2024 Pennsylvania Climate Impacts Assessment and Climate Action Plan

Presentation to Climate Change Advisory Council

Adam Agalloco
Project Manager

Martha Hart
Deputy Project Manager

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Agenda

1. **Project Status & Schedule Update**
2. **Environmental Justice Approach**
3. **2024 Climate Impacts Assessment (CIA)**
   - Review of Feedback & Incorporated Changes
   - Updated Draft CIA Findings
   - Q&A and Discussion
4. **2024 Climate Action Plan**
   - Initial Draft Findings & Model Results
   - Next Steps and Modeling Refinements
   - Legislative Recommendations Process & Status
   - Q&A and Discussion

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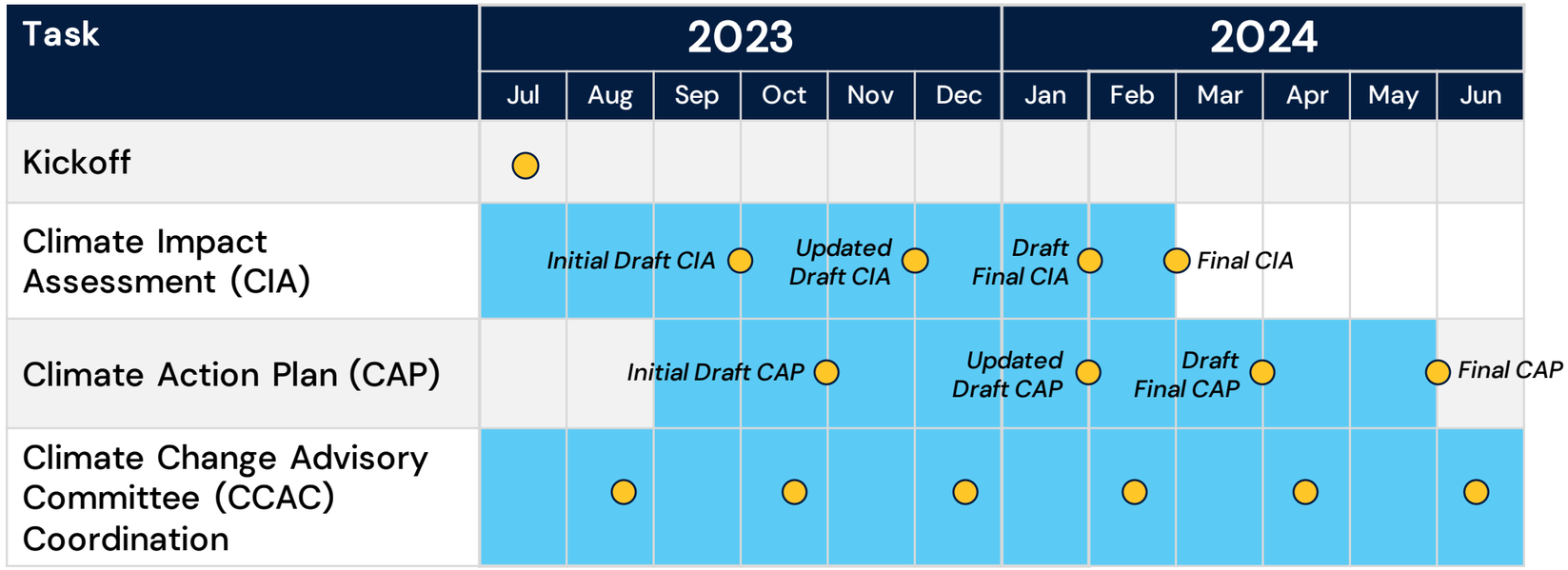
Project Status & Schedule Update



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Environmental Justice Approach

How environmental justice is being addressed in both the Climate Impacts Assessment and Climate Action Plan

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Key Definitions

ENVIRONMENTAL JUSTICE

The **just treatment and meaningful involvement of all people**, regardless of income, wealth, race, color, national origin, area of residence, Tribal affiliation, or disability, **in agency decision-making and other activities that affect human health and the environment** so that people: are fully protected from disproportionate and adverse human health and environmental effects (including risks) and hazards, including those related to climate change, the cumulative impacts of environmental and other burdens, and the legacy of racism or other structural or systemic barriers; and have equitable access to a healthy, sustainable, and resilient environment in which to live, play, work, learn, grow, worship, and engage in cultural and subsistence practices. It further involves the **prevention of future environmental injustice** and the **redress of historic environmental injustice**.

ENVIRONMENTAL JUSTICE AREA

- A geographic area characterized by increased pollution burden, and sensitive or vulnerable populations based on demographic and environmental data.
- Mapped in PennEnviroScreen

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Where will you see environmental justice in this effort?

CLIMATE IMPACT ASSESSMENT

- Climate impacts are mapped across the state, with impacts to EJ areas specifically marked
- As part of discussion of spotlight issues including:

  Flooding & Air Quality

  Heat & Occupational Exposure

  Climate & Energy Resilience
- Equity implications beyond EJ areas are also discussed.

CLIMATE ACTION PLAN

- Implementation considerations for each strategy will include equity and concerns for environmental justice areas
- Analysis of energy rate impacts will pay particular attention to impacts in environmental justice areas
- As a theme of the chapter on broader implementation context and considerations for the CAP

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→ 2024 Climate Impacts Assessment

An opportunity to further enhance the risk-based approach to evaluating climate change impacts pioneered in the 2021 CIA.

Updates Since Initial Draft

Updated from the last draft

- Chapter 2: Expected Climate Changes in PA
  - updated in response to CCAC comments
- Appendix D: Climate Analysis Details

New in this draft

- Chapter 3: **Risk Assessment Overview** ★
  - Enhanced from the 2021 CIA
- Chapter 4: **Spotlight Issues** ★
- Chapter 5: **Economic Opportunities** ★
- Chapter 6: **Conclusions and Recommendations**
- Appendix A: **Key Terms**
- Appendix B: **Risk Assessment Methodology**
  - Similar to 2021 CIA
- Appendix C: **Risk Assessment Details** ★
  - Similar to Chapter 4 of the 2021 CIA. Updated with most recent literature.

