



2024 Pennsylvania Climate Impacts Assessment and Climate Action Plan

Presentation to Climate Change Advisory Committee



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Agenda

1. Project Status & Schedule Update
2. 2024 Climate Impacts Assessment (CIA)
 - Review of Feedback & Incorporated Changes
 - Review of updates since last draft
 - Q&A and Discussion
3. 2024 Climate Action Plan (CAP)
 - Initial Draft Findings & Model Results
 - Next Steps and Modeling Refinements
 - Legislative Recommendations Process & Status
 - Q&A and Discussion

Project Status & Schedule Update

Task	2023						2024					
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Kickoff	●											
Climate Impact Assessment (CIA)	Initial Draft CIA ●			Updated Draft CIA ●		Draft Final CIA ●		Final CIA ●				
Climate Action Plan (CAP)		Initial Draft CAP ●			Updated Draft CAP ●		Draft Final CAP ●		Final CAP ●			
Climate Change Advisory Committee (CCAC) Coordination		●		●		●		●		●		●





→ 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

- Key Terms
- Chapter 1: Introduction
- Chapter 2: Expected Climate Changes in PA
- Chapter 3: Risk Assessment Overview
- Chapter 4: Spotlight Issues
- Chapter 5: Economic Opportunities
- Chapter 6: Conclusions and Recommendations
- Appendix A: Risk Assessment Methodology
- Appendix B: Risk Assessment Details
- Appendix C: Climate Analysis Details

New in this draft

- Executive Summary

New/updated content in this draft

- SSP2-4.5 and SSP5-4.5 projections throughout the document
- Incorporated CCAC comments on the discussion of impacts
- Renamed *Energy & Other Economic Impacts to Other Economic Impacts* and focused on physical energy impacts

*Updates made in response to CCAC feedback, state agency review

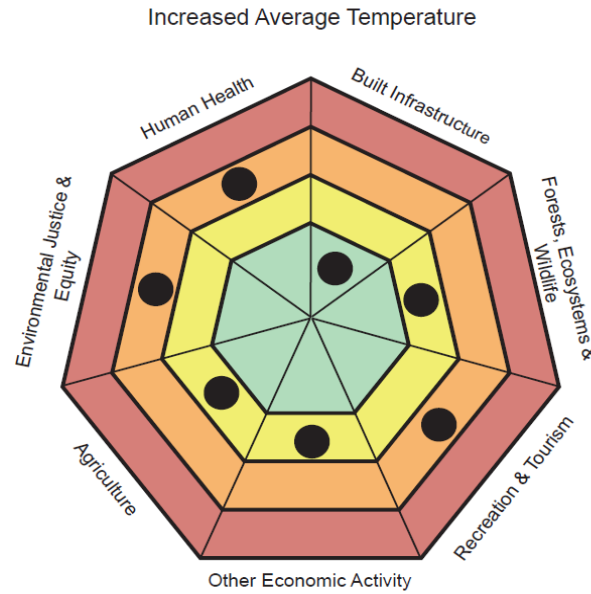
Recap Key Findings

- Heat waves will become increasingly common and dangerous. They 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.

		IMPACT CATEGORY						
		Human Health	Environmental Justice and Equity	Agriculture	Recreation and Tourism	Other Economic Activity	Forests, Ecosystems, and Wildlife	Built Infrastructure
CLIMATE HAZARD	Increasing average temperatures	12	12	8	12	8	16	4
	Heavy Precipitation and Flooding	12	8	12	8	8	8	12
	Heat Waves	16	12	8	4	8	4	8
	Landslides	3	6	3	3	6	3	12
	Severe tropical and Extra-tropical cyclones	6	4	6	4	4	4	8
	Sea Level Rise	3	3	3	3	6	6	12

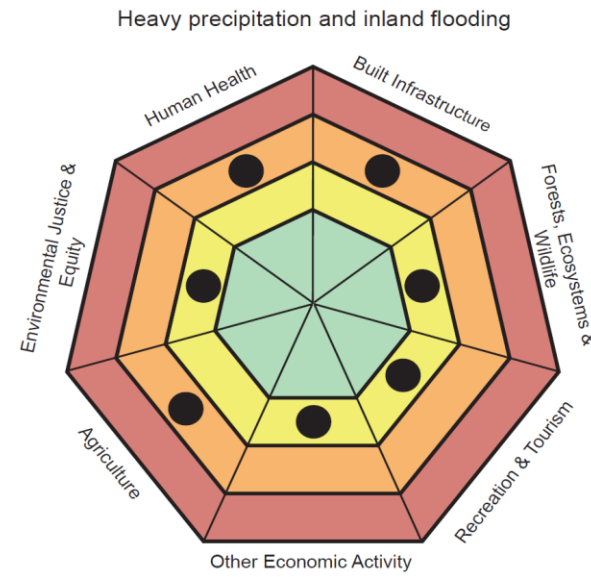
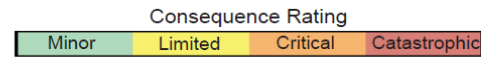
Legend			
Low Risk	Medium Risk	High Risk	Extreme Risk

Recap Key Findings



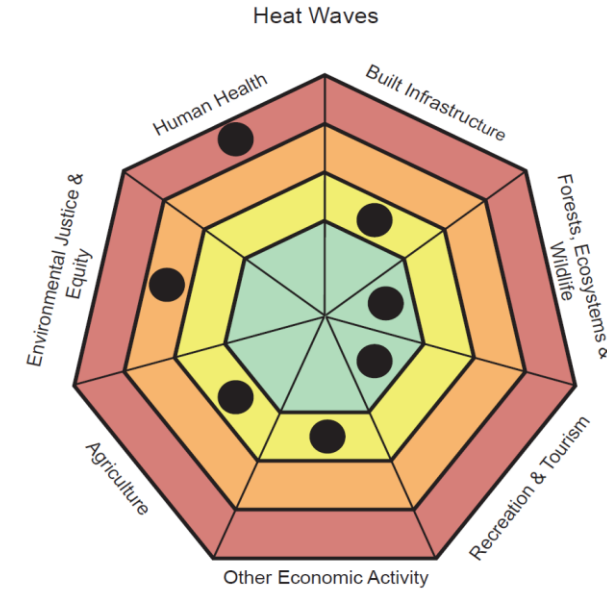
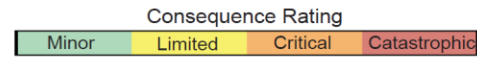
Present Risk Rating
5.3
Medium

2050 Risk Rating
10.7
High



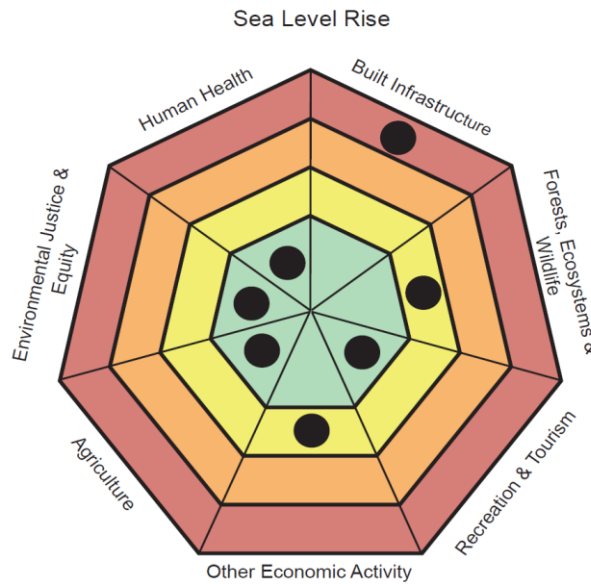
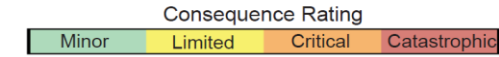
Present Risk Rating
9.9
High

2050 Risk Rating
9.9
High



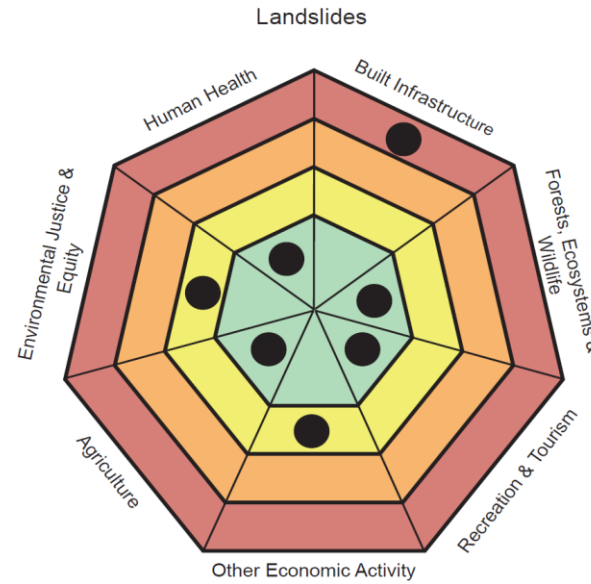
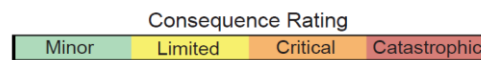
Present Risk Rating
4.7
Medium

