



BUILDING
DECARBONIZATION
COALITION



Building Decarbonization Policy in Maryland

About the BDC

Americans need safer, healthier, more affordable energy. The Building Decarbonization Coalition (BDC) harnesses the power of coalition to forge paths to upgrade and power homes and buildings with clean electricity.

We unite people, policy makers, stakeholders and environmental groups at every level to join in building decarbonization and build a sustainable future.

Join us! buildingdecarb.org/join



Thank you to our Trailblazer Members!



Join us for our Q2 National Policy Call: Connecticut



[Register Here](#)

Webinar Logistics

- Everyone is muted
- During Q&A you will have the opportunity to ask a question via the chat, which our moderator will pose to the panelists..
- This webinar is being recorded and will be placed in our Resource Library
- For information on future policy calls, sign up for our newsletter: buildingdecarb.org



Agenda

- Introductions
- Panel Presentations
- Discussion

Today's Panelists



Mark Stewart

Climate Change Program Manager,
Maryland Department of the
Environment



Ashita Gona

Senior Associate,
Carbon-Free Buildings, RMI



Lauren Urbanek

Senior Manager, Decarbonization
Strategy, Utility of the Future,
Baltimore Gas & Electric



Mark Stewart

Climate Change Program Manager,
Maryland Department of the Environment



Clean Heat Rules

Clean Heat Standard & Zero-Emission Heating Equipment Standard

10 minute primer



Maryland
Department of
the Environment

The Opportunity

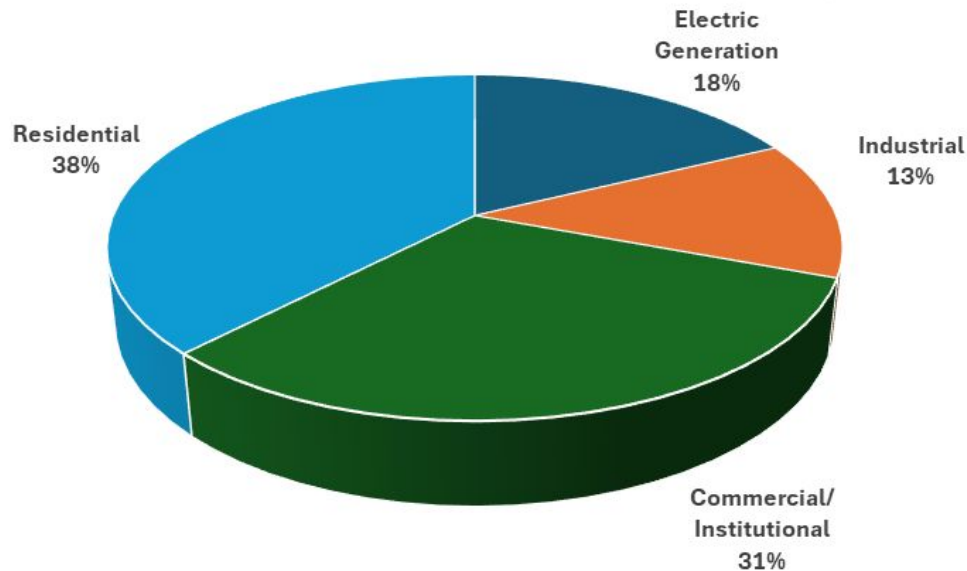
Reducing fuel use in buildings improves public health, mitigates climate change, and lowers energy costs



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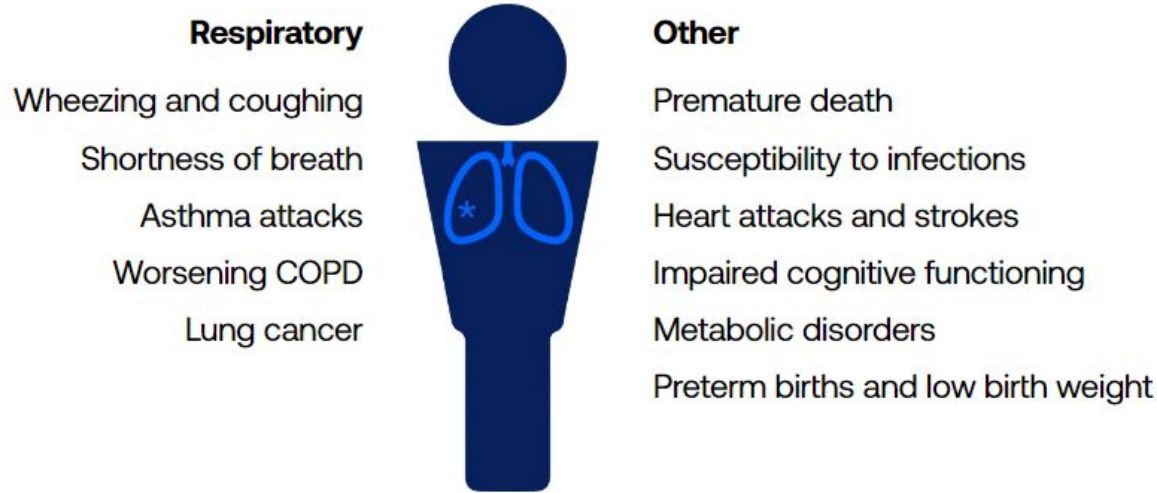
Fuel-burning equipment in buildings produce over three times more nitrogen oxide (NOx) emissions than power plants

Maryland's NOx Emissions from Stationary Sources (2020)



Approximately 70% of NOx emissions in Maryland are from vehicles and 30% are from stationary sources including buildings

