



PA DEP's Shared Energy Manager & CAPstone

November 4, 2022

Tom Wolf, Governor

Ramez Ziadeh, Acting Secretary

DEP Climate Program

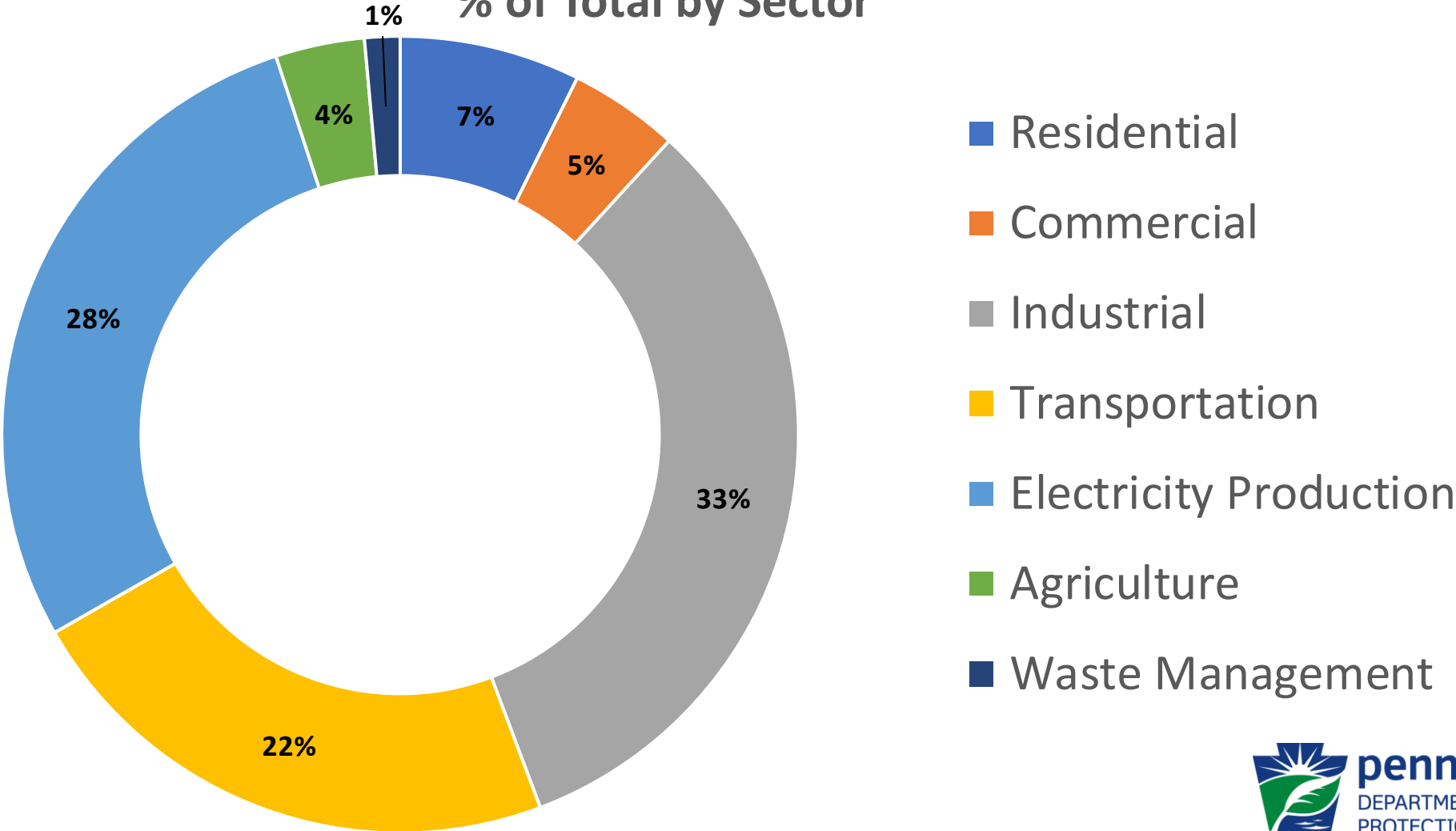
Pennsylvania Climate Change Act (Act 70 of 2008) Requires DEP to:

- Develop a [climate impacts assessment](#) (3 yrs.)
- Prepare and update a [climate action plan](#) (3 yrs.)
- Develop an [inventory of greenhouse gases](#) (GHGs) (update annually)
- Administer a [climate change advisory committee](#) (CCAC) (bimonthly)
- Set up a voluntary registry of GHG emissions ([TCR](#))

