



Building Performance Improvement Board

12/7/2022

Learn more at <https://www.montgomerycountymd.gov/green/energy/beps.html>

Agenda

- **Administrative items**
- **Recap actions from previous meeting**
- **Building groups final discussion**
- **Site EUI Target setting discussion – focus on state alignment**



Administrative Items

Board Purpose

Role of Building Performance Improvement Board

1. Generally advise the Department on implementation of building energy performance standards.
2. Advise DEP on regulations for implementing the Building Energy Performance Standards
3. Recommend complementary programs or policies, with particular attention to assistance or accommodations for challenged or under-resourced sectors, such as affordable housing, non-profit organizations, and small businesses
4. (Eventually) Help make determinations about unique situations

Team Ground Rules

- Full engagement during meetings
- Listen carefully
- Don't speak while others are speaking or interrupt others
- Let everyone speak once before you speak twice
- Follow meeting agendas and respect common ground rules
- Review action items at the conclusion of each meeting
- Value other members' time (e.g., stick to meeting times and agenda topics, avoid off-topic tangents)
- Assume positive intent
- Maintain an open mind to other perspectives than your own
- Maintain mutual respect for one another
- Engage in respectful conflict
- Critique the idea, not the person
- Don't take yourself too seriously and enjoy our time together

Actions

- Approve meeting notes

New Training Requirement

[MONTGOMERY COUNTY BCC ETHICS LAW TRAINING](#) - ***NEW AS OF NOVEMBER 2022***

The Training is online, and consists of viewing a 50-minute video, completing an evaluation form, and receiving a certificate by email and uploading the certificate.

- Each individual trainee should electronically save the certificate received by email.

[LINK TO UPLOAD TRAINING CERTIFICATE OF COMPLETION](#) for all three training modules.

- Each individual trainee should upload the certificate received by using the form on the BCC webpage. Individuals should complete the online form, which includes a field for the staff liaison's email address. An email is generated to the staff liaison with the certificate attached. Staff liaisons should then track the participation of their BCC members.

Rescheduling 12/21 meeting?

- Next meetings scheduled for 12/21 and 1/4
- Hope to keep current schedule if quorum will be present

County Updates

- [Bill 13-22, Buildings – Comprehensive Building Decarbonization](#) passed by County Council on 11/29
 - Will require the County Executive to issue all-electric building standards for new construction not later than December 31, 2026
- Residential electrification RFP now open
 - Montgomery County DEP has issued a Request for Proposals (RFP) for technical contractor support and incentive administration for a countywide electrification incentive pilot program for residential properties. The solicitation number for this RFP is [#1147188](#).
 - A pre-submission conference will be held on January 5, 2023 via Microsoft Teams. The RFP closes on **January 16, 2023 at 3:00 PM Eastern**
- Montgomery County Energy Summit March 28 – 29, 2023
 - Focus on preparing building community for compliance. Seeking exhibitors to display innovative products and services to aid in building energy efficiency, renewable energy, electrification, building decarbonization, healthy buildings, and zero-emission vehicles. [Submit an Expression of Interest](#) until **February 1, 2023**.



Previous Meeting Recap

Action Items

- **Look at recent benchmarking data see how many buildings may have more than 3 property use types**
 - Of all the reports received for CY 2021, 7% of submissions had more than 3 property types (excluding parking) meaning that the floor area for any additional property uses would be unavailable for calculating an area-weighted target.
 - For the majority (64%) of buildings with more than 3 space use types, the additional space types made up 10% or less of the building's floor area. Thus, 3% of all buildings reported in 2021 had more than 3 space use types where the additional uses made up more than 10% of the whole-building gross floor area.
 - Buildings reported as "mixed-use properties" most commonly had additional spaces that make up more than 10% of the building's floor area. Of these, many look like shopping centers so might be better suited to the strip mall property use type which already assumes a blend of property uses. A handful of true mixed-use properties may benefit from additional target blending.

DEP recommends allowing area weighting for more than 3 space types by request and upon review of the property use types selected.