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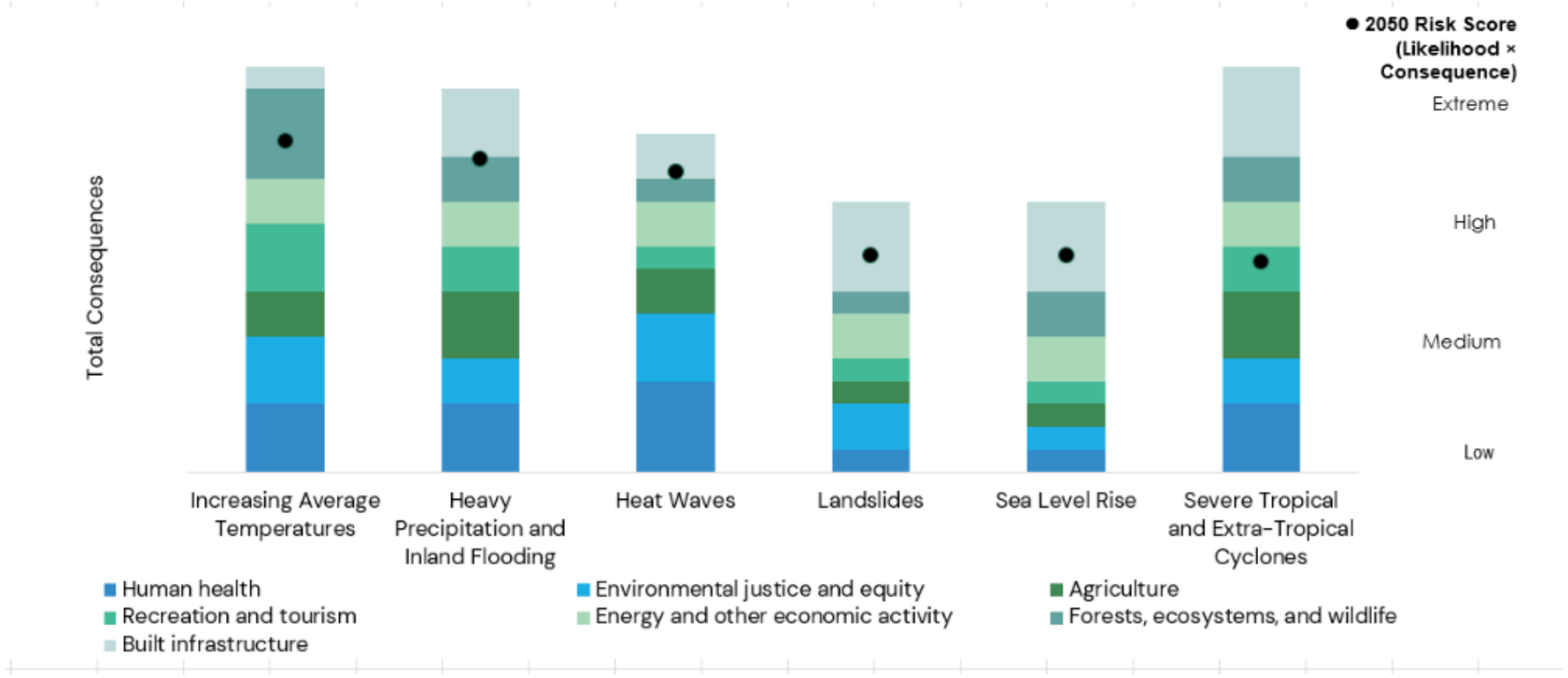
Key Findings

- No significant change in overall climate change impacts or risk ratings.
- Pennsylvania has the greatest vulnerability to **increasing average temperatures** and **heavy precipitation and inland flooding.**



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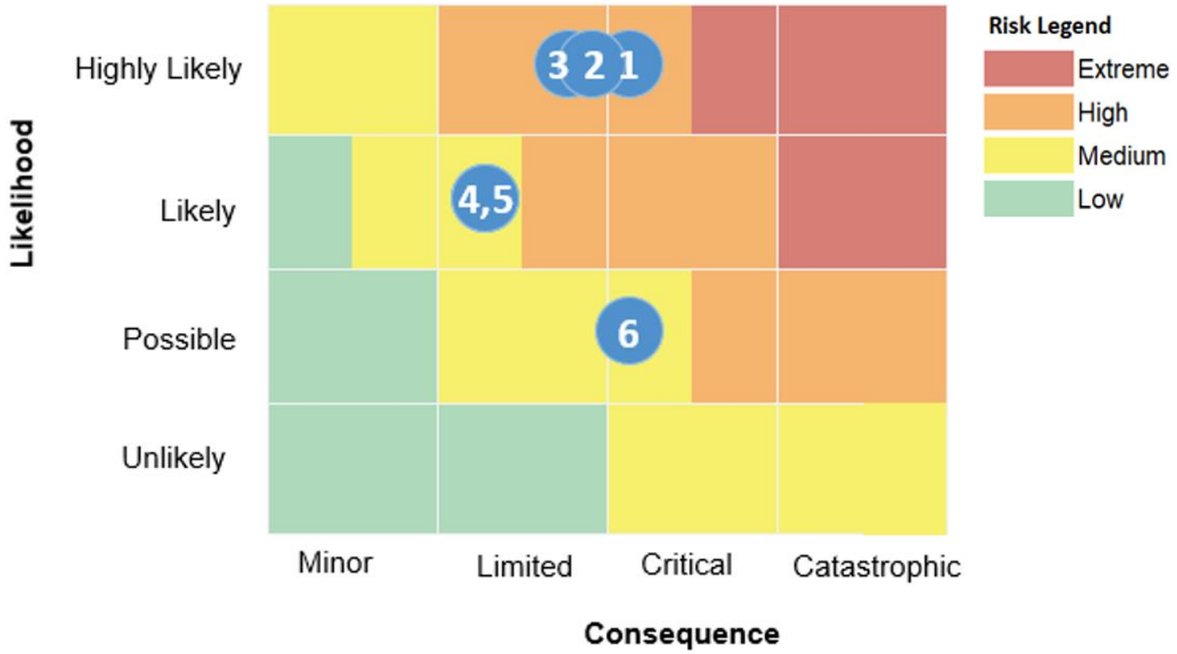
Key Findings

- Heat waves will become increasingly common and will create health and economic risks for vulnerable populations.
- Climate change will not affect all Pennsylvanians equally due to differences in location, income, housing, health, or other factors.
- All hazards—especially heat waves, increasing temperatures, and flooding—could affect public health negatively.
- Landslides and sea level rise pose relatively low risks statewide but can cause severe impacts in the locations where they occur.
- Where changes occur slowly, Pennsylvania can not only prevent harm, but also can capitalize on positive changes.



Overall summary risk matrix: 1 = Increasing average temperatures, 2 = Heavy precipitation and inland flooding, 3 = Heat waves, 4 = Landslides, 5 = Sea level rise, 6 = Severe tropical and extra-tropical cyclones

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Increasing Temperature Impacts

Human Health

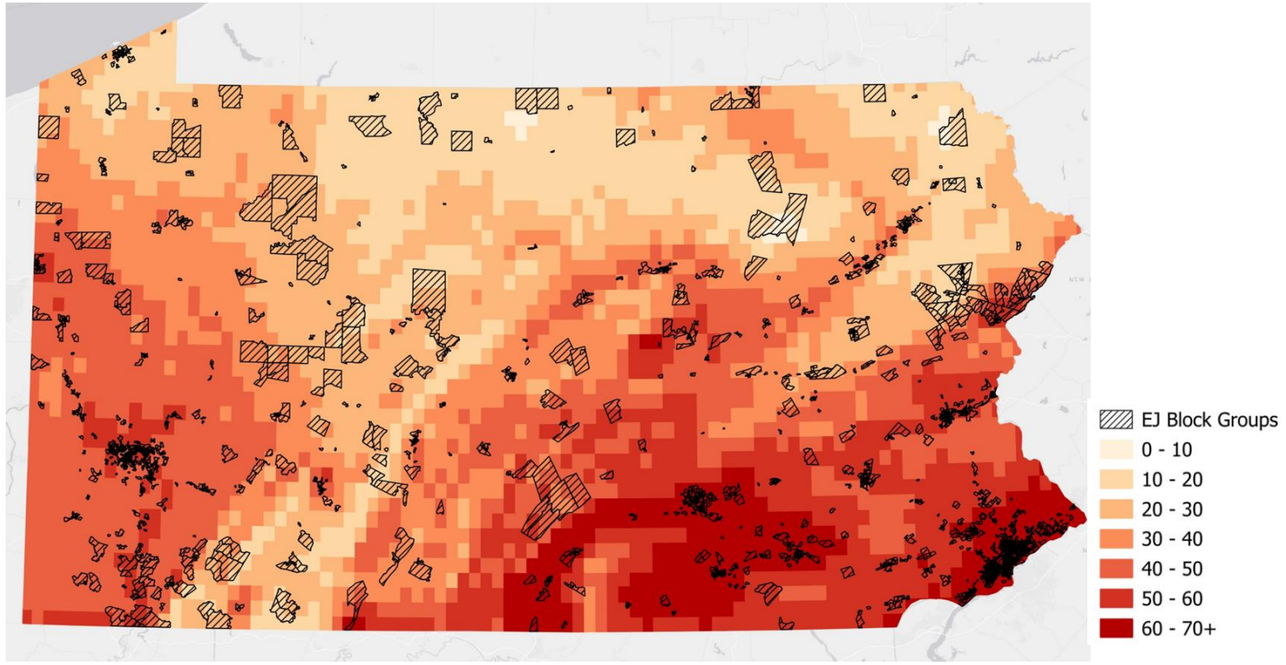
- Increases in heat index create more difficulties working outdoors.
- Increase in levels of PM 2.5 and ground-level ozone combined with increasing heat contributes to premature deaths.
- Higher transmission of vector-borne diseases and introduction of new diseases.