GHG Emissions by Sector in 2019

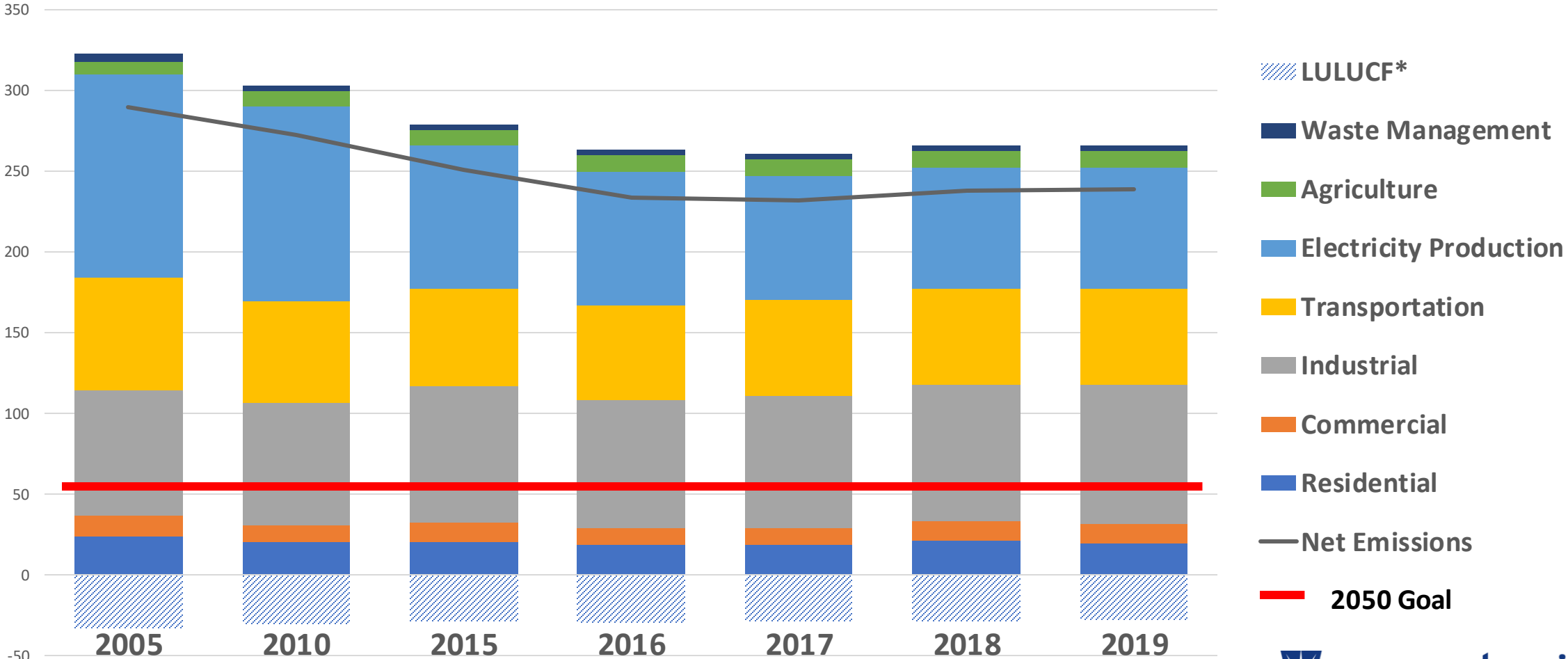
Pennsylvania 2019 GHG Emissions

% of Total by Sector



GHG Emissions Inventory

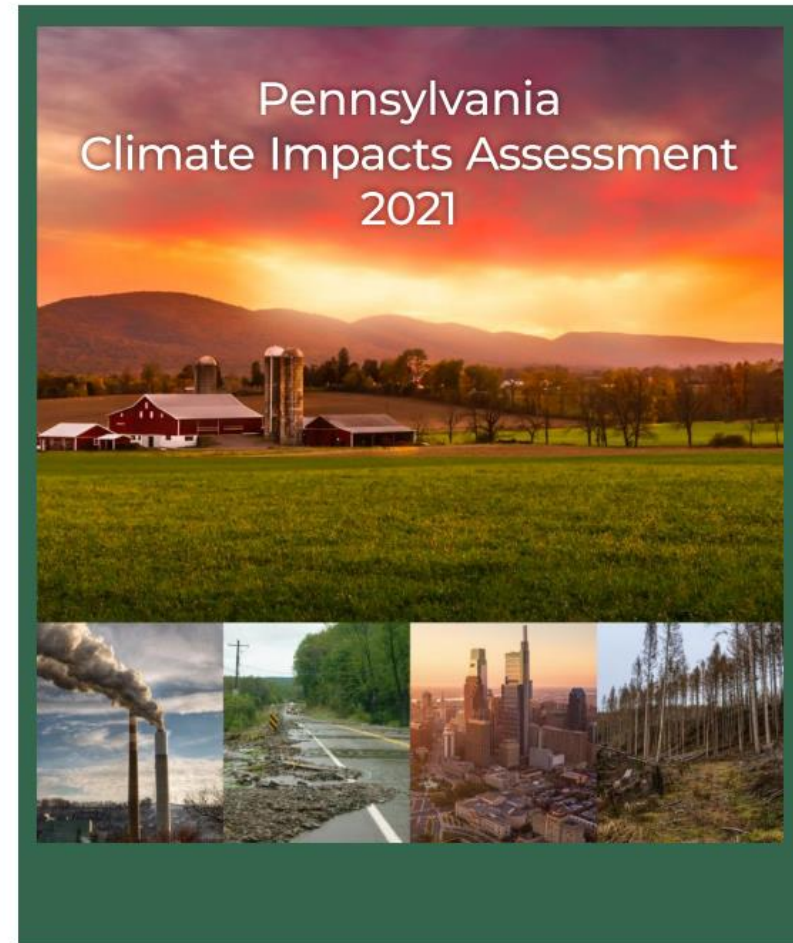
GHG Emissions by Sector (MMT_{CO₂e})



2021 Impacts Assessment Focus Areas and Updates

Purpose of this Report:

- Update: Reflect latest available information on climate science and impacts
- Risk-based approach: Understand relative timing and severity of impacts to inform overall risk ratings and priorities for adaptation
- Make it actionable: Directly inform priority adaptation actions in the Climate Action Plan