2050 Risk Rating
9.3
High



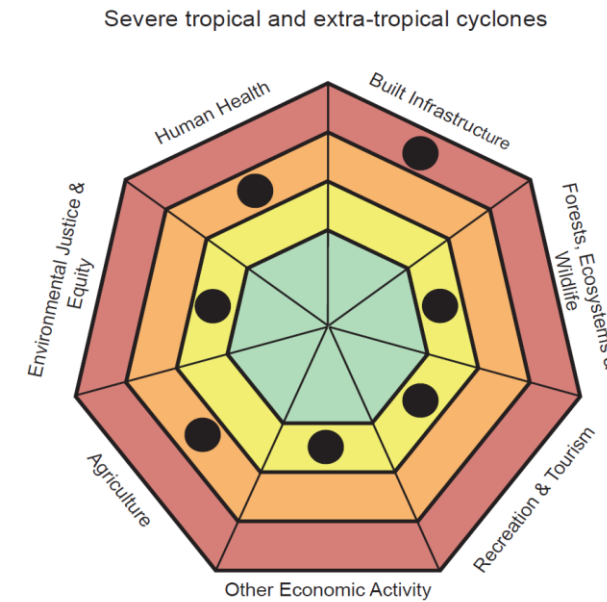
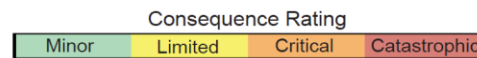
Present Risk Rating
1.9
Low

2050 Risk Rating
5.6
Medium



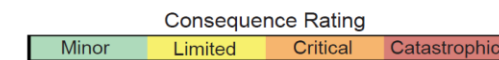
Present Risk Rating
5.6
Medium

2050 Risk Rating
5.6
Medium



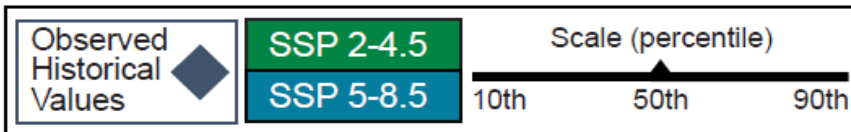
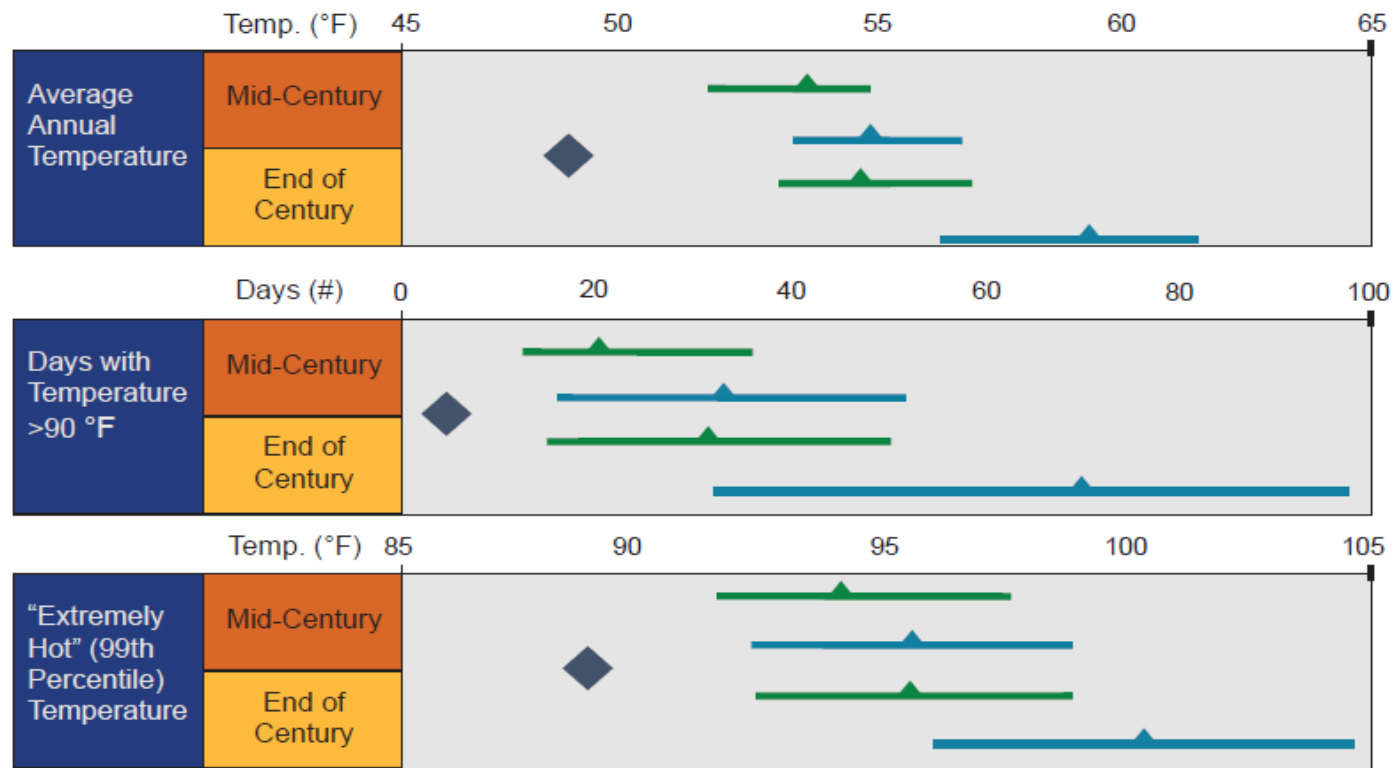
Present Risk Rating
5.3
Medium