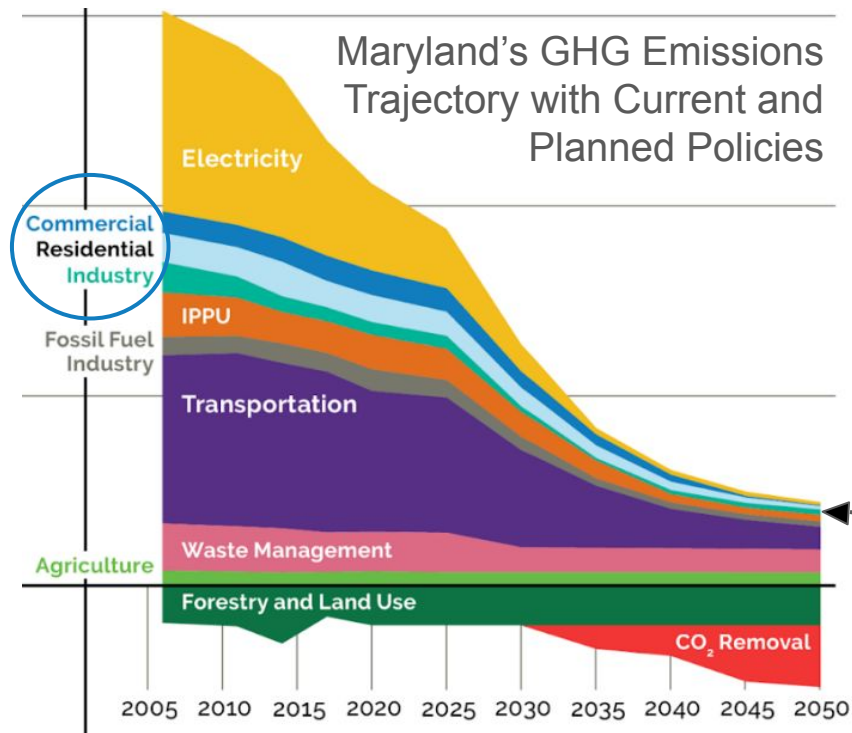
NOx and other forms of air pollution from fuel-burning equipment harms children and adults in many ways



Source: <https://www.lung.org/research/sota/health-risks>

Maryland is required to reduce criteria pollutants to meet increasingly stringent air quality standards and protect the public's health

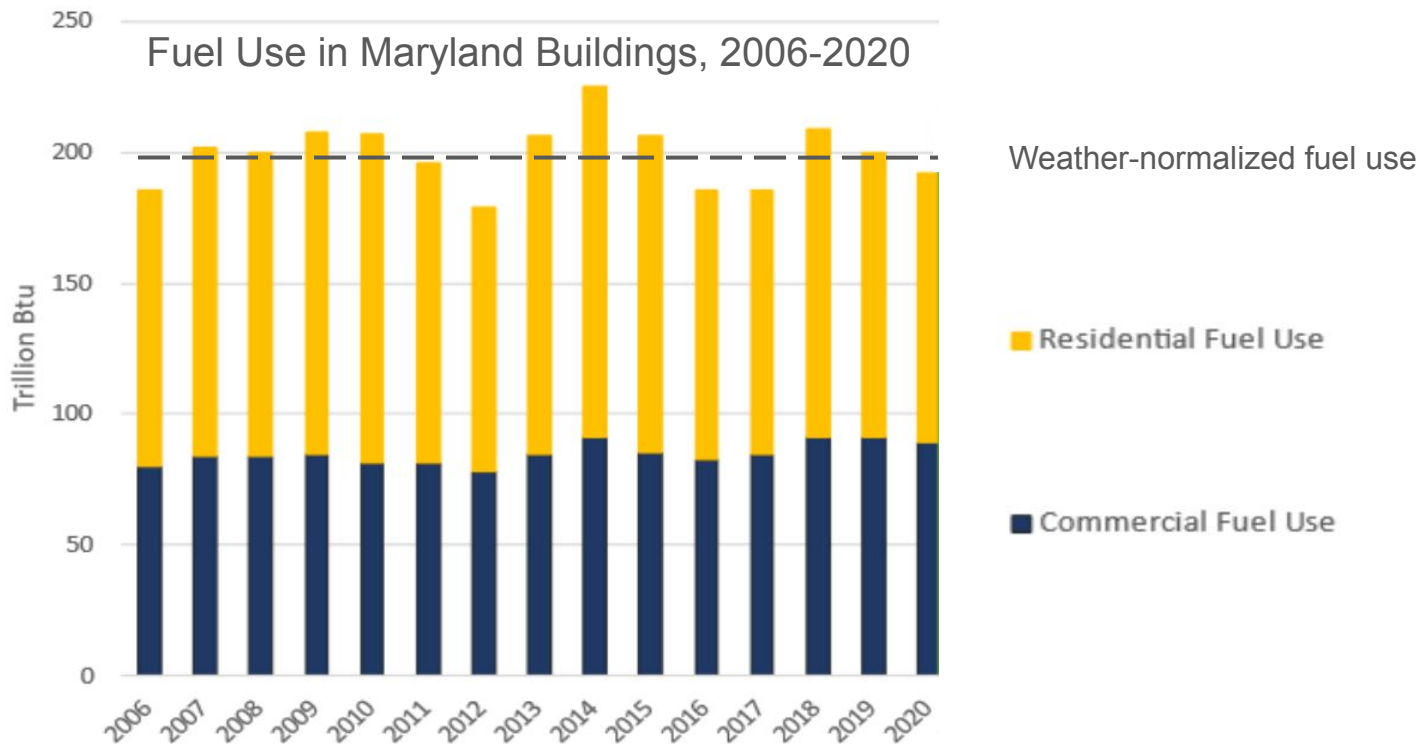
Reducing fuel use in buildings is a critical part of Maryland's plan to achieve its climate pollution reduction requirements