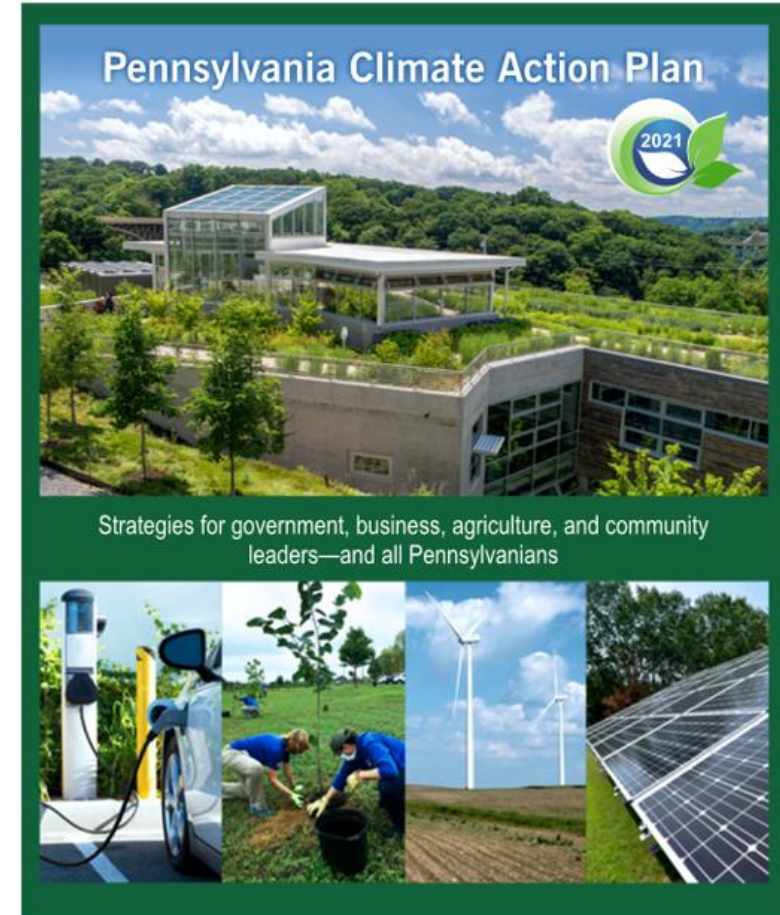


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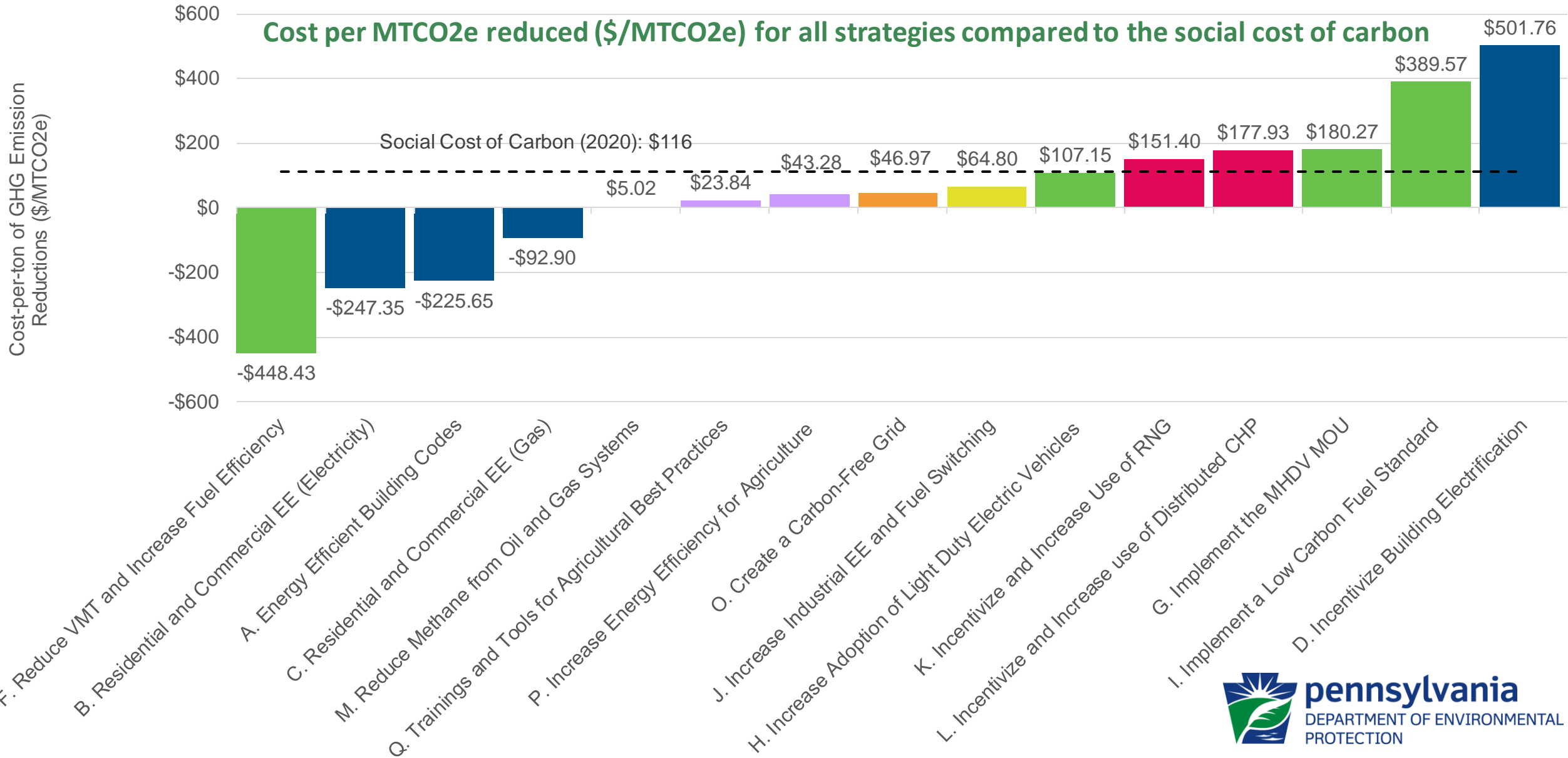
Pennsylvania Climate Action Plan 2021

Purpose of this Report:

- Updated BAU Emissions Scenario Projections
- Outlines a pathway to reaching PA's GHG reduction goals: 26% by 2025 and 80% by 2050 from 2005 levels
- Quantifies GHG reduction and economic costs/benefits of climate action
- Includes discussion on the role of “enabling technologies” in meeting PA's GHG reduction goals
- Priority adaptation actions directly informed by the Pennsylvania Climate Impacts Assessment 2021
- Focus on equity throughout



