compliance and Special Provisions” section beginning on page 17, we request the addition of a third item in Subsection .02(A) “Exemption from Benchmarking and Performance Standard Requirements” on page 18, as follows:

*“.02 Exemptions.*

*A. Exemptions from Benchmarking and Performance Standard Requirements. A building owner may apply for an exemption from the requirements of this regulation for one calendar year when the building owner can provide documentation showing that one of the following conditions are met:*

- (1) Financial distress;*
- (2) The covered building was not occupied during the calendar year being reported; and*
- (3) The covered building was demolished during the calendar year for which benchmarking is required.*

***(4) Proof of ownership and control of real property owned by a bone fide faith-based or religious organization.***

Explanation: In the Department’s formation of these regulations, Md. Environment § 1602(C)(2)(II) requires “special provisions or exceptions to account for: 1. building age, 2. regional differences, and 3. the unique needs of particular building or occupancy types”. Buildings owned by faith-based organizations are often unique buildings, particularly in the case of houses of worship, and present unique occupancy types. They rarely procure any cognizable environmental damage and, as such, we request that the Department narrowly tailor the parameters of this proposed exemption to reassure the controlling entities who are bona fide religious organizations of their eligibility, as well as expressly exempt them in the actual language. Additionally, if the Department were to adopt this amendment, it would be best if the entities were granted exemptions for a longer time period than one year, such as every five or ten years, or even permanent exemption for as long as they own the property.

Finally, in weighing these proposed amendments, we respectfully request that MDE consider the responsibility of each state agency in conducting long-term planning and draft regulations, required by Md. Environment § 2-1305(d). Many not-for-profit entities, faith-based organizations, and houses of worship serve large populations within “underserved communities”, who might be unduly burdened by the requirements of these regulations as proposed, particularly where their facilities already pose a lesser environmental impact. Thank you for your consideration.



## Memorandum

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**To:** MDE Staff and Stakeholders  
**From:** Hal Nelson, CEO of Res-Intel: [Hal.Nelson@Res-Intel.com](mailto:Hal.Nelson@Res-Intel.com)  
**Date:** 5 June 2023  
**Subject:** Comments on draft BPS regulation

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This document responds to MDE's request for comments on the Draft BEPS Regulation. We appreciate the opportunity to comment on the draft regulation.

Res-Intel is a Portland, Oregon based analytics firm that is currently working with all the electric investor-owned utilities (IOUs) in California to improve the effectiveness and efficiency of their demand side management programs. Over the last 3 years, Res-Intel has mapped over 16,800,000 IOU meters to California properties. An average of 96.6% of utility meter services addresses were successfully matched to properties. Our firm will perform building energy benchmarking on about 90,000 multifamily properties this year: more than Energy Star Portfolio Manager (ESPM).

We want to start with some stylized facts that drive our comments but that shouldn't be (too) controversial:

- Utilities don't know what their customers' properties are used for, nor do they have any native incentive to figure it out:
  - To comply with benchmarking ordinances, utilities typically rely on time-consuming, expensive manual (human) matching methods whose costs are passed on to customers.
  - Staff at one of the largest utility benchmarking programs in the country claimed that their accuracy of mapping meters to appropriate buildings was about 50%.
  - There are cost-efficient software tools that can perform this meter mapping more reliably:
  - Utilities should be incentivized to perform this analysis by allowing them to capitalize the mapping costs into their rate base.
- The requirement can also include calculation of energy-use intensity (kWh or kBtu/sqft)
  - If this data is scrubbed for personally identifiable information and made publicly available for covered properties, this can be key for a wide range of stakeholders to encourage electrification, resiliency and carbon building energy retrofits.
- Under 04.A.1: Mapping meters to buildings is less reliable than mapping them to properties. This is true with both in-person audits and machine learning and remote sensing tools like ours.

- Many AMI meters do not have embedded location services or they are inaccurate. Meters are more accurately mapping to properties using their service address (which is not the same as the building address).
- Consider a phased approach where utilities first map meters to properties, THEN have them attempt to mapping to buildings.
- Under 04.A.3: The meter mapping quality degrades over time and should be updated at least every three years as buildings are demolished or new construction occurs.
- While there is little public data on this, 3<sup>rd</sup> party consultants consistently show that compliance with an ESPM requirement takes 8-12 labor hours to get their property and building data cleaned and into ESPM.
  - This equates to \$800+ fully loaded labor costs for property owners/managers.
  - While owners/managers of large properties are able to manage this cost, smaller multifamily and commercial properties have less cash flow and lower return on investment.
  - 02.B.10: If equity is important to the BPS program, MBE should allow covered properties to comply with the benchmarking and BPS requirements through another mechanism than ESPM.
  - This will lower compliance costs and potentially improve data quality.
  - Using utility provided data for benchmarking will eliminate the need for tenants to provide benchmarking information
- Be careful with the use of covered buildings vs covered properties in the draft regulation
  - For properties with one building on one property, this is not an issue, but many commercial properties will have 2 or more buildings on them.
  - ESPM and other benchmarking tools operate at the campus-level.
  - Please consider the data and reporting implications of the possible disconnect between buildings and properties.

## Comments on MD Building Energy Performance Standards provided by Maryland Energy Advisors

We are pleased to submit our comments on the May 2023 draft of the Maryland BEPs Regulations. We are providing some general comments that cover the intent of the regulations as well as some practical matters. Specific comments on sections follow.

### General comments on the regulations

In general, there are practical matters that need to be resolved based on our experience with reporting data and working with our clients in the District of Columbia and in Montgomery County MD. Much of this revolves around tenant utility accounts that are not controlled by the building owners. Getting data from tenants, building owners and even utilities can sometimes be difficult. In addition, the dates for utilities to provide data and deadlines do not match. We recommend this be resolved before the regulations are released.

There are a few things that will limit the ability of these regulations to succeed the way they are envisioned.

- While many in the industry are aware of what is coming there are many property owners and condo associations who will be impacted who are not aware of the requirements and the state will not have time before January of 2024 to properly educate every property owner.
- Maryland-based consultants who can help with benchmarking have limited staff in the current tight labor market.
- The regulations as currently written could limit commercial real estate transactions in Maryland. Potential buyers of properties have a significant amount of due diligence to perform when buying a property. The additional need to audit energy bills and ensuring that a third party reviewed the benchmarking data will discourage some buyers, limiting tax revenue and impacting property values in the current market. A grace period needs to be provided once a property trades hands.
- There needs to be a section for exceptions for new building owners because the previous records could be a trade secret or kept confidential for other reasons.
- Utilities need to be 100% prepared to support the data requests that will likely be required. Having a uniform, automated process to request and receive data. The date for utilities to provide data must match the reporting periods.

Based on our experience, regulators should consider delaying any financial burdens or fines beyond the 2030 target date. Given our experience with property owners and what both Montgomery County MD and DC experienced, it will take at least several years for the state to be close to full initial reporting compliance.

Chapter	Section	Page	Comment <i>Draft Regulation text is italicized</i>
2.02	B-2	7	<p><i>Text in regulation: The owner of a newly constructed covered building shall submit a benchmarking report to the Department by June 1st of each calendar year, beginning the year following the first calendar year the newly constructed building was occupied for at least one day, using the benchmarking tool.</i></p> <p>This can cause confusion given that Chapter 1.02 Section 7 Page 2 uses the baseline year as a definition for reporting. This section should use the same wording as defined in “Baseline year”</p>
2.02	C-1	8	<p><i>The building owner shall have a third party verify the accuracy of benchmarking reports for calendar years:</i></p> <p>Thought should be given to what constitutes a “third party.” If left undefined this will not ensure accurate data. Other BEPS programs and Energy Star require a PE or a CEM certify benchmarking data.</p>
2.02	C-3	9	<p><i>The building owner shall provide to the third party verifier all utility bills, delivered fuel receipts, and other documentation needed by the verifier for the calendar year covered by the benchmarking report.</i></p> <p>If a building is purchased this puts an undue burden on the purchasers given that some of these records could be confidential and not shared or turned over at the time of purchase. It is very common for new building owners to not have access to business records from a previous owner. It is recommended that after purchase a new owner have 2 to 3 years to comply with this requirement.</p> <p>What may streamline this is uniform mandates on usage data format, frequency, and availability for all the utilities in the state.</p>
2.02	D-1-3	9	<p><i>D. Maintenance of Historical Data.</i></p> <p><i>(1) The building owner shall maintain adequate records demonstrating compliance with this Chapter, including but not limited to, energy bills, reports, forms, and records received from tenants or utilities and records.</i></p> <p><i>(2) Such records shall be preserved for a period no less than seven years.</i></p> <p><i>(3) At the request of the Department, such records shall be made available for inspection and audit by the Department.</i></p> <p>If a building is purchased the sharing of what might be considered confidential business records is an undue burden on the seller and buyer. Energy use records could be a trade secret depending upon the building use. This requirement is likely to cause problems.</p> <p>What may streamline this is uniform mandates on usage data format, frequency, and availability for all the utilities in the state.</p>
2.03	A	9	<p><i>A tenant of a covered building shall, within 30 days of a request by the building owner, provide all requested benchmarking information that cannot otherwise be acquired by the building owner from other sources.</i></p>

Chapter	Section	Page	Comment <i>Draft Regulation text is italicized</i>
			<p>Given the current market putting the burden of enforcement upon the landlord is not advised. Utilities have this data and must share it. However, if a tenant considers the data a trade secret in a single tenant building, they should have the right to not allow the utilities to share the data.</p> <p>If building owners do no opt out it should be made available</p>
2.04	A-1	9	<p><i>Starting no later than July 1, 2024,</i></p> <p>This must be revised to “Starting no later than <b>January 1, 2025</b>” having one start date for utilities and one for the first reporting period is not reasonable. The utilities must share the date to make reporting as smooth as possible. 2025 is the earliest reasonable reporting period.</p>
2.05	A-1-3; B	11	<p><i>Disclosure of Covered Building Benchmarking and Performance Standards Information</i></p> <p>While disclosure of the statue and regulations is reasonable. Adding an additional burden to both buyers and sellers of buildings in Maryland is not. The due diligence process is already arduous and helps ensure the financial interests of both parties are protected during a real estate transaction this additional burden will add little value and could discourage economic activity in the state.</p>
4.02	A-1-3	18	<p><i>Exemptions</i></p> <p>Exemptions have left out historic buildings, buildings that were sold and prior owner had not complied with regulations, buildings where data can’t be shared as it is a demonstrated trade secret and buildings where the tenants or residents’ control and own their individual units including HVAC, lighting, and equipment. In this case the owner or condo association might not be in financial distress, but individual tenants might not have the ability or desire to pay for upgrades.</p>



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June 5, 2023

Maryland Department of the Environment  
Climate Change Program  
1800 Washington Blvd.  
Baltimore, MD 21230

**Re: Comments on May 2023 Draft Maryland BEPS Regulation**

To Whom it May Concern:

The National Aquarium appreciates the opportunity to provide comments on the Department's draft building energy performance standards regulations, as required by the Climate Solutions Now Act of 2022.

Combatting climate change is one of the National Aquarium's three strategic conservation priorities. As such, in 2022, we announced our commitment to achieve net-zero scope 1 and scope 2 greenhouse gas emissions by 2035. Since 2010, the National Aquarium has reduced its greenhouse gas emissions by 31%. Much of this reduction was attributed to significant energy conservation measures. Despite the National Aquarium being well on our way to achieve our net-zero commitment, we have concerns with the net direct emissions and site energy use intensity (EUI) standards proposed in the draft regulations.

The National Aquarium is a nonprofit organization that welcomes 1.2 million guests a year and generates \$430 million in statewide annual economic impact. We provide round the clock care for thousands of animals representing hundreds of species, including protected species that are in our care to help the state and federal government meet species conservation mandates. Most species in our care are aquatic and require carefully calibrated pump and life support systems. In total, the National Aquarium holds more than two million gallons of water and processes more than 1 million gallons of water every hour, equaling 8.7 trillion gallons each year. Additionally, we manufacture 1.7 million gallons of seawater a year.

Aquariums are unlike any building type in the state and require a significant amount of energy to operate. The National Aquarium is concerned with the strict net direct emissions and site EUI standards proposed in the draft regulations. Compared to other net direct emission standards, the "aquarium" category has one of the most aggressive targets beginning in 2030. For example, fitness centers, convenience stores, roller rinks, bowling alleys, and libraries are only a handful of property types that have more lenient net emissions requirements compared to an aquarium, despite these facilities all lacking any of the sophisticated and energy intensive life support systems of an aquarium. Likewise, of the 80 property types identified in the draft regulations, only 16 have more restrictive site EUI requirements than an aquarium.

The National Aquarium is part of a group of partner aquariums from across the country who announced their intention to achieve climate neutrality. As leaders in conservation and environmental education, it was important that we committed to the action needed to reduce our carbon footprint. Due to our unique business operations, it was essential that we were

able to benchmark against other aquariums to understand our contributions and opportunities. As part of that process, the National Aquarium and our partners engaged a sustainability consultant and participated in a first of its kind benchmarking study of our greenhouse gas emissions and energy use to compare operations and create a level playing field for reduction targets. Among the 25 aquariums that participated in the study, average direct emissions were 3 kgCO<sub>2e</sub>/sq. ft and the average EUI was 209 kBtu/sq. ft. Even the most energy efficient aquariums in the country have an EUI of around 100 kBtu/sq. ft., making the proposed 2040 target of 41 kBtu/sq. ft. highly unrealistic. In a recent webinar, the Department noted its intention to “meet every property where it is right now” when developing the EUI target. Unfortunately, the target fails to recognize the starting point and realistic trajectory for an aquarium.