Maryland is required to reduce greenhouse gas (GHG) emissions 60% from 2006 levels by 2031 and achieve net-zero GHG emissions by 2045

Fuel use in buildings

Unfortunately, current policies so far have not reduced total fuel use in Maryland's building sector



Governor Moore issued Executive Order 01.01.2024.19 requiring MDE to propose ZEHES and CHS



The Maryland Department of the Environment shall:

- a. Propose a **zero-emission heating equipment standard** regulation that will phase-in zero-emissions standards for heating equipment to reduce carbon pollution and improve air quality inside homes and the ambient air;
- b. Propose a **clean heat standard** regulation to expand Maryland's Renewable Portfolio Standard to the thermal energy system, mobilizing investment in clean heat solutions for homes and businesses

Zero-Emission Heating Equipment Standard (ZEHES)

Establishing NO_x and CO₂ limits on residential-scale space heating and water heating equipment, and helping people save money



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Similar to emission standards for cars and trucks, ZEHES sets emission standards for furnaces, boilers, and water heaters



Furnace



Boiler



Water Heater

ZEHES Model Rule: Covered Equipment and Compliance Dates

Equipment Category	Ultra Low NOx Standards*	Zero NOx and CO2 Emissions Compliance Date
Furnaces - <i>gas, oil, or propane</i> (< 225,000 Btu/hr)	n/a	2029
Boilers - <i>gas, oil, or propane</i> (< 300,000 Btu/hr)	n/a	2029
Water Heaters - <i>oil or propane</i> (< 210,000 Btu/hr)	n/a	2029
Water Heaters - <i>gas</i>		
- Category 1 storage water heaters (< 75,000 Btu/hr)	10 ng/J	2029
- Category 2 storage water heaters (75,000 - 105,000 Btu/hr) and instantaneous water heaters (< 200,000 Btu/hr)	14 ng/J	2029
- Category 3 storage water heaters (105,000 - 2,000,000 Btu/hr), instantaneous water heaters (200,000 - 2,000,000 Btu/hr), and hot water supply boilers (300,000 - 2,000,000 Btu/hr)	14 ng/J	n/a

*Ultra low NOx standards take effect 12 months after the rule is adopted

Zero-emission equipment like electric water heaters and heat pumps are already the best selling heating systems in Maryland



Electric/Heat Pump
Water Heater



Heat Pumps for Heating
and Cooling

Heat pumps are also the best selling heating systems in states that are colder than Maryland, like Maine



Heat pumps provide the lowest heating and cooling costs and can have the lowest installation costs



Marylanders who use a heat pump for space heating and cooling **save \$1108 annually** on average.

Gas customers save \$374. Annual savings are around \$1300 to \$1400 for customers who switch from oil, propane, or electric resistance heaters.

With incentives, it can be **less expensive to install** a heat pump than other heating and cooling systems.

Source: <https://www.nescaum.org/documents/24.12.13-TSD-1.2---Emissions-Standards-for-Space-and-Water-Heaters.pdf>

Heat pump water heaters cost less to install and operate than other water heating systems

Marylanders who use a heat pump water heater **save \$314 annually** on average compared to other storage water heaters.

With incentives, it can be **less expensive to install** a heat pump water heater than other water heaters.



Source: <https://www.nescaum.org/documents/24.12.13-TSD-1.2---Emissions-Standards-for-Space-and-Water-Heaters.pdf>

When would ZEHES requirements take effect?

- 2027:
 - New gas-fired water heaters sold for installation in Maryland would meet ultra low NOx standards starting in 2027 (assuming a final rule is adopted at the end of 2025)
- 2029:
 - New small space heating and water heating equipment sold for installation in Maryland would meet zero-emission standards starting in 2029
- 2030s-2040s:
 - Most existing heating equipment would be gradually replaced with zero-emission or ultra low NOx heating equipment through the 2030s and 2040s but people can also decide to keep their existing equipment running through or beyond that time

Clean Heat Standard (CHS)

Creating additional incentives to help building owners transition to clean heat solutions



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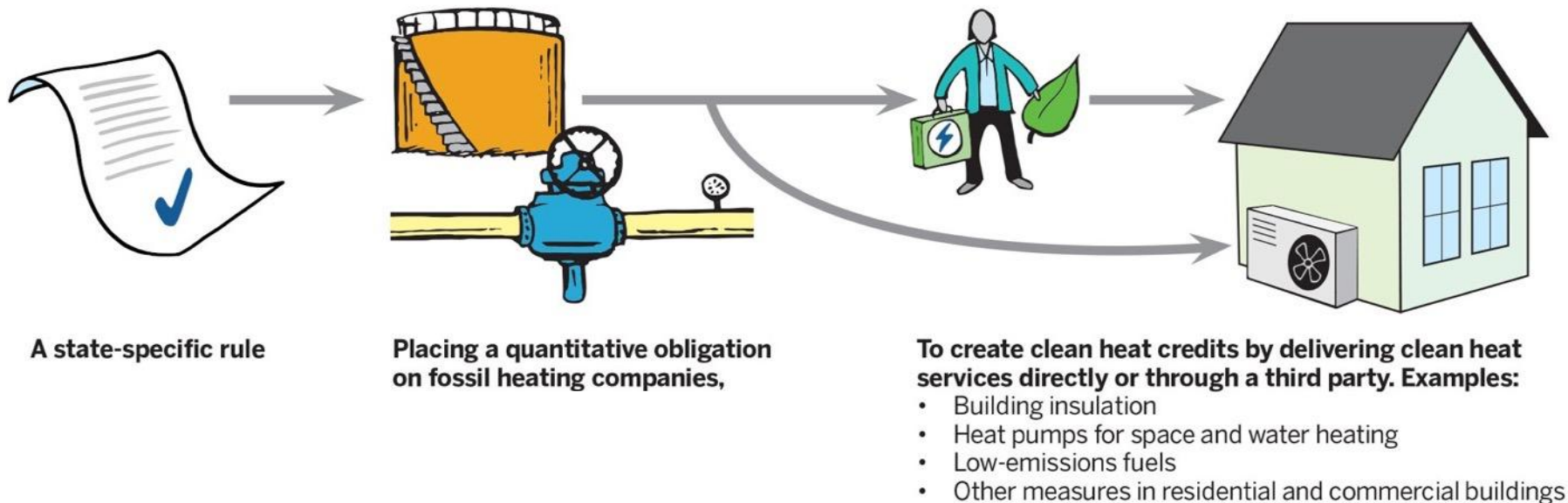