Environmental Justice and Equity

- EJ locations are 1.9 times more likely to be in the top one-fifth of census blocks with days above 90°F.
- Areas without access to air conditioning will face higher impacts.

Forests, Ecosystems, Wildlife

- Northward shifting growing seasons, suitable habitat range, and ecosystems.
- Wetlands will become more vulnerable and harmful algal blooms may become more common in Pennsylvania.



Projected annual number of days with temperatures over 90°F in 2050, with EJ block groups

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Heavy Precipitation and Inland Flooding Impacts

Built Infrastructure

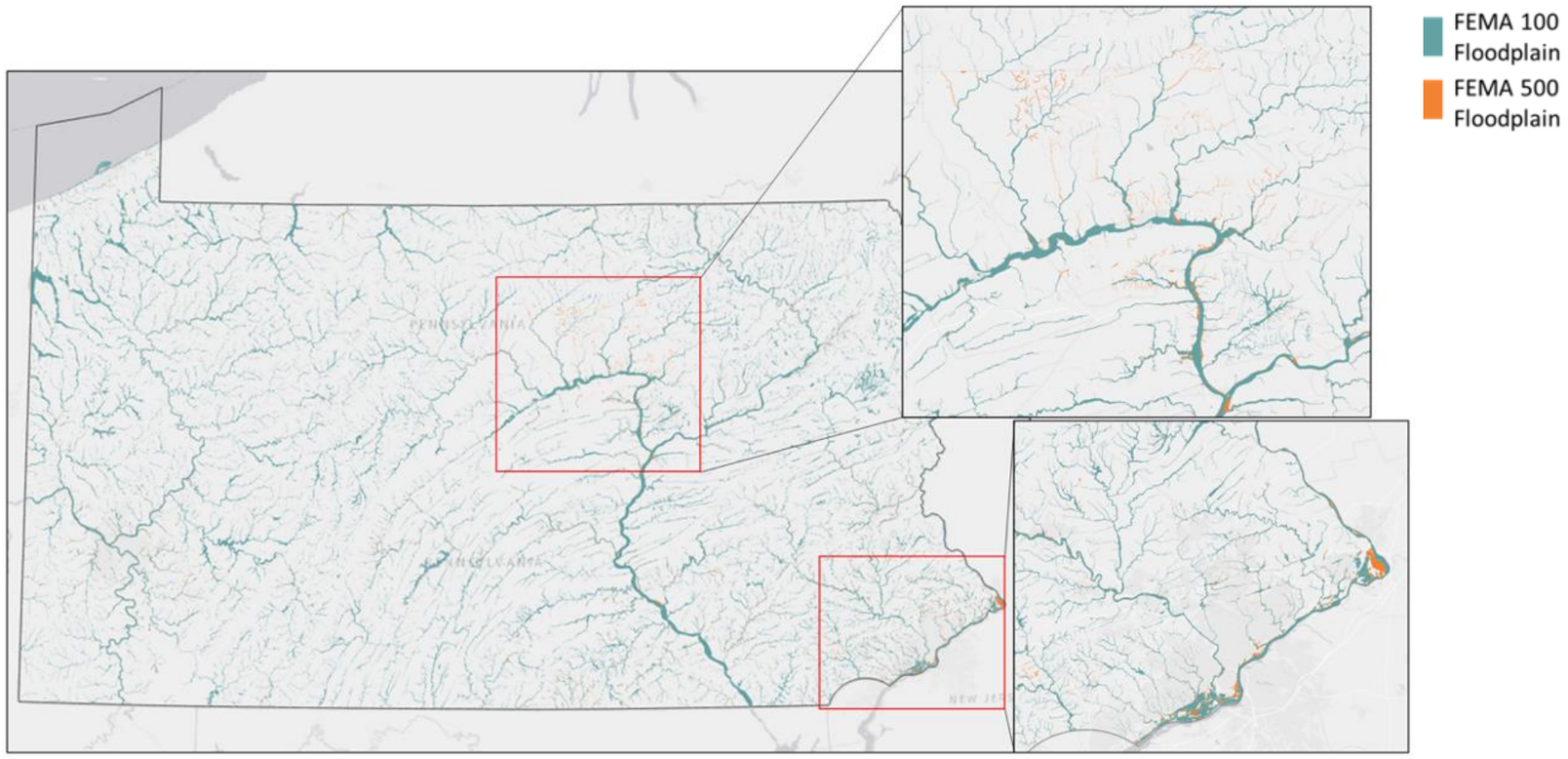
- Flood damage to homes, businesses, and critical energy and transportation infrastructure, particularly those located in floodplains.

Human Health

- Direct injury and deadly flood events.
- Mobilized pollutants causing water quality contamination.

Agriculture

- Runoff, erosion, and nutrient leaching.
- Changes in the timing of crop planting due to springtime flooding.



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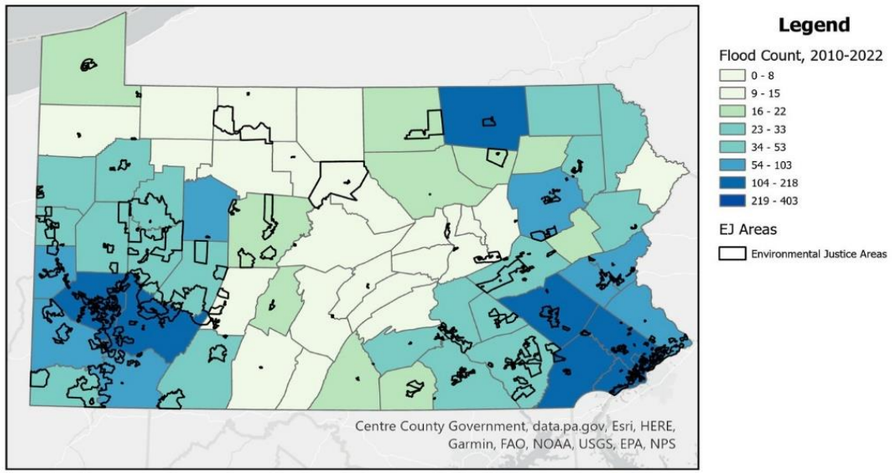
Deep Dive: Flooding, Air Quality, and Health Impacts

Air Quality Impacts

- Damage to buildings during and after flood events can contaminate indoor air with toxins including carbon monoxide, lead, asbestos, and mold and mildew.

