


Climate Solutions in Action

A LOOK AT REAL WORLD APPLICATIONS IN HOUSING TODAY

October 25, 2023

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Session Description

We'll explore the practical implications of recent legislation and share actionable steps you can take to ensure your multifamily buildings are compliant and eligible for incentives before they expire.

Presenters

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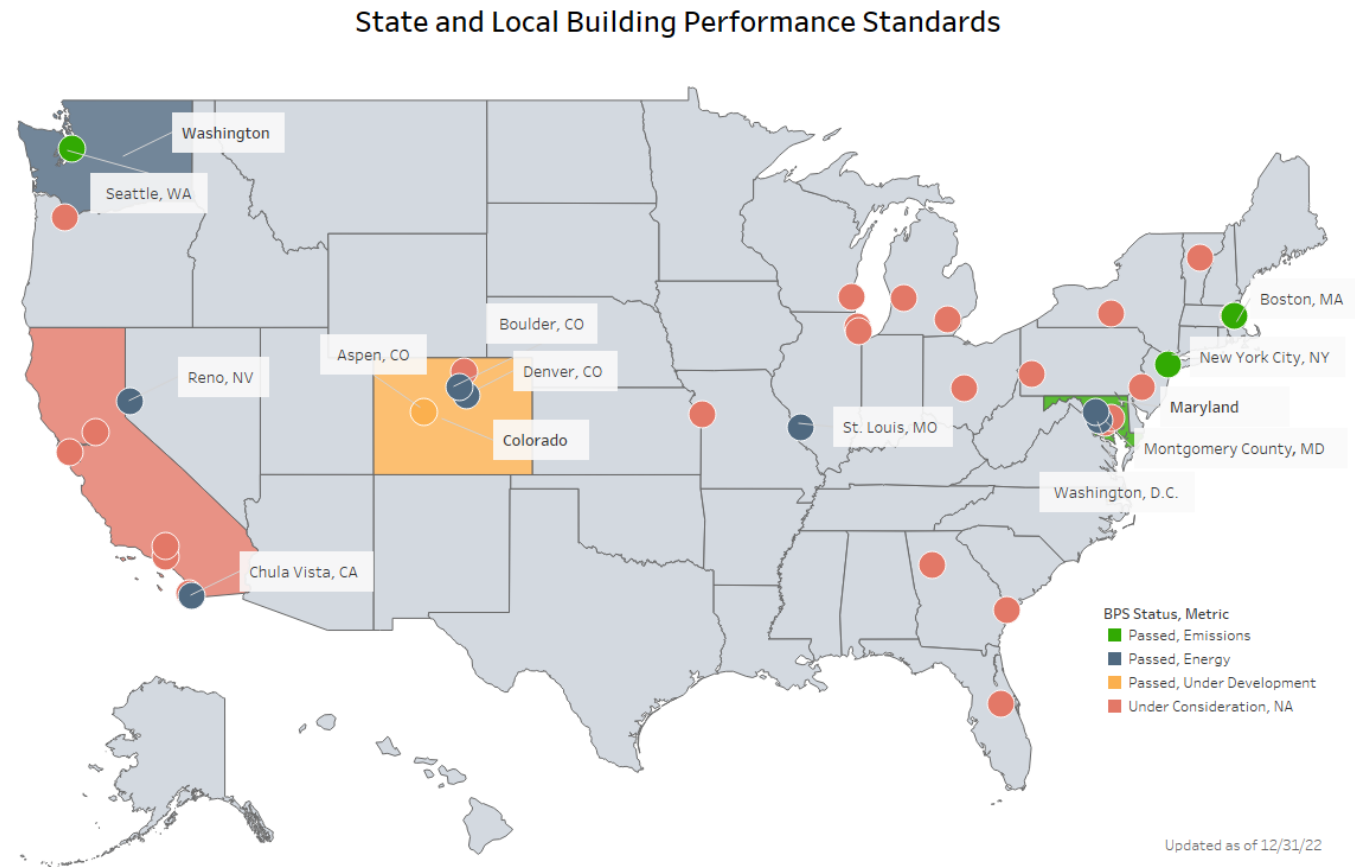
Learning Objectives