Based on this benchmarking data and considering the 24/7 animal care obligations of an aquarium, similar to hospitals, the draft standards for the aquarium property category are not feasible. **The National Aquarium requests increasing the net direct emissions and site EUI standards for the “aquarium” property category to align them with the findings of the aquarium benchmarking study.**

The Climate Solutions Now Act requires regulations to include an alternative compliance pathway that allows owners to pay a fee that is at least equal to the social cost of greenhouse gases. However, the Act does not limit the Department from establishing other alternative compliance pathways to meet the state’s goal and clearly states that regulations should account for the “unique needs of a particular building or occupancy type.” Other jurisdictions who have adopted building emissions reductions targets allow for alternative compliance pathways that include individual compliance schedules. Specifically, the City of Boston’s Building Emissions Reduction and Disclosure Ordinance<sup>1</sup> establishes individual compliance schedules for emissions targets that still meet the city’s overall goals and sets reasonable restrictions to satisfy building emissions targets.

Establishing alternative compliance pathways is critical to the Aquarium’s ability to reach net-zero. For example, the only major impediment to the National Aquarium achieving net-zero by 2035 is electrifying our natural gas-powered boilers, which are responsible for more than a quarter of our total emissions and more than 95% of our direct emissions. We determined 2035 is the soonest we will be able to electrify our natural gas boilers without additional infrastructure decarbonization incentives from the state. If the National Aquarium has 100% clean energy by 2030 but still has the natural gas boilers, we will not meet the aggressive emissions target and we could be liable for \$2.4 million in cumulative alternative compliance charges from 2030-2035. These fees would jeopardize our ability to invest in a new boiler system to further reduce our emissions. Alternative compliance pathways that allow for individual compliance schedules are critical for organizations like the National Aquarium. **Regulations should allow for additional alternative compliance pathways based on the unique needs of a particular building or occupancy type, including individual compliance schedules.**

Additionally, the National Aquarium would like to highlight the following concerns as the Department finalizes these regulations:

- The National Aquarium campus includes our Animal Care and Rescue Center, located 0.7 miles away from our main building in downtown Baltimore. The Animal Care and Rescue Center is owned and operated by the National Aquarium and managed as the third building of our campus. We would like the option of campus-level reporting but

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<https://www.boston.gov/sites/default/files/file/2021/12/Final%20Amended%20Docket%200775%20BERDO%2020.pdf>

feel the proposed definition of campus as a single cohesive property may limit that option.

- The Aquarium's district energy supplier, Vicinity, generates steam using clean energy. The reporting tool selected by the state should account for district energy derived from clean energy sources.
- The draft regulations require organizations to receive third-party verification of benchmarking reports. The National Aquarium is concerned with the financial burden placed on organizations to seek third-party verification, on top of the facility upgrades that will be required to reach the state's emissions and site EUI goals.
- The National Aquarium does not have a way to separately meter food service operations within our facility, so we will rely on the state's standard deduction formula, and we look forward to reviewing the formula when it is made available.

The National Aquarium has been diligently working to conserve energy and reduce emissions for several years. We fully support the state's goal to achieve net-zero emissions in the building sector by 2040 but recognize it will be a significant challenge. The state should be doing everything possible to reward organizations already on a path to meet or exceed the state's goals without instituting additional burdens that will make it more difficult or expensive.

We respectfully request the Department consider the unique needs of operating an aquarium when finalizing the building energy performance standards regulations.

Sincerely,



Jennifer Driban  
SVP, Chief Mission Officer



Via Electronic Mail

June 16, 2023

Serena C. McIlwain  
Secretary  
Maryland Department of the Environment  
1800 Washington Blvd.  
Baltimore, MD 21230  
BEPS.MDE@maryland.gov

**Re: Building Energy Performance Standards - Proposed Regulations**

Dear Secretary McIlwain:

I am writing on behalf of the Maryland Multi-Housing Association (MMHA), a statewide professional trade association, in connection with the proposed building energy performance standards (BEPS) stemming from the Climate Solutions Now Act of 2022. Established in 1996, MMHA's membership consists of owners and managers of more than 207,246 rental housing homes in more than 937 apartment communities. Our members house over 667,000 residents of the State of Maryland throughout the entire State of Maryland. MMHA membership also includes more than 216 associate members that supply goods and services to the multi-housing industry. More information is available at <https://www.mmhaonline.org/>.

MMHA offers the comments below highlighting our concerns with the proposed BEPS regulations.

Specific Comments

1. 26.01.02B(10) "Benchmarking tool": This definition, and as the sole method to report data as Portfolio Manager, is problematic for several reasons including:
  - Will Energy Star scores be tempered to rank each building against "average buildings of similar construction" in Maryland (i.e., not nationally)?
  - Energy Star scores are a moving target that increase over time, which is not something the statute permits.
  - Energy Star presents very real concerns about who owns the greenhouse gas emission data, including confidentiality.

At a minimum, there should be more than one way to benchmark and report data. Moreover, if a building actually reduces its greenhouse gas emissions by 20% in advance

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of January 1, 2030, such should be in compliance with the requirement irrespective of Energy Star. Of course, without more information from the Maryland Department of Environment (MDE), it is not possible to know what is contemplated. However, if the expectation is that all covered buildings will have an Energy Starr score of 80 or better by January 1, 2030, this is not what the statute contemplates and is simply not practicable.

2. 26.01.02B(13) “Campus”: MMHA is concerned that the definition of "campus" could be read to expand reporting requirements to structures that are not otherwise "covered buildings" instead of being read as solely an alternative method of compliance for structures that are a "covered building".
3. 26.01.02B(15) “Covered Buildings”: Based on the Climate Solutions Now Act, MMHA assumes that these regulations are intended to only apply to “covered buildings”. Chapter 2 and Chapter 4 fail to include any language to that effect and apply those sections to “Building Owners” which is defined more broadly as holders of title in property. For instance, Section 03.02A(1) should read:

Each calendar year beginning in 2025 or in the first calendar year after which a newly constructed covered building is occupied, the building owner [**of a covered building**] shall collect and enter all required benchmarking information for the previous calendar year into the benchmarking tool.

MMHA believes this is just a drafting error, but some limiting language should be included in those sections for clarity. Note that Chapter 3 only relates to covered buildings.

4. 26.01.02B(21) “Financial Distress”: This definition is too prescriptive and fails to account for numerous factors that qualify as "financial distress." For example, the definition neglects to account for the financial distress experienced by commercial and residential properties when tenants fail to pay rent. Further, the definition provides an exception for an owner that acquires a deed in lieu of foreclosure but does not provide an exception for an entity that is attempting to avoid or stop the foreclosure process.
5. 26.02.02C(1) Third Party Verification of Benchmarking Reports: Third party verification is not required by statute. The provision unnecessarily increases costs for property owners, and the regulations provide MDE with audit authority. As a result, this provision should be removed.
6. 26.02.02C(3) MMHA is unsure why MDE is mandating information sharing between two private parties that are subject to a contract.

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7. 26.02.02D(3) The Department has audit authority and is requiring property owners to maintain records for seven years. As such, the third-party verification requirement should be removed.
8. 26.02.05A MMHA is unsure of MDE's authority to mandate disclosures during the sale of a property. Does failure to disclose void the sale? MMHA is unaware of this authorization by any statute and including it could only negatively alienate the sale of real estate across the State. MMHA does not know of any similar requirement promulgated by regulation and not authorized by statute. And requiring a buyer's signature on the addendum simply does not reflect the reality of how contacts are entered, and real estate transferred. This provision should be deleted.
9. 26.04.01 Alternative Compliance Pathway: The alternative compliance pathway contemplated in the proposed regulations is not what the legislature contemplated. When the General Assembly enacted the Climate Solutions Now Act, the social cost of CO2 as estimated by the EPA was \$51 a metric ton. Due to a number of factors, the social cost of greenhouse gas is now estimated at between \$180 and \$230 a metric ton; so to use that larger measurement (i.e., GHG versus CO2) and higher dollar amount (not \$51 but \$230) and to add an annual CPI escalation is not what the legislature enacted and is not supported by fact.
10. 26.04.02A.(1) As noted above, the definition of "financial distress" should be expanded.

General Comments:

11. The proposed regulations do not include variance or waiver provisions. This would ameliorate the harsh impact of the law and could provide effective alternative compliance paths to achieving Maryland's ultimate net zero goals.
12. The proposed regulations are devoid of compliance by way of offsets. Offsets through solar, tree planting and Maryland based organics recycling facilities, including food waste-based compost, allows Maryland businesses to do more to reduce their greenhouse gas emissions. This would provide for flexibility in meeting the State's requirements while allowing for ease in auditing.
13. These proposed regulations do not address who owns the greenhouse gas emissions data the State now wants calculated, collected, and reported. The Climate Solutions Now Act only provides:

(D) ELECTRIC COMPANIES AND GAS COMPANIES SHALL PROVIDE ENERGY DATA, INCLUDING WHOLE-BUILDING AND AGGREGATE DATA, TO THE OWNERS OF COVERED BUILDINGS FOR BENCHMARKING PURPOSES.

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And, on page 7, these proposed regulations add:

“Nothing in this regulation shall be construed to permit a building owner to use tenant energy usage data for purposes other than evaluation of the performance of the building.”

This must be addressed. Accuracy, transparency, and incentives are key considerations for ensuring that this data is effectively used to address the challenges.

MMHA appreciates the hard work and engagement in drafting these proposed regulations. MMHA seeks to be a partner in addressing the challenges surrounding the climate crisis. At a time when the State of Maryland faces an affordable housing crisis and a dearth of 85,000 units, these proposed regulations will most certainly impact the multi-family housing industry with new costs to comply, likely resulting in increased rent for residents. In an effort to minimize these consequences, it is critical that resources are allocated to meet the objectives of the Climate Solutions Now Act and these proposed regulations.

Thank you for the opportunity to comment.

Sincerely,

*Adam Skolnik*

Adam Skolnik, CPM, ARM, CAE  
Executive Director

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June 5, 2023

**BY ELECTRONIC SUBMISSION**

Maryland Department of the Environment  
1800 Washington Boulevard  
Baltimore, Maryland 21230  
[BEPS.MDE@maryland.gov](mailto:BEPS.MDE@maryland.gov)

**RE: Draft Maryland Building Energy Performance Standards Regulation**

Dear Secretary Serena C. McIlwain,

Vicinity Energy (Vicinity) is pleased to provide comments to the Maryland Department of the Environment (MDE) on the draft Maryland Building Energy Performance Standards (BEPS). Vicinity's mission to be a leader in urban decarbonization is directly in line with the State of Maryland's efforts and the intentions behind both the Climate Solutions Now Act of 2022 and BEPS. We applaud the state and MDE for your commitment to achieving net-zero direct greenhouse gas (GHG) emissions by January 1, 2040 and are excited for the opportunity to be a partner in meeting that goal.

***Vicinity Energy Company Profile***

With 19 district energy systems in 12 major cities, including Baltimore, Vicinity is the largest provider of district energy solutions in North America. We produce and distribute steam, hot water, and chilled water through a network of underground pipes, eliminating the need for on-site boiler and chiller plants in individual buildings, improving overall efficiency, lowering carbon footprints, and increasing reliability.

Vicinity's goal to decarbonize our urban city centers through the introduction of innovative technologies (e.g., renewable electricity steam boilers, industrial scale heat pumps, biogenic fuels, etc.) is aligned with the State of Maryland and our assets are a critical tool towards meeting our mutual sustainability goals. Every investment we make at our central facilities will immediately impact millions of square feet of space, further greening our community.

The backbone of Vicinity's sustainability plan is to leverage existing infrastructure and generate steam using e-boilers and industrial-scale heat pumps and to procure carbon-free electricity from the grid as our primary fuel source. By connecting to the district energy system and using our electrically generated steam, or eSteam™<sup>1</sup>, product, building owners will have the immediate ability to access 100% carbon-free thermal energy, thus successfully meeting federal, state, and local regulations. Vicinity's customers will be well positioned to meet both the interim and final regulatory requirements as currently proposed in BEPS. Moreover, Vicinity is committed to achieving decarbonization while framing our strategy through the lens of environmental justice.

***Vicinity in Baltimore Overview***

In Baltimore, Vicinity serves over 30 million square feet of commercial space, including hospitals, universities, public schools, City, State and Federal office buildings, the Housing Authority, Ravens Stadium and Oriole Park at Camden Yards, the Baltimore Convention Center, and many hotels, office,

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<sup>1</sup> [eSteam™](#)

retail, and residential buildings, improving air quality for communities and the city. Baltimore's most vital infrastructure benefits from our 99.99% reliability and enhanced resiliency to natural disasters.

Through a network of over 28 miles of underground pipes, Vicinity distributes reliable steam, hot water, and chilled water to over 250 customers in the central district and Harbor East while lowering Baltimore's Greenhouse Gas (GHG) emissions by nearly 30,000 metric tons annually compared to conventional means of heating and cooling buildings. This is the equivalent of removing almost 11,000 cars from the roads every year. Currently, over 50% of the steam distributed throughout the Baltimore systems is already derived from renewable energy and we are on track to achieve net-zero carbon emissions in Maryland by 2045 or sooner.