Environmental Justice and Equity

- Over 50% of EJ areas are within the five most flood prone counties.



Flood Count by County and Environmental Justice Areas

Effects of Flooding on Indoor Air	Resulting Health Effects
Power outages may necessitate generator use, which produces carbon monoxide	• Exposure to carbon monoxide can cause brain damage or death.
Water damage can cause lead paint to peel, creating lead dust	• Lead exposure in children may result in broad cognitive impairment.
Water makes asbestos friable and releases asbestos fibers	• Asbestos exposure can result in mesothelioma, lung cancer, asbestosis, and other lung diseases.
Post-flood moisture supports the growth of mold and mildew	• Mold spores can exacerbate respiratory conditions (i.e. asthma) and lead to coughing, wheezing, and difficulty breathing.

Effects of flooding on Indoor Air Quality (IAQ) and Health

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Deep Dive: Heat, Occupational Exposure, and Public Health

Increasing Temperatures and Occupational Hazards

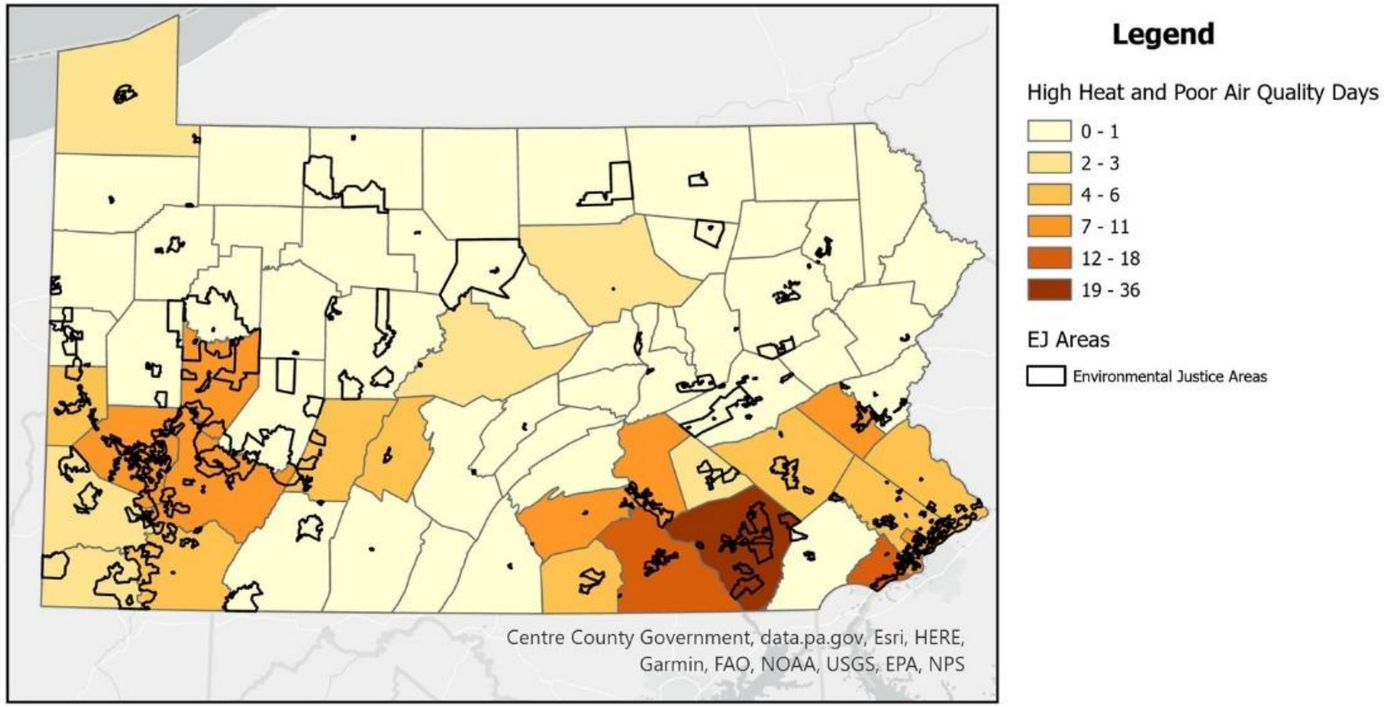
- As climate changes increases average temperatures and heat waves, **outdoor workers and elderly workers will be increasingly at risk**.
- Agricultural workers are **4x more likely to experience heat-related illnesses**. These roles are disproportionately filled by migrant and immigrant workers.

High Heat and Air Quality

- **High temperatures and poor air quality often coincide** as they share some of the same underlying drivers.
- 26 counties experienced high heat days that overlapped with poor air quality days in 2022.

Social and Occupational Vulnerability – Populations at Risk

- Racial and ethnic minorities and low-income populations are **less likely to have air conditioning** compared with other groups.
- Low-income areas of cities, such as Philadelphia, experience the **urban heat island effect**, with 30% less tree cover and temperatures up to 22˚ warmer in summer months.



Pennsylvania Counties experiencing High Heat and Moderate or Unhealthy Air Quality Days with 2023 EJ areas

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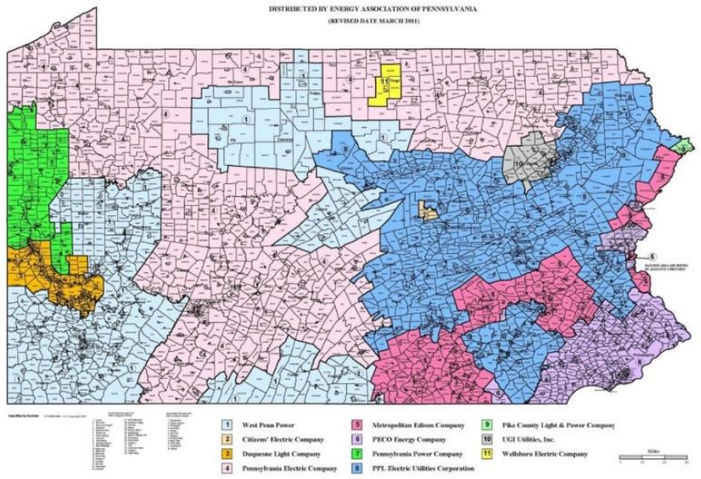
Deep Dive: Climate Change and Energy Resilience

Vulnerable Groups: Health & Safety Impacts

- Disrupted service threatens the safety and well being of impacted groups:
  - Low-income communities
  - Children
  - Racial and ethnic minorities Rural populations
  - Rural populations
  - Healthcare workers
  - Multilingual populations
  - Older adults
  - Hospital patients
  - Individuals dependent on medical equipment
  - Populations dependent on electric heat

Climate change impacts

- Climate change increases the risk of power outages.
- Power outages increase incidence of carbon monoxide poisoning and causes a spike in emergency room visits.



A map showing the operating territory of Pennsylvania's eleven Investor-Owned Utilities companies.