Action Items

- **Compare BOMA and Benchmarking Law definition of gross floor area**

Law: *Gross floor area* means the total building square footage measured between the principal exterior surfaces of the enclosing fixed walls of a building. *Gross floor area* consists of all areas inside the building, including 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. *Gross floor area* does not include exterior spaces, balconies, 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. *Gross floor area* is not the same as rentable space, but rather includes all areas inside the building(s).

Contacted BOMA to request a comparison of how the BOMA guidance on calculating gross floor area relates to ENERGY STAR Portfolio Manager's/our law's GFA definition.

“Unfortunately, BOMA does not have a comparison between the BOMA Gross Areas of a Building: Standard Methods of Measurement and Energy Star's gross area definition.”



Building Groups

Decision Point

- Covered buildings within each building type must have shared characteristics that facilitate the implementation and enforcement of this Article
- Building group methodology:
 - Group buildings with shared characteristics in operations and energy use intensity
 - Some members expressed support for additional sub-groups for types like food sales/food service, bank branches, and automobile
 - Others supported groups as drafted
 - DEP will take advice under advisement when creating final groups
 - Preference for local reference data, where available
 - Where a large enough sample size exists (typically 8-10+ buildings), use the local median site EUI as the reference standard
 - May reference state-wide benchmarking data to supplement where few County buildings have reported
 - In the absence of a large enough sample locally, use the CBECS median site EUI and adjust to local climate where possible

Draft Groups

K-12 School	K-12 School
College/University	College/University
Other Education	Adult Education
	Other – Education
	Vocational School
Preschool/Daycare	Pre-school/Daycare
Grocery	Supermarket/Grocery Store
	Wholesale Club/Supercenter
Food Sales & Service	Food Sales
	Food Service
Bar/Nightclub	Bar/Nightclub
Restaurant	Other - Restaurant/Bar
	Restaurant
Healthcare Inpatient	Hospital (General Medical & Surgical)
	Other - Specialty Hospital
Healthcare Outpatient	Ambulatory Surgical Center
	Medical Office
	Outpatient Rehab/Physical Therapy
	Urgent Care/Clinic/Other Outpatient
	Veterinary Office
Lodging	Hotel
	Other - Lodging/Residential
	Residence Hall/Dormitory
Healthcare Lodging	Senior Living Community
	Residential Care Facility
Enclosed Malls	Enclosed Mall
Strip Shopping Centers	Lifestyle Center
	Other – Mall
	Strip Mall
Other Retail	Automobile Dealership
	Retail Store

Multifamily	Multifamily Housing
Bank Branch	Bank Branch
Office	Financial Office
	Office
Data Center	Data Center
Laboratory	Laboratory
Manufacturing/Industrial Plant	Manufacturing/Industrial Plant
Other	Other
Recreation	Bowling Alley
	Fitness Center/Health Club/Gym
	Ice/Curling Rink
	Other – Recreation
	Swimming Pool
Entertainment/Public Assembly	Convention Center
	Social/Meeting Hall
	Indoor Arena
	Stadium (3 types)
	Movie Theater
	Museum
	Other - Entertainment/Public Assembly
Performing Arts	
Library	Library
Courthouse	Courthouse
Public Order and Safety	Fire Station
	Other – Public Services
	Police Station
Prison/Incarceration	Prison/Incarceration
Religious Worship	Worship Facility
Service	Other – Services
	Personal Services (Health/beauty, dry cleaning, etc)
	Repair Services (vehicle, shoe, locksmith, etc)
Warehouse and Storage	Distribution Center
	Non-Refrigerated Warehouse
	Self-Storage
Refrigerated Warehouse	Refrigerated Warehouse



EUI Target Setting

Goals for Discussion

- Focus on *principles* and *methodology* of standard setting
- Apply uniform standard setting methodology to each building group to arrive at site EUI targets...not debating numbers
- DEP to consider advice about methodology in calculating targets
- Extensions/adjustments for under-resourced buildings still a topic that needs discussion

Considerations for Site EUI Target Setting

- **State and local goals/requirements**
 - State requirement for net zero direct GHG emissions by 2040
 - County climate goals (100% reduction in GHGs by 2035)
- **Technical feasibility of meeting the target**
 - Conservation and efficiency strategies
 - Efficient electrification strategies
- **Costs of reaching the target**
 - Up-front replacement costs
 - Ongoing operating costs
 - Available incentives, financing, and resources
- **Available compliance paths**
 - Inclusion of renewable energy allowance
 - Building Performance Improvement Plan option for “economic infeasibility” or other circumstances out of the owner’s control