### ***Recommendations for BEPS***

Vicinity appreciates the efforts the MDE team has made to ensure multiple opportunities for stakeholder engagement and feedback throughout this process of shaping and finalizing regulations. As MDE finalizes the draft regulation to present to the Air Quality Control Advisory Council (AQCAC), we would like to suggest the following recommendations:

The intention of BEPS is for building owners to proactively and intentionally reduce their carbon footprint. To ensure accurate data collection and reporting, it is important that the regulations properly account for the carbon content of district steam. For example, Section .02 Definitions, subsection (10) ENERGY STAR is mentioned as the benchmarking tool for energy performance. However, Vicinity advises against using ENERGY STAR to determine the carbon content of district steam, as this tool calculates national energy source averages, which would inaccurately inflate the carbon content of district steam. This is particularly relevant for customers who sign up for our carbon-free eSteam™. Additionally, Vicinity uses recycled thermal energy from the Baltimore Refuse Energy Systems Company (BRESCO) waste-to-energy (WTE) facility to generate steam. The BRESCO facility is already required under the Clean Air Act<sup>2</sup> to report GHG emissions to the Environmental Protection Agency (EPA). GHG emissions associated with the conversion of waste materials to electricity or heat at the BRESCO facility should not also be attributed to Vicinity's district steam customers.

Numerous municipalities and states that have set targets for building decarbonization acknowledge that cogenerated steam is the cleanest option currently available, particularly when compared to unregulated on-site natural gas or oil boilers. This perspective is in alignment with EPA's view on cogeneration<sup>3</sup>. In order to prevent inadvertently incentivizing owners of covered buildings to prolong the lifespan of on-site natural gas or oil boilers, it is important for MDE to adopt a similar approach. Based on previous discussions with MDE, we believe there is no intention to discourage customers from utilizing district energy, especially with the availability of eSteam™. Therefore, the state should exercise caution to ensure that carbon reporting does not unintentionally drive customers away from the district steam system.

- *With regard to Section .04 Reporting of Utility Companies and District Energy Providers, subsection B(4), Vicinity seeks clarification on how the state will allocate GHG emissions from the WTE facility and recommends adding language that accurately allocates GHG emissions between overall GHG emissions from the WTE facility and GHG emissions attributed to steam sales.*

To achieve decarbonization goals, the state must move swiftly to phase out on-site natural gas and oil boilers in as many buildings as possible, especially in the environmental justice communities throughout downtown Baltimore.

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<sup>2</sup>[eCFR :: 40 CFR Part 70 -- State Operating Permit Programs](#)

<sup>3</sup>[CHP's Role in Decarbonization | US EPA](#)

- *Vicinity suggests that MDE set up a proactive initiative aimed at motivating owners of covered buildings to embrace early adoption. This can be achieved by offering incentives that encourage owners to exceed the 2030-2034 and 2035-2039 interim net direct emissions standards. One effective approach would be to administer a grant program through the Maryland Energy Administration and provide funding specifically for replacing on-site natural gas and oil boilers with zero-carbon technologies, including eSteam™.*

We are electrifying our operations and will generate steam using electric boilers and heat pumps, and we will procure renewable and carbon-free electricity from the grid as our primary fuel source. We believe this is the fastest, most pragmatic, and least complicated way to rapidly eliminate direct emissions from thermal energy in downtown Baltimore. Vicinity encourages MDE to recognize thermal energy products, like eSteam™, for their net-zero carbon benefits in future drafts of BEPS. When assessing eSteam™, MDE should make it clear within the regulations that the carbon content of eSteam™ will be equal to the carbon content of the underlying electricity used to produce it. This sends a message to current and prospective district steam customers that by connecting to the district energy system, building owners will successfully meet the interim and final net emissions standards as specified in BEPS.

- *Vicinity recommends adding the following under Section .04, Subsection B: (5) Emissions factors for thermal energy generated from a non-emitting source shall have an emission's factor of 0 kgCO<sub>2</sub>e/MMBTU.*

As mentioned, in Baltimore, Vicinity manages a network of over 28 miles of underground pipes. Through these pipes, we deliver reliable steam, hot water, and chilled water to over 30 million square feet of commercial space. While insulation is necessary to minimize heat loss, this is not always the case for the pipes connected to a chilled water system.

- *On Section .02 Definitions, Subsection B(18) Vicinity recommends deleting "insulated" from the definition of "District energy".*

### **Conclusion**

Vicinity's district energy system is critical to helping the state achieve its GHG reduction goals. While our customer base consists of several vital institutions with mission-critical energy requirements, the environmental benefits extend to all corners of Baltimore, including the environmental justice neighborhoods that are disproportionately affected by fossil fuel pollution.

In closing, Vicinity thanks the state and MDE for demonstrating leadership on building decarbonization. We share your commitment to addressing climate change and achieving net-zero carbon emissions and are excited to partner with you to achieve this goal.

Sincerely,

Matthew O'Malley  
Chief Sustainability Officer  
Vicinity Energy



DEPARTMENT OF ENVIRONMENTAL PROTECTION

Marc Elrich  
*County Executive*

Willie Wainer  
*Acting Director*

June 5, 2023

Mark Stewart  
Climate Change Program Manager  
Maryland Department of the Environment  
1800 Washington Blvd  
Baltimore, MD 21230

**Re: Comments of the Montgomery County Department of Environmental Protection on Draft Building Energy Performance Standards prepared by the Maryland Department of the Environment**

Dear Mr. Stewart,

The Montgomery County Department of Environmental Protection (DEP) appreciates this opportunity to provide comments on the May 2023 Draft Building Energy Performance Standards developed by the Maryland Department of the Environment (MDE). Improving the energy performance of existing buildings is critical to the achievement of state and local climate goals, and will produce net benefits to building owners, occupants, industries providing building services, and communities. We believe these statewide Building Energy Performance Standards (State BEPS) will drive progress across Maryland's building stock, including here in Montgomery County, and appreciate your efforts to develop effective regulations.

As you are aware, the County is in the process of developing complementary building performance standards that will apply solely within Montgomery County (County BEPS). This process began with the passage of County Bill 16-21 in April 2022. The County is currently in the process of developing County BEPS regulations. DEP is benefitting from the advice of the Building Performance Improvement Board, a workgroup of stakeholders created as required under Bill 16-21. While the County's standards may ultimately include requirements that are different than those required by State BEPS, it is important to align these state and local regulations where possible to minimize challenges and maximize support for building owners and other stakeholders.

We suggest that consideration be given to the following issues:

## 1. Definitions

### a. Building Owner

- On page 2, building owner is defined as “An individual or legal entity possessing title to a property including but is not limited to a board of the owners’ association, master association, board of directors, or an agent authorized to act on behalf of a community association, cooperative housing corporation, or condominium.” It is not clear whether this refers to the **building** owner or the **property** (land) owner. Clarity may be valuable in the context of a ground-lease situation where the owner of the land does not own the building.
- County law defines owner as “an individual or legal entity in whose name a building is titled, or in the case of a community association, the governing body of either a condominium or a cooperative housing corporation.”

### b. Full-Time-Equivalent Employees

- On page 4, full-time-equivalent employee is defined as “a person that occupies a covered building for no less than 40 person- hours per week throughout a calendar year.” This definition implies inclusion of residents and other occupant types beyond employees who work in the building. Consider redefining this term as “full-time-equivalent occupant” to more clearly align with intent.

### c. Food Service

- Page 5 provides a definition of net direct emissions, stating net direct emission do “not include direct greenhouse gas emissions from a food service facility located within a covered building.” However, also on page 5, site energy use and site energy use intensity are defined to include all energy use in a covered building. Consider clarifying whether energy used by a food service facility should be included in quantifying site energy use, and how the space associated with food service facilities should be used in calculating site energy use intensity.

## 2. Reporting Requirements

- a. **For newly constructed buildings**, on page 7, it is stated that “(2) The owner of a newly constructed covered building shall submit a benchmarking report to the Department by June 1st of each calendar year, beginning the year following the first calendar year the newly constructed building **was occupied for at least one day**, using the benchmarking tool. (3) The annual benchmarking report shall include, at a minimum, the benchmarking information spanning January 1st to December 31st of the previous calendar year **or for all of the days in a calendar year that a newly constructed covered building was occupied.**”

- This may be useful for compliance or encouraging consistency, but the EPA ENERGY STAR Portfolio Manager benchmarking tool will not be able to calculate metrics for any period for which there is less than one full calendar year of data.
- The County has taken an alternative approach for newly constructed covered buildings. **Following the first full calendar year that energy data can be collected and that the building was occupied**, the owner of any newly constructed covered building must benchmark the building and report to the Department no later than June 1 of that following year, and every June 1 thereafter. This allows newly constructed buildings to begin

reporting during the first full year of occupancy such that energy metrics are able to be calculated by the benchmarking tool.

**b. Maintenance of Historical Data** requires owners and utilities to maintain records for seven years.

- This may be a challenging requirement, but the County is supportive of the intent. We encourage consultation with utilities and the Maryland Public Service Commission.

### 3. Alternative Compliance Fees

- Page 17 outlines the alternative compliance fee schedule for each year from 2030 to 2040. These fees are based on the social cost of greenhouse gas (GHG) emissions, as required by the Climate Solutions Now Act. Has MDE considered a scenario in which the social cost of GHG emissions may increase beyond the projections that were used to create this draft fee schedule? Will MDE retain authority to adjust this fee schedule if the social cost of carbon fluctuates in the future?

### 4. Site EUI Targets

- Stakeholders have pointed out that some of the site EUI targets in the regulations seem low and unduly difficult to achieve. We recommend re-analyzing target setting for multifamily buildings, hospitals, and self-storage facilities. Using a more recent period to derive targets might better reflect post-pandemic energy use patterns and could potentially include a larger sample size.

### 5. Enforcement of EUI Targets

- The draft regulations are unclear regarding how energy use intensity targets will be enforced, and what penalties may be applied by the State in situations of non-compliance. Clarifying these penalties would be valuable.

### 6. Exemptions

- On page 18, it is stated that “A building owner may apply for an exemption from the requirements of this regulation for one calendar year when the building owner can provide documentation showing that **one of the following conditions** are met.” The bullets that follow should be separated by “or” rather than “and” to align with intent.

Please feel free to reach out to us if you would like to discuss any of these comments further. DEP appreciates your leadership on this important climate issue and looks forward to continuing to collaborate as we develop our respective BEPS programs.

Sincerely,



Garrett Fitzgerald  
State Climate and Energy Policy Manager  
Montgomery County Department of Environmental Protection

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June 5, 2023

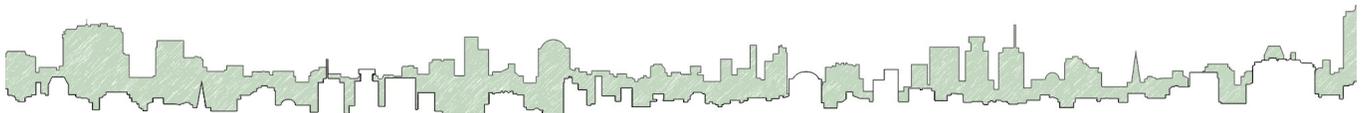
RE: May 2023 Draft Maryland BEPS Regulation

Since 1999, New Ecology, Inc. (NEI) has been committed to reducing environmental impact and increasing access to a greener future. With a focus on the built environment, we have provided consulting services, technical assistance, R&D and advocacy to bring the benefits of sustainable design to traditionally underserved communities. We fully support Maryland's effort to reduce greenhouse gas emissions, and the legislature's net zero goal. We acknowledge the urgency of this work, and welcome the opportunity to partner and support public and private entities in the state who share this view.

NEI is a non-profit organization based in Boston, Massachusetts which operates two offices in the mid-Atlantic including one in Baltimore. We focus our efforts on affordable housing developers and residents, both of which will play a key role in electrification and carbon emissions reductions. We participated in the affordable housing stakeholder virtual meeting last year, and have already fielded questions from clients with buildings that will be covered. Additionally, we have significant experience with regulations similar to the proposed BEPS, namely Boston's BERDO and Washington, DC's BEPS. We have seen how these programs work, and acknowledge challenges that have arisen via the compliance process. Importantly, we're also happy to report several success stories that have resulted in more efficient, electrified buildings. We applaud you for being among the leaders nationwide in climate policy.

Our staff have read through the draft regulations and offer the following comments and observations:

- The regulations mention the "Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards" dated June 2023. We presume this document has not been shared with the public yet, and some questions we have below will be made clear in it. For example, the final standard EUIs seems reasonable but the emissions standards seem very stringent. Using current emissions factors the net direct emissions standards would be extremely difficult to meet.



- We commend you for mandating that utility companies provide aggregated whole building data in an organized and complete manner to building owners within a specific timeframe of request. This really simplifies and streamlines the process. We urge you to maintain this requirement as incomplete utility data can derail a project.
- We appreciate that DC has created an affordable housing retrofit accelerator to assist these projects that may have a harder time funding improvements. The Alternative Compliance Fee could go towards funding a similar program. Boston created an equitable emissions investment fund that will be directed to help offset the cost of compliance for priority building types.
- It is helpful to know future compliance requirements (such as interim EUI goals) ahead of time and it seems like you are aiming to do this. DC does not which has led to some confusion. City of Boston published projected emissions factors through 2050, but reserves the right to review and update them by 2030, and then every 5 years, with the parameter that updated emissions factors will be published at least 2 years prior to use. They also stipulate that the projected emissions factor will be used should the updated emissions factor be higher than the projected one, providing some predictability.