- Assemble a project team that will support your goals and requirements
- Explore project integrity
- Explain the concept of Building Energy Performance Standards
- Identify optimal capital stacks, including grants, equity, lending, tax credits
- Implement building climate goals and related project financing
- Identify equipment that can be made more efficient with heat pumps

BEPS Recap

Building Energy Performance Stds (**BEPS**)

- Goal: Reduce greenhouse gas emissions and energy consumption
- Why: Created to support the energy and climate goals established through legislation
 - MD: Climate Action Now Act of 2022
 - MoCo: Climate Action Plan of 2021
 - DC: Sustainable DC 2.0 Plan of 2019 (First **BEPS** program in the country)



MD: Only 16 years

BEPS



2040
2039
2038
2037
2036
2035
2034
2033
2032
2031
2030
2029
2028
2027
2026
2025
2024
2023

- Ongoing improved energy performance mandated for buildings
- Maryland
 - Buildings 35,000+ SF
 - 2025: Report energy consumption (**benchmark**)
 - 2040: Net zero direct GHG emissions, site EUI cap
 - Still in draft form
- Montgomery County: Similar to state, though may be more stringent
- DC
 - Decreasing building size each BEPS Period, from 50,000+ to 10,000+ SF
 - Prescribed Compliance Pathways
 - 2050: Carbon neutrality (no fossil fuel use)
 - Final Guidebook published and in use

GHG = greenhouse gas

EUI = energy use intensity

Maryland BEPS

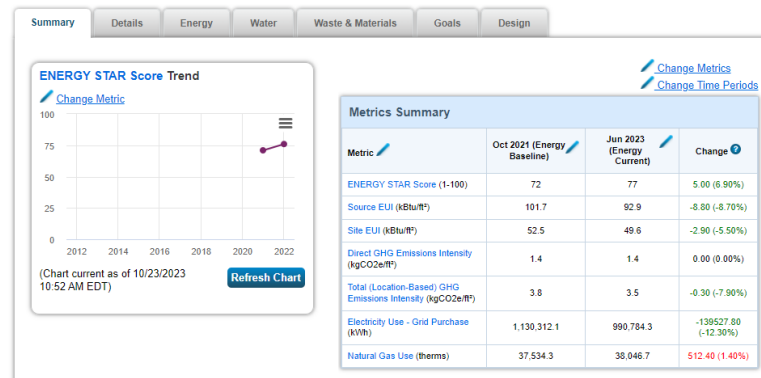
- Expected to be 5-12 months till final adoption

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

Sampling of Enterprise Portfolio

	Direct GHG (kg/sqft)	Energy Star Score	Site EUI kBtu/sqft	Gross sqft	Unit Total	kWh per year	therms per year
High-rise	1.4	77	49.6	144,925	164	990,784	38,046
Mid-rise (city)	1.3	29	62.9	111,990	130	1,261,619	27,446
Mid-rise (suburb)	0.0	68	46.5	98,872	130	1,017,704	0
Low-rise (city)	0.3	77	30.7	95,060	70	690,201	5,598
Low-rise (suburb)	0.6	24	50.4	102,635	120	1,047,425	9,358



What is **Benchmarking**?

- Measuring and comparing a building's energy consumption to similar buildings, the same building's past consumption, and/or a reference performance level
- Nearly 25% of U.S. commercial building space is actively **benchmarking** in Portfolio Manager
 - Required by MD and DC BEPS
 - Required by HUD's Green and Resilient Retrofit Program (GRRP)
 - Required by HUD MIP reduction
 - Similar to 2015/2020 Enterprise Green Communities' required monitoring
- When you have the data, you can monitor your usage





ENERGY STAR® PortfolioManager®
The most-used energy measurement and tracking tool for commercial buildings.