2050 Risk Rating
5.3
Medium

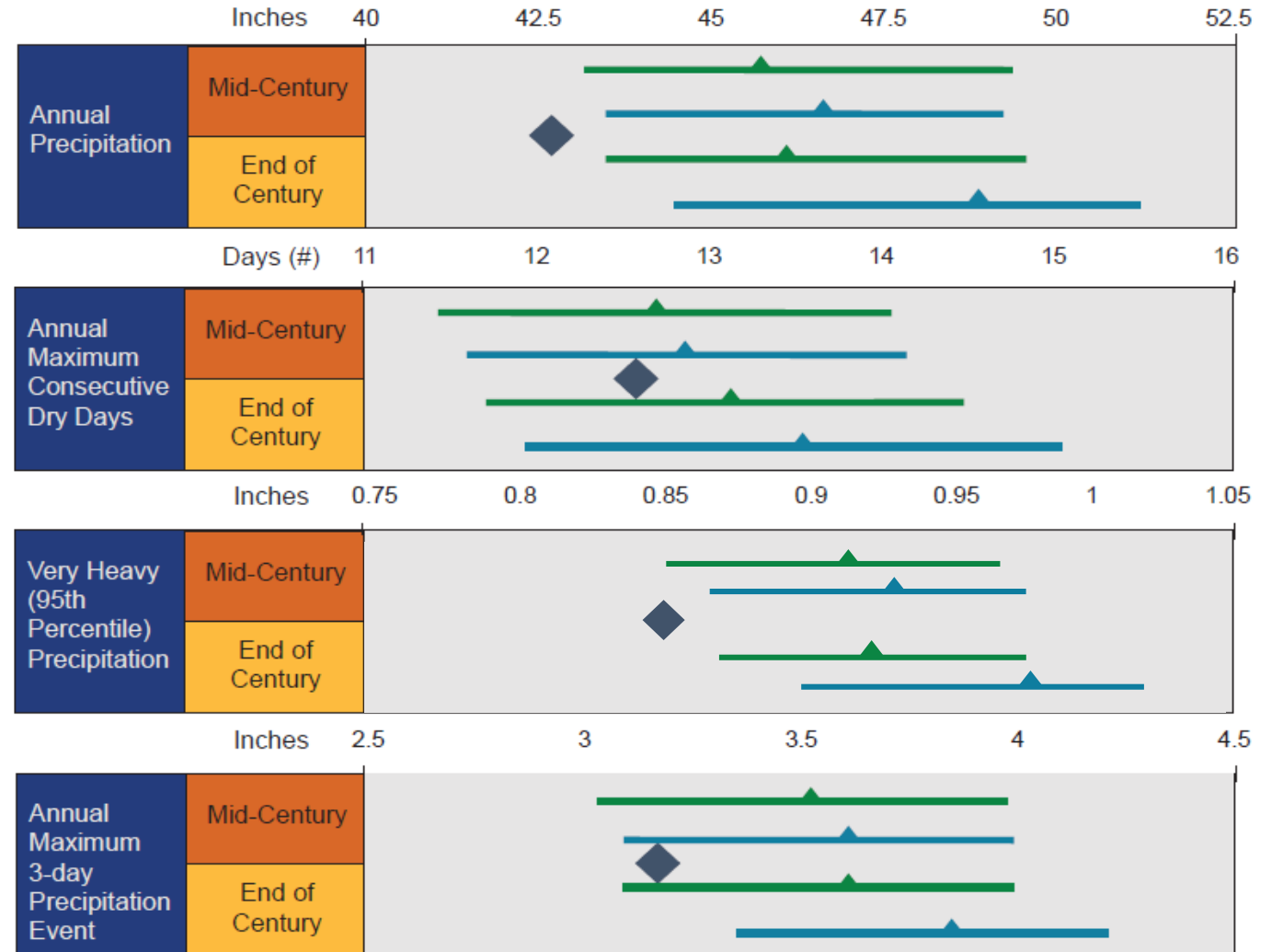


Emphasis on SSP 2-4.5 and SSP 5-8.5

Temperature Variables



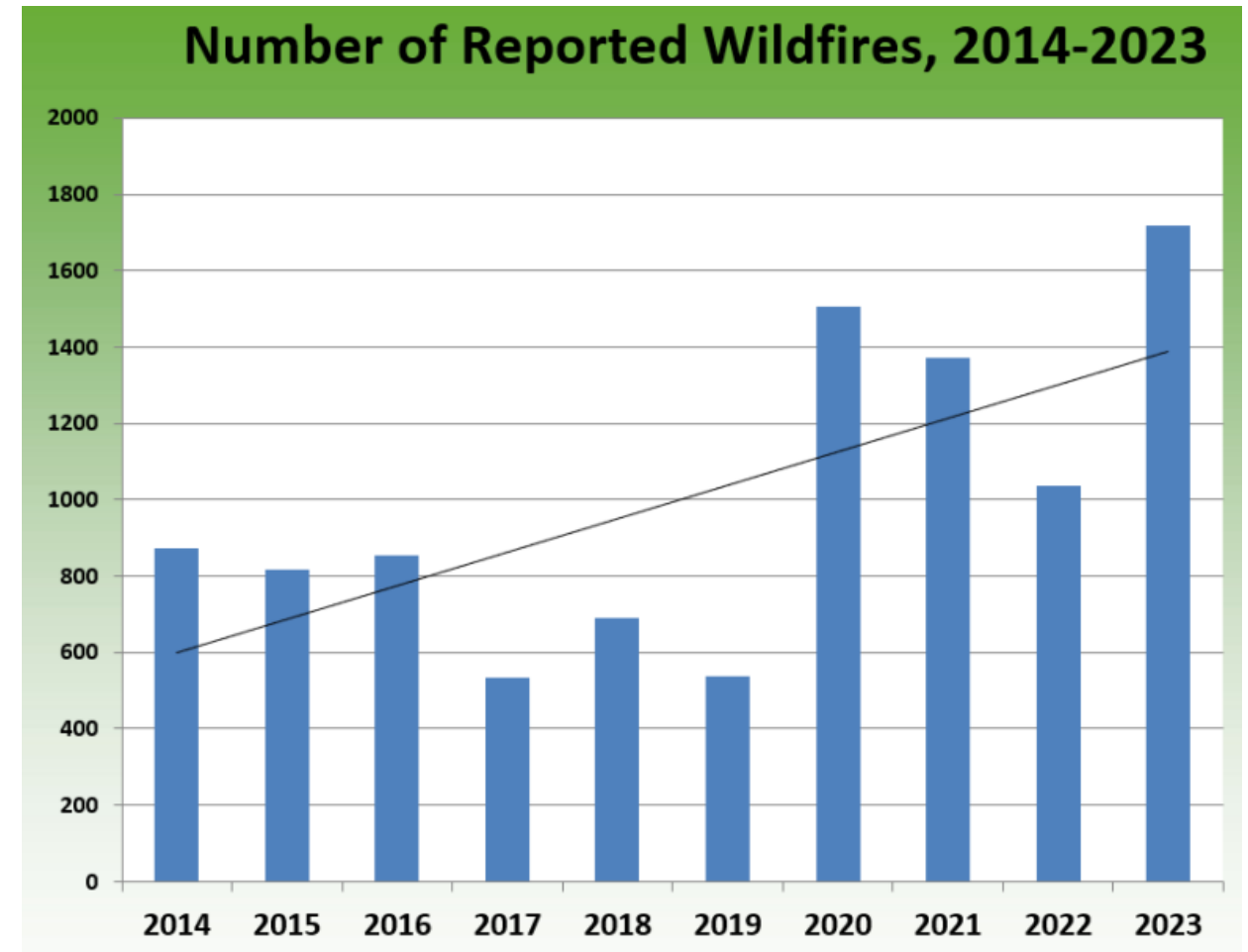
Precipitation Variables



Incorporated Discussion of Additional Impacts

Additional impacts for this draft include:

- Details on **stormwater** impacts
- Details in impacts to **wildlife**
- Health impacts of **hot nights**
- Impacts from **human migration**
- Rising number of **wildfire events** reported in recent years
- Detail on **health impacts** for children and the elderly



Wildfire in Pennsylvania.
Source: PA DCNR

Clarification of Energy Impacts

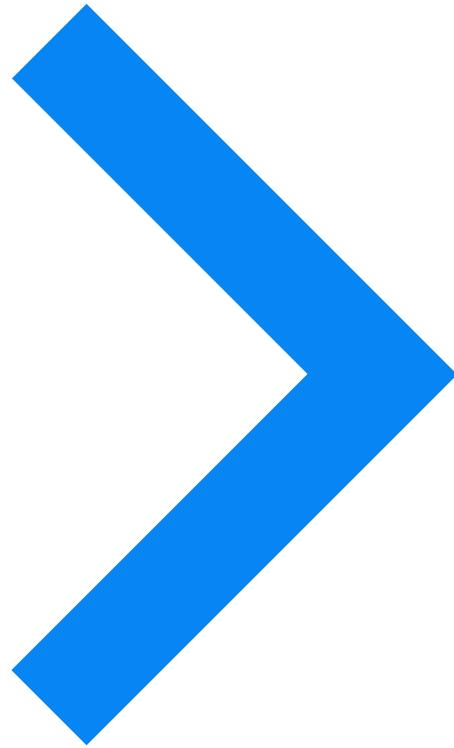
In past drafts of the Risk Assessment Details appendix, energy impacts appeared in:

- Energy and Other Economic Activity
- Built Infrastructure

In this updated version, energy impacts were clarified by:

- Renaming *Energy & Other Economic Impacts* to *Other Economic Activity* with no specific emphasis on energy
- Reorganizing energy impacts across the document

	Other Economic Impacts	Built Infrastructure
How energy appears in this section	Energy as a business; Energy as a business input	Energy infrastructure impacts
Example <i>(from Heavy Precipitation and Inland Flooding)</i>	“Local power blackouts caused by flood damage to energy infrastructure could impact those reliant on that power supply.”	“Significant portions of transportation and energy infrastructure in Pennsylvania may be susceptible to direct flooding damage.”



Climate Impacts Assessment Q&A and Discussion



→ 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.

New Report Items

CHAPTER 1 Introduction

Additional equity & EJ Framing*

***Newly Added**

CHAPTER 2 The Pennsylvania Climate Landscape

CHAPTER 3 Greenhouse Gas Emissions

CHAPTER 4 Greenhouse Gas Reduction Opportunities

Implementation considerations added to each strategy*

Additional equity & EJ information added to strategy and sectors*

CHAPTER 5 Climate Change Impacts

CHAPTER 6 Adaptation Opportunities

Refined list of adaptation strategies added*

Example strategy profiles added*

CHAPTER 7 Legislative Recommendations*

CHAPTER 8 Implementing Climate Action*

APPENDIX A- Key Terms

APPENDIX B- BAU Methodology

APPENDIX C- Federal Funding Opportunities

Information from Chapter 2 in the previous draft was moved to this appendix

New Equity & EJ Sections

FORMAT BY SECTOR

Equity in the Land Use Sector



Accessibility: Two of the strategies in the land use sector relate directly to rural and agricultural communities. Connecting with these communities for outreach can be challenging due to **physical**

challenges such as remote location and long transportation distances, **technology** challenges such as unreliable or insufficient internet access, and **lack of existing relationships** and methods to reaching these communities.

Increasing internet access for rural areas and establishing outreach methods to specifically target rural communities could help improve accessibility. Such methods would need to account for travel distances and provide backup options for those who do not have sufficient internet access to join virtual meetings.



Advocacy: Particular attention should be placed on how strategies will impact farmers and other agricultural workers of small farms, and those others who work, live, and go to school in proximity to agricultural processes. To

prioritize the wellbeing of all constituents in efforts addressing land use, DEP should continue to communicate and engage with EJ communities to advocate for climate actions of most interest to the community. Additionally, DEP could partner with CBOs and collaborate with other agencies such as DCNR to amplify existing outreach and land use climate actions.



Accountability: To ensure accountability, it will be important to identify intended outcomes and benefits, monitor actions that have been implemented in the land use sector, review impacts and progress on commitments, share updates with community stakeholders, and incorporate feedback following a dynamic and predetermined cadence.