### Questions:

- The legislation requires 20% net direct GHG emissions reduction by 1/1/2030 relative to 2025 levels. Will current emissions factors be provided or determined by ESPM during the benchmarking process? The emissions thresholds between 2030 and 2040 are significantly more aggressive in Maryland than in Boston. Boston requires multifamily housing to hit 2.4 and 1.8 between 2030 and 2040, with thresholds declining to 1.1, .6 and then 0 from 2040 to 2050.
- How will Maryland deal with situations where EV charging is not separately metered, but should be excluded?
- How will REC's and PPA's be dealt with? Boston landed on a somewhat complex approach that allows use of REC's and PPA's provided that they are MA Class I, generated and retired within a certain timeframe of the compliance period, etc. They also have exemptions for some of those rules if the solar project is in Eastern MA or Boston proper. REC's associated with the municipal electricity aggregation program are deemed compliant. There did not seem to be any parameters for how this would be dealt with.

We appreciate your attention to our feedback. We're confident that the ambitious goals set by the Maryland General Assembly can be achieved via collective action.

Sincerely,



Justin Iovenitti  
Senior Energy Engineer

June 5, 2023

Secretary Serena McIlwain  
Maryland Department of the Environment  
Montgomery Park Business Center  
1800 Washington Blvd.  
Baltimore, MD 21230



Dear Secretary McIlwain:

Thank you for the opportunity to provide comments on the draft BEPS regulations. The following comments relate to the need for flexibility in the BEPS regulations to support affordable housing providers in complying with the requirements.

National Housing Trust (NHT) is a non-profit that creates and preserves affordable homes to provide opportunity, advance racial equity, reduce economic disparities, and strengthen community resilience through practice and policy. NHT has preserved 450 affordable housing units in Maryland as an affordable housing provider.

BEPS is an important policy tool for accelerating decarbonization and delivering health and economic benefits to residents. However, affordable housing owners face several obstacles to decarbonizing their properties. Barriers include limited access to funding to undertake building upgrades, difficulty accessing debt, and nascent technologies for electrifying central heating systems. Compliance flexibility is necessary to accommodate these challenges and ensure housing providers can maintain affordability while meeting BEPS requirements.

**The draft BEPS regulations do not incorporate sufficient flexibility to support affordable housing.**

There are as many as 97,000 publicly supported and rent-restricted affordable apartments in Maryland across nearly 800 properties that BEPS may cover.<sup>1</sup> As demonstrated in

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<sup>1</sup> This is an estimate of the maximum number of units that may be covered by BEPS. The count includes only properties with more than 35 units to approximate the number of properties that likely meet the 35,000 square-foot threshold. The number of buildings at each property and metering configuration are unknown. Source: National Housing Preservation Database, <https://preservationdatabase.org/>  
This count does not include unsubsidized affordable housing that rents at affordable levels but does not rent



Appendix A, these properties are in every Maryland county. Maryland lacks more than 125,000 rental homes that are affordable and available for extremely low-income renters.<sup>2</sup>

Affordable housing providers face unique financial challenges, such as an inability to take on new debt between recapitalizations, limited cash flow due to restricted rents, and restrictions on using reserves for building improvements in regulated housing. As a result, the most suitable time to finance significant building upgrades in affordable housing, such as electrification, is at refinancing. At that point in the building lifecycle, the property owner is developing a comprehensive scope of the work that includes significant capital upgrades and is pursuing new financing sources, such as Low Income Housing Tax Credits and new first mortgage debt.

**MDE should incorporate flexibility in the regulations to allow affordable housing providers to request alternative compliance pathways or compliance extensions.**

The Maryland General Assembly directed MDE to develop regulations that "provide the maximum flexibility to the owners of covered buildings to comply with building energy performance standards."<sup>3</sup> Affordable housing provides a public good and warrants flexibility. Several situations will require flexibility for affordable housing:

- If the cost of compliance is significant, and financial incentives are not available to defray the costs;
- If the compliance timeline does not align with the refinancing cycle/timing of the property and the building owner lacks sufficient cash flow and/or the ability to take on new debt to pay for building upgrades;
- If additional time is needed because technological solutions are not available or are cost-prohibitive to electrify all building systems.<sup>4</sup>

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<sup>2</sup> National Low Income Housing Coalition, 2022 Maryland Housing Profile

<sup>3</sup> Md. Code, Envir. § 2-1602(c)(2)(IV)

<sup>4</sup> Electrifying central space and water heating systems in multifamily buildings is particularly challenging, given current technology and conversion costs. According to ACEEE, electrifying apartments in buildings served by central boilers is expensive, and it can be challenging to recoup the costs. "The economics of electric heat pumps in multifamily buildings would improve if the installed costs of mini-split heat pumps in multifamily buildings were reduced to the costs that now apply in single-family homes... Achieving single-family costs in multifamily buildings will be challenging, but it could be possible with large-scale installations and improved approaches to installing outdoor units on the exterior of multistory buildings." Source: Nadel, S., and L. Fadali. 2022. Analysis of Electric and Gas Decarbonization Options for Homes and Apartments. Washington, DC: ACEEE. [www.aceee.org/research-report/b2205](http://www.aceee.org/research-report/b2205).

In another study, ACEEE concluded that while "the HPWH market is evolving quickly, and recent and soon-to-be-released products could help expedite the market transformation process and improve cost-effectiveness... the economics of retrofitting multifamily fossil fuel water heating systems with HPWHs are currently very challenging. A combination of policies and regulatory levers will be necessary to help make HPWHs more economically attractive for multifamily retrofit projects. Without significant interventions, multifamily HPWH installations will likely remain limited. Further research and design could help improve HPWH performance (e.g., in cold climates)



Other jurisdictions that have adopted or are planning to adopt BEPS policies have recognized the importance of flexibility for affordable housing. A common practice is to offer building owners the opportunity to apply for an extended compliance timeline.

- Seattle is considering adopting a GHG intensity emissions target. Seattle's proposed BEPS policy provides multifamily buildings with a longer runway to comply with the standards than non-residential buildings, allowing greater flexibility and time for developing technical assistance and financial incentives. Under the proposed policy, affordable multifamily housing would be exempt from meeting the first two BEPS interim targets while still requiring affordable housing to meet the final net-zero standard by the same date as required for all building types.<sup>5</sup> This approach gives affordable housing owners an additional ten years to meet the first interim standard compared to non-residential buildings.
- Colorado is also considering an emissions-based BEPS. The state established a task force to develop policy recommendations for the Colorado Energy Office (CEO). The recommendations included incorporating compliance adjustment options in the final rules. The options would consist of allowing building owners to apply for an adjusted timeline to achieve compliance with the standard. The task force identified several examples for which this flexibility is essential, including affordable housing that needs to align work with recapitalization or refinancing timelines, building owners undergoing a significant renovation that does not align with the target standard dates, and allowing building owners to replace systems at the end of life. An owner seeking an adjustment option would apply and provide documentation detailing why an adjustment is needed and a plan showing how the building owner will meet the adjusted compliance option.<sup>6</sup>
- Washington, D.C.'s BEPS regulations allow building owners to request a delay in compliance if the owner can demonstrate good cause. All building owners are eligible for a delay in compliance of up to three years. In addition, affordable multifamily housing providers can apply for a delay longer than three years.<sup>7</sup> DC DOEE has also developed financial distress criteria specific to affordable housing that providers can use to justify the need for a compliance delay:

"In reference to BEPS, financial distress means a building owner cannot honor financial obligations, including payment of ordinary and necessary

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and develop systems for specific applications (e.g., space-constrained low-income multifamily)." Source: Perry, C., A. Khanolkar, and H. Bastian. 2021. Increasing Sustainability of Multifamily Buildings with Heat Pump Water Heaters. Washington, DC: American Council for an Energy-Efficient Economy. [aceee.org/research-report/b2101](https://aceee.org/research-report/b2101).

<sup>5</sup> Seattle Office of Sustainability and Environment, "Seattle Building Emissions Performance Standard: Guide to the Proposed Policy (1/17/23 Draft)

<sup>6</sup> Colorado's Building Performance Standards Task Force Recommendations, October 1, 2022.

<sup>7</sup> Chapter 35, GREEN BUILDING REQUIREMENTS, of Title 20 DCMR, ENVIRONMENT Sections 3520.5-3520.6



business and/or living expenses, that would prevent timely compliance with energy performance requirements. When claiming financial distress, the building owner should demonstrate that it has made good faith efforts to pursue available financial support mechanisms. **For qualifying affordable housing, this circumstance can also be demonstrated if a building can document cash flow constraints, restrictions on the usage of its net cash flow, or prohibition from utilizing a portion of existing cash reserves for EEMs.**"<sup>8</sup> [emphasis added]

Thank you for considering these comments. I am happy to discuss these comments in detail or provide additional information to support MDE in incorporating flexibility in the BEPS regulations for affordable housing.

Sincerely,

Todd Nedwick  
Senior Director of Sustainability Policy  
[tnedwick@nhtinc.org](mailto:tnedwick@nhtinc.org)

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<sup>8</sup> D.C. Department of Energy and Environment, Building Energy Performance Standards Compliance and Enforcement Guidebook for Compliance Cycle 1, § 5.2.1.



**Appendix A: Number of publicly supported and rent-restricted affordable apartments and properties that BEPS may cover by county.**

	<b># of Units</b>	<b># of Properties</b>
Allegany	1,374	16
Anne Arundel	5,229	38
Baltimore	8,061	70
Baltimore City	27,983	200
Calvert	720	9
Caroline	430	7
Carroll	642	10
Cecil	2,117	30
Charles	1,432	14
Dorchester	1,195	13
Frederick	2,450	22
Garrett	408	8
Harford	2,730	24
Howard	3,097	25
Kent	465	6
Montgomery	18,376	120
Prince Georges	13,325	91
Queen Annes	370	6
Saint Marys	1,366	17
Somerset	613	9
Talbot	759	10
Washington	2,114	20
Wicomico	2,076	25
Worcester	473	8
<b>Total:</b>	<b>97,805</b>	<b>798</b>

This is an estimate of the maximum number of units that BEPS may cover. The count includes only properties with more than 35 units to approximate the number of properties that likely meet the 35,000 square-foot threshold. The number of buildings at each property and metering configuration is unknown. Source: National Housing Preservation Database, <https://preservationdatabase.org/>



June 5, 2023

**Via Email**

Maryland Department of the Environment  
Air and Radiation Management Administration  
Attention: BEPS Rulemaking  
1800 Washington Boulevard

**Re:**

[May 2023 Draft Maryland BEPS Regulation](#): Power TakeOff Comments on the Maryland BEPS Regulation

Please find Power TakeOff's two comments of the draft Maryland Building Energy Performance Standards (BEPS) draft regulation that will decrease the effectiveness of this regulation. If you have any problems accessing or viewing these comments, please contact me at the information below.

Respectfully Submitted,



Anna Kelly

AVP of Regulatory Affairs  
Power TakeOff  
1750 30th Street, Suite 420  
Boulder, CO 80301  
Email: [anna.kelly@powertakeoff.com](mailto:anna.kelly@powertakeoff.com)  
Phone: 720-776-0547

Since 2007, Power TakeOff has been the industry leader in the creation of virtual, data-first utility products, services and efficiency programs. Specializing in Energy Information Software, Power TakeOff uses advanced analytics to simplify the vast amount of utility AMI data into personalized, custom energy efficiency recommendations with proven, advanced Measurement and Verification statistical saving results. More than twenty-five utility leaders across North America rely on Power TakeOff to transform complex, non-residential engagement challenges into solutions that deliver exceptional customer experiences and results, increase utility revenue, meet efficiency goals, and reduce GHG emissions.

## Part 1: Clarification to “aggregate energy consumption data”

The proposed requirement to use “aggregate energy consumption data” may lead to undesirable outcomes by building owners performing aggregation above and beyond the finely parsed definition in the rule of “aggregate energy consumption data.” We propose that the language for “aggregate” be changed to provide industry standard clarity indicating that the aggregation is at the meter level. To increase clarity in the rulemaking and ensure that hourly emissions are considered, we propose changing references to “aggregate energy consumption data” to the industry standard “whole building energy consumption” to clarify that the data provided should include aggregates from individual meters, and not aggregated over time.

**Current draft language Section .02.B.[1]:** (1) “Aggregate energy consumption data” means energy data that has been summed for an entire building, which may include a single occupant or a group of separately metered tenants, representing the cumulative total of energy used in the covered building.

**Proposed language Section .02.B.[1]:** “Whole building energy consumption data” means energy data that has been summed for an entire building, which may include a single occupant or a group of separately metered tenants, representing the cumulative total of energy used in the covered building.

**Current draft language Section 0.4.A.(1):** “Electric and gas companies shall conduct meter-to-building mapping and maintain aggregate energy consumption data for all covered buildings, and provide to the building owner accurate and timely information on the actual amount of electricity and/or gas delivered to a covered building.”

**Proposed language Section 0.4.A.(1):** “Electric and gas companies shall conduct meter-to-building mapping and maintain whole building energy consumption data for all covered buildings, and provide to the building owner accurate and timely information on the actual amount of electricity and/or gas delivered to a covered building.”

**Current draft language Section 0.4.A.(1)(a):** “Data shall include aggregate energy consumption, accounting for all electric and gas company meters that measure energy consumption at the covered building, regardless of whether the meters serve tenant-paid or owner-paid accounts.”