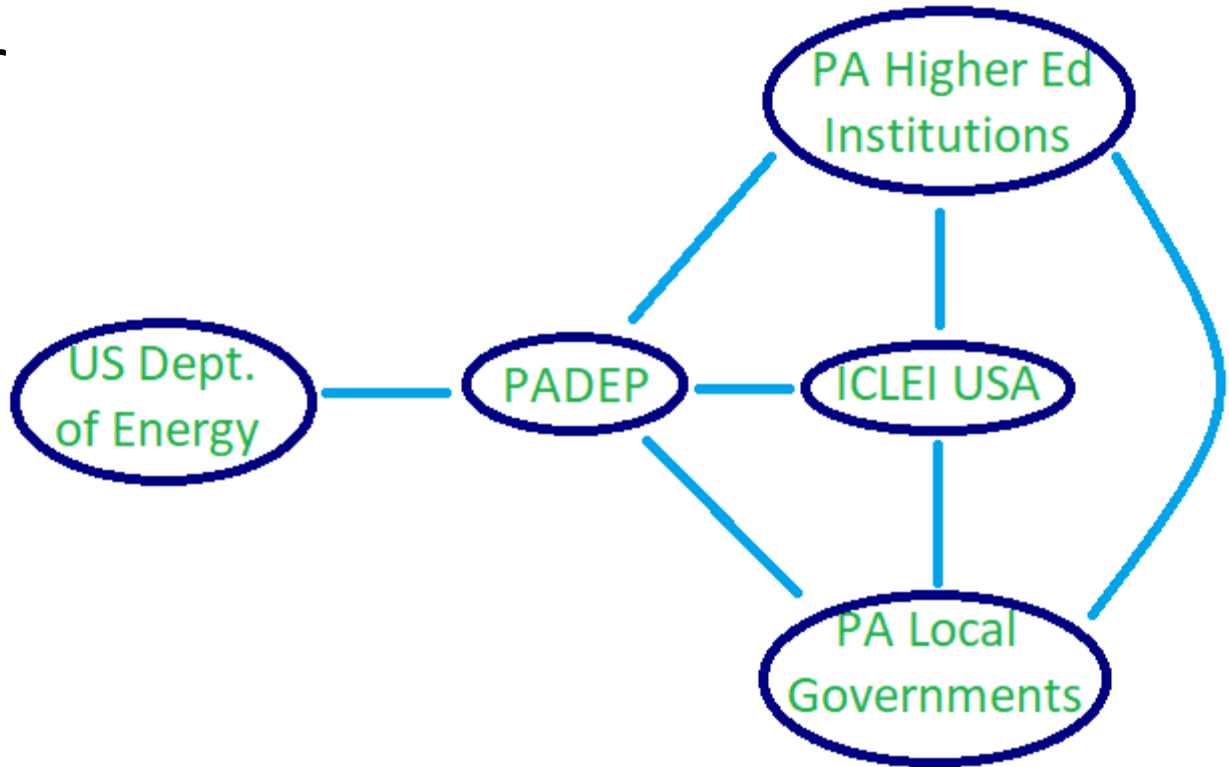
Pennsylvania Climate Action Plan – Strategies



Local Climate Action Program (LCAP)

- ICLEI Local Governments for Sustainability – USA hired as contractor
- College student matched with local government
- ICLEI trains student/local government on ClearPath inventory tool and climate action planning – 11 months total
- Final result: Greenhouse gas inventories and *draft* Climate Action Plans