Economic Effects & Incurred Costs

- National assessments suggest that the annual, cumulative cost of power interruptions ranges from **$22 billion to $135 billion dollars annually**
- Outages in Pennsylvania can have ripple effects across the Northeast region
- When faced with a major outage event, l**ow-income households struggle the most to keep up with the initial costs associated with outages.**

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Climate Adaptation and Economic Opportunities

The need to accelerate climate adaptation and mitigation investments comes with the opportunity to drive economic growth in Pennsylvania

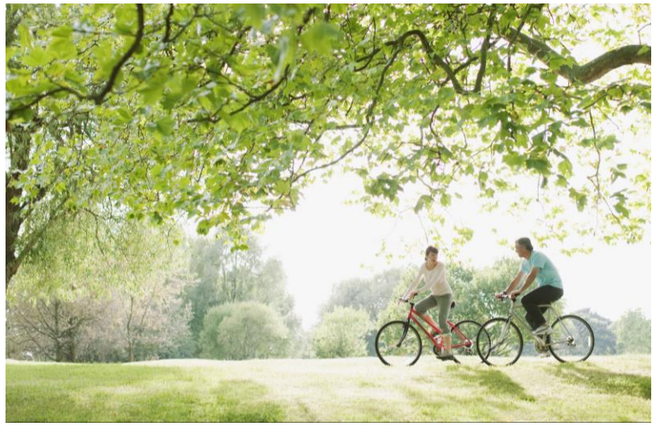
Examples by industry:

Agriculture

- Enhancing **ecosystem services** and **increasing crop yield** through techniques, such as riparian buffer zones and retention ponds.

Outdoor Recreation

- Green infrastructure projects can **enhance parks and natural walkways** to provide connectivity and potentially give pedestrians access to stores and other commercial areas.



Energy Production & Transition

- Energy efficiency upgrades such as adding insulation and sealing air leaks can **reduce rural energy burdens by as much as 25%, translating into more than $475 in annual savings for rural households**.

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Climate Adaptation and Economic Opportunities

The need to accelerate climate adaptation and mitigation investments comes with the opportunity to drive economic growth in Pennsylvania

Other examples:

Potential Housing Pricing Impacts

- Climate resilient home improvements can not only avoid substantial costs but can potentially **appreciate the value of homes**

EJ Communities

- Expanding available resources, funding and job training can provide better access to these opportunities.

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Adaptation Priorities

- Reduce extreme heat risks to human health, particularly for vulnerable populations
- Support key sectors in the transition to a warmer climate, including agriculture, recreation and tourism, and forests, ecosystems, and wildlife
- Reduce flood risks to infrastructure and communities and increase their ability to cope and recover from the impacts of flood events
- Increase utility resilience to climate hazards with special consideration of outage impacts to vulnerable populations
- Help low-income households cope with potential increased energy burden
- Enhance tropical storm and landslide risk mitigation

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Climate Impacts Assessment Q&A and Discussion

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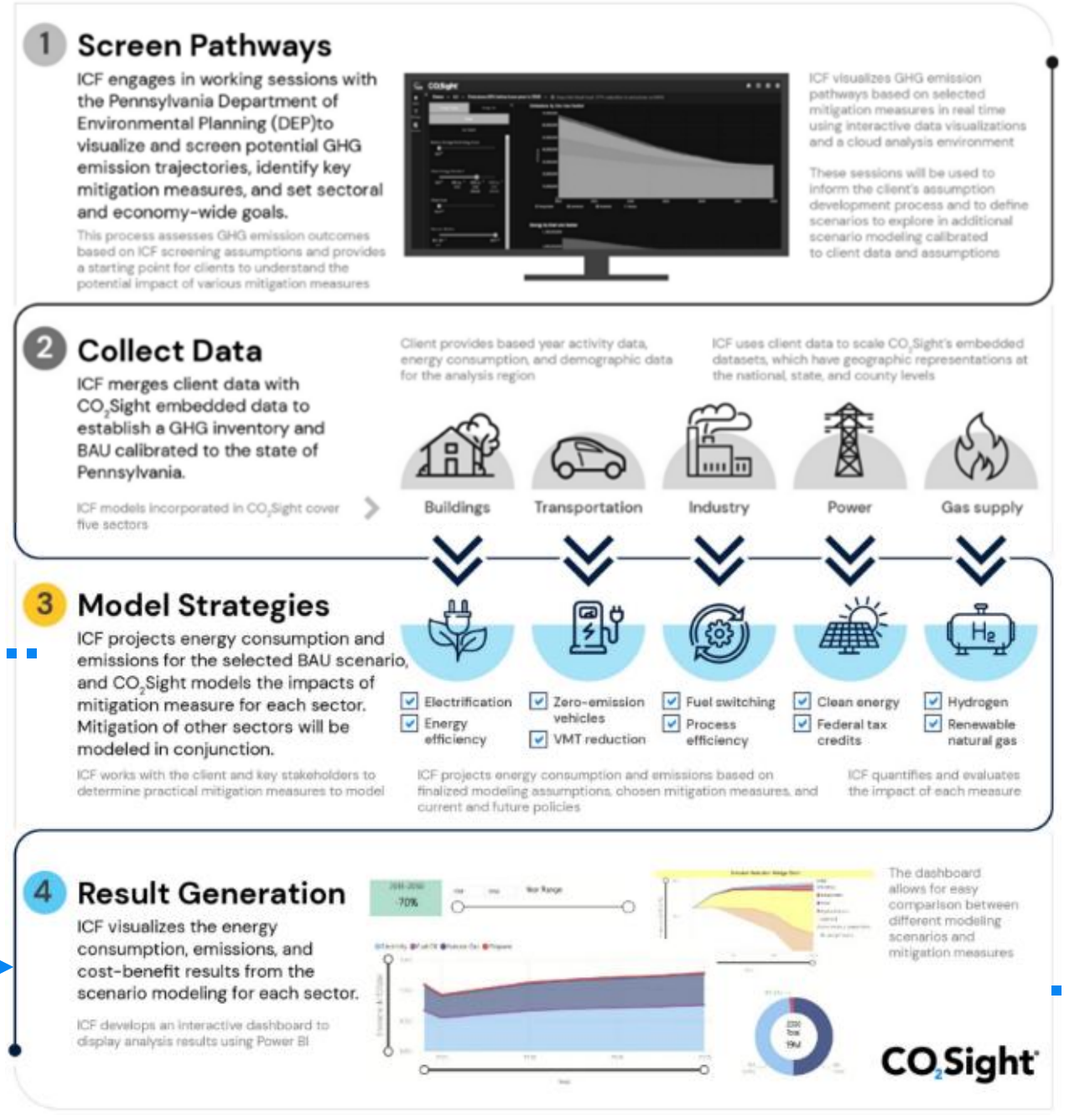
2024 Climate Action Plan

An opportunity for DEP to create a bold vision that exceeds goals; dives deeper into assessing the costs, benefits, co-benefits, and impacts for Pennsylvanians, particularly those in disadvantaged communities; and takes a stronger implementation focus with the aim of being a blueprint for action and potential legislative changes.

An Iterative Process



- Last time we met, we reviewed the results of CO_2Sight Screen, having used it to identify high level emissions reductions trajectories.
- Since then, the ICF team has collected data and conducted initial modeling of most strategies.
- Initial results are included in the Initial Draft CAP.
- The ICF team will be taking the initial results and the feedback from DEP and the CCAC, adjusting inputs and re-running the strategy modeling to update and refine results.