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What is the Clean Heat Standard (CHS)?

CHS requires **heating fuel providers** to deliver an increasing percentage of clean heat services, encouraging them to transition to become **clean heat providers**.

(Similar to the Renewable Portfolio Standard for electricity providers)



What actions can earn Clean Heat Credits?

Weatherization



- Insulation in walls, attics, floors
- Sealing air leaks

Zero-Emission Heating Equipment



- Electric heat pumps
- Heat pump water heaters
- Solar thermal

Alternative Fuels



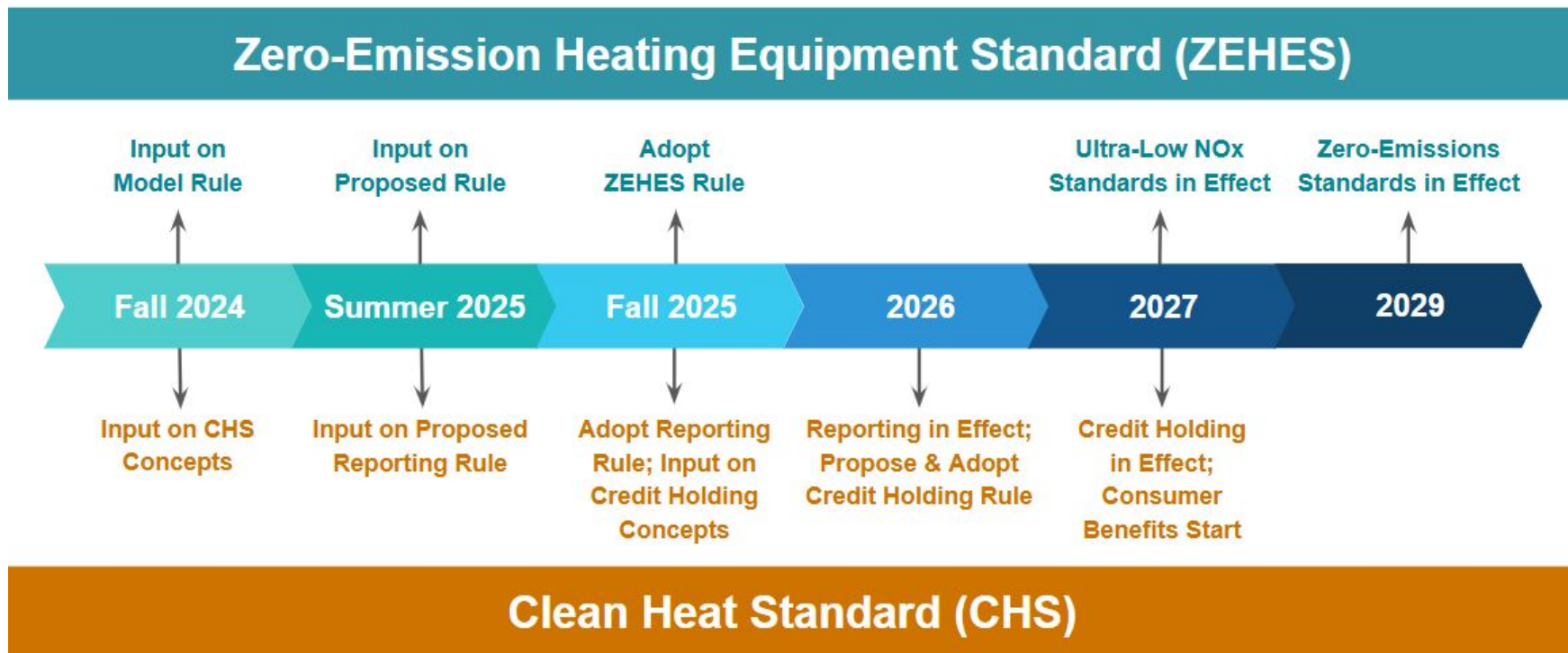
- Biofuels
- Hydrogen

How is equity addressed in CHS?

- Energy justice is a core goal of the CHS
- Ensures that low- and moderate-income households benefit from clean heat services
- Supports weatherization and heat pumps that reduce household energy costs



What is the timeline for the Clean Heat Rules?