FORMAT BY STRATEGY

Action from the CAJEC Program that aligns with this strategy:

- Preserve agricultural areas to function as carbon storage

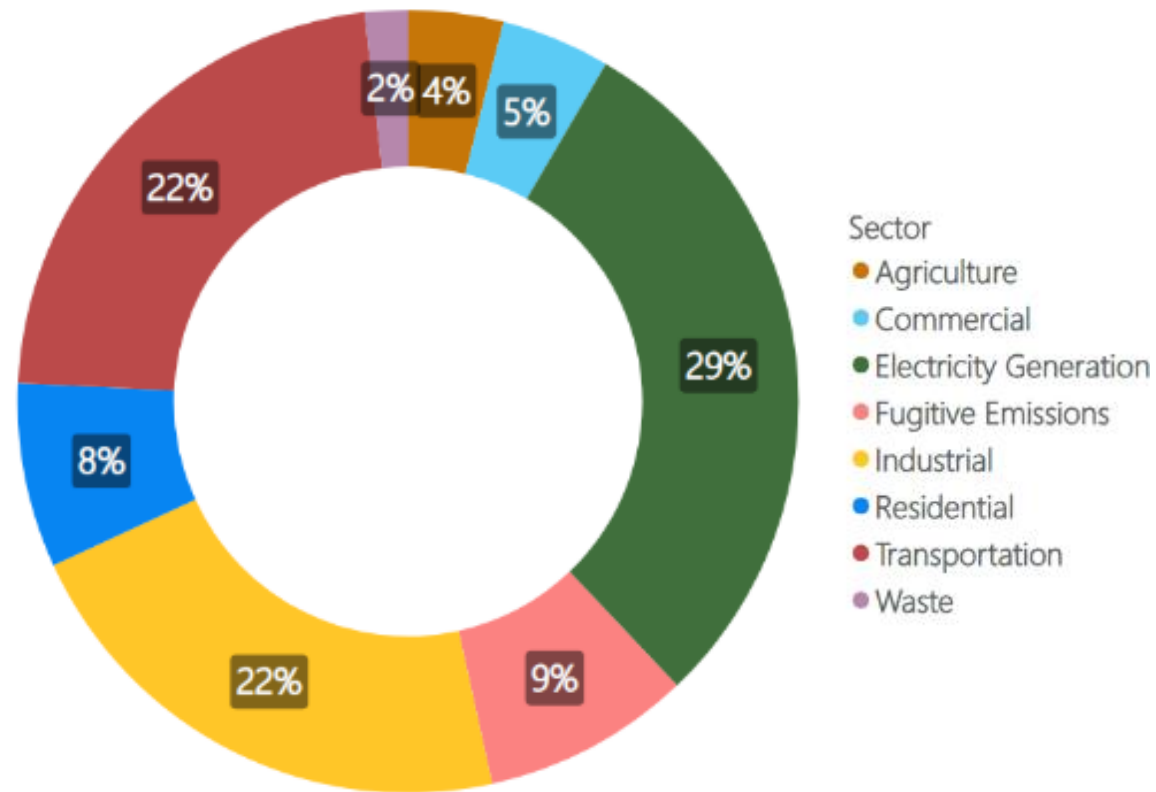
Equity & Environmental Justice

Transitioning agricultural practices to less emissive machinery will require financial investment and personnel training wherever implemented. The state should take care to ensure that smaller farms, and minority and women-owned farms, have ready access to all tools and resources for no-till practices. Where possible, empower community farming coalitions and local leaders to encourage and facilitate the transition to reduced tillage. Additionally, by supporting farms and their sequestration potential, implementing this strategy aligns with the CAEJC action of preserving agricultural areas to function as carbon storage.

Implementation of best management practices (BMPs) in agriculture such as reduced tillage may also reduce flood risk (e.g., by allowing soils to hold more water), thereby increasing farms' resilience to projected increased flood risks under climate change. BMPs may also improve the sustainability of agricultural practices to cope under changing climate conditions, reduce erosion, and improve soil health. Prioritizing equitable implementation of this strategy will allow these benefits of increased resilience to be realized in LIDACs.

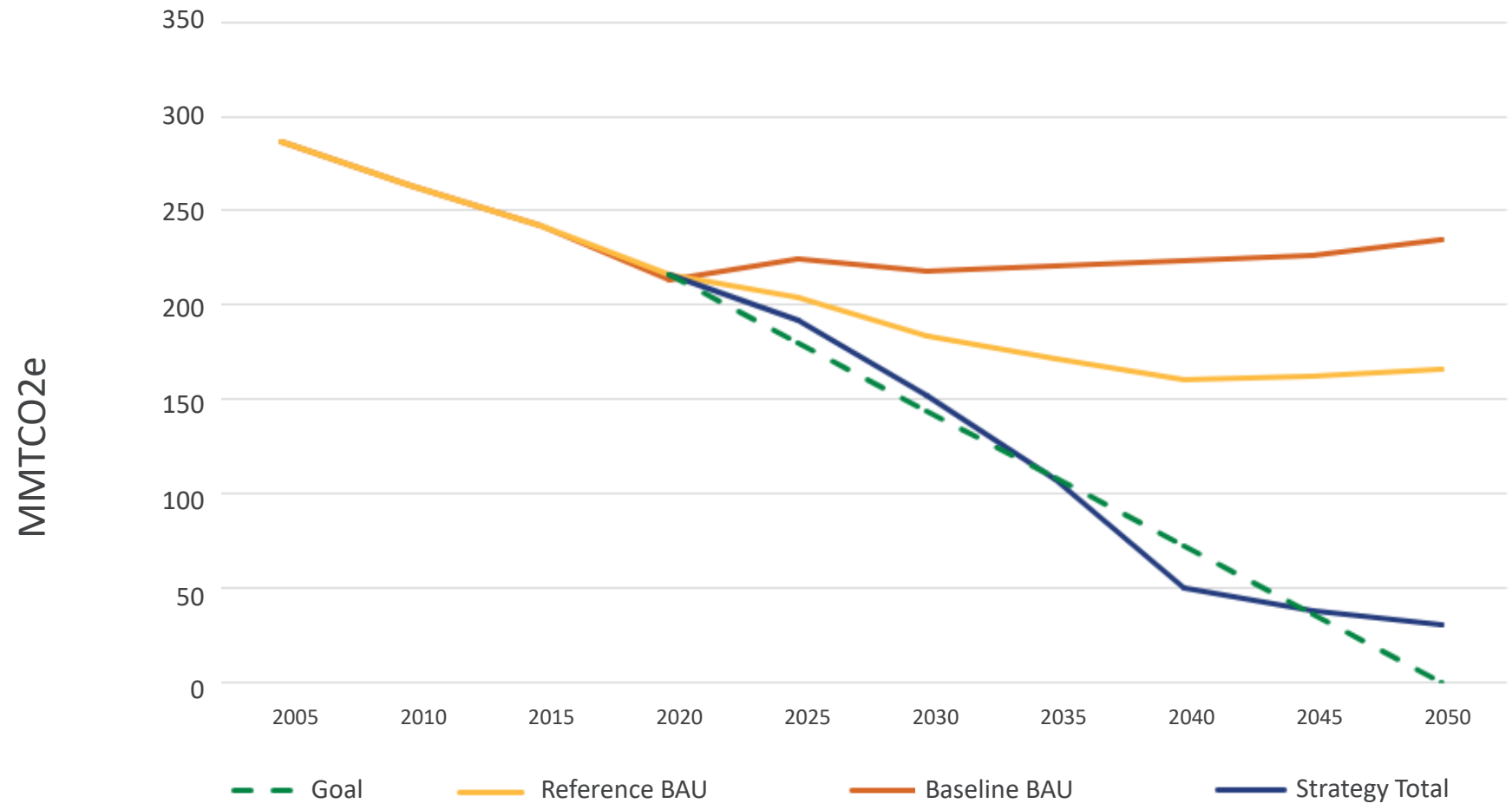
Additional EJ and equity discussion can also be found in the Introduction and in Chapter 8.

Background - Current Emissions (2020)



- 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 oil and other fuel combustion)

Business as Usual Refinements



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

Year	Strategy	Modeled Results
2025	26-28% reduction	27%
2030	50% reduction	49%
2050	Net zero emissions	90%

