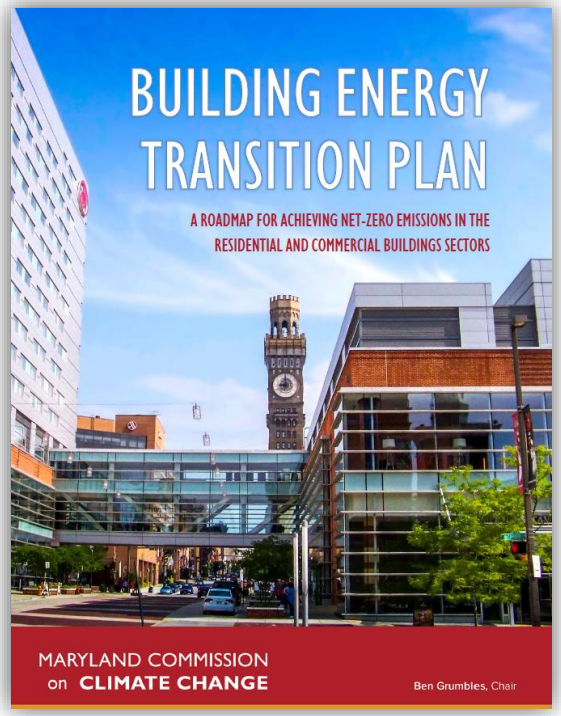
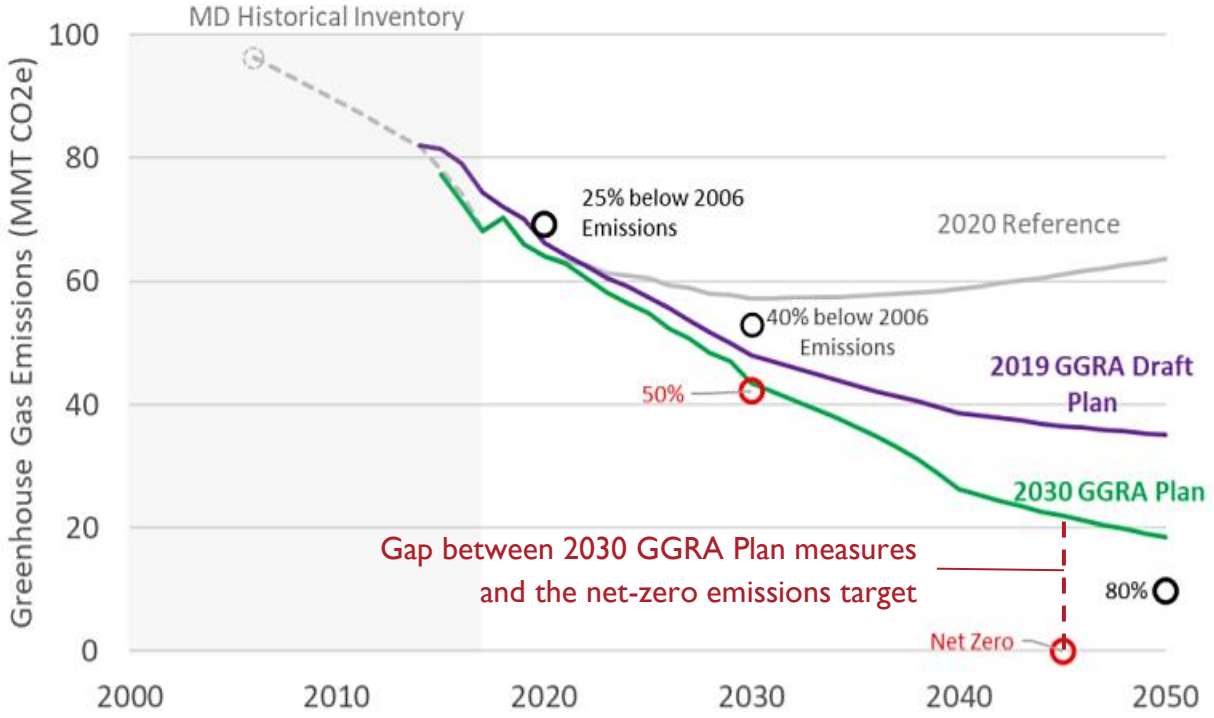