Contact Us

Clean Heat Team

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Social Media
[@md_environment](#)



Clean Heat Website



Clean Heat Email List





Ashita Gona

Senior Associate, Carbon-Free Buildings, RMI



Building Decarbonization in MD

Ashita Gona, Senior Associate

February 2025

Context: Building Decarbonization in Maryland



Climate and health



Heat pumps are already strongly utilized



Heat pumps lower energy bills



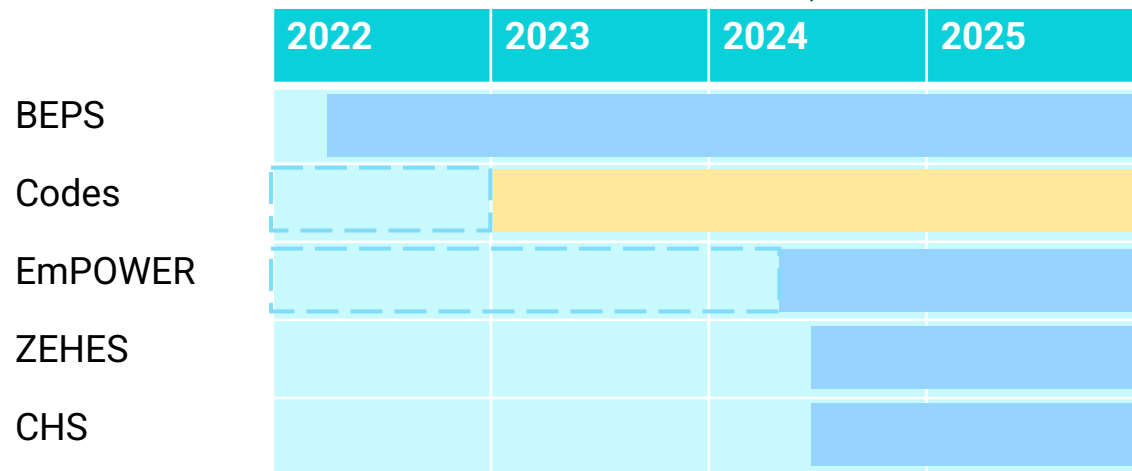
EmPOWER and building policy reform align with state climate goals

Context: Complementary Policies

Climate Solutions
Now Act of 2022



EO: Implementing MD's
Climate Pollution
Reduction Plan



Maryland has been pursuing complementary policies and policy reforms that will enhance equitable building decarbonization.

Existed prior to reform

Rulemaking and implementation

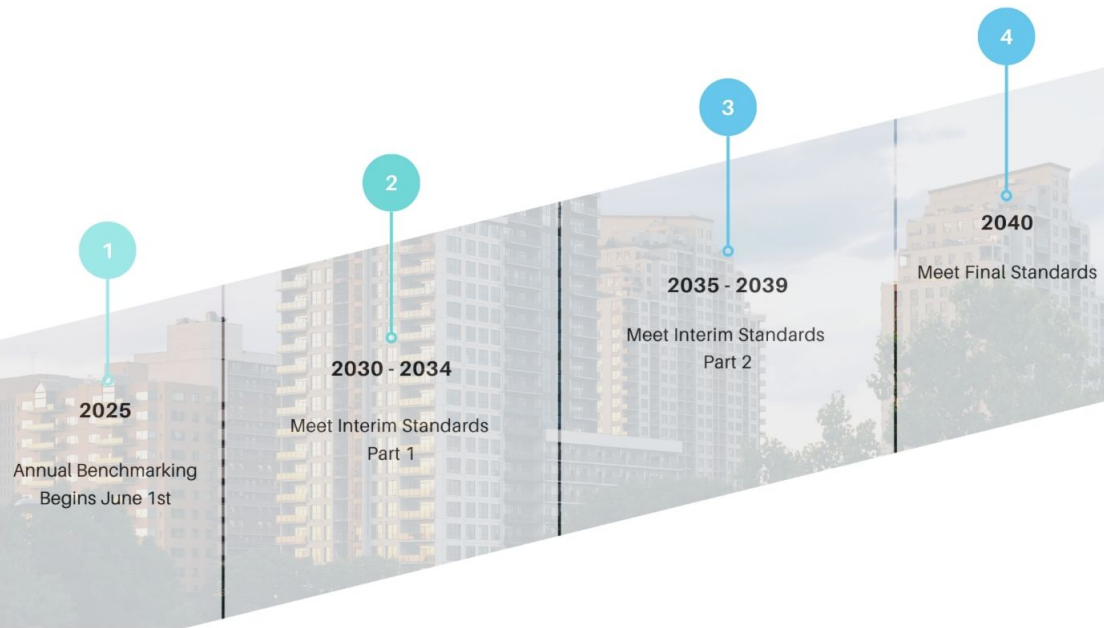
Local Action

Building Energy Performance Standards

- More than a dozen states and localities have adopted BEPS
- Regulates large building energy use and requires improved performance overtime
- In MD: Regulates buildings larger than 35,000 sqft (~9k buildings in MD)



BEPS: What It Means

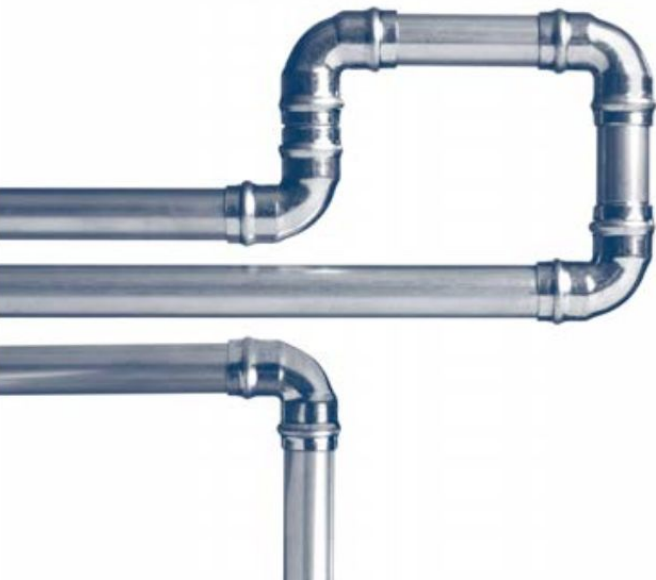


Source: Maryland Department of the Environment

- Zero net direct GHG emissions by 2040 in covered buildings
- Provides long-term certainty for covered building owners
- Encourages early adoption of compliant equipment and measures
- Site Energy Use Intensity (EUI) requirements can enhance adoption of efficient electric appliances, once adopted
- Exemptions and waivers under consideration in legislation

Gas piping increases the cost to construct a typical single-family home in Maryland by **\$2,580**.