**Proposed language Section 0.4.A.(1):** “Data shall include whole building energy consumption, accounting for all electric and gas company meters that measure energy consumption at the covered building, regardless of whether the meters serve tenant-paid or owner-paid accounts.”

**Current draft language Section 0.4.A.(1)b:** “Data shall be provided in a manner that aggregates energy consumption data across all electric and gas company meters at the covered building. Prior to the delivery of whole building energy consumption data, utilities shall coordinate with the building owner as necessary to review and confirm an accurate accounting of the meters that will be used to calculate the whole building total.”

**Proposed language: Section 0.4.A.(1)b:** “Data shall be provided in a manner that aggregates energy consumption data across all electric and gas company meters at the covered building. Prior to the delivery of whole building energy consumption data, utilities shall coordinate with the building owner as necessary to review and confirm an accurate accounting of the meters that will be used to calculate the whole building total.”

**Current draft language Section 0.4.A.(2):** “Within 30 days of a request from a building owner, an electric or gas utility company shall digitally transmit as a free service to the building owner energy data through the benchmarking tool. The data shall include aggregate energy consumption data, as well as a complete list of the meter numbers included in the aggregate energy consumption data to ensure accuracy of the meter-to-building mapping, and shall continue to transmit such data until otherwise directed. Building owners shall have the option to submit requests digitally. “

**Proposed draft language Section 0.4.A.(2):** “Within 30 days of a request from a building owner, an electric or gas utility company shall digitally transmit as a free service to the building owner energy data through the benchmarking tool. The data shall include whole building energy consumption data, as well as a complete list of the meter numbers included in the whole building energy consumption data to ensure accuracy of the meter-to-building mapping and shall continue to transmit such data until otherwise directed. Building owners shall have the option to submit requests digitally.”

**Current draft language Section 0.4.A.(3):** Electric and gas companies shall maintain a record of all meters that populate a given building’s aggregate energy consumption data in any given month. The utility shall ensure that meter-to-building mapping is accurate and updated on an ongoing basis.

**Proposed draft language Section 0.4.A.(3):** Electric and gas companies shall maintain a record of all meters that populate a given building’s whole building energy consumption data in any given month.

**Current draft language Section 0.4.A.(4):** All requests for aggregate energy consumption data shall be kept for reference by the gas company or electric company for at least 24 months, including verification that the request was made by a building owner. Requests submitted via a new or previously existing password-protected web portal using the account of a building owner shall require no additional identity verification.”

**Proposed draft language Section 0.4.A.(4):** All requests for whole building energy consumption data shall be kept for reference by the gas company or electric company for at least 24 months, including verification that the request was made by a building owner. Requests submitted via a new or previously existing password-protected web portal using the account of a building owner shall require no additional identity verification.”

## **Part 2: Requirement of specific benchmarking tool**

The energy solutions and benchmarking market provides many solutions that can achieve the policy goals specified by the draft regulation and SB 528 by 2045. Additionally, as technology is

rapidly changing and states are developing requirements to adapt to changing weather conditions, the market will continue to develop non-proprietary, open-source, and data-drive techniques to measure energy used intensity. The draft regulation requires the use of ENERGY STAR Portfolio Manager, or another tool approved by the United States Environmental Protection Agency.

The methodology used by ENERGY STAR and supported by the US EPA to calculate GHG emissions is well documented and can be followed and improved upon by private-sector scientists, researchers, and engineers. For example, the 'Site Energy Use Intensity' and the related input calculations used for compliance with BEPS that are performed in ENERGY STAR Portfolio Manager are neither secretive nor complicated. These calculations can be replicated by covered building owners or other third parties such as those conducting the proposed verification process. The use of ENERGY STAR Portfolio Manager as the sole software solution ties BEPS to a singular solution that may be discontinued, not updated, or other unknown outcome based on U.S. federal policy decisions. Requiring the use of a single tool is needless and limits building owner's choice to use modern and competitive tools that solve their unique GHG emissions and building problems in appropriate ways.

**Current draft language Section 0.4.A.(4):** "(10) "Benchmarking tool" means the website-based software, commonly known as ENERGY STAR Portfolio Manager, or any successor system, approved by the United States Environmental Protection Agency"

**Proposed draft language Section 0.4.A.(4):** "(10) "Benchmarking tool" means a benchmarking tool, for example ENERGY STAR Portfolio Manager. Tools must adhere to the most updated version of the Department's TM 23-01, "Technical Guidance and Calculation Methodologies to Comply with Building Energy Performance Standards" available at the time of calculation.

This is particularly relevant as the electric grid's generation mix continues to change with the onset of renewable energy which will increasingly result in a fluctuating hourly generation profile as seen in other states. As a result, since ENERGY STAR Portfolio Manager does not calculate hourly emissions data BEPS regulation risks being ineffective in achieving the goals outlined in the Climate Solutions Now Act of 2022.

By embracing the benefits of industry standard language and market competition, covered building owners will be provided with maximum flexibility as required in the Climate Solutions Now Act of 2022.



June 5, 2023

Maryland BEPS Team  
Maryland Department of the Environment  
1800 Washington Boulevard  
Baltimore, Maryland 21230  
via email: [BEPS.MDE@maryland.gov](mailto:BEPS.MDE@maryland.gov)

Re: Draft Maryland BEPS Regulation

Dear BEPS Team:

The Restaurant Association of Maryland appreciates the opportunity to provide stakeholder feedback on the Draft BEPS Regulation.

The language on pages 5 and 7 of the draft regulation that excludes food service facilities from the greenhouse gas emissions and benchmarking of covered buildings appears to be consistent with legislative intent to exempt restaurants/food service facilities. Because the Department's related *TM 23-01 Technical Guidance and Calculation Methodologies* document has not yet been released, we are currently unable to review and provide any comments on the Department's standard deduction formula for excluding energy consumption by food service facilities in covered buildings that are not sub-metered or separately metered, as referenced on page 8 of the draft regulation. Will stakeholders be provided an opportunity to also review and provide feedback on the *TM 23-01* document?

Regarding the Performance Standards Tables on pages 12 through 16, we see that the appropriate exemptions are indicated for "*Fast Food Restaurant*," "*Food Service*" and "*Restaurant*." However, it is unclear why the same exemption does not appear to apply to "*Other – Restaurant/Bar*" on page 14 of the tables. If an *Other – Restaurant/Bar* in a covered building is engaged in commercial cooking and water heating, the same exemption would seemingly apply. We request clarification or additional explanation about this.

Thank you for your consideration of these comments.

Sincerely,

A handwritten signature in black ink, appearing to read "Melvin R. Thompson".

Melvin R. Thompson  
Senior Vice President  
Government Affairs and Public Policy



June 5th, 2023

Maryland Department of the Environment  
1800 Washington Blvd.  
Baltimore, Maryland 21230

**RE: May 2023 Draft of the Maryland BEPS Regulations**

**TO: Maryland Department of the Environment**

## **Introduction**

Singularity Energy (“Singularity”) appreciates the opportunity to provide input to the Maryland Department of the Environment (“MDE”) on the May 2023 Draft of the Maryland BEPS Regulations.

In implementing the BEPS, MDE should **explicitly measure and reduce indirect (Scope 2) emissions from consumed electricity in addition to the Energy Usage Intensity (EUI) of the building to ensure true decarbonization is occurring as a result of this program.** Further, MDE should ensure that emissions from consumed electricity are accurate and representative of real-world emissions from buildings. To achieve this, Singularity Energy **recommends Maryland’s BEPS adopt a “best available data” standard for accounting and reporting Scope 2 carbon emissions, encouraging the use of measured electricity consumption data and the most reliable, granular, and up-to-date emissions intensity data.**

## **About Singularity Energy**

Founded in 2018, Singularity Energy is an intelligent grid decarbonization platform built by experienced power systems and software experts from Harvard, MIT, and Johns Hopkins. Singularity’s platform provides high-quality, time and location-based grid emissions data, and a suite of innovative products such as developer APIs, and intelligent tools for grid operators, utilities, companies, and service providers to build data-driven decarbonization solutions. Singularity Energy is a winner of the Harvard Physical Science & Engineering Accelerator, the Greentown Labs Bold Idea Challenge in partnership with Schneider Electric, the National Science Foundation Small Business Innovation Research Grant, and an URBAN-X company.

Today, grid operators, utilities, and businesses have a limited understanding of their grid carbon emissions due to the lack of high-quality, time and location-based grid emissions data. Singularity’s mission is to change that by providing transparent and accurate data to grid operators, utilities, and businesses about their grid carbon emissions, while supplying them with actionable decarbonization insights and automated decision making tools. Singularity works with

Harvard, Sense<sup>1</sup>, Measurabl<sup>2</sup>, Eversource<sup>3</sup>, and several yet to be disclosed grid operators and utilities on decarbonization efforts. Singularity was founded by Wenbo Shi, a postdoctoral researcher at Harvard University and expert in Smart Grid technology and management. Dr Shi has published more than 20 peer-reviewed papers, which have received over 1,000 citations.<sup>4</sup>

**MDE should measure and reduce indirect (Scope 2) emissions in addition to EUI to ensure the BEPS succeeds in delivering *emissions* reductions:**

MDE added targets for Site EUI to the draft BEPS regulations to ensure that the regulations did not drive a shift toward electrification that would lead to a net increase in GHG emissions. The May 3rd, 2023 Building Energy Performance Standards notes that the inclusion of Site EUI in addition to Direct GHG Emissions is “critical for major GHG reductions.”

However, measuring EUI remains a proxy for emissions from consumed electricity. As we demonstrate through these comments, there is high variability in the emissions factor of a single kWh of consumed electricity. For one, the carbon intensity of the grid is changing rapidly, but at varying rates throughout the country. And further, the carbon intensity within a region can vary dramatically over the course of a day and even more dramatically seasonally. Without accounting for these variations, a program that simply measures energy usage may inadvertently lead to an increase in greenhouse gas emissions, not a reduction in greenhouse gas emissions as is required by Maryland’s Climate Solutions Now Act of 2022.

Additionally, only measuring performance based on EUI will disincentivize important decarbonization strategies such as load shifting and behind-the-meter energy storage. Due to round-trip efficiency losses inherent to energy storage technologies, storage would potentially increase a building’s energy consumption (and thus EUI), even if the battery is being used to beneficially shift load to the times of day that solar or other clean energy generation is abundant on the grid. Granular, emissions intensity-based performance metrics incentivize the adoption of important solutions to help decarbonize the grid.

Therefore, the MDE should modify the draft regulations to measure and reduce indirect (Scope 2) emissions from buildings. Specifically, the Performance Standards on pages 12 - 16 should be updated to include emissions intensity caps in addition to the EUI metrics to ensure that the BEPS drives GHG emissions reductions.

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<sup>1</sup> See Sense and Singularity whitepaper on optimizing EV charging based on carbon intensity: <https://sense.com/whitepapers/Sense-EV-Carbon-Research.pdf>

<sup>2</sup> See Measurabl press release on Singularity’s carbon compliance tool: <https://www.measurabl.com/resources/product-spotlight-compliance-monitoring/>

<sup>3</sup> See Eversource quote regarding Singularity’s recently closed round of fundraising: <https://techcrunch.com/2022/05/24/singularity-energy-raises-4-5-million-seed-round-to-decarbonize-the-grid/>

<sup>4</sup> Citations measured by Google Scholar, for more see page for “Wenbo Shi”: <https://scholar.google.com/citations?user=-rSKSXsAAAAJ&hl=en>

We provide detailed recommendations regarding the implementation of indirect emissions accounting on the following pages.

## **Key criteria comprising a “best available data” standard for representing Scope 2 emissions:**

### **1. Grid emissions factors should be as recent as possible**

Historical datasets of grid emissions, such as the EPA’s eGRID dataset, are typically published on a 1-2 year time lag, meaning that emissions factors for 2023 will not be published until early 2025. This means that in order to report Scope 2 emissions in a timely manner, building owners will likely have to use emission factors that describe the carbon intensity of electricity generated several years prior. Because the U.S. electrical grid is in a period of rapid transition, this means that these traditional sources of data for grid emissions factors may be providing an outdated and inaccurate picture of a building’s emissions footprint and climate risk.

However, there are now near-real time estimates of the carbon intensity of consumed electricity from the U.S. EIA and data providers such as Singularity, which allow for more timely and accurate reporting of these emissions and climate risks. Under a “best available data” standard, building owners would be required to use the most recent and relevant data available to characterize their emissions. This also means that future emissions compliance thresholds should be designed to change on a regular basis to reflect the changing carbon intensity of the grid.

### **2. Grid emissions factors should be the highest temporal granularity as possible**

The carbon intensity of the grid is highly dynamic, and varies significantly by time and region. Figure 1 below showcases the carbon intensity of four grid operators (balancing authorities) over two weeks from 2/14/2022 to 2/27/2022. Grid emissions intensity data are often averaged to the annual level, rather than reflecting the actual time-varying emissions intensity of the consumed electricity. For example, in 2019, the annual-average carbon intensity of consumed electricity in California (CAISO) differed from the actual carbon intensity in any 5-minute period by nearly 50% on average.