dep.pa.gov/LocalClimateActionProgram

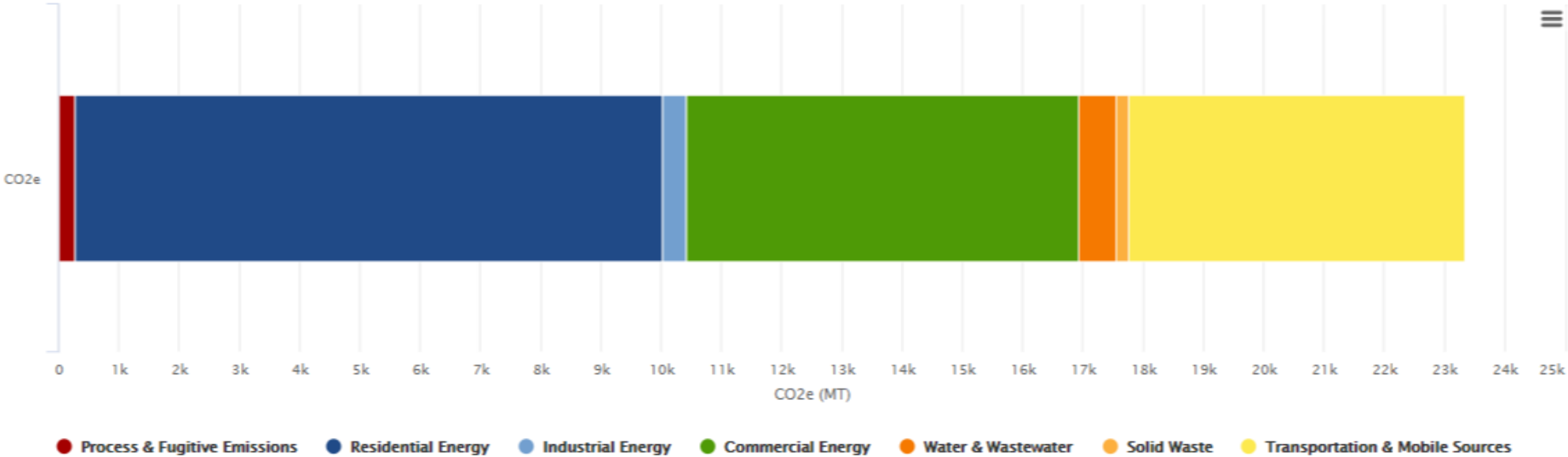


Local GHG Inventory

Inventory By Sector

CO2e by sector for the selected inventory year.

Sector	CO2e
Transportation & Mobile Sources	5,570
Solid Waste	219
Water & Wastewater	617
Commercial Energy	6,507
Industrial Energy	404
Residential Energy	9,754
Process & Fugitive Emissions	261



Local CAP Template, Adopted CAPs

[Jurisdiction] Climate Action Plan



Local Actions and Policies to Reduce [Jurisdiction]'s Greenhouse Gas Emissions

Approved by [Local Authority]

[Date Approved]

[Reference to Public Record]

[Reference to Further Information]

Produced by [Name of Lead Department or Task Force]

Through partnership with ICLEI - Local Government for Sustainability (ICLEI)



TOWNSHIP OF —MIDDLETOWN— BUCKS COUNTY CLIMATE ACTION PLAN



Local Actions and Policies to Reduce Middletown Township's Greenhouse Gas Emissions