BASELINE BAU **18% reduction**
REFERENCE BAU **42% reduction**

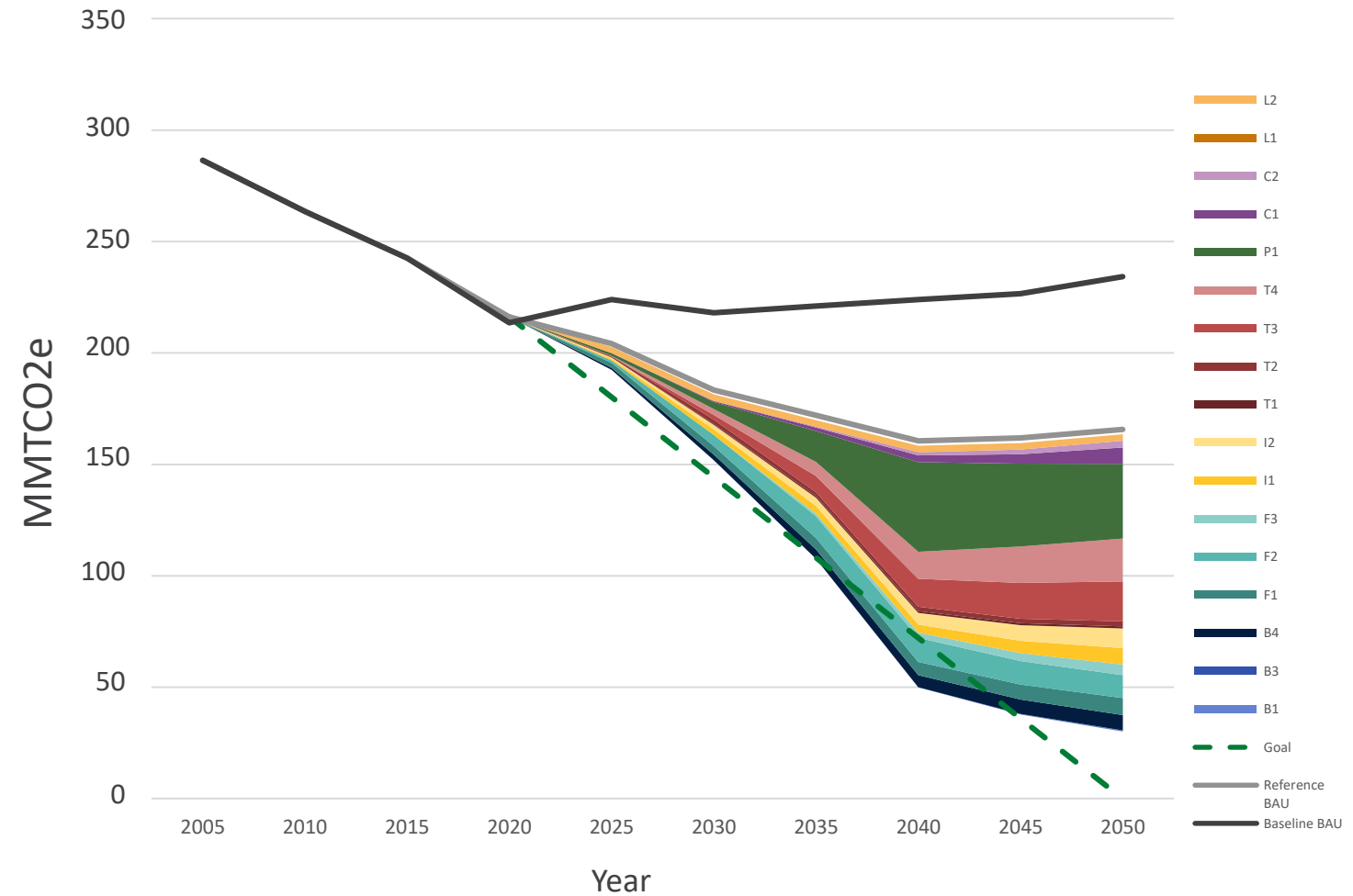


Pennsylvania's Path to 2050

GHG Reduction Strategy	Reductions MMTCO ₂ e	
	2030	2050
B1. Building codes ^a	0.08	0.45
B2. Electricity efficiency in buildings ^b	N/A	N/A
B3. Gas energy efficiency in buildings ^a	0.26	1.02
B4. Building electrification ^a	2.46	6.91
B5. Onsite solar ^b	N/A	N/A
Buildings Total	2.8	8.38
T1. Increase Fuel Efficiency	0.40	0.89
T2. Transit & Multimodal Improvements	1.95	2.17
T3. Light Duty Vehicle Electrification ^a	2.07	17.97
T4. Zero Carbon Medium- & Heavy-Duty Vehicles ^a	2.65	19.21
Transportation Total	7.07	40.24
I1. Industrial Efficiency ^a	2.42	7.48
I2. Gas, Fuel, and Process Decarbonization ^a	2.07	8.83
Industrial Total	4.49	16.31
F1. Operational Efficiency	3.87	7.63
F2. Biomethane	5.04	10.25
F3. Plug Inactive & Marginal Wells	0	4.72
Fuel & Gas Systems Total	8.91	22.60
P1. Net Zero Grid	3.15	33.59
P2. Distribution & Transmission	N/A	N/A
Power Generation Total	3.15	33.59
L1. Agricultural Best Practices – Emissions Reduction	2.93	2.93
L2. Agricultural Best Practices – Carbon Sequestration	0.028	0.018
L3. Land & Forest Management	1.65	1.22
Agriculture/ Land Use Total	4.608	4.168

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.

GHG Reduction Strategy	Reductions MMTCO ₂ e	
	2030	2050
C1. Hydrogen	0.46	7.35
C2. CCUS	0.03	2.94
Cross Cutting Total	0.49	10.29



Energy Rates Analysis- Approach

ICF's Energy Rate Analysis Approach provides [separate modeling for gas and electricity](#):

Both models take [strategy inputs from ICF's sector modeling](#) to inform changes in energy use and demand.

[Gas rate modeling](#) look at specific aspects (unit costs, use, and demand) across multiple consumer categories (residential, commercial industrial) and a set of assumptions on gas utilities' future operations. The costs of gas for consumers is broken down into three components:

- Gas pipeline and storage costs
- Utility service costs
- Gas supply costs

[Electricity rate modeling](#) leverages ICF's Integrated Planning Model outputs to develop electricity supply costs for the PJM market affecting consumers and further transmission and distribution indicative cost changes. The three components considered for the electric markets are i) electricity supply (energy, capacity & RECs), ii) transmission (PJM network service charges, iii) and distribution (customer charges, delivery charges, and distribution system improvement charges).

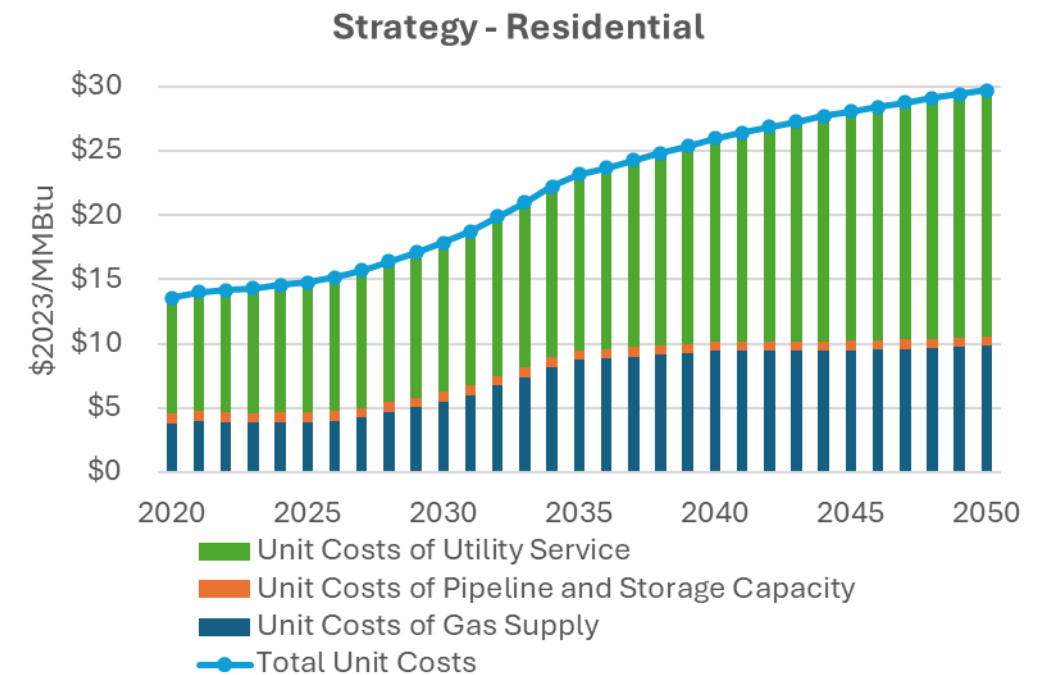
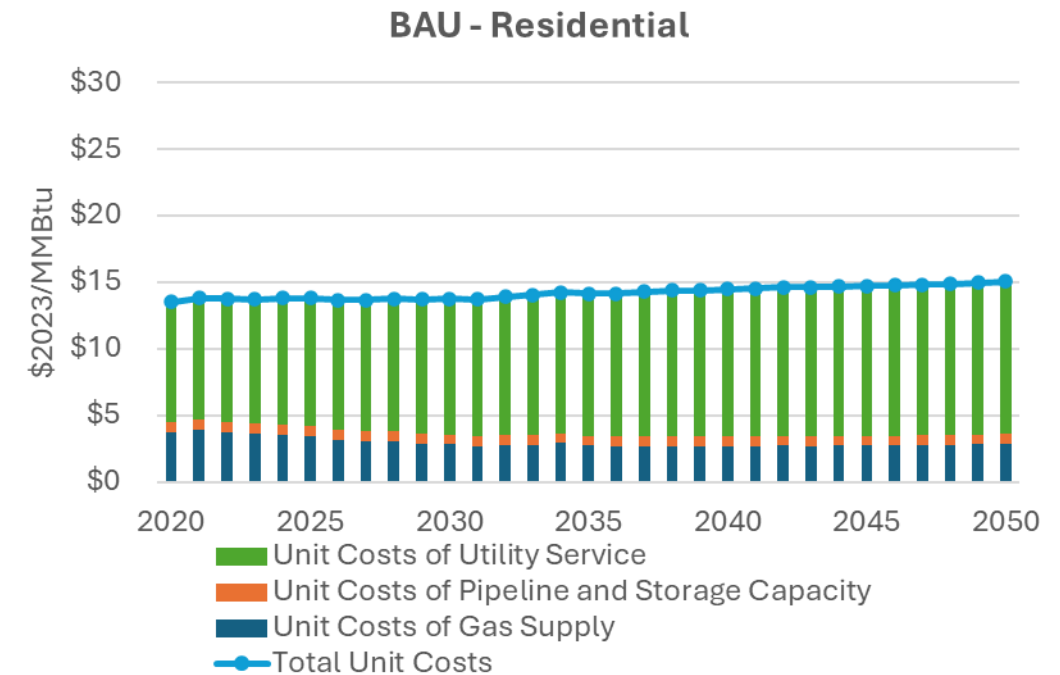
[Results shown are initial and a snapshot of what the final work will include.](#)

Energy Rates Analysis- Gas

In the **BAU pathway**, the residential gas rate is anticipated to remain relatively stable in real terms exhibiting a Compound Annual Growth Rate (CAGR) of 0.35% from 2020 to 2050.