General Requirements for Covered Buildings

- Report energy usage data to MDE annually beginning in 2025
- 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 targets, which MDE will set in the regulations



Net Direct Greenhouse Gas Emissions

- 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

- 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

Climate Solutions Now Act of 2022



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 ₂ (2020 dollars per metric ton of CO ₂)			SC-CH ₄ (2020 dollars per metric ton of CH ₄)			SC-N ₂ O (2020 dollars per metric ton of N ₂ 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

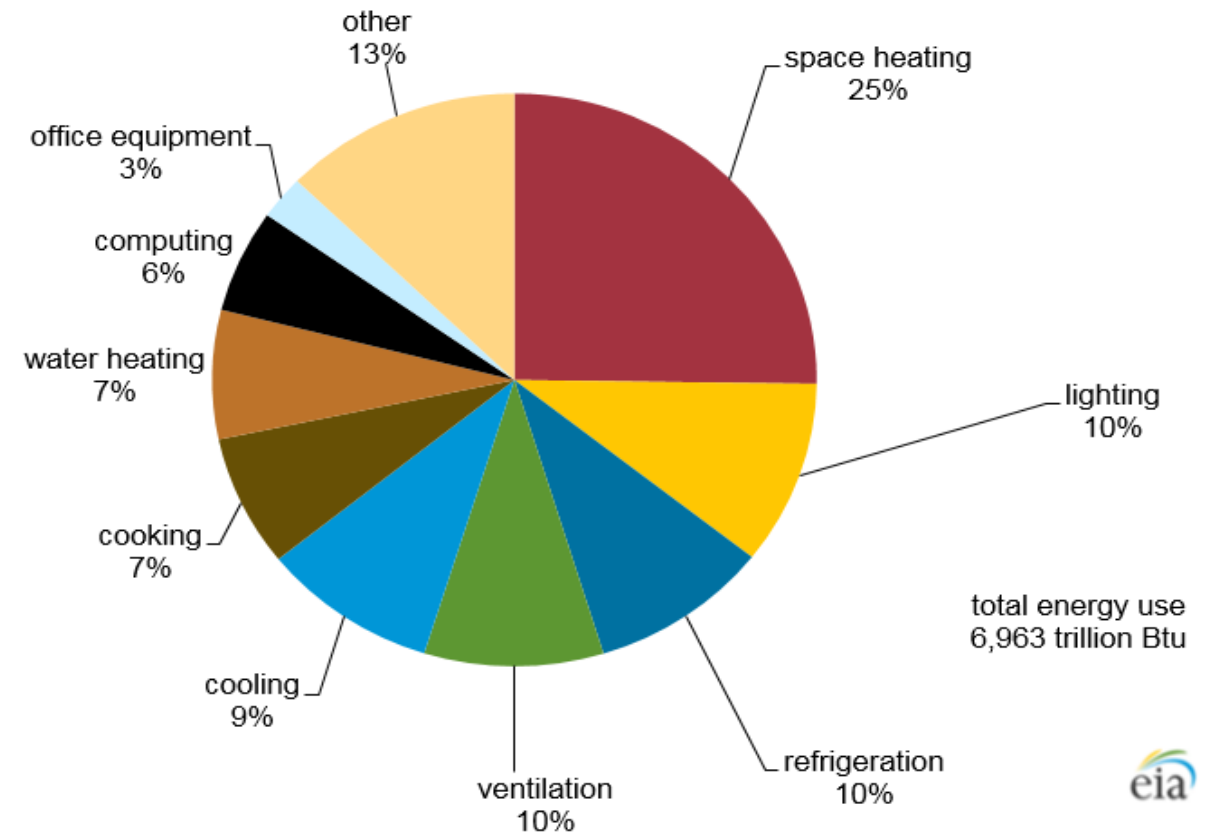
Values of SC-CO₂, SC-CH₄, and SC-N₂O are rounded to two significant figures. The annual unrounded estimates are available in Appendix A.4 and at: www.epa.gov/environmental-economics/scghg.