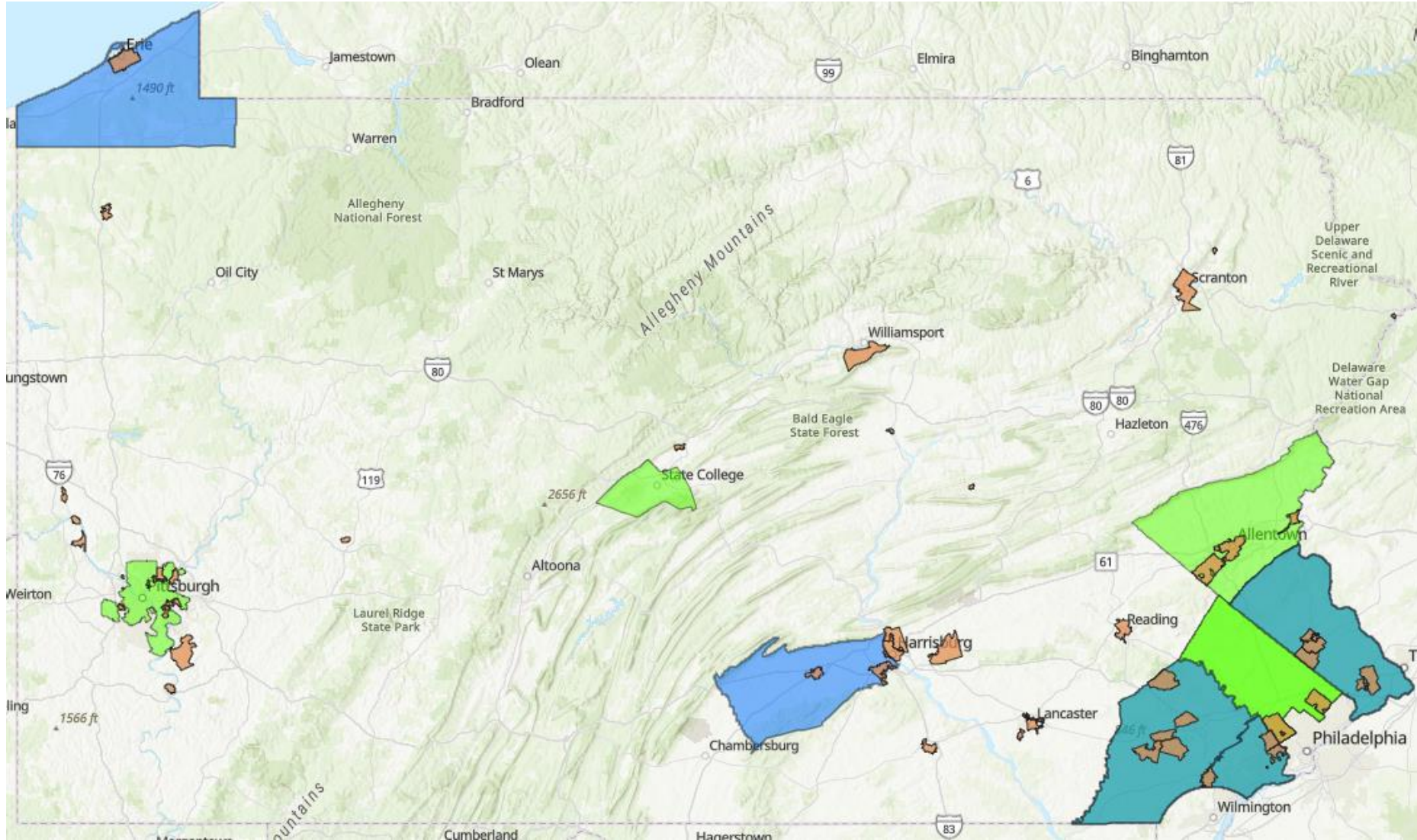


ADOPTED SEPTEMBER 20, 2021

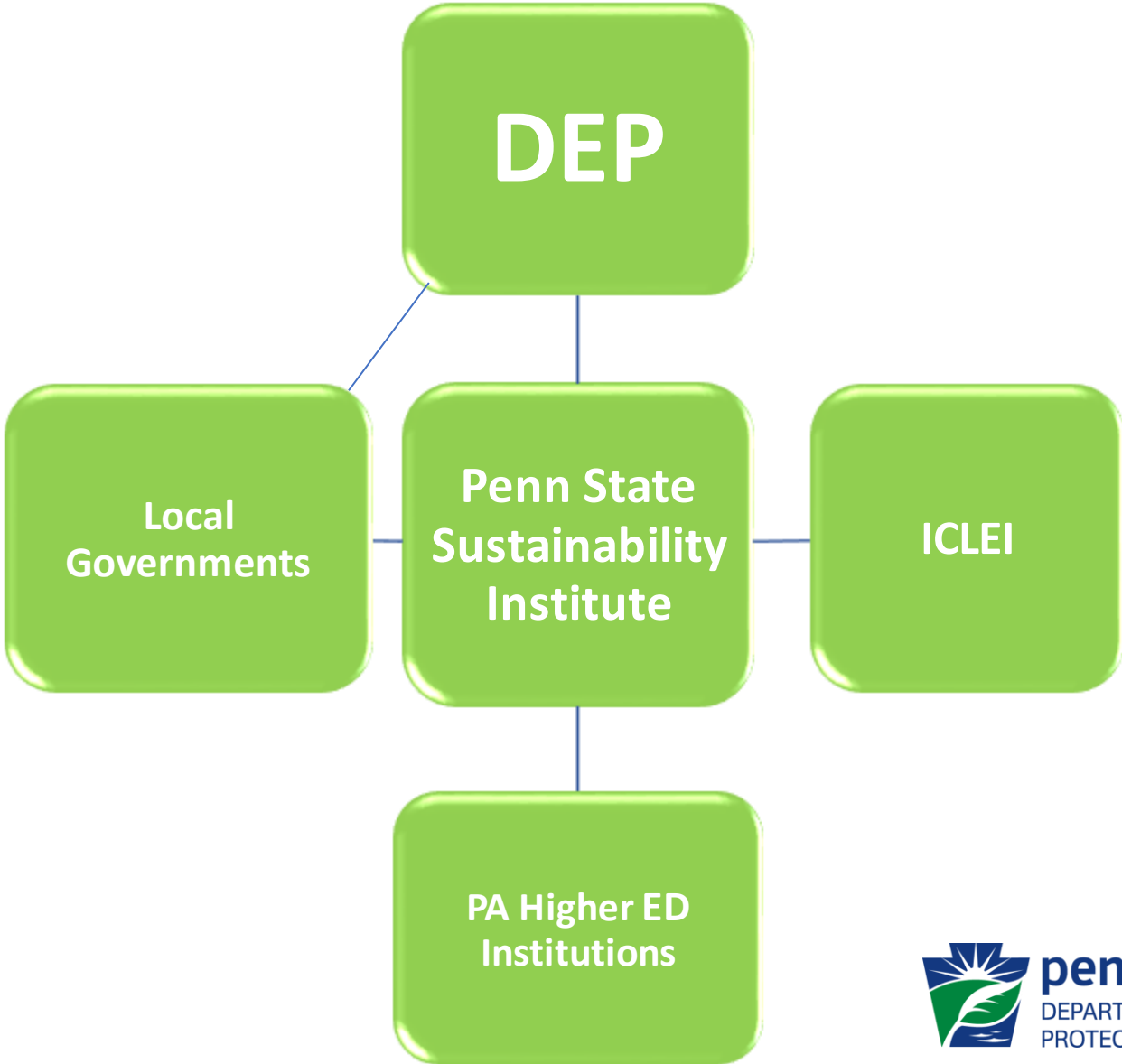
Produced by the Middletown Township
Environmental Advisory Council &
the Office of the Township Manager