In the **Strategy pathway**, the residential gas rate is projected grow and experience a real-dollar growth of 2.66% CAGR from 2020 to 2050.

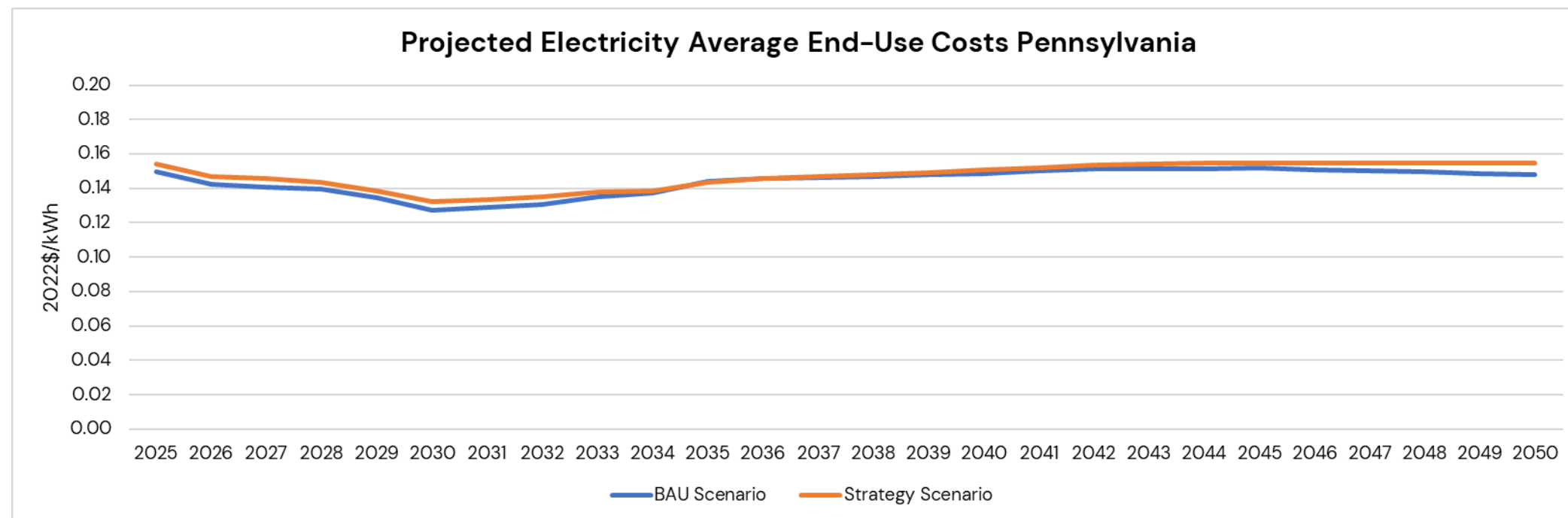
- In the Strategy pathway, there are substantial increases by 2050 in both gas rates and average annual residential customer gas bills. Primarily driven by two factors:
 - The escalating gas supply costs resulting from the adoption of biomethane (biomethane represents 26% of supply in 2050 at a commodity price of \$29 / MMBtu, vs. geologic natural gas at \$2.9/MMBtu), and
 - A roughly 50% decline in gas throughput, coupled with assumptions for significantly smaller reductions in utility costs, meaning the utility costs for delivery service are spread over fewer units of gas.
- There exists considerable uncertainty regarding how evolving supply and demand dynamics might alter the costs for low-carbon fuels.
- There is also significant uncertainty about how much cost savings in gas utility capital expenditures and operating costs can be achieved if utility customer numbers decline but the same size of infrastructure needs to be maintained.
 - Regulatory options and strategies, such as targeted electrification, accelerated depreciation, rate re-design, and utility spending reductions, can be investigated in the future to mitigate the rate and bill impacts of decarbonization pathways.
 - It would seem unlikely that no regulatory changes for gas utilities would be implemented in a scenario with a roughly 50% decline in residential gas customers and/or throughput. No regulatory changes were assumed.



Energy Rates Analysis- Electricity

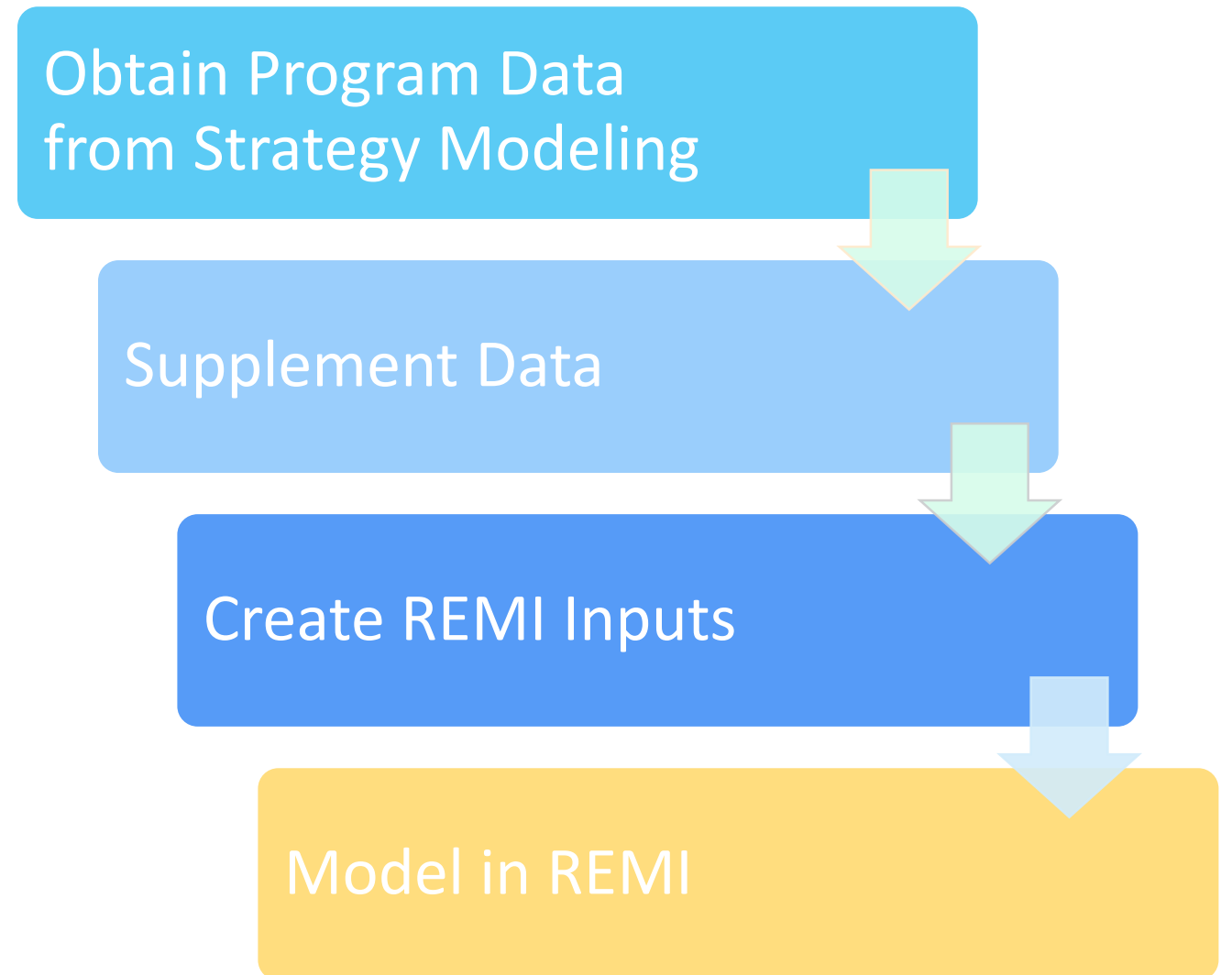
The average electricity rate for Pennsylvania was calculated for the BAU and Strategy scenarios with each following a similar trend and with the Strategy case slightly above the BAU in most years.

- The electric supply costs in this analysis are highly dependent on the ability to access federal subsidies and incentives for clean energy technology.
- The efficiency of new appliances is a large driver in limiting load growth in the Strategy scenario. Adoption of efficient space heating and cooling measures and phasing out of less efficient sources such as resistance heating is critical to managing load growth.
- The load growth further impacts the bulk and distribution sector infrastructure needs. In the Strategy scenario, overall energy demand for electricity in Pennsylvania is expected to decrease, but the consumption pattern changes, which drives much of the difference in the power system needs and forward costs.
- No future change in power market construct or rate design were assumed.