Base gas connection costs from RMI study, adjusted using RSMeans regional construction data; RMI, 2022, rb.gy/8jqtd



All-electric New Construction and Major Renovations



A typical all-electric home in Maryland will save
\$510
on utilities each year.

RMI analysis; Economics of All-electric New Construction, MD

BALTIMORE, MARYLAND

Building all-electric homes saves money in the most populous city in Maryland



MARYLAND STATEWIDE

Savings are comparable in other parts of the state



RMI analysis; methodology from prior analysis, updated using IECC 2018 building standards, current rates, RSMeans regional construction data; RMI, 2022, rb.gy/8jqtd

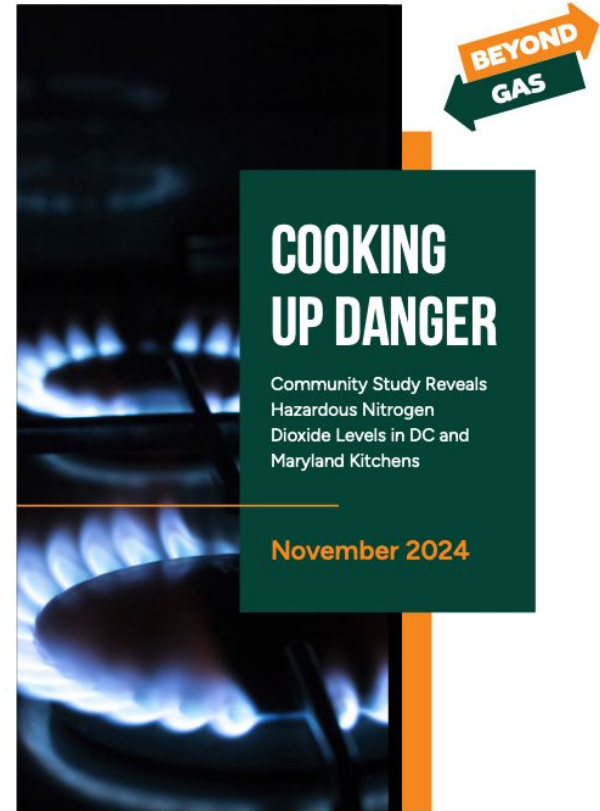
All-electric New Construction: Codes and QAP

- Building codes set standards for the construction and major renovations of buildings
 - International Energy Conservation Code
 - Legislation introduced to promote all-electric new construction
- Qualified Allocation Plan (QAP) lays out how MD will allocate federal credits for proposed affordable housing
 - Criteria added that projects must utilize high-performance electric equipment and appliances



Codes: Local Actions

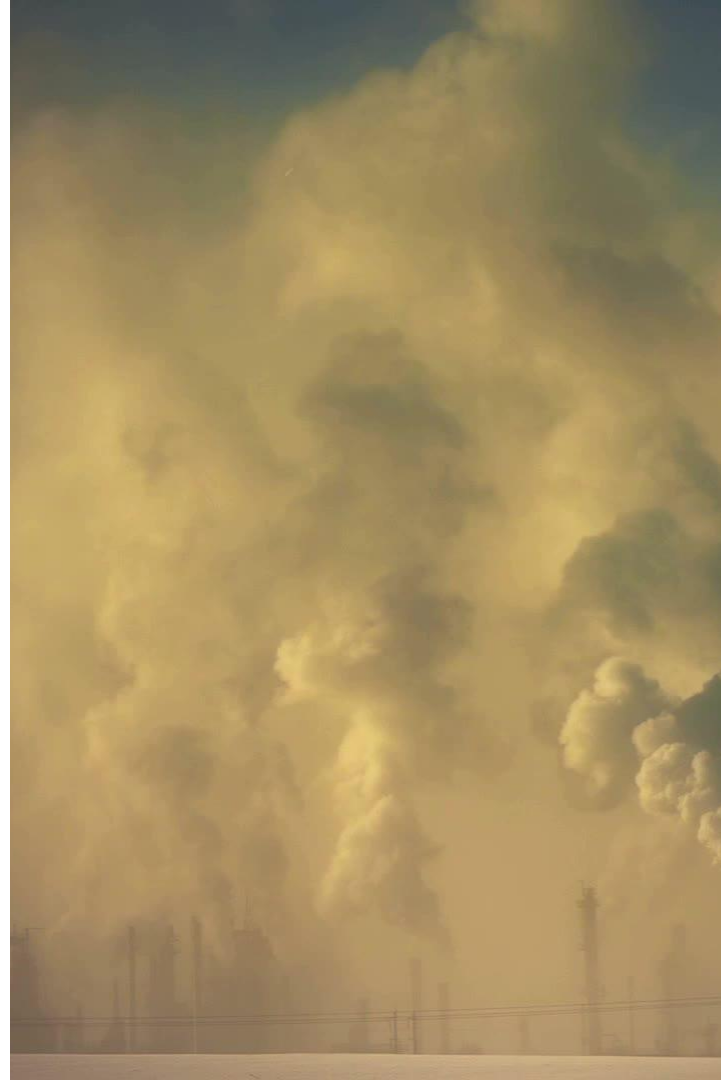
- **Several counties in MD are beginning to pass or consider all-electric new construction and major renovations policies:**
 - Montgomery County: Ordinance requiring eventual all-electric new construction
 - Howard County: Ordinance requiring a study on electrification codes
 - Several other counties have active local groups advocating for similar policies