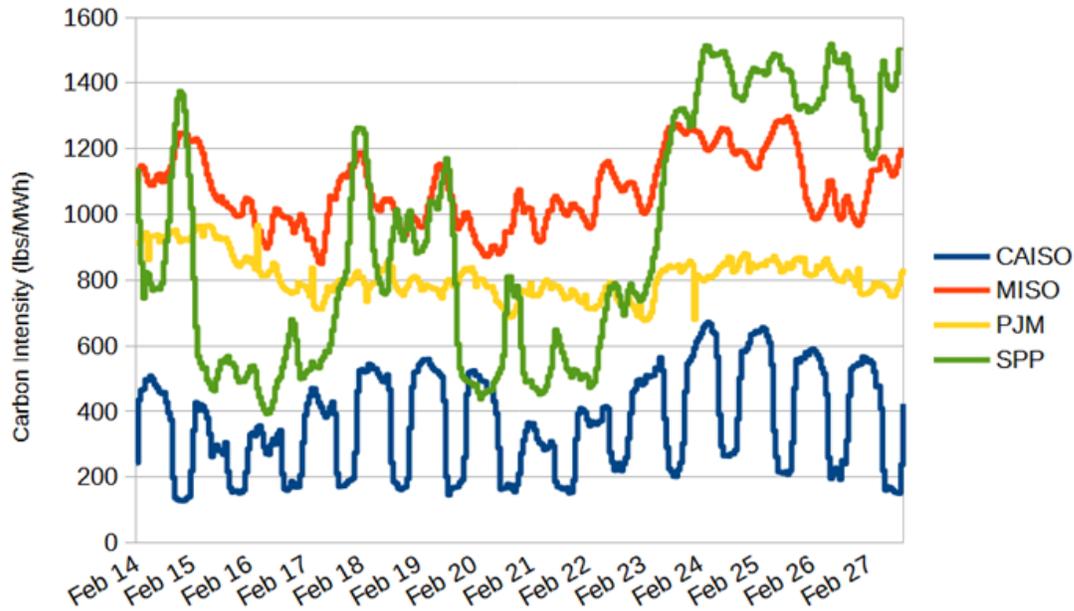


Figure 1. 5-minute carbon intensity in four major electricity markets in the United States provided by Singularity Energy.

As research from U.C. Davis has demonstrated, when annually-averaged grid emissions factors are used, Scope 2 emissions inventories can be misestimated by as much as 35%, an error that is only expected to grow larger as current grid trends continue.<sup>5</sup> This research found that using hourly-resolution emission factors substantially reduced the error that is introduced into Scope 2 emissions inventories by both annual-average and monthly-average emission factors. The research suggested that using annual-average emission factors may also mis-allocate responsibility for carbon emissions, resulting in more carbon-intensive buildings paying less than their fair share of BEPS compliance costs.

### 3. Grid emission factors should represent the carbon intensity of electricity where it is consumed

Many existing sources of grid emissions factors reflect the carbon intensity of electricity *generated* in a region, but do not necessarily accurately describe the carbon intensity of the electricity *consumed* in a region. Research from Stanford University found that due to interregional power flows, the emissions intensity of consumed electricity does not always match the average emissions intensity of the regional generation fleet, and that imported electricity can account for 20-40% of the emissions consumed in a region.<sup>6</sup> In other words, not all of the

<sup>5</sup> Miller et al 2022 [Hourly Accounting of Carbon Emissions from Electricity Consumption \(Environmental Research Letters\)](#)

<sup>6</sup> Chalendar, J. A. de, Taggart, J. & Benson, S. M. [Tracking emissions in the US electricity system](#). Proc. Natl. Acad. Sci. (2019) doi:10.1073/pnas.1912950116.

electricity consumed in a region comes from electricity generated in that region, and thus an emissions factor that describes the carbon intensity of generated electricity may not accurately reflect the carbon intensity of the electricity consumed in that region.

Due to the location of an energy consumer relative to specific generators in a region, and the direction of power flow within the region, the carbon intensity of consumed electricity can vary even within a single grid region. Just as a national-average emission intensity will not accurately describe the carbon intensity of electricity in a specific region due to regional variations in generation and power flow, a regional average carbon intensity value may not always accurately represent the carbon intensity of a specific consumer within a region, especially if that region is large and contains a diverse fleet of emitting and non-emitting generation sources. Thus, it is important to use the best available spatial resolution when performing these calculations.

Under a market-based accounting framework, an Energy Attribute Certificate (EAC) should be realistically deliverable to load in order for it to accurately represent the carbon intensity of consumed electricity. At the very minimum, this should mean that the EAC originates in the same grid interconnection as the load against which it is being retired. This would mean, for example, that an EAC from Texas could not be retired against load in New York, or that an EAC from California could not be retired against load in Hawaii, since these locations are all located on different power grids.

#### **4. Grid emission factor data should be transparent and auditable**

All grid emission factors require some amount of data manipulation and application of methods and assumptions to produce, especially at higher temporal and spatial granularities. It is thus important for emissions calculations to be able to be independently traced and audited. While different estimation methods are justifiable under different use cases, all methodologies should be transparent regarding underlying assumptions, calculations, and data sources.

#### **Data to support granular emissions accounting is widely available**

Historically, the only data that has been widely available to track grid carbon intensity has been imprecise and low-resolution. However, within the past five years, high-resolution data about power system operations and emissions from power generation have become more widely available thanks to new data published by the U.S. Environmental Protection Agency, Energy Information Administration, and independent system operators. These data have empowered us to now understand that our existing annual-resolution tracking methods that ignored grid power flows are no longer an accurate or adequate approach for driving future grid decarbonization.

Accurately representing the impact of time-varying grid carbon intensity for a building's emissions inventory also requires that building to have granular data on their electricity consumption. In the U.S., the EIA reports that as of 2021, over two-thirds of all electric meters

were considered “advanced metering infrastructure,” which take temporally-granular readings of electricity consumption, and that the deployment of such meters is growing rapidly every year.<sup>7</sup> Still, not every building may have access to such data, which is why a “best available data” standard is important: if a building only has access to monthly electricity consumption data, they should use monthly-resolution emission factors, but if they have access to hourly (or better) data on their electricity consumption, they should use hour-specific emission factors to characterize the indirect emissions associated with that electricity consumption.

Data about the consumed emission intensity of electricity at hourly or higher temporal resolution are now widely available from emission data platforms such as Singularity Energy. For example, through our Open Grid Emissions Initiative,<sup>8</sup> Singularity offers transparent, publicly-available, accounting-quality historical emission factors for consumed electricity for the entire U.S. grid at an hourly resolution. Additionally, Singularity offers near-real-time and forecasted grid emissions data that could be used to help hydrogen producers understand when they should operate to produce green hydrogen. Traditional renewable energy credits (RECs) have also started evolving into granular energy attribute certificates that enable market-based tracking of clean energy on an hourly basis.<sup>9</sup> Given the proliferation of data and mechanisms for granular tracking of grid emissions, there is no reason that such data should not be used for quantifying the emissions of buildings in Maryland.

Please do not hesitate to contact us if you have any questions.

Sincerely,

*Wenbo Shi*

Dr. Wenbo Shi  
Founder & CEO, Singularity Energy  
wenbos@singularity.energy



Dr. Gregory Miller  
Research & Policy Lead, Singularity Energy  
greg.miller@singularity.energy

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<sup>7</sup> U.S. Energy Information Administration, Annual Electric Power Industry Report, Form EIA-861 detailed data files

<sup>8</sup> See <https://singularity.energy/open-grid-emissions>

<sup>9</sup> For example, the PJM Generation Attribute Tracking System (GATS), which tracks the grid region in which Maryland is located, now offers hourly tracking of energy attributes:  
<https://insidelines.pjm.com/pjm-eis-to-produce-energy-certificates-hourly/>

June 5, 2023

Secretary Serena McIlwain  
Maryland Department of the Environment  
Montgomery Park Business Center  
1800 Washington Blvd.  
Baltimore, MD 21230

Dear Secretary McIlwain:

Thank you for the opportunity to provide comments on the draft BEPS regulations. The following comments relate to the potential impact of BEPS on affordable housing owners and residents.

The Community Builders, Inc. (TCB) is one of America's leading nonprofit housing organizations. Our mission is to build and sustain strong communities where all people can thrive. We realize our mission by developing, financing and operating residential communities, neighborhood amenities and resident opportunity programs. As an affordable housing developer, TCB has created and preserved over 660 affordable homes in Maryland.

BEPS is an important policy tool for accelerating decarbonization and delivering health and economic benefits to residents. However, affordable housing owners face several obstacles to decarbonizing their properties. Obstacles primarily relate to limited access to funding to undertake building upgrades. Compliance flexibility is necessary to accommodate these challenges.

**The draft BEPS regulations do not incorporate sufficient flexibility to support affordable housing. MDE should incorporate flexibility in the regulations to allow affordable housing providers to request alternative compliance pathways or compliance extensions.**

**Timeline:** Affordable housing providers face unique financial challenges, such as an inability to take on new debt between recapitalizations, limited cash flow due to restricted rents, and restrictions on using reserves for building improvements in regulated housing. The most suitable time to finance significant building upgrades in affordable housing, such as electrification, is when a property is being refinanced. At that point in the building lifecycle, the property owner is developing a comprehensive scope of the work that includes significant capital upgrades and is pursuing new financing sources, such as Low-Income Housing Tax Credits and new first mortgage debt. Recapitalizations typically occur every 15-20 years in affordable multifamily housing. The current BEPS regulations indicate that fees for noncompliance begin in 2030, but much of the existing affordable housing in Maryland will not have been able to complete a recapitalization at that time.

**Energy Use Intensity:** The standard that the draft regulations use for Energy Use Intensity in 2040 is too restrictive to accommodate the age of many existing affordable buildings. For example, TCB is working with the Housing Authority of the City of Annapolis on the

redevelopment of a 154 unit building that was built in 1976. Even with significant investment and renovation, we reached out to our energy consultant and their analysis is as follows:

*“The EUI and emissions for Morris Blum start at a much higher baseline level. The initial EUI for that building is 93.5. Even with significant reduction I have the post-retrofit EUI at 59.4 and the emissions at 1.4 kg CO2e/sf. The final EUI does not meet the 2040 standard of 29 without additional measures. [...] I think one big issue with Morris Blum is that the building completely lacks wall insulation, so the heat loss is high.”*

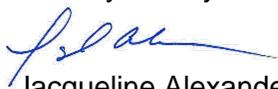
It’s important to note that the renovation is making huge strides in the reduction of the EUI (from 93 to 54) – however it still won’t be enough to meet the BEPS standards in 2040. This will be true for many older buildings that do not have wall insulation. Adding new wall insulation to every older affordable building is a huge project cost that is will not to be covered by an additional \$5M annually from DHCD.

For affordable housing, given that there are many older buildings or naturally occurring affordable housing that are critical to preserving our existing inventory of affordable homes, Maryland should consider as an alternative compliance pathway a significant reduction in EUI from the building’s baseline, as opposed to only reaching the arbitrary target of 29.

**Generators:** TCB is already implementing electrification as a baseline design standard in all of our buildings. The area where we believe best practices differ from the current draft regulations is the generator carve out. We believe it is too narrow as it is only provided if federal or state regulation requires it. With climate change creating more frequent extreme weather events (heat waves, severe thunderstorms, tornados), there is increasing interruption of the electric grid. By ensuring that our buildings have generators, we can provide for basic needs during power outages in a designated refuge space. Some examples of reasons that residents need electricity during an extreme weather even include medication that requires refrigeration, oxygen machines that require power, and air conditioning during extreme heat. We believe this is critical to the health and wellbeing of our residents.

**Multifamily Residential Properties:** The draft regulations need additional clarification to include multifamily properties with multiple buildings. The Campus definition on page 2 notes “collection of two or more buildings, of any building type or size, that act as a single cohesive property with a single shared primary function and are owned and operated by the same party.” However, the campus level compliance route seems to limit evaluating as a campus if not served by same electric meter. Multifamily affordable properties are required to have separate meters by Maryland Department of Housing and Community Development.

Thank you for your consideration.



Jacqueline Alexander  
Vice President of Development  
The Community Builders



June 5, 2023

Dear Maryland Department of the Environment,

**Office of Sustainability**  
8000 York Road  
Towson, MD 21252-0001

Thank you for the opportunity to provide input on the Building Energy Performance Standards Draft, which outlines ambitious targets for decarbonizing and reducing energy consumption throughout the state's portfolio of commercial, multifamily, and state-owned buildings. Please consider the following recommendations and comments:

- Performance Standards - Beginning on Page 12
  - Incorporate the generation of on-site renewable energy into the Final Standard for 2040 and Beyond Site EUI (hybrid source/site EUI calculation)
  - Compared to the current Energy Star Portfolio Manager national average, the draft recommends a 32% - 35% reduction in Site EUI based on the Final Standard for 2040 for various College/University Property Types while Other – Restaurant/Bars and Technology Science show a significant Site EUI increase. Please review Site EUIs for consistency across all Market Sectors and Property Types.
  - Provide clarification on specific property types:
    - Other – Stadium vs. Stadium (Open)
    - Laboratory vs. Other – Technology/Science
- Option for Campus Level Compliance – Page 18
  - Provide clear directions and training for calculating the area-weighted standard for campuses in TM 23-01.
    - Consider referencing HEGIS Codes in calculations for the Higher Education Sector.
  - Confirm campuses can report all buildings as an aggregate in accordance with TM 23-01 regardless of metering and district energy systems and that they are not subject to reporting requirements outlined under *District Energy Providers* on Page 10.
- Consider adding “Gross Direct Emissions” or “Sum of all Direct Emissions” to the (31) Net Direct Emissions definition on page 5.
- Provide clear details regarding third-party verification standards on Page 8 C.1.
- In *.03 Reporting Requirements to Tenants* on Page 9, consider requiring reporting requirements to current and future lease templates for state-owned buildings.
- The university notes potential challenges in affording compliance.