Economic Modeling Approach- Process

- Obtain program data from strategy modeling
 - Capital expenditures, public sector expenditures, fuel savings
- Supplement data
 - To fill gaps and develop REMI inputs
- Create REMI Inputs
 - Match program data to REMI input variables
 - Assign industry sectors
- Model in REMI

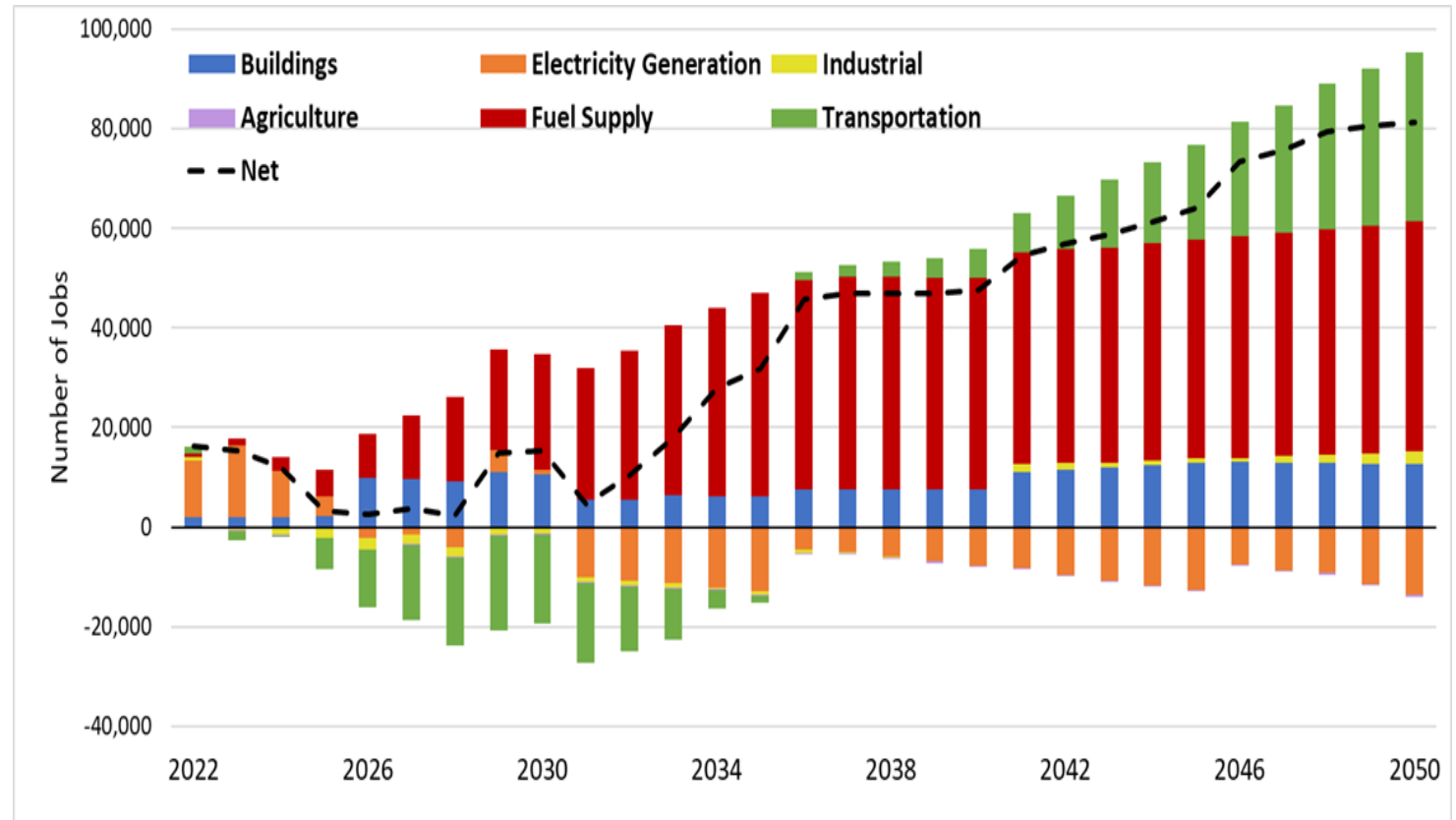


Modeling in REMI PI+

- Generate annual results:

- Number of jobs supported
- Types of jobs created
- Total output
- Gross State Product
- Disposable personal income
- Results by industry sector

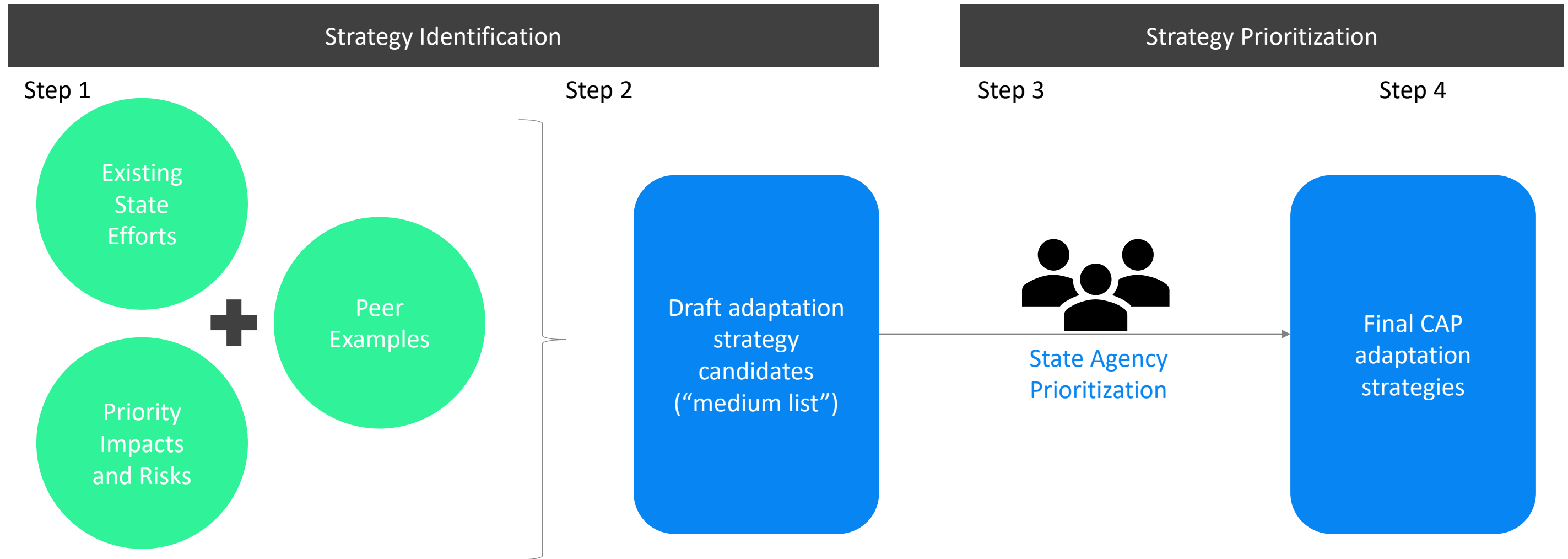
- Sample results shown in Figure 1



- Limitations

- No modeling of impacts on neighboring states/regions
- Potential co-benefits and costs such as improvements to environmental quality or public health

Adaptation Strategy Identification and Prioritization Process



Identify state-level policies or actions that can address key risks or enable adaptation by other actors

Adaptation Strategies

<u>Adaptation Strategy</u>	<u>Hazard(s) Addressed</u>
A1. State Agency Coordination Coordinate across agencies and jurisdictions on climate adaptation and resilience efforts. Designate a chief resilience officer or other champion that reports to the state, local, or municipal executive to lead these efforts.	Cross-Cutting
A2. Local Adaptation Program Incentivize or otherwise promote local municipal and regional climate change vulnerability assessments and adaptation plans and establish grant programs or financing mechanisms to fund associated adaptation projects that build local resilience.	Cross-Cutting
A3. Utility Climate Risk Analysis Encourage regulatory bodies to require climate risk analysis for water supply and energy utilities, identifying specific risks, timeframes and locations of impact, resilience actions to mitigate identified risks, as well as any gaps needing additional research.	Flooding; Extreme Heat; Power Outages
A4. Evaluation of Equity Impacts Require the evaluation of EJ communities and other historically disadvantaged and marginalized groups when evaluating climate risk and adaptation strategies, in order to ensure equitable distribution of risks and benefits.	Cross-Cutting
A5. Nature-based Solutions Promote the use of green infrastructure and nature-based solutions (including urban trees), to mitigate storm water impacts and urban heat island effects and incentivize its use in new developments through existing state economic development programs and brownfield redevelopment programs.	Flooding; Extreme Heat

Adaptation Strategies Cont.

<u>Adaptation Strategy</u>	<u>Hazard(s) Addressed</u>
A6. Climate Resilient Design Guidelines Adopt guidance to incorporate climate projections into built infrastructure design (such as requiring flood protection measures through building codes based on the Federal Flood Risk Management Standard).	Cross-Cutting
A7. Property Risk Disclosure Require property owners to disclose information about a buildings propensity to flood when renting or selling the property and include information on whether mold remediation has been or will need to be conducted.	Flooding
A8. Health Impacts Tracking Encourage public health agencies to track and analyze health data to better understand climate-related health impacts (including heat, flooding, and vector-borne diseases) and take steps to address these impacts.	Extreme Heat; Flooding;
A9. Enhanced Workplace Health and Safety Protections Promote state and local adoption of legal protections, requirements, and best practices for workplace health and safety (such as expanded PPE use, multi-lingual heat safety guides, and additional protections for vulnerable groups) to protect workers from exposure to dangerous heat conditions.	Extreme Heat; Flooding; Tropical Storms
A10. Enhanced Emergency Management Expand existing extreme weather emergency response management to consider the increased frequency and severity of extreme weather events due to climate change, through measures that include but are not limited to enhanced early warning systems, additional staffing and equipment, public outreach, and additional training.	Extreme Heat; Flooding; Tropical Storms

Adaptation Strategy Profile

- Resulting Impacts
- Equity Implications
- Implementation Considerations
 - Local partnerships
 - Legal and financial considerations
- Related Funding Opportunities
- Key Metrics:
 - Climate Hazards Reduced
 - Benefits
 - Costs (relative)
 - Emissions impacts



A1. State Agency Coordination

Coordinate across agencies and jurisdictions on climate adaptation and resilience efforts. Designate a chief resilience officer (CRO) or other champion that reports to the state, local, or municipal executive to lead these efforts.