Future of Gas Proceeding: Potential Scope and Impacts

Note: A third of the American population lives in a state that is engaging with a FoG proceeding

- Long-term assessment on gas use decline
 - Rate impacts
 - Operational impacts
 - How to avoid consumer risk
- Near-term actions
 - Gas line extension allowances
 - Gas marketing
 - Non-pipe alternatives



Future of Gas Proceeding: Where It Stands

“The Commission should promptly initiate... regulation to **manage the transition to a new age, broadly acknowledged, in which gas will play a far diminished role.”**

Office of People's Counsel

- **Feb 2023:** Office of People's Counsel (OPC) files gas planning petition
- **Oct 2023:** PSC received public comments on petition
- **July 2024:** PSC holds hearings for public comments
- **Current Status:** Awaiting final Order to formally initiate proceeding



Thank you!

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Building Decarbonization Initiatives Baltimore Gas and Electric

Lauren Urbanek | Senior Manager, Decarbonization Strategy

Maryland's Decarbonization Goal is Net Zero (and Soon)

THE CLIMATE SOLUTIONS NOW ACT (CSNA)
of 2022 SETS THE TARGETS:

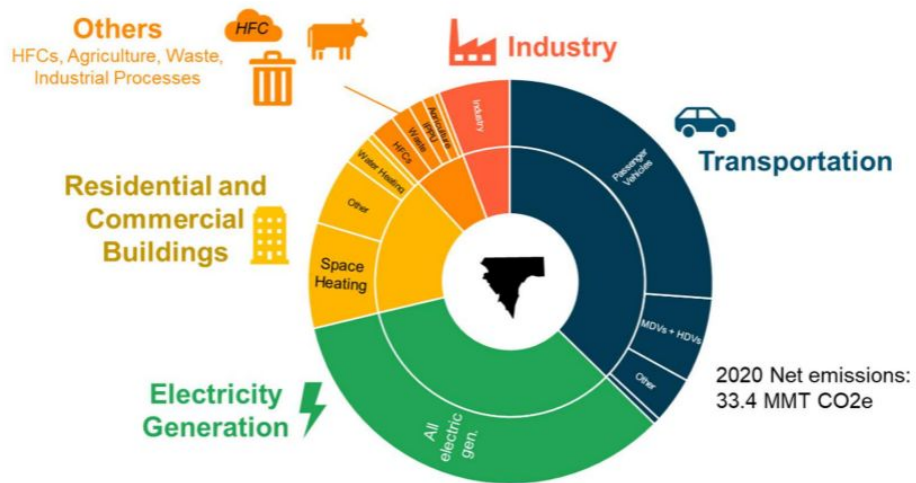
> 60% Greenhouse Gas emissions (GHG)
reduction by 2031

> Net zero emissions by 2045

OUR CUSTOMERS

BGE's Service Territory
Emissions Footprint

Figure 3. BGE GHG emissions scope



Pillars of Path to Clean



OPERATIONS

Goal: Achieve 50% reduction by 2030 and net-zero by 2050 for operations driven emissions

How we are cutting operations emissions:

- Modernizing and enhancing both our electric and natural gas systems to reduce direct emissions.
- Reducing energy use & increasing our use of renewable-powered energy in our offices and buildings.
- Electrifying 50% of our company's fleet by 2030

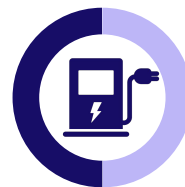


CUSTOMERS

Goal: Support our customers and the state of Maryland to achieve the emissions reduction goals of the Climate Solutions Now Act (CSNA)

How we support customer to reduce emissions:

- Supporting transportation electrification by providing EV incentives for customers.
- Providing energy efficiency and electrification through EmPower programs
- Piloting innovative customer programs like networked geothermal, which provides customers with efficient heating & cooling using renewable energy from the earth.



COMMUNITIES

Goal: Provide holistic support to our communities through the clean energy transition

How we support communities to reduce emissions:

- Considering environmental stewardship and justice in the work we perform
- Supporting transportation electrification by installing public electric vehicle (EV) charging
- Enhancing the electric grid to connect and deliver more renewable energy.
- Pursuing opportunities to supply cleaner alternative fuels

EmPOWER Maryland



In 2008...

A portfolio of energy efficiency programs was established to support the EMPOWER Maryland initiative of reducing consumption in the state by 15% per capita by 2015.

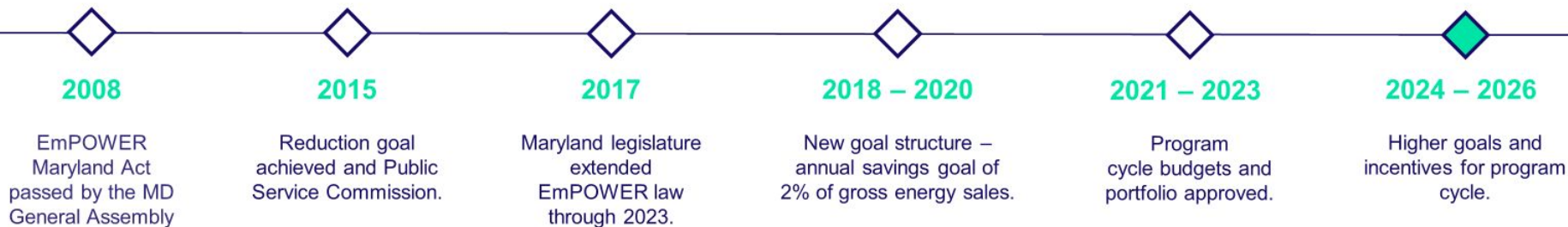
In 2015...