Draft Building Energy Transition Plan

Core Recommendations

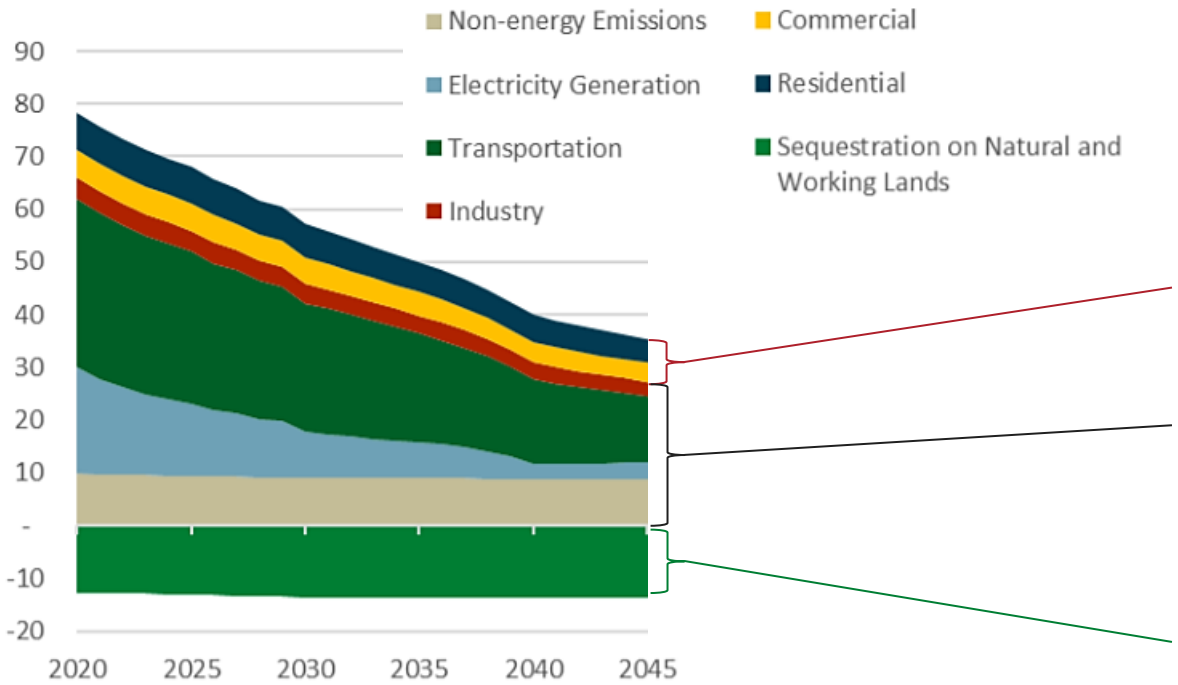
Context for Pursuing Net-Zero Emissions in the Buildings Sector



The 2030 GGRA Plan includes ambitious mitigation measures but does not reach the MCCC's recommended target of net-zero emissions by 2045.

Additional measures are necessary to reach the target.

Context for Pursuing Net-Zero Emissions in the Buildings Sector



Maryland GHG Emissions Projections by Sector under the 2030 GGRA Plan.

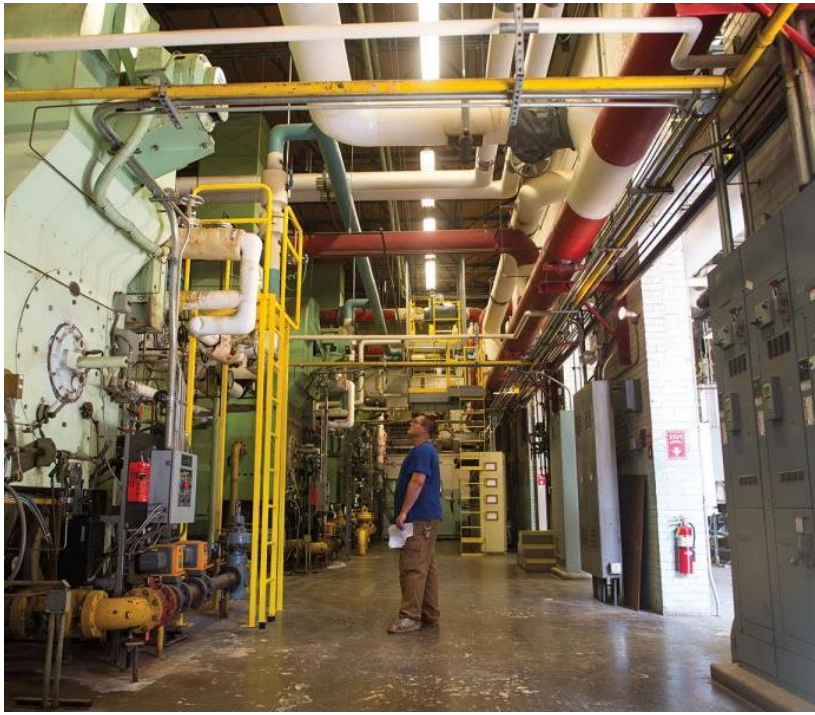
Measures in the Draft Building Energy Transition Plan would achieve net-zero emissions for the residential and commercial buildings sectors by 2045.

Projected remaining emissions, including emissions from "hard to mitigate sources"* are still much greater than the projected carbon sink.

* Hard to mitigate sources include industrial processes, agriculture, waste management, heavy transport, and aviation.

Why Pursue Building Decarbonization Policy Now?