Collaboration across agencies and jurisdictions will be crucial to build adaptive and resilient systems.

Resulting Impacts

Climate changes are complex, impacting social, environmental, and infrastructural systems locally and regionally across jurisdictions. Collaboration between Pennsylvania's local and state level agencies can establish strong climate resilience networks to tackle risks that are inflicting damage and causing losses across communities and sectors. These networks can create opportunities to share information across agencies on projects and programs that have created positive outcomes and lessons learned from responding to past climate events.

Establishing a champion to lead these efforts is important to ensure connections are made wherever necessary and actions are targeted in the most vulnerable and impacted areas. With climate change requiring new collaboration across state and local governments, many state agencies already have climate adaptation champions working within them. State agencies should be supported in building off existing climate adaptation work to lead new resilience initiative.

A CRO can support cross-agency coordination by acting as a climate resilience and adaptation knowledge base, helping agencies and jurisdictions leverage available state resources to address climate risks. By working directly with collaborating state and local entities, the CRO can help report on additional resources needed to support adaptation projects across the state.

The multi-faceted nature of the CRO's role can help improve the state's understanding of knowledge gaps. The CRO can support cross-agency coordination by acting as a climate resilience and adaptation knowledge base, helping agencies and jurisdictions leverage available state resources to address climate risks. By working directly with collaborating state and local entities, the CRO can help report on additional resources needed to support adaptation projects across the state.

The risks to public health and safety brought by climate change require the long-term, repeated collaboration of many state agencies and jurisdiction to further local and regional climate resilience. Individual agencies may need additional training resources to prepare for future collaboration. These capacity building initiatives will also help strengthen multi-agency collaborative efforts outside of climate partnerships and projects.

Equity Implications

The impacts of climate change are felt locally as well as regionally, and can affect tribal, local, and private resources. The designated CRO should have expertise in EJ and a stated mission to uplift collaborative efforts to address EJ issues and foster equity. The prioritization of EJ ensures a holistic approach, allowing all sectors and issues to be considered while planning to address adaptation needs.

Implementation Considerations

Local Partnerships

Local jurisdictions can also be supported in appointing their own CROs to provide in-house expertise for municipal entities. When applied at the local level CROs can help lead stakeholder engagement and promote synergy; enhancing internal collaboration can making it easier to realize resilience co-benefits that span issue areas.⁷⁵

In 2015, Pittsburgh appointed a CRO and joined the 100 Resilient Cities network. The 100 Resilient Cities program, powered by the Rockefeller Foundation provides in-network cities with guidance to establish a CRO, develop strategies and access new solutions and partnerships in various sectors. Resilience improvements planned throughout Pittsburgh include affordable housing, pre-k for all, and other initiatives estimated to require up to \$3 billion in funding over 12 years.

Legal and Financial considerations

State regulatory action may also be needed to establish additional needs and identify financial pathways and partnerships to support the appointment and long-term operation of local and state level CROs. For example, through New Jersey's (NJ) EO No. 89 in 2019, the state's Interagency Council on Climate Resilience was established to support the implementation of NJ Statewide Climate Change Resilience Strategy.⁷⁶ The council includes various NJ state and regional agencies and is led by the CRO, who provides technical guidance and support to local governments in developing cross-cutting plans to address current and anticipated impacts of climate change.⁷⁷

KEY METRICS

Climate Hazard Risks reduced:

All

Benefits:

Fosters synergy across state and local entities in tackling climate risks and adaptation needs.

Costs:

\$\$\$

Emissions impacts:

Positive or Neutral

RELATED FUNDING OPPORTUNITIES

Taxes; state and federal grants; bonds; partnerships.

Private partnerships can also help with the establishment of a CRO. In 2019, the city of Houston, Texas appointed a CRO to lead the city's partnership with 100 Resilient Cities. The partnership included funding for the CRO position that was sponsored through \$1.8 million in funding by Shell Oil Company. Houston's CRO also reports directly to the mayor and oversees the development and implementation of a comprehensive Resilience Strategy for the city.

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
- 02/6** Updated Draft CAP
 - Including written recommendations
- 03/31** Draft Final CAP
 - Refined recommendations
- 05/31** Final CAP
 - Finalized recommendations

Legislative Criteria

Meets a need established in the 2024 CAP to achieve GHG reduction goals (e.g., clean energy grid, building decarbonization, EV deployment, etc.)

Meets needs communicated by stakeholders since the inception of the Act 70, with particular focus on findings from stakeholder engagement conducted since the publishing of the 2021 CAP. Sources of stakeholder needs included:

- Identified impacts to/opportunities for EJ communities, provided from recent Pennsylvania Climate Action: Strategies for Environmental Justice Communities report
- Input received via CPRG outreach
- Input from other applicable existing outreach received by DEP

Advances a cost-effective strategy recommendation that shows a net benefit to stakeholders and/or the public

- Net cost/benefits vs. social cost of carbon were identified to be beneficial to participants.

Demonstrates practice of similar policies in other states and jurisdictions, as identified by the literature review

Leverages existing regional clean energy and other climate programs and policies

Introduces a new consideration or fills a gap left by existing and currently proposed legislation

Initial Legislative Recommendations

Building Code Reform

- Amends processes related to energy code renewals.
- Seek to limit the effects of resistance in delaying or denying code upgrades.
- Rules in New Jersey and Maryland have led to faster adoption of energy codes.
- Aligned with Strategy B1.

Cap and Invest Program

- New cap and invest program for greenhouse gases across all sectors.
- Establishes emissions limits and creates a market for trading allowances.
- Compliments RGGI by expanding to other sectors.
- Existing programs in place in Washington and California.
- Aligns with nearly all strategies, could support mitigation and adaptation strategies.



Initial Legislative Recommendations

AEPS Reform: Additional Renewable Energy

- Amends AEPS to require 30% of electricity to come from Tier 1 sources by 2030.
- Builds on existing AEPS program.
- Neighboring states have made larger commitments to renewable energy through similar programs (see table).
- Aligned with Strategy P1.

AEPS Reform: Additional carbon free electricity sources

- Amends AEPS to include other carbon free electricity sources such as CCUS and Nuclear.
- Builds on existing AEPS program.
- Similar programs in New York, New Jersey, and Illinois.
- Aligned with Strategies P1 and C2.

	Tier 1 Current	Solar Current	Tier 1 Max	Solar Max	Max Requirement Year
Pennsylvania	8%	0.5%	8%	0.5%	2021
New Jersey	21%	5.5%	50%	1.1%*	2030
Maryland	27.2%	6.5%	35.5%	14.5%	2030
Delaware	24%	3.25%	40%	10%	2035
Washington DC	45%	3.15%	100%	5.5%	2032

*New Jersey has transitioned from a solar carve-out to the Successor Solar Incentive (Susi) program that consists of annual blocks paid fixed per MWH prices over 15 years.

Initial Legislative Recommendations

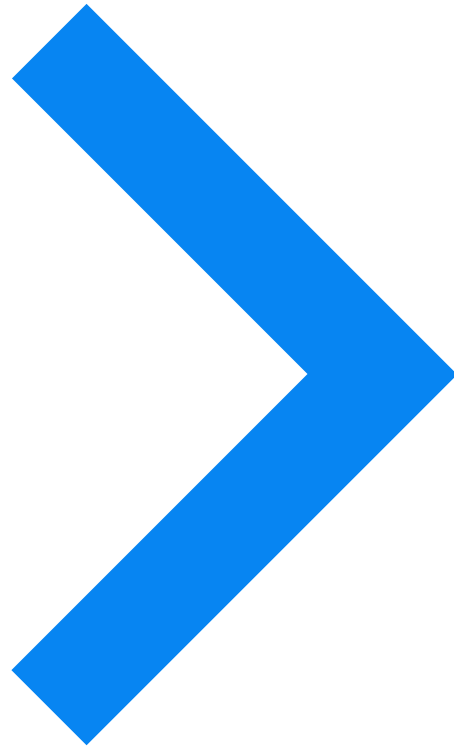
Community Solar

- Authorizes community solar in Pennsylvania.
- Mandates the state's electric utilities establish community solar tariffs and allow for new metering.
- Community Solar is authorized in New York, New Jersey, Maryland and Delaware.
- Aligned with Strategies B5 and P1.

Hydrogen and CCUS Legislative Package

- New legislation to regulate, clarify rules, and encourage emerging technologies.
- Emerging space and technologies, so there are limited examples, but significant potential.
- Aligned with Strategy C1 & C2





Climate Action Plan Q&A and Discussion