The strategy modeling process is iterative, and results will be continually updated as inputs are refined

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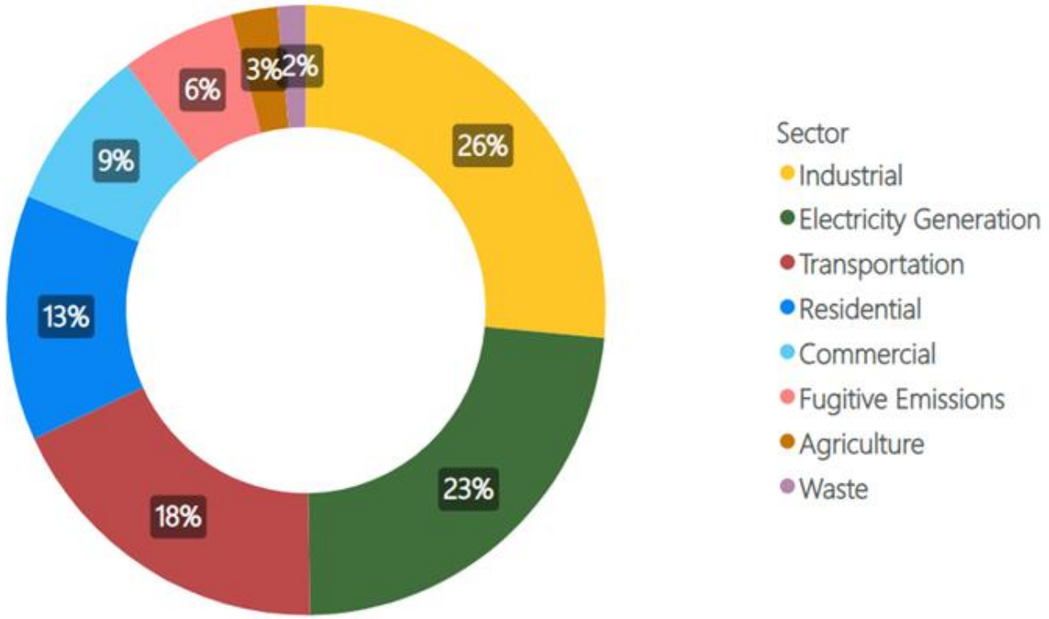
Background- Current Emissions



- Significant Emissions in all Sectors, led by Industry, Electricity Generation and Transportation
- Emissions from Industrial, Residential and Commercial built environment only represent scope 1 (gas, fuel oile and other fuel combustion)

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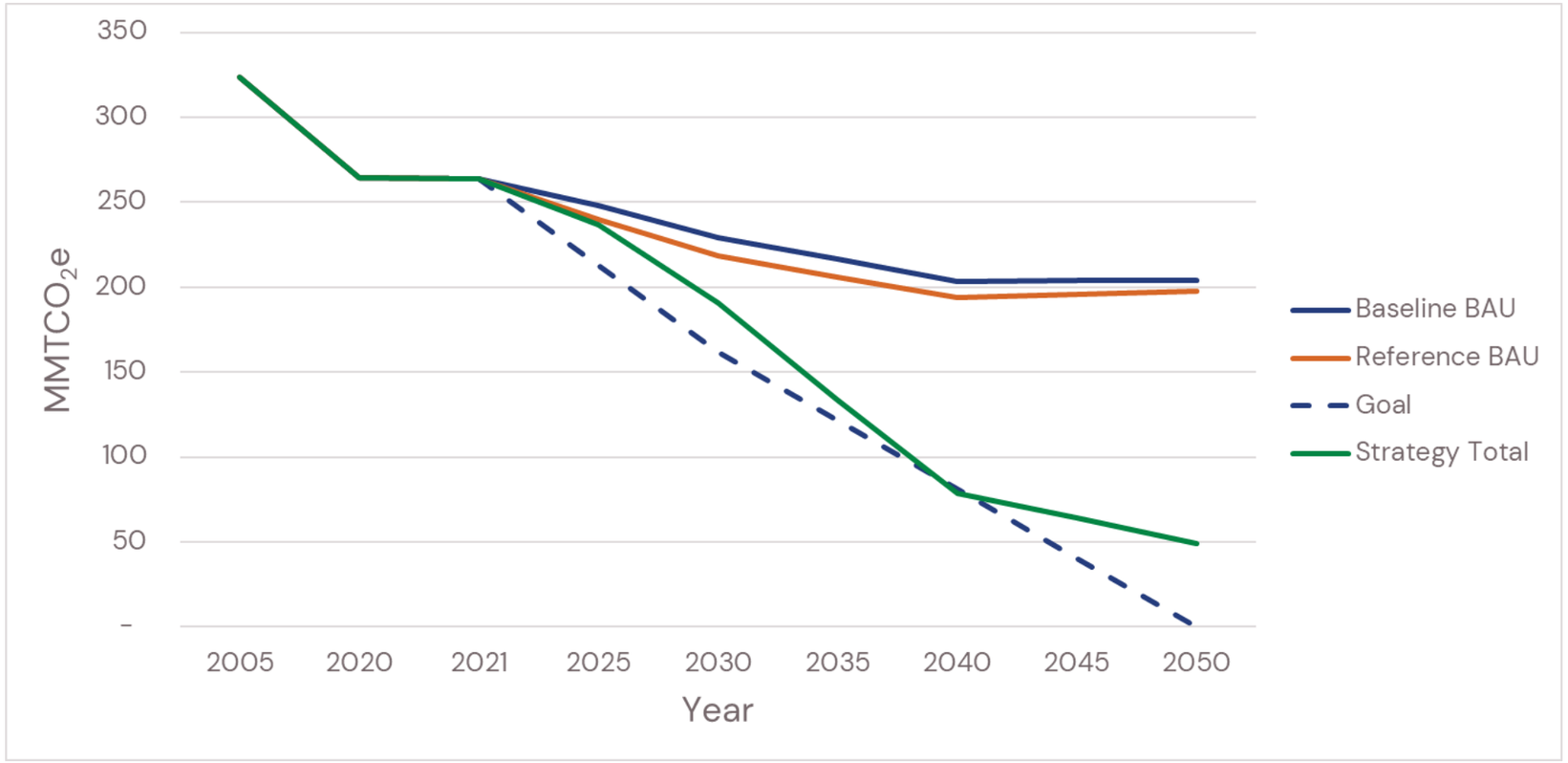
Key Findings- Business as Usual



Year	Goal	Current Results
2025	26-28% reduction	26%
2030	50% reduction	41%
2050	Net zero emissions	85%

Key differences between the Baseline and Reference BAUs

The Reference BAU includes additional policies from IRA and BIL and includes Pennsylvania's participation in RGGI. For example, the Reference scenario includes:

- Greater emissions reductions due to decreased electricity use and emissions in residential and commercial buildings
- Higher transportation emissions savings due to great EV penetration
- A smaller increase in projected industrial emissions due to lower-carbon energy input for industrial processes
- Lower carbon intensity from the electricity grid

BASELINE BAU 40% reduction

REFERENCE BAU 42% reduction

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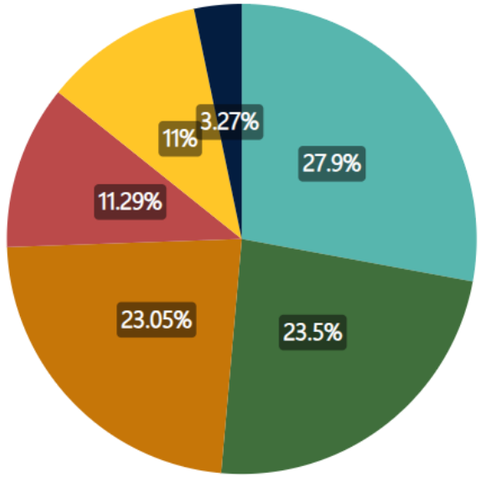
Pennsylvania's Path to 2050