Sincerely,

Patricia Watson | Director of Sustainability

or 410.704.3550  
pwatson@towson.edu  
www.towson.edu/sustainability

Page #	Item Description	Notes/Comments
General	Reporting	Does the State intend to provide support or any additional positions to assist with collecting and accurately reporting at Unviersity System of Maryland campuses?
General	Combined Heat and Power Systems	Methodology for calculating these emissions is not available for review. Videos indicate that this will need to be added to on site emissions for given buildings. How will this work in option for campus-level compliance?
General	Costs	Will the State provide funding for covered State buildings to comply with this legislation?
General	Carbon offsets	How does this proposed regulation address carbon offsets? The proposed regulation does not seem to contemplate a facility that already offsets their carbon emissions from the campus through a voluntary carbon market. Since the point of the regulation is to minimize the carbon impact of the energy usage of buildings, it seems duplicative to offset carbon associated with energy usage if the building will be taxed based solely on the building's use and square footage.
General	"Green power"	How does the proposed regulation address facilities that purchase only "green power" from the grid? It is my understanding that the University currently pays a premium on all purchased power, opting to purchase "green energy" from the grid. If this is the case and our current power is from green or low carbon sources, wouldn't it be double-jeopardy to be forced to pay a carbon tax through the BEPS system? If the point of BEPS is to force building owners into being more green and reducing carbon emissions, it seems that our current purchase of low or zero emissions energy (solar, wind, nuclear, etc) through the grid currently meets that goal.
General	On-site use of renewable energy	How does the proposed regulation address the direct use of renewable energy at a facility? If, for example, we were to move forward with the use of RNG or some other low-emissions source of energy for direct use at the facility, it seems that any credits or reductions in emissions realized by that shift would be entirely ignored by the BEPS regulations, which focus simply on the average emissions associated with a building, regardless of the source of the power for that building. The regulations seem to view energy in a vacuum and wholeheartedly discount any efforts to date, or proposed improvements, by the University to reduce our emissions.
General	Failure to supply technical guidance document #TM23-01	Third, what about the direct use of renewable energy on the campus? If, for example, we were to move forward with the use of RNG or some other low-emissions direct source of energy it seems that any credits or reductions in emissions realized by that shift would be entirely ignored by the BEPS regulations, which focus simply on the average emissions associated with a building, regardless of the source of the power for that building. The regulations seem to view energy in a vacuum and wholeheartedly discount any efforts to date, or proposed improvements, by the University to reduce our emissions. This needs to be addressed in the proposed regulations.
General	relevance of EUI concept	I fail to understand the relevance of the "energy use intensity" limit imposed on covered buildings. If the point of the BEPS regulation is to limit emissions of greenhouse gases (specifically CO2), the energy use intensity of a building is not relevant in many cases. For example, if a building is powered by renewable energy sources, the energy usage of the building is not relevant. More specifically, if a building is powered by solar energy, for example, there are no "net direct emissions," nor is the concept of EUI relevant, as the energy usage in the building has no bearing on emissions of CO2.
General	authority of MDE to enforce international energy efficiency code	Under the Environmental Article, Section 2-103, with regard to air, MDE is charged with (1) jurisdiction over emissions into the air and ambient air quality in this State; (2) responsibility for monitoring ambient air quality in this State; and (3) Coordinating all State agency programs on ambient air quality control. As the energy efficiency of buildings may not be directly related to any of those responsibilities or authorities, it seems that enforcement of energy efficiency standards for buildings may be a regulatory over-reach. Moreover, in situations where renewable / green energy is used there are no "net direct emissions" from a facility over which MDE would have authority, as there is no emission, discharge, or other mechanism that could impact human health and the environment. Additionally, the purchase of power through a PPA, for example, from an out-of-state production facility would seem to be outside of MDE's granted jurisdiction and authority.
General	"site energy use" definition	Environmental Article Section 2-1602 requires the Department to reduce "net direct greenhouse emissions" associated with buildings. The definition is "site energy use", which appears to be directly related to the net direct emissions standards and energy use intensity standards, includes energy delivered or generated on-site through renewable sources. Energy delivered or generated through renewable sources will either have significantly reduced or no net direct greenhouse emissions. This seems to be in direct conflict with the spirit and intent of the Environmental Article.

Page #	Item Description	Notes/Comments
1	"Agricultural building" definition	What about buildings or structures that house animals, as these may not be included in the definition of crops, raw materials, products, or commodities? What about agricultural buildings related to research that may not produce crops, raw materials, products, or commodities for sale?
2	Benchmarking Tool	Energy Star Portfolio Manager is generally not compatible with building types on university campuses. How will campus level reporting be handled in the benchmarking tool?
2	"baseline year" definition	How do you define "50% occupied"? Is this based on building code or fire code maximum occupancy? This needs to be better defined. The document later defines "occupied," on page 5, as "a covered building with at least one full-time equivalent employee or authorized occupant." Combining these two definitions seems to indicate that a building triggers the baseline year if one person is there for at least 180 days. If the trigger is 50% of this, are we to assume that a person occupying a building for 90 days would be the baseline year trigger? It is absurd to think that a building with limited occupancy would have the energy demand as a fully occupied building. These definitions need to be better thought out.
2	"campus" definition	What is a "cohesive property"? Is a "campus" required to be buildings on a single parcel or contiguous parcels of property? Can a campus include the aforementioned, as well as separate buildings not located on contiguous parcels? Is there a spatial limit on the distance? If an organization owns multiple properties with buildings or campuses throughout the state, can those buildings be reported in aggregate as a "campus"?
3	"manufacturing building" definition	Can you define this better? Is this limited to certain SIC or NAICS codes? A campus, for example, may contain a building or buildings that are used for "manufacturing." Does it matter what you manufacture?
5	"food service facility" definition	<p>The definition provided in COMAR 10.15.03.02B is quite broad:</p> <p>34) Food Service Facility.</p> <p>(a) •Food service facility• means:</p> <p>(i) A place where food or drink is prepared for sale or service on the premises or elsewhere; or</p> <p>(ii) An operation where food is served to or provided for the public with or without charge.</p> <p>(b) •Food service facility• includes:</p> <p>(i) A restaurant, coffee shop, cafeteria, short order cafe, luncheonette, tavern, sandwich stand, soda fountain, retail market, or retail bakery outlet;</p> <p>(ii) A food operation in an industry, institution, health care facility, club, school, camp, church, catering kitchen, commissary, or a similar place in which food or drink is prepared for sale or for service on the premises or elsewhere; and</p> <p>(iii) A micro market licensed under Business Regulation Article, Title 17, Subtitle 17, Annotated Code of Maryland, and meeting the requirements of this chapter as a food service facility.</p> <p>(c) •Food service facility• does not include a:</p> <p>(i) Facility that offers only prepackaged foods that are not potentially hazardous as specified in §B(55)(c) of this regulation;</p> <p>Using this definition, Stamp Student Union, the stadium, Xfinity, the dining halls, several of the academic buildings and other locations around campus where food or drinks are prepared could be excluded from coverage under the regulation, as the regulation does not specify what percentage of the overall building square footage must be used for the</p>
5	"manufacturing building" definition	How is this addressed within the "campus" context. A facility or campus may have a certain primary SIC or NAICS code for their primary operation, but may have facilities within the campus that could be considered "manufacturing buildings" or other exempted classes of buildings though no NAICs or SIC code has been directly applied to that individual building.

Page #	Item Description	Notes/Comments
5	"occupied" definition	How does this definition work with the definition of "baseline year"? For example, if you constructed a building and had one person in it, it would meet the definition of "occupied," but until such time that it is at least 50% occupied, you would not trigger the baseline year? We have some buildings that may never meet the threshold of 50% occupied. Frankly, it would not be fair to compare the energy usage of a building with one occupant versus a building with >50% capacity occupants.
5	"site energy use" definition	Since this is the BUILDING Energy Performance Standards and the applicability threshold of the "building" is defined by the gross square footage inside of the building envelope, how does this concept of "site" come into play? The definition seems to extend beyond the "building," though it does include exceptions for vehicle charging stations and "other excluded energy uses." Since walkways, porches and other external appurtenances are excluded from the "building," it would make sense that this logic would apply to area lighting and other uses of electricity around, but outside, of the building envelope. It's a jump to move from the concept of "building" to the concept of "site" within the definitions used in the regulation.
5	"site energy use" definition	Part (b) of this definition states that it includes energy produced with "renewable sources." If the intent of the regulation is to reduce carbon emissions, it seems unfair to include energy use associated with renewable fuels, wind, solar, or other green sources. In a way, this is double jeopardy and seems to stand contrary to the intended spirit of the regulation.
7	benchmarking data collection	This section states that beginning in 2025 or the first calendar year after which a new building is constructed, the owner must collect all required benchmarking data. This requires clarification. The definitions state that the baseline year is defined as 50% or greater occupancy, whereas the definitions also state that "occupancy" is 1 person for at least 180 days -- which is it? Are you implying that a building with 1 person occupying it for 180 days would trigger the baseline year? If so, refer to my prior comment regarding the concept of "occupancy", as this would not be indicative of usual and customary energy usage for that building. It may not be uncommon for a building to be constructed and sit unoccupied for a period of time or only be partially occupied. In the case of flex buildings, there may be portions of the buildings that go unoccupied for an extended period of time.
7	reporting	This states that the owner must submit a benchmarking report to the Department by June 1st of each year beginning in 2025. Not only is this a short timeframe to collect, aggregate, and report the required data, but it may not be enough time to have the required "third-party verification" completed. We suggest that this deadline be extended. Moreover, why would a report have to be submitted to the Department when the regulated entity has taken the time to enter the required data and information into the online EnergyStar reporting portal, which is required by the regulation. This requirement is duplicative. The online portal should be adequate for the Department to collect the information required by the regulation.
7	B. Benchmarking Report	Are there penalties for building owners who do not submit an annual benchmarking report? How would MDE assess an Alternate Compliance Pathway fee if a building owner does not participate at all?
7	benchmark reporting threshold	This section states that the owner of a newly constructed building must submit a benchmarking report the year following when a new building was occupied for at least one day. This requirement seems to be in conflict with the threshold identified under the baseline year definition. Wouldn't you need to achieve 50% occupancy in order to trigger the baseline year, upon which the submission of any annual report would be predicated? This requires clarification. The definitions state that the baseline year is defined as 50% or greater occupancy, whereas the definitions also state that "occupancy" is 1 person for at least 180 days -- which is it? This section seems to truncate the 180 days down to 1 day. These definitions need clarification. Is it 1 person for 180 days, 1 person for 90 days (50%), or something else? Refer to my prior comment regarding the concept of "occupancy", as this would not be indicative of usual and customary energy usage for that building. It may not be uncommon for a building to be constructed and sit unoccupied for a period of time or only be partially occupied. In the case of flex buildings, there may be portions of the buildings that go unoccupied for an extended period of time.
7	June 1 Reporting Deadline	The June 1 reporting deadline does not provide sufficient time to obtain all necessary information (i.e. close of your utility bills, square footage (SGAP report) and required data calculations. It is recommended the report deadline be changed to October 1.
8	Third party verifier	The draft regulation requires third party verification of the reports for 2025, 2030 and every five years thereafter. The draft does not specify whom may conduct the third party verification that is acceptable to MDE nor the form of the third party verification.