MFNC

Unit Certificate (required)

Building Certificate (optional)

ENERGY STAR® CERTIFIED NEW CONSTRUCTION

Standard Features of ENERGY STAR Certified New Homes and Apartments

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ENERGY STAR® CERTIFIED NEW CONSTRUCTION

The U.S. Environmental Protection Agency awards the ENERGY STAR to the units in

Gamble Towers

on 10/9/2020

The units in this building are designed, constructed, and independently verified to meet rigorous requirements for energy efficiency set by the U.S. Environmental Protection Agency.

BEPS Noncompliance Will Become a Liability

DC PENALTY: \$10/SF, NTE \$7.5M/BUILDING

MD “ALTERNATIVE COMPLIANCE FEE” PROPOSED

- \$230/metric ton excess CO₂ for 2030 with increasing annual fees payable annually

NONCOMPLIANT BUILDINGS WILL BE HARDER TO SELL

Available Incentives

IRA Specific Tax Incentives to Consider

Section 45L Tax Credit

For new construction and gut rehabilitation

Extends the tax credit through December 31, 2032, and increases tax credit amounts

No longer reduces LIHTC eligible basis

Nov 29, 2022 IRS Guidance on prevailing wage requirements ([Notice 2022-52](#))

Energy Performance	No Prevailing Wage	With Prevailing Wage
Energy Star MF New Construction	\$500/unit	\$2,500/unit
DOE Zero Energy Ready	\$1,000/unit	\$5,000/unit

Section 179D Tax Deduction

4+ story buildings every 3 years

New construction & rehab at least 5 years old

May be combined with 45L tax credit for eligible buildings **but it reduces** basis of LIHTC projects

Energy Performance	No Prevailing Wage	With Prevailing Wage
25% Energy Savings	\$0.50/sf	\$2.50/sf
50% Energy Savings	\$1.00/sf	\$5.00/sf

Section 30C EV Charging Stations

Geographic limitations to Low Income Communities AND/OR not in an Urban Area ([IRS Instructions Jan 2023](#))

6% base rate (30% if prevailing wage + apprenticeship) up to max of \$100k/project

Generation Tax Credits

- Section 48 tax credit for clean/renewable technology
- Examples include solar and wind generation as part of build project
- Battery energy storage systems (BESS) are also included (even stand alone)
- ITC = 100% of credit applied to year system is placed-in-service
- PTC = \$/kWh of production each year for 10 years (increasing with inflation)
- Adders can provide a “source” of funds for property

			Start of Construction						
			2006 to 2019	2020 to 2021	2022	2023 to 2033	The later of 2034 (or two years after applicable year ^a)	The later of 2035 (or three years after applicable year ^a)	The later of 2036 (or four years after applicable year ^a)
ITC	Full rate (if project meets labor requirements ^b)	Base Credit	30%	26%	30%	30%	22.5%	15%	0%
		Domestic Content Bonus				10%	7.5%	5%	0%
		Energy Community Bonus				10%	7.5%	5%	0%
	Base rate (if project does not meet labor requirements ^b)	Base Credit	30%	26%	6%	6%	4.5%	3%	0%
		Domestic Content Bonus				2%	1.5%	1%	0%
		Energy Community Bonus				2%	1.5%	1%	0%
	Low-income bonus (1.8 GW/yr cap)	<5 MW projects in LMI communities or Indian land				10%	10%	10%	10%
		Qualified low-income residential building project / Qualified low-income economic benefit project				20%	20%	20%	20%
	PTC for 10 years (\$2022)	Full rate (if project meets labor requirements ^b)	Base Credit			2.75 ¢	2.75 ¢	2.0 ¢	1.3 ¢
Domestic Content Bonus						0.3 ¢	0.2 ¢	0.1 ¢	0.0 ¢
Energy Community Bonus						0.3 ¢	0.2 ¢	0.1 ¢	0.0 ¢
Base rate (if project does not meet labor requirements ^b)		Base Credit			0.55 ¢	0.55 ¢	0.4 ¢	0.3 ¢	0.0 ¢
		Domestic Content Bonus				0.1 ¢	0.0 ¢	0.0 ¢	0.0 ¢
		Energy Community Bonus				0.1 ¢	0.0 ¢	0.1 ¢	0.0 ¢