GHG Reduction Strategy	Reductions $MMTCO_2e$ 2025	2050
B1. Building codes[a]	0.008	0.065
B2. Electricity efficiency in buildings[b]	N/A	N/A
B3. Gas energy efficiency in buildings[a]	0.266	1.030
B4. Building electrification[a]	0.498	1.000
B5. Onsite solar[b]	N/A	N/A
Buildings Total	**.772**	**2.095**
T1. Increase Fuel Efficiency	2.00	6.92
T2. Transit & Multimodal Improvements	1.95	2.17
T3. Light Duty Vehicle Electrification [a]	2.05	12.46
T4. Zero Carbon Medium- & Heavy-Duty Vehicles[a]	1.78	10.94
Transportation Total	**7.78**	**32.49**
I1. Industrial Efficiency[a]	2.53	7.54
I2. Gas, Fuel, and Process Decarbonization[a]	1.88	7.98
Industrial Total	**4.41**	**15.52**
F1. Operational Efficiency	3.87	7.63
F2. Biomethane	5.37	12.83
F3. Plug Inactive & Marginal Wells	[To be included in the Updated Draft CAP]	
Fuel & Gas Systems Total	**9.24**	**20.46**
P1. Net Zero Grid	12.23	79.36
P2. Distribution & Transmission Lines	[To be included in the Updated Draft CAP]	
Power Generation Total	**12.23**	**79.36**
L1. Agricultural Best Practices	0.028	0.017
L2. Land & Forest Management	2.93	2.93
Agriculture/ Land Use Total	**2.958**	**2.947**

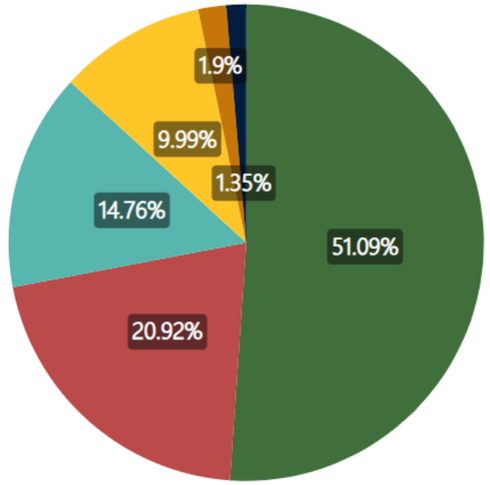
N/A = Not Applicable.
[a] A portion of GHG reduction from this strategy is captured in the electricity generation sector.
[b] The GHG reductions from this strategy are captured in the electricity generation sector.

Total GHG Reductions by Sector



2025

Sector
- Fuel Supply
- Electricity Generation
- Agriculture
- Transportation
- Industrial
- Buildings



2050

Sector
- Electricity Generation
- Transportation
- Fuel Supply
- Industrial
- Agriculture
- Buildings

Emissions from cross-cutting technologies are under refinement.

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Example Strategy

T4. Zero Carbon Medium- and Heavy-duty Vehicles

Implement a low carbon fuels standard and deploy zero carbon medium- and heavy-duty vehicles and associated infrastructure.

In 2020, Pennsylvania joined 14 other states and the District of Columbia in signing a joint memorandum of understanding (MOU) committing to accelerating adoption of zero carbon medium- and heavy-duty vehicles (MHDVs). The MOU aims for 30% and 100% of MHDV sales to be zero emission vehicles (ZEVs) by 2030 and 2050, respectively. Modeling for this strategy reflects this goal.

Zero carbon MHDVs are emerging technologies, and research and development are ongoing to improve existing models and reduce capital costs. The modeling assumes a combination of battery electric, hydrogen fuel cell, and plug-in hybrid electric vehicles will be used to achieve the MOU goal.

Pennsylvania can take advantage of BIL and IRA funds for installing charging infrastructure and replacing conventional MHDVs with zero emission vehicles. EPA's IRA-funded Clean Heavy-Duty Vehicle Program will provide funding for purchasing zero emission MHDVs, building out supporting infrastructure, and developing workforce training and other planning and technical activities. Funding from the BIL-funded NEVI Formula Program can be applied to MHDV charging infrastructure as well.

Resulting Impacts

Environmental

Battery electric MHDVs have no tailpipe emissions, and the only tailpipe emission from hydrogen fuel cell MHDVs is water vapor. As a result, transitioning conventional MHDVs to zero-emission vehicles reduces GHGs like CO_2, CH_4, and N_2O, as well as harmful criteria air pollutants, improving local air quality. As discussed in T3, additional electricity generated to charge electric MHDVs will result in lower GHG emissions than burning gasoline or diesel for these vehicles, mile-for-mile. However, for hydrogen fuel cell MHDVs to significantly contribute to GHG emission reductions, the hydrogen fuel needs to be produced with little to no net GHG emissions. The most significant reductions will result from using "green hydrogen," or zero-carbon produced by splitting water molecules into hydrogen and oxygen using renewable electricity (a process known as electrolysis). See strategy F3 for more details about the emissions impacts of using hydrogen fuels.

KEY METRICS

GHG emissions:

2030: 1.78 $MMTCO_2e$

2050: 10.94 $MMTCO_2e$

Economic Metrics:

[The below to be included in the Updated Draft CAP (1/31)]

Cost (or benefit) per ton $MTCO_2e$/reduced):

NPV:

Average annual gross state product:

Average annual disposable personal income:

Jobs:

Economic metrics will be added in the next iteration of the report

Example Strategy

Economic

The recent decline in prices for light-duty EVs suggests that the costs of zero emission MHDVs could follow a similar trajectory. Recent research has suggested that zero emission MHDVs could reach cost parity with conventional MHDVs within a decade or so[8]. As with light-duty EVs, zero emission MHDVs will cost less to fuel and maintain than conventional MHDVs. Reduced air pollution will reduce associated medical expenses. Finally, while new jobs will be created for installing, operating, and maintaining charging and fueling infrastructure for zero emission MHDVs, the reduced maintenance requirements for these vehicles may result in a loss of jobs in conventional vehicle maintenance and fueling.

Social and Health

As discussed in T1-3, reducing local criteria air pollutants by eliminating vehicle tailpipe criteria pollutant emissions will reduce health issues associated with these pollutants, especially in communities located near highways or major roadways. As discussed in T3, however, additional electricity generation may increase criteria air pollution in communities near fossil fuel plants, but this risk can be mitigated as fossil fuel electricity generation is phased out and replaced with renewables.

Also as discussed in T3, electric MHDVs can help stabilize the electric grid by providing a form of electricity storage. This can help balance the grid in times of high electricity demand and reduce curtailment of renewable generation.

Implementation Considerations

[To be included in the Updated Draft CAP (1/31)]

RELATED FUNDING OPPORTUNITIES

National Electric Vehicle Infrastructure Program

Pennsylvania has received $171.5 million from IIJA funds over 5 years to deploy EV charging stations needed to support the transition to battery electric MDHVs.

[8] Catherine Ledna et al., "Decarbonizing Medium- & Heavy-Duty On-Road Vehicles: Zero-Emission Vehicles Cost Analysis," March 7, 2022, https://doi.org/10.2172/1854583.

Implementation considerations will be added to the next iteration of the report.