State and local goals/requirements

- **Maryland Climate Goal:** 60% GHG reduction by 2031, net-zero GHGs by 2045
 - **Climate Solutions Now Act**
 - Requires 20% reduction in net-direct GHGs by 2030 (vs 2025 average buildings of similar average construction)
 - Requires net-zero direct GHGs by 2040
 - To-be-determined site EUI targets
- **County Climate Goal:** 80% reduction in GHGs by 2027, 100% reduction by 2035
 - **County BEPS**
 - Standards must “increase the energy efficiency of existing covered buildings and expedite the reduction of greenhouse gas emissions from the building sector”
 - Deadlines for meeting local BEPS targets are 2033 (County, Group 1, Group 2), 2035 (Group 3 & 4), and 2036 (Group 5)
 - To-be-determined site EUI targets

Energy use in buildings and BEPS targets

- Some buildings have **on-site combustion systems** that use natural gas (most commonly), fuel oil, propane, steam, etc for heating, domestic hot water heating, and cooking needs
 - **A net direct GHG target focuses only on these end uses (and commercial cooking uses excluded from state req.)**
- Most all buildings use **electricity** from the grid for some end uses
 - Lighting, plug loads, cooling (usually)
 - Heating, hot water heating, and cooking can be electric as well
 - **A site EUI target looks at whole-building efficiency of both electric + combustion systems**



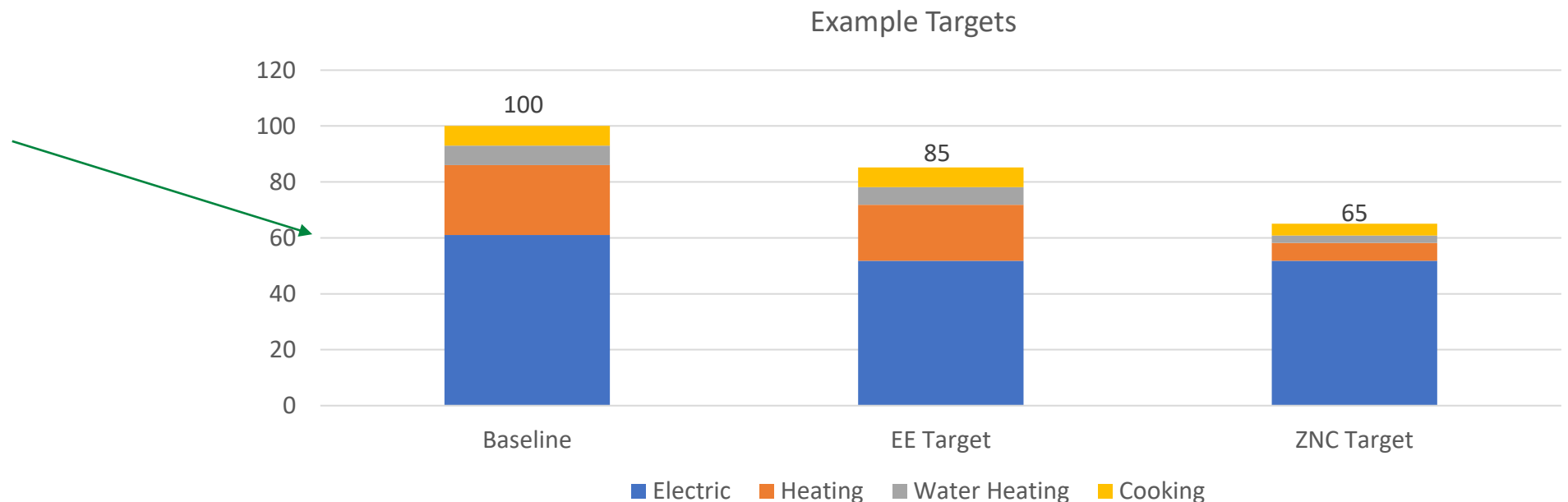
Source: U.S. Energy Information Administration, 2012 Commercial Buildings Energy Consumption Survey.