- Practically all buildings constructed today will be operational in 2045
- Some equipment installed today will be operational in 2045 and beyond, other equipment might be replaced just once within the next 24 years
- Building designers, developers, and owners need clarity on future energy costs and performance requirements to make informed investment decisions now



Five Core Recommendations

Based on findings from E3's Maryland Building Decarbonization Study, the Buildings Sub-Group's proceedings over the past two years, and building decarbonization policies developed by other states

1. Adopt an All-Electric Construction Code

Rationale:

- Objective: Prevent growth in direct emissions from the buildings sector
- All-electric single-family homes – lower construction and energy costs than new mixed-fuel single-family homes
- All-electric multifamily homes – similar construction and energy costs to mixed-fuel multifamily homes
- All-electric new buildings of all types, including commercial buildings, have the lowest total annual costs in each net-zero emissions scenario modeled by E3

1. Adopt an All-Electric Construction Code

Recommendation:

- Maryland Building Code Administration would adopt a code (or code overlay) that ensures new buildings meet all water and space heating demand without the use of fossil fuels (allowing for heat pumps, solar thermal, etc.)
- All buildings would also be "ready" (wired) for solar, EV charging, and building-grid interaction
- Beginning as early as possible but no later than 2027
- Cost-effectiveness test for variances from code requirements

2. Develop a Clean Heat Retrofit Program

Rationale:

- Objective: Reduce emissions from existing buildings, especially residential
- Replacing AC with heat pumps can efficiently provide all space cooling and most space heating needs for most buildings
- Existing furnaces and boilers can be used for backup heating
- Some existing buildings could transition to all-electric
- Heat pumps with fuel backup modeled to be the lowest-cost solution among E3's net-zero emissions scenarios even with expensive low-carbon fuels

2. Develop a Clean Heat Retrofit Program

Recommendation:

A. Allow fuel-switching through EmPOWER beginning in 2024

B. Allow beneficial electrification through EmPOWER beginning in 2024

C. Target 50 percent of residential AC and water heater sales to be heat pumps by 2025, 100 percent by 2030

D. Discontinue use of the Strategic Energy Investment Fund (SEIF) for expanding fossil fuel use and infrastructure

E. Establish a comprehensive retrofit program for low-income households

3. Create a Building Emissions Standard

Rationale:

- Objective: Reduce emissions from existing commercial, multifamily, and state-owned buildings, which need flexibility to find cost-effective solutions
- All-electric solutions are not always the most cost-effective emissions reduction measures for existing large buildings
- Implementing additional carbon sequestration or emissions reductions in other sectors might be lower cost (with greater co-benefits) than achieving net-zero emissions for each and every commercial, multifamily, and institutional building in Maryland

3. Create a Building Emissions Standard

Recommendation:

- MDE would develop the standard
- MEA would provide technical and financial assistance to building owners
- Covered buildings (commercial, multifamily, and state-owned) would:
  - Report direct (on-site) emissions annually starting in 2025
  - Achieve 50 percent emissions reduction by 2030 (2027 for state-owned)
  - Achieve net-zero emissions by 2040 (2035 for state-owned)
- Non-compliance fees based on cross-sectoral low-cost measures

4. Create a Clean Heat Standard

Rationale:

- Objective: Reduce climate impact of heating fuel supplies
- E3 found that in every scenario modeled, all fossil fuels must be replaced with renewable low-carbon fuels to achieve net-zero emissions
- A flexible standard, like Colorado's Clean Heat Standard, could incentivize heating fuel companies to deploy cost-effective emissions reduction measures
- Most fossil fuels are imported to MD; renewable low-carbon fuels can be produced locally

4. Create a Clean Heat Standard

Recommendation:

- MDE would develop the standard
- Applies to all companies selling heating fuels (natural gas, oil, and propane)
- Total allowable emissions from a company's supply chain decreases gradually
- Company can achieve targets by decreasing methane leaks, decreasing fossil fuel sales, switching from fossil to renewable low-carbon fuels, helping customers adopt efficiency and electrification measures, etc.
- Standard could also use a cap-and-trade model

5. Develop a Utility Transition Plan

Rationale:

- Objective: Design an equitable and just transition
- Achieving the lowest-cost transition to a net-zero emissions building sector will require careful policy design and utility rate structure
- Efficient price signals and smart building controls will be needed to maintain the right balance of electricity and heating fuel demand during cold weather
- Electric and gas infrastructure planning should align with a net-zero scenario

5. Develop a Utility Transition Plan

Recommendation:

- The Public Service Commission would oversee a process whereby the electric and gas utility companies develop a unified plan for achieving a net-zero emissions buildings sector in Maryland. Key objectives of that plan include:
  - Reducing gas demand and gas system emissions (E3: 64% reduction in gas consumption)
  - Ratepayer protections, especially for low to moderate income Marylanders
  - Rate structures that can facilitate achievement of net-zero emissions
  - Appropriate gas and electric system investments/divestments
  - Demand management solutions to reduce winter peak electricity demand

Comments and Discussion