ITC Base Credit + Adder Stack

		2023 to 2033	
Full rate (if project meets labor requirements ^b)	Base Credit	30%	30% base Investment Tax Credit (ITC) or otherwise 6% <ul style="list-style-type: none"> ○ Projects under 1 MW (no prevailing wage/apprenticeship requirements) ○ Project started construction prior to Jan 29, 2022 (Notice 2022-61) Interconnection equipment now receives full ITC
	Domestic Content Bonus	10%	
	Energy Community Bonus	10%	
Low-income bonus (1.8 GW/yr cap)	<5 MW projects in LMI communities or Indian land	10%	May 12, 2023 Guidance (Notice 2023-38) Apr 7/June 15, 2023 Guidance (Notice 2023-29 & Notice 2023-45), Program Website (https://energycommunities.gov/) October 16, 2023 Final Regs (88 FR 55506), Program Website (https://www.energy.gov/diversity/low-income-communities-bonus-credit-program)
	Qualified low-income residential building project / Qualified low-income economic benefit project	20%	

Category	Credit Value	Capacity
1: Installed in a low-income community	10%	700 MW
2: Installed on tribal land	10%	200 MW
3: Part of a qualifying low-income building	20%	200 MW
4: Part of a low-income economic benefits project	20%	700 MW

Adders Can Provide Improved Economics

	30% ITC	40% ITC	50% ITC	60% ITC
USES				
160kW Solar System	680,000	680,000	680,000	680,000
SOURCES				
ITC (priced at \$0.9/credit)	183,600	244,800	306,000	367,200
LIHTC (priced at \$0.8/credit)	217,600	217,600	217,600	217,600
Debt (60% LTV)	408,000	408,000	408,000	408,000
SURPLUS TO PROPERTY	129,200	190,400	251,600	312,800

- ITC payments could create surplus cash that can be used to:
 - Offer customers additional discounted or free electricity
 - Contribute to site improvements related to the install of solar (e.g. roof repairs)

Investment Tax Credit Financing Options

Tax Equity / Transferability

Good for incorporating in LIHTC structure

LIHTC investor pricing is currently \$0.86-0.90 per \$1.00 of ITC

Transfer pricing is currently \$0.92-0.94 per \$1.00 of ITC

Depreciation is priced into credit

Project pays taxes after year 5-12 years (depending on depreciation)

IRS Direct Pay

Good for LIHTC mid-cycle projects

Debt finance the direct pay

After finance costs, we estimate \$0.92-\$0.94 per \$1.00 of ITC depending on interest rate

No positive depreciation effects

No tax bill after year 5-12 (depending on depreciation schedule selected)

NOTE: On Jun 14, 2023, IRS issued notice of rulemaking for [transferability](#) & [direct pay](#)

Key Funding from Federal Government

- \$27 billion from EPA's [Greenhouse Gas Reduction Fund](#) awards to finance institutions in summer 2024
 - \$7 billion Solar for All (SFA): funds for state financing programs (\$100MM led by MCEC)
 - \$14 billion National Clean Investment Fund (NCIF): funds for electrification financing by 2-3 non-profits
 - \$6 billion Clean Communities Investment Accelerator: funds clean technology projects by 2-7 hub nonprofits
- \$8.5 billion in DOE [Home Energy Rebates](#) block grants to States for single and multifamily
 - \$4.3 billion for whole-home energy efficiency upgrades
 - \$4.275 billion for upfront cost of efficient electric technologies
 - Application process has started and 40% has to go to low-income/disadvantaged communities
- \$1.05 billion [Rural Energy for America Program](#) (REAP) by Agriculture for 50% of total project costs
 - Energy efficiency, clean energy generation
 - 6 quarterly competitions
 - Grants up to \$500k and loans up to \$1 million
- [Weatherization Assistance Program](#)
 - 2024 Program Year grant guidance was issued
 - Funding is through local/county governments and DHCD