Next Steps & Report Refinements

SECTIONS TO BE ADDED IN THE NEXT DRAFT

- Macroeconomic impacts of the proposed strategies
- Implementation considerations for each strategy
- Challenges with implanting strategies and/or in achieving key outcomes by sector
- Legislative recommendations to facilitate the implementation of the proposed strategies
- Detailed co-benefits analysis of strategies
- Detailed adaptation strategies list
- Updated review and discussion of embodied carbon considerations

REFINEMENTS & MODELING UPDATES IN PROCESS

- Updating the base emissions year to 2020, to align with the most recent Pennsylvania GHG Inventory.
- More detailed connections to EJ communities and connections to the PADEP's Climate Action Strategies for Environmental Justice Communities Report.
- Additional modeling on CCS & hydrogen impacts

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Updated Framework for DEP's Legislative Recommendations

Conduct **background research** and review the 2021 CAP for a baseline to identify Pennsylvania climate change priorities.

Prepare a **literature review** including:
- Review of existing Pennsylvania legislation.
- Benchmarking best practices of other states and industries.
- Additional research on in-state and regional policies.

Draft an initial menu of legislative recommendations **based upon draft 2024 CAP strategies** and findings from the literature review memo.

Submit initial legislative recommendations to CCAC as part of the updated draft 2024 CAP in January.

Iterate off CCAC feedback to update and refine legislative recommendations, supporting graphics and analysis as a part of the CAP deliverable schedule.

OPPORTUNITIES FOR CCAC FEEDBACK

12/19 December CCAC Meeting
- Present initial menu of recommendation options

01/31 Updated Draft CAP
- Including written recommendations

03/31 Draft Final CAP
- Refined recommendations

05/31 Final CAP
- Finalized recommendations

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Draft Menu of Legislative Options

Sector	Strategy Name	Policy Options	Reference Legislation/Jurisdiction
Built Environment	*B1. Building Codes: Improve energy efficiency of new buildings and major retrofits through codes.* *B2. Electricity Efficiency in Buildings: Deploy electricity efficiency in existing buildings.* *B3. Electricity Gas in Buildings: Deploy gas efficiency in existing buildings.* *B4. Electrification: Deploy gas and fuel oil alternatives in existing buildings.* *B5. Onsite Solar: Deploy onsite solar, distributed energy resources and battery systems in buildings.*	• Building Energy Benchmarking, Building Energy Performance Program or Building Energy Performance Standards • Building Code Adoption reform, increased enforcement, and training • Broader Act 129 implementation for electricity and expansion to natural gas and electrification • Clean energy accelerator (Technical assistance, program resources, lending, etc…) • Clean Energy Workforce Development Programs • Energy Efficiency, Electrification and Renewable Energy incentive programs (grants, rebates, tax credits, etc.) • Electrification readiness programs	• Pittsburgh and Philadelphia Benchmarking and BEPP programs • Various State programs (OR, WA, MN, CO, MD, MA) • NJ Appliance Standards Law • Electrification Programs including: NY State Clean Heat, Efficiency Maine, Mass Save • Agriculture Enegy Efficiency Rebate Program • PA Department of L&I Clean Energy Workforce Development Grants • Philadelphia Energy Authority Built to Last, Solarize, and other residential programs • Delaware Low- and Medium-Income Solar Pilot Program. • Maryland Multifamily Energy Efficiency and Housing Affordability Program
Power	*P1. Net Zero Grid: Build a net zero carbon electricity grid.* *P2. Distribution and Transmission Grids: Ensure that electricity grid is ready for electrification related to peak load impacts and reliability.*	• AEPS Reform (expansion of types & percentages) • Clean Electricity Standard • RGGI • Community Solar enabling legislation • “Shared” Solar enabling legislation (utility solar ownership) • Solar and Land Use policy and zoning • Renewable Energy and Zero Emissions Electricity incentive programs (grants, rebates, tax credits, etc.) • Clean Energy Workforce Development Programs	• CES (New York, New Jersey, many others) • Community Solar Programs (New York, Massachusetts, many others)
Industrial	*I1. Industrial Efficiency: Deploy electricity and gas efficiency in the industrial operations.* *I2. Gas, Fuel, and Process Decarbonization: Electrify industrial uses, change processes, and deploy gas and fuel oil alternatives in industrial operations.*	• Clean power plant standards • Energy Efficiency, Electrification and Renewable Energy incentive programs (grants, rebates, tax credits, etc.)	• Maryland Commercial, Industrial, and Agricultural Fiscal Year 2023 Grant Program • Colorado Industrial emissions-trading program

Draft Menu of Legislative Options- Continued

Sector	Strategy Name	Policy Options	Reference Legislation/Jurisdiction
Transportation Systems	*T1. Increase Fuel Efficiency: Increase fuel efficiency of vehicles.* *T2. Transit and Multimodal Improvements: Expand transit, transit-oriented design, and multimodal transportation.* *T3. Light Duty Vehicle Electrification: Deploy electric vehicles and associated infrastructure.* *T4. Zero Carbon Medium- and Heavy-duty Vehicles: Implement low carbon fuels and deploy zero carbon medium- and heavy-duty vehicles and associated infrastructure.*	• Fuel efficiency standards • Zoning code updates • Expansion of transit funding • Zoning incentive program • ZEV incentive programs (grants, rebates, tax credits, etc.) • ZEV sales requirements/targets	• PA Act 89 • PA AFIG Program • Maryland Clean Fuels Incentive Program • Maryland Clean Fuels Incentive Program
Fuel and Gas Systems	*F1. Operational Efficiency: Reduce methane emissions across oil and gas operations.* *F2. Biomethane: Expand use and generation of biomethane fuels.* *F3. Inactive and Marginal Wells: Reduce methane emissions from inactive and marginal conventional oil and gas wells.*	• Regulatory enhancements • Low carbon gas standard • Well Plugging Programs	• DEP Well Plugging Program • Colorado and North Dakota gas regulations • Wyoming Energy Rebound Program
Cross Cutting Technologies	*C1. Hydrogen Fuels: Expand use and generation of hydrogen fuels.* *C2. Carbon Capture and Sequestration: Deploy and continue to pursue new carbon capture technologies for power and industrial systems*	• Clean Energy Standard (inclusive of Hydrogen and CCS)	

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Draft Menu of Legislative Options- Continued

Sector	Strategy Name	Policy Options	Reference Legislation/Jurisdiction
Land Use and Agriculture	*L1. Agriculture Best Practices: Implement agriculture best practices for emissions reductions.* *L2. Agriculture Best Practices: Implement agriculture best practices for carbon management and sequestration.* *L3. Land and Forest Management: Increase natural sequestration in Pennsylvania's land and forests.*	• Carbon capture & sequestration credits for farmers • Incentives for conservation & ecosystem protection • Incentives & regulatory enhancements for urban greening and tree planting	
Waste	*W1. Sustainable Organic Waste Management: Divert organic waste from landfills and incinerators.* *W2. Sustainable Construction Waste Management: Support construction material salvage and reuse along with adaptive reuse of buildings.*	• Waste diversion goals • Regulatory enhancements (compost mandates, waste separation laws etc.)	• San Francisco's Zero Waste Program & *Construction and Demolition Debris Recovery Ordinance*
Cross Cutting Legislation	• Maryland Climate Solutions Now Act • New Jersey's Clean Energy Act • New York's Climate Leadership and Community Protection Act		

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Climate Action Plan
Q&A and Discussion

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