The 15% reduction goal was achieved!

In 2024...

The State moved to setting GHG reduction target goals beginning in 2025.

The ratepayer-funded program is making it easier to upgrade to energy-efficient equipment, resulting in energy savings year after year.



EmPOWER Building Electrification Programs

- EmPOWER Maryland was changed from a kWh savings goal to a greenhouse gas reduction goal in 2024
- As a result, utilities reoriented the EmPOWER programs toward measures with greater greenhouse gas emissions savings
- Building electrification incentives will launch in the coming weeks
 - Heat pump water heaters
 - Air source heat pumps
 - Make-ready measures (panel upgrades, duct reconfiguration, branch circuitry, etc.)
 - Building envelope upgrades
- Measures will be offered through existing program structures
- Agnostic to whether customers install cold climate heat pumps or backup systems, but require documentation of the integrated controls and switchover point to ensure the heat pump is the primary heating source

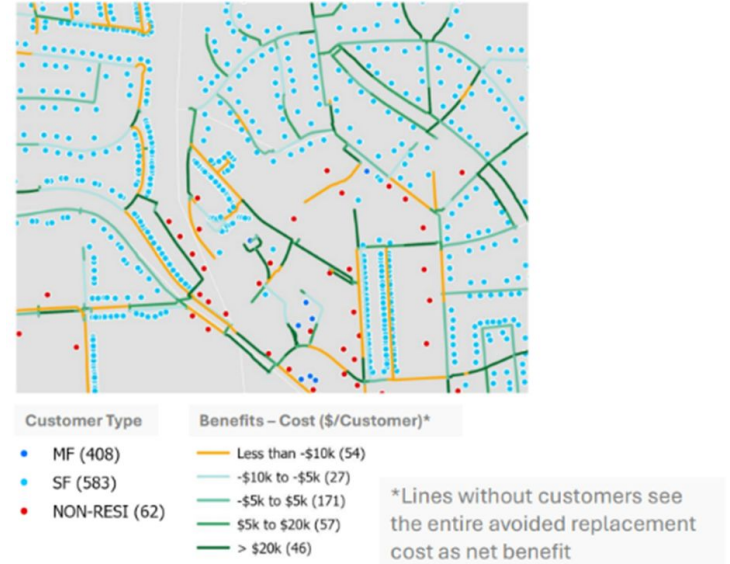
Attachment 2C: Statewide Electrification Incentives

Program	Subprogram	Measure ¹	Incentive Up to Amount
Energy Efficient Products	Appliance Rebates	HPWH	\$3,500
		Make-Ready (Circuitry, Panel, Service Upgrade, etc.)	\$4,500
Home Retrofit	Home Energy Retrofit / HPwES	ASHP	NTE \$15,000
		Geothermal Heat Pump	
		HPWH	
		Make-Ready (Circuitry, Panel, Service Upgrade, etc.)	\$4,500
	HVAC	ASHP	\$8,500
		Geothermal Heat Pump	\$11,500
		HPWH	\$3,500
		Make-Ready (Circuitry, Panel, Service Upgrade, etc.)	\$4,500
Energy Solutions for Business / Commercial Midstream	Prescriptive / C&I Midstream	ASHP	\$20,000
		Geothermal Heat Pump	\$20,000
		HPWH	\$3,500
		Make-Ready (Circuitry, Panel, Service Upgrade, etc.)	\$4,500
Energy Solutions for Business	Custom	ASHP	Up to 50% of Project Cost
		Geothermal Heat Pump	
		HPWH	
		Make-Ready (Circuitry, Panel, Service Upgrade, etc.)	
Small Business Direct Install	Small Business Direct Install	ASHP	Up to 80% of Project Cost
		Geothermal Heat Pump	
		HPWH	
		Make-Ready (Circuitry, Panel, Service Upgrade, etc.)	

1. Consistent with the Commission's Order 84569, not all utilities offer all products and services listed. ID: Order #84569 at 7.

Targeted Electrification Study

- Working with E3 to develop a service territory-wide technology deployment strategy
 - Considering a variety of technology options, including air source heat pumps, peak mitigation technologies (load flexibility, solar, storage, community solar, and building shell improvements), heat pumps with fossil backup (gas, propane)
- Creating a process to identify optimal locations for various clean energy technologies, based on electric and gas system conditions, technology feasibility, and cost-effectiveness
- Numerous policy questions:
 - Obligation to serve
 - Timeframe of gas system planning
 - Data alignment between gas and electric data
 - Evaluation process – what is included as costs and benefits?
 - Allocation of costs and benefits to ratepayer classes
 - Utility incentives and requirements



Policy Hot Topics

- Maryland's legislative session runs until early April
- Hot topics include:
 - Resource adequacy, increased in-state power generation
 - Utility integrated resource planning
 - Electric/electric-ready new construction
 - Building benchmarking/building performance standard (clarifications to existing regulations)
 - Battery storage
 - Data centers
 - Solar siting



Discussion

- The host will ask the first question for the panelists
- Enter your question in the chat to participate in the discussion



Thank you!

Slides and notes will be
emailed to registrants
later this week



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