HUD Green and Resilient Retrofit Program

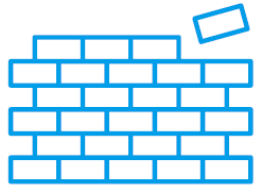
Overview

[HUD.GOV/GRRP](https://www.hud.gov/grrp)

Overview

- Eligibility (Section III.A.)
 - HUD Project-Based Rental Assistance (PBRA) Housing Assistance Payments (HAP) Contracts
 - Section 202
 - Section 811
 - Section 236
- GRRP Grant or Surplus Cash Loan
- One award per property
- **Benchmarking** in ENERGY STAR Portfolio Manager
 - Optional for Comprehensive application
 - Otherwise required after selection





ELEMENTS

- \$40,000/unit up to \$750K
- Threshold eligibility
 - Financial need
 - Recapitalization materially advanced
- “Elements” eligible for funding
 - Some funding limits
 - Some items require specific needs (flooding, hurricanes, drought)
- CNA & HEROS & Pricing w/ app
- For increased ranking (ex.):
 - Green certification (e.g., NGBS Silver, EGC+)
 - Better Climate Challenge agreement
 - All-electric conversion

4 All properties		Funding Limit
5	Clean energy generation:	
6	Rooftop or ground mounted solar, including any battery back-up	
7	On-site wind energy generation	
8	Geothermal energy generation system	
9	Community solar installation or participation	
10	Level 2 electric vehicle charging stations on-site for resident use, building operations use, or vehicles used for resident support and service provision; cost to residents to use stations must be capped at actual cost of the electricity plus maintenance	Funding for no more than 1 station per 20 units in the property, rounded up
11	Electric air source or ground source heat pumps rated at least 18 SEER or HSPF	Lesser of \$1,500 per unit served by the heat pump or actual costs. Actual costs if converting from gas HVAC.
12	Electric Domestic Hot Water heat pumps rated 3.3 UEF or greater	Lesser of \$700 per unit served by the heat pump or actual costs. Actual costs if converting from gas water heating.
13	Energy Star® 7.0 windows following U-Factor and SHGC recommendations by climate zone	30% of the installed cost
14	Electrical transformer, panel, or wiring work for projects pursuing electrification of any system or component, or to accommodate other technologies funded by the Elements award. Owners must indicate in the application which systems are being electrified or which Elements investments require the work being funded. Pre-wiring work may be performed for a greater number of electric vehicle charging stations than will be funded by the Elements Award.	

Example Elements

- Actual costs
 - Air sealing and air leakage testing
 - On site solar, incl battery backup
 - Clean backup power (e.g. battery storage)
 - Community emergency shelter
 - Emergency potable water access
- Level 2 EV charging – 1 station/20 units
- Energy Star windows (new std) – 30% of installed cost

Incentives to Convert from Gas/Oil to Electric

- HVAC heat pumps, 18+ SEER – up to \$1,500/unit OR actual for elec conversion
- Heat pump water heaters – up to \$700/unit OR actual for elec conversion
- If converting, electric ranges and clothes dryers – 20% of installed cost
- If converting, electrical transformer, panel, or wiring work – actual cost



LEADING EDGE

- \$60,000/unit up to \$10M
- Threshold eligibility
 - Financial need
 - At least 50% HUD assisted units
 - Net zero energy/green certification
- Comprehensive air sealing and insulation vs. greater flexibility to achieve goal
 - NGBS Gold & Green+ Net Zero Energy Badge
- MBEST & HEROS w/ app
 - MBEST = energy audit lite

6. Green Certifications. The owner must be pursuing one of the following net zero green certifications with respect to the property:

- National Green Building Standard Green: Gold or Emerald, with Green+ Net Zero Energy or Resilience designation,
- EarthCraft Multifamily Renovation Platinum, with renewable energy capacity sufficient to offset expected annual energy consumption,
- Passive House (PHIUS+) ZERO or ZERO REVIVE,
- Passive House Institute EnerPHit,
- Energy Star® Next Gen with renewable energy capacity sufficient to offset expected annual energy consumption or emissions, plus GHG intensity (kgCO₂e/ft²/HDD) of 0, as measured through 12 months of actual post-retrofit Portfolio Manager benchmarking data,
- LEED v4 Gold or Platinum, with LEED Zero Carbon or LEED Zero Energy designation,
- LEED v4.1 Multifamily or Multifamily Core+Shell Silver or higher, with Zero Energy or Zero Carbon designation,
- Department of Energy Zero Energy Ready Multifamily, with renewable energy capacity sufficient to offset expected annual energy consumption,
- Enterprise Green Communities [Plus 2020](#), complying with Criterion 5.4 Achieving Zero Energy,
- Greenpoint Gold or Platinum with Net Zero 100% offset designation,
- International Living Future Institute Zero Energy Certification, or
- International Living Future Institute Zero Carbon Certification.

NGBS for Leading Edge

Savings	Bronze	Silver	Gold	Emerald
Energy	15%	25%	35%	45%
Water	20%	30%	40%	50%

- Silver in energy prior to on-site renewables
- Example credits to go from Silver to Gold:
 - Full landscaping improvements
 - Dark Sky exterior lighting
 - KCMA cabinets
 - Dwelling unit mech ventilation
 - Ventilation testing
 - HVAC filters MERV 8+
- Green+ Net Zero Energy Badge:
 - On-site generation
 - Local generation (community solar/wind)
 - Renewable energy purchasing agreements
 - Offsite generation (power purchase agreements)
 - Energy attribute certificates & carbon offsets



COMPREHENSIVE

- \$80,000/unit up to \$20M
- Threshold Eligibility
 - At least 50% HUD assisted units
- Deep energy retrofit support to initiate recapitalization investments
- HUD/HUD contractor will:
 - Assess property to determine scope of rehab
 - Determine funding based on assessment
- ESPM Benchmarking or MF Bldg Eff. Screening Tool (MBEST) w/ app
- Applications ranked based on:
 - FEMA National Risk Index (NRI)
 - Benchmarking data or MBEST
 - Min. Total Score of 120 to be selected

Key Funding from Maryland

- DHCD
 - [MEEHA](#) specific funded measures - new 3-year funding round to be released January 1, 2024
 - \$8.75MM MEEHA [Greenhouse Gas Reduction Program](#) announcement made on October 2
 - Funding will be provided of up to \$15,000 per unit, project cap of \$1,250,000
- [Maryland Clean Energy Center](#)
 - Climate Catalytic Capital Fund (C3) is preparing to launch with \$15MM over three years (40% LMI)
 - MCEC requested \$100 MM from EPA's SFA fund and is working to channel NCIF and CCIA funds to assist with funding and financing for eligible projects in Maryland – awards starting in summer 2024
 - MCEC is willing to be a channel for private partners to access Federal grant funds
- [Maryland Energy Administration](#) FY 2024 incentives currently being released in multiple areas including energy efficiency, clean energy & battery resiliency

Adapting to the Future

Benefits of All-Electric

- “Beneficial electrification” means replacing direct fossil fuel usage with electricity in a way that reduces overall emissions and energy costs
- No gas infrastructure = lower first costs
- Lower monthly bills by removing gas service charges
- Choose heat pumps over “electric” or electric resistance
- Improved health and safety
 - Eliminates CO poisoning, gas leaks, explosions
 - Combustion safety declines as buildings age
 - Reduced insurance rates?
- In the future, buildings with gas will carry the same stigma as those with asbestos, lead, or oil

Montgomery County passed legislation in 2022 to require that most new residential and commercial buildings be all-electric effective 2027.

DC passed similar legislation, effective 2026.

Questions?

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