Site EUI Target Methodology

- We can estimate the typical energy end uses for each building type group
- From there, apply standard reduction targets to different end uses based on what is achievable through energy efficiency (EE target) or energy efficiency + electrification (ZNC target) for each end use to arrive at whole-building site EUI targets

Energy End Use for a Building Group



EE = moderate reduction in all end-uses

ZNC = near-elimination of direct emissions with efficient electrification

Alignment with State Requirements

- A site EUI target that aligns with state net-zero direct GHG requirements:
 - Prioritizes large reductions in on-site combustion end uses that generate direct GHG emissions like heating and hot water heating
 - May include additional requirements for efficiency in electric end uses
- Questions remain about state site EUI methodology:
 - Whether it focuses only on direct emissions or expands to whole-building energy use
 - What is excluded in “net direct” emissions (besides commercial cooking)
 - The exact target-setting methodology
 - Whether MDE can impose penalties for not reaching the site EUI target

Thoughts on Alignment?

Several options when it comes to aligning with the state:

Example:	State Alignment	Risks	Benefits
No/little alignment	County BEPS operates independently and building owners track requirements for both laws.	<ul style="list-style-type: none"> A moderate site EUI target likely to leave buildings far from state 2040 req. 	<ul style="list-style-type: none"> Reductions in net direct GHGs in pursuit of 2040 goal would make progress toward a site EUI target.
Some alignment	Create BEPS targets to spur significant progress towards state requirements. Methodology may differ in areas like building groups, reference standards, target-setting.	<ul style="list-style-type: none"> Different groups, targets, etc to work towards even though they have the same goals 	<ul style="list-style-type: none"> Greater flexibility for County if MDE can only focus on direct emissions A ZNC target would position buildings to comply with 2040 net direct requirements
Full alignment	County adopts state site EUI targets such that County buildings meet targets earlier than the state deadline	<ul style="list-style-type: none"> Uncertainty about final state EUI targets and impact on County climate goals County has alternative compliance methods not available at the state level so compliance may not be ensured anyway 	<ul style="list-style-type: none"> Less for owners to track if the site EUI target is the same

Example Methodology

Example:	Building Groups	Reference Standard	Site EUI Target
No/little alignment	County specific building group	County data where a large enough sample exists, supplemented with state and national data if not	Could span the spectrum between EE and ZNC target-setting methodology. Need not focus on direct-emission end uses
Some alignment	County specific building groups	Potentially use state reference data to better align targets	Target setting methodology that focuses on direct GHG reduction on path to 2040 targets – more like the ZNC target
Full alignment	Whatever the state uses	Whatever the state uses	Whatever the state uses, with County compliance deadlines + County renewable energy allowance and BPIP options

Next Steps

- State alignment discussion helps DEP know where to focus
- Waiting on state to issue draft regulations “this winter” – should include some indication about site EUI targets
- What additional information is needed for the group to be able to make a recommendation on methodology?

Helpful Links

- [Benchmarking and Performance Standards Law](#)
- [Benchmarking Website](#)
- [BEPS Website](#)
- [Building Performance Improvement Board Website](#) (will include agendas, notes, and presentations)
- [BEPS Stakeholder workgroup + report](#) – completed before bill was introduced to gather stakeholder input on BEPS policy elements
- [BEPS Technical Report](#) – outlines options for site EUI targets by building type group and assesses feasibility and costs in representative case study buildings
 - [Presentation](#) of BEPS Technical Report to Council Transportation & Environment Committee
- [Allowance for Renewable Energy Technical Report and Recommendations](#) - provides information on determining how a renewable energy allowance should be defined and implemented within BEPS regulations
- On weather and business normalization:
 - [EPA technical reference guide on weather normalized energy use](#)
 - [EPA's Recommended Metrics and Normalization Methods for Use in State and Local Building Performance Standards document](#)

Helpful Links (continued)

- [Maryland Clean Energy Center 10/25 Webinar, Solutions to Achieve Building Energy Performance Standards recording](#)
- [Maryland Department of Environment BEPS page](#)

Questions?

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BPIB Webpage

<https://www.montgomerycountymd.gov/green/energy/bpib.html>

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