Page #	Item Description	Notes/Comments
8	third-party verification	<p>What is this third party? Do they have to be certified, accredited, etc? If so, by whom? Isn't it MDE's job to verify information supplied to them under regulatory programs? Why should the regulated entity bear the financial burden of something that is MDE's responsibility? Will MDE be supplying a list of approved / accredited verifiers?</p> <p>What happens in situations where the regulated party disagrees with any assessments, audits, etc performed by the third-party verifying entity? There needs to be a process to established to manage this relationship under due process of law.</p> <p>What are the credentials, certifications, etc required to be certified as a "third-party verifier"? In order to be transparent, this should be clearly defined in the regulation, especially since it seems that the MDE intends to push the cost of hiring a third-party verifier onto the regulated community.</p>
9	maintenance of historical data	<p>What is the basis for this requirement to retain records for 7 years? Most environmental regulations enforced by MDE have a recordkeeping requirement that is capped at 3-5 years. Why 7 years? Verification is required to be completed by the MDE's approved / vetted / certified "third-party verifier" every 5 years. It stands that a record retention schedule of 5 years would be adequate given this additional requirement. The proposed regulation also states that records are required to be kept on-site for audit by the Department. If MDE is requiring that a certified third-party verify the records, which are required to be submitted electronically through the EnergyStar portal, why does this requirement exist? If the Department is requiring the regulated community to employ the services of a "third-party verifier," who has supposedly been vetted or certified by the Department and that verification process is required to be undertaken every 5 years, why would MDE need to audit those records? Hasn't the Department's approved third-party verifier alleged undertaken that, at the expense of the regulated party, no less?</p>
9	reporting requirements of tenants	<p>What if the tenant refuses to provide information? What if the tenant is a federal agency who is exempt from the regulation? Who is responsible for any non-compliance? Does MDE have an enforcement mechanism to take action against individual tenants within a building? It cannot be the responsibility of building owners to enforce this regulation in the absence of any adequate enforcement mechanism.</p>
11	"Efficiency Method"	<p>Why was this methodology chosen? The protocol was developed by an entity outside of the US. Has this protocol and the entity who developed it been vetted by MDE or a third-party verifier? Why would you not consider using a domestic resource / protocol such as the EPA's "Greenhouse Gas Inventory Guidance Direct Emissions from Stationary Combustion Sources"? The EPA is at least a federal environmental regulatory entity.</p>
11	disclosure of benchmarking and performance standards information	<p>This section of the proposed regulation requires a property owner to provide information to a purchaser including the benchmarking record, data verification, documentation of carbon taxes paid to the Department, and any other records required. However, if an entity owns a building for more than 7 years the records are able to be destroyed. If building owners are required to provide this information through the online Energy Star portal, wouldn't it be adequate to simply have any property purchasers to that online data? Does MDE have authority to enforce real estate regulations?</p>
12	performance standards	<p>For the sake of transparency, MDE should provide the basis of these proposed standards. Any references or calculations used in the development of this standards should be provided so that they can be verified by the regulated public.</p>
12	Performance Standards	<p>TheUniveristy is aggregated value for emissions and EUI - are there (or can there be) provisions to exempt research laboratory space that includes animal care?</p>
12	Emission limits and EUI's	<p>The source of the emission limits and EUI's is not provided to support the figures in Table 1. The category "colleges/universities" is extremely broad and may include non-research and non residential institutions as well as major research institutions. These will have very different EUI's.</p>
12	College/University Net Direct Emissions and Site EUI Standards	<p>How were the net direct emission standards for colleges and university's determined? There is a great deal of diversity across different types of campuses with varying research lab, residential and recreational intensity, so it seems strange to choose just one standard for all colleges and universities. What are the reasons behind holding all institutions to the same standard?</p>
16	interim and final site EUI standards	<p>MDE states that the basis for the proposed standards is based on technical document #TM 23-01. Again, if comments on the draft regulations are due by 6/5 and the technical document TM 23-01 has yet to be completed and supplied to the public for review by this date, it is unfair and the timeframe for review of this document must be extended.</p>

Page #	Item Description	Notes/Comments
16	achieving and maintaining the standards	The meaning or intent of this section is not clear. The Department wants the standards to be obtained, but what if they are not obtained? This section needs to refer to the alternative compliance carbon tax section and be more clear as to what compliance or non-compliance entails. The alternative carbon tax seems to only apply to excess net direct emissions and does not seem to address buildings in excess of the EUI.
16 & 17	.02 Performance Standards, Table 1. Performance Standards & .01 Alternative Compliance Pathway, (2) Alternative Compliance Fee	While Performance Standards, note (D) requires compliance with both site EUI AND net direct emissions, the Alternative Compliance Fee is only for a cost per metric ton of excess CO2e. What are penalties, if any, for exceeding building EUI? If none, why include it as a mandated requirement if the targeted metric is metric tons of CO2e?
17	Alternative Compliance Fees	Net direct emissions standards are in kg CO2e per square foot but alternative compliance fees are in metric tons. Is it correct to interpret that for excess kg CO2e per square foot, a building owner should multiply that excess by total square feet and then divide by 1000 to get the total alternative compliance fee? Is there any penalty for not meeting the Site EUI standards?
17	.01 Alternative Compliance Pathway, (2) Alternative Compliance Fee	Are there plans to use Alternative Compliance Fees to further the goals of the legislation by providing funding to building owners to support furthering compliance?
17	Alternate Compliance Pathway	The draft tregulation does not provide the basis for the alternate compliance fees listed nor the use of the collected fees.
17	Alternate Compliance	Will institutions have the opportunity to pay the alternative compliance fees into a dedicated account that can be utilized to fund the infrastrucutre projects to bring the facilities into compliance?
17	alternative compliance pathway	What is the basis for this carbon tax? How were the costs per metric ton CO2e derived? This section specifies that the tax is for failure to comply with the "net direct emissions" standards, but gives no mention of the EUI standard. Based on this, is it fair to assume that a building that meets the net direct emissions standard, but fails to meet the EUI does not have to pay this carbon tax? Again, if a building, facility, or campus is utilizing green energy or purchasing carbon offsets, why would they be burdened with having to pay this carbon tax? No net emissions = compliance = no tax.
18	.02 Exemptions	Is a building owner responsible if a utility company does not have capacity to move them onto the electricity grid? Electrical infrastructure is currently not in place to allow all of Maryland's building owners to electify their facilities prior to 2040.
18	.03 Option for Campus-Level Compliance	If a building owner were to pursue the campus level compliance pathway, would they need to include buildings that were less than 35,000 GSF to comply with the alternate compliance methodolgy?
18	Campus Level Compliance	If a building owner were to use the campus level compliance option, would they have an option for a weighted average of different building types if the campus includes laboratories, libraries, and other building types with higher net direct emissions standards and site EUI standards than the college/university category?
18	Option for Campus-Level Compliance	Multiple mini district energy systems import and export utilities between campus buildings and utility plants. Not all of these imports and exports are metered. Each mini district has a custom EUI calculation based on the imports and exports. Some of the energies are assigned using GSF due to lack of metering. This EUI effort will need dedicated resources going forward to maintain reporting requirements. Recommendation is Option for Campus-Level Compliance is chosen by UMD. The on campus site EUI will be needed to confirm performance at each campus building and for UMD to drive or influence energy use by the various entities on campus.
18	options for campus-level compliance	This section states that campuses must be served by the same eletric or gas meter. What about situations where a large facility or campus may have multiple feeds from the electric grid and multiple meters? Would they still be allowed to choose the campus-level compliance method?
19	Campus emissions calculations	MDE's TM23-01 "Technical Guidance and Calculation Methodologies to Compnly with the Building Energy Performance Standards" is not provided and could not be found. This methodology will be important in calculating square footage and associated energy use/emissions that must be counted or may be excluded.
19	achieving and maintaining the standards	This section states that campus-level energy usage must be at or below the interim and final net direct emissions standards and EUI standards. The alternative carbon tax seems to only apply to excess net direct emissions. Again, if a building, facility, or campus is utilizing green energy or purchasing carbon offsets, why would they be burdened with having to pay this carbon tax as they would have little to no net direct emissions?

<b>Page #</b>	<b>Item Descripton</b>	<b>Notes/Comments</b>
19	Reporting new buidlings and adjusting interim and final performance standards	The draft language is vague and does not specify how new buildings/square footage will be added to the baseline and whether and how the performance standards will be adjusted.



Mark Stuart  
Climate Change Program Manager  
1800 Washington Blvd.  
Baltimore, MD 21230  
Email: [BEPS.MDE@maryland.gov](mailto:BEPS.MDE@maryland.gov)

Re: May Draft of Maryland BEPS Regulation in accordance with Senate Bill 528: Climate Solutions Now Act of 2022

Dear Mark Stuart:

Please accept these comments on behalf of Calico Energy (Calico) in response to the May 2023 Draft of Maryland BEPS Regulation. We thank the Maryland Department of Environment (MDE) for the opportunity to present these comments on behalf of Calico in this proceeding and commend the MDE for a well thought out approach to such a valuable initiative.

Calico has extensive expertise and familiarity with building benchmarking programs and building energy performance standards and the associated processes for utilities providing whole building consumption. We have addressed MDE's draft regulations below.

## General

- Submetered and separately metered exclusions are defined in Ch 02.02.B.(5) on page 7. Calico wishes to raise a question of how food service facilities and electric vehicle charging would be handled as described in this section. On the issue of food service facilities (relevantly mentioned in CH 01.02.B.(31).(b) on page 5 as well), if a third party is running a cafeteria in a building and the space is metered and billed to the third party, does that mean that none of the space is included in the benchmarking report, or does it relate just to specific food service equipment? Similarly, when excluding electric vehicle charging, how will this exclusion be handled in the case that this load is not separately metered or submetered? Will electric vehicles become part of the benchmarking report if not isolated by a meter or will additional analysis become necessary to factor out that load?
- It is mentioned in Ch 02.02.C on page 8 that third party verification will be required for benchmarking reports. As third-party verification requires resources and trade networks, Calico advises that MDE elaborate on the credentials of those third-party verifiers and resources they intend to provide to building owners that will connect them with credentialed third-party verifiers.

## Benchmarking Tool and Web-based Delivery Requirements

- Ch 01.02.B.(10) on page 2 defines the benchmarking tool as follows: “Benchmarking tool” means the website-based software, commonly known as ENERGY STAR® Portfolio Manager®, or any successor system, approved by the United States Environmental Protection Agency.
  - The draft regulations suggest that ENERGY STAR® Portfolio Manager® is an option for the benchmarking tool. Calico sees further need for clarification in the desired functionality ENERGY STAR® Portfolio Manager® will be required to address and what functionality can otherwise be supported by web-based delivery or a successor system. To clarify the requirements of ENERGY STAR Portfolio Manager, Calico suggests that MDE use the term “ENERGY STAR® Portfolio Manager®” instead of “Benchmarking Tool” where applicable. This would aid in removing uncertainty around ENERGY STAR® Portfolio Manager®’s desired functionality.
    - One specific example of this would be around MDE’s intent for the “Benchmarking Tool” to handle Green House Gas Emission and Direct Green House Gas Emission (mentioned in Ch 1.02.B.(17) on page 3 and Ch 1.02.B.(25) on page 4). Does MDE expect ENERGY STAR® Portfolio Manager® to perform that carbon calculation? If so, what will be used to determine carbon intensity of fuels? Additionally, to create unanimity around this assessment, Calico recommends that emission calculation should not be the responsibility of the utilities and be left in the hands of ENERGY STAR® Portfolio Manager® or another unanimous tool.
- Ch 02.04.A.(1) on page 9 introduces the requirement for electric and gas companies to support web-based delivery of data that shall be provided. Calico is pleased to see this as a requirement as web-based services will increase the ease for both utility and building owner to manage a data exchange. However, it is Calico’s view that this section should expand to include further details about the capability of the web-based services and their integration with ENERGY STAR® Portfolio Manager®. Calico would like to recommend that MDE evaluate the [EPA’s Toolkit of Data Access](#) as a resource for best practices around data access for utilities and building owners.
- A section Calico believes is deserving of clarification on the definition of benchmarking tool is Ch 02.04.A.(2) on page 10 that states “Within 30 days of a request from a building owner, an electric or gas utility company shall digitally transmit as a free service to the building owner energy data through the benchmarking tool.”
  - Calico believes this mention of the benchmarking tool confounds the definition with the web-based delivery system. It is stated in Ch 02.04.A.(1) on page 9 that a web-based delivery will be responsible for transmitting data from the utility to the building owner. We suggest revising “benchmarking tool” to the “web-based delivery solution” or some other clarifying descriptor here in this section since it was previously described in Ch 02.04.A.(1) that it will be the web-based delivery through with data is transmitted.

- Additionally, Ch 02.04.A.(2) on page 10 continues to say, “The data shall include aggregate energy consumption data, as well as a complete list of the meter numbers included in the aggregate energy consumption data to ensure accuracy of the meter-to-building mapping and shall continue to transmit such data until otherwise directed.”
  - Calico wishes to point out that the recommended benchmarking tool, ENERGY STAR® Portfolio Manager®, does not currently have physical meter functionality. If the meters and data must be sent to the evaluator, it will have to be available via the web-based delivery system and sent or shared with the evaluator directly from there, not ENERGY STAR® Portfolio Manager®.

### Utility Requirements

- Another notable piece in Ch 02.04.A.(1) on page 9 is where it is stated that “electric and gas companies shall retain for a period of not less than seven years digital records of all customer meter-specific energy consumption, including the data and time of such consumption for any data captured at intervals of more than four minutes.”
  - It is Calico’s assumption that the inclusion of data captured at intervals of more than four minutes is in an effort to provide access to data at whatever granularity it is captured at. We believe that it is MDE’s desire to include all data ranging from AMI data all the way to monthly consumption but the way this is defined introduces ambiguity. Is there a reason that 4 minutes was selected as from our experience that is not a common interval that utilities collect?
- As written in the regulation for Ch 02.04.A.(1).(a) on page 10: Data shall include aggregate energy consumption, accounting for all electric and gas company meters that measure energy consumption at the covered building, regardless of whether the meters serve tenant-paid or owner-paid accounts.
  - If the utility only provides one commodity, does MDE have a proposed method for the utility to collect consumption on other commodities. If not, then perhaps language along the following lines might be helpful. Data shall include aggregated energy consumption for all electric and gas meters that the utility is servicing which measure energy consumption at the covered building, regardless of whether the meter serves tenant-paid or owner-paid accounts.
- Ch 02.04.A.(1).(b) on page 10 states that “utilities shall coordinate with the building owner as necessary to review and confirm an accurate accounting of the meters that will be used to calculate the aggregated total.”
  - Calico believes that clarity around the responsibility to coordinate should be added to detail what responsibility utilities have in this effort. From Calico’s experience confirmation that all spaces are accounted for can work better than meter numbers. Asking building owners to understand and capture meter numbers can introduce errors, especially in larger buildings.



[www.calicoenergy.com](http://www.calicoenergy.com)

Once again, Calico thanks the Maryland Department of Environment for allowing involvement in the rulemaking process and we will continue to stay engaged throughout the development to lend input.

Thank you,

A handwritten signature in black ink that reads "Will Platou".

Will Platou