LCAP Accomplishments



LCAP Transition





ADMINISTRATION

NAVIGATION
GOVERNOR TOM WOLF
FIRST LADY FRANCES WOLF
LT. GOV. JOHN FETTERMAN
CABINET AND EXECUTIVE OFFICIALS
INTERGOVERNMENTAL AFFAIRS

Office of Performance Through Excellence

Our Mission

The mission of the Office of Performance through Excellence (OPE) is to empower and enable employees at every level of state government to create an excellent experience for the commonwealth's customers and to achieve measurable results for all Pennsylvanians.



Source: Nick Valla

PA DEP: MIDDLETOWN TOWNSHIP CAPSTONE INTERNSHIP PROGRAM

Aja Padovan

Senior

East Stroudsburg University

Environmental BA | Psychology BS



SHARED ENERGY MANAGER



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Energy. Environment. Enterprise

Wilson Engineering Services, PC (WES) partners with clients to develop economically, environmentally, and socially sustainable projects and programs. Each project provides its own unique set of challenges and opportunities, and we take pride in collaborating with our clients to ensure they are able to meet the challenges and capitalize on the opportunities.

WHAT WE DO



Municipalities and Scope of Work

Table 7 – SUV Replacement Options Economic Comparison

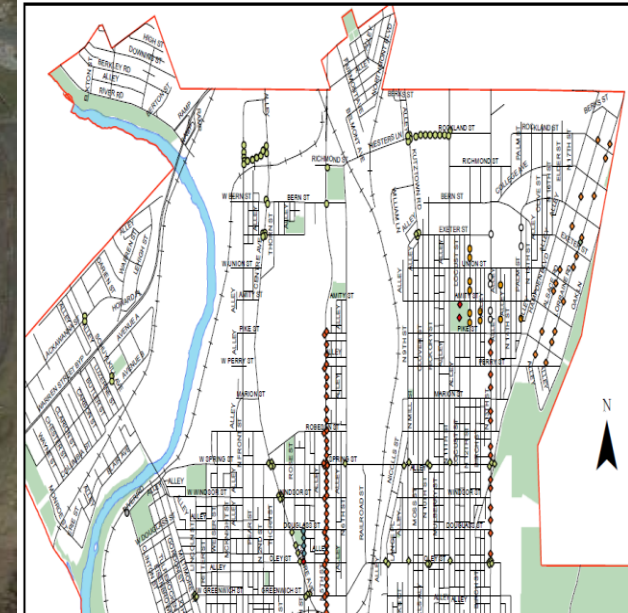
Parameter	Toyota Rav4 (ICE)	Toyota Rav4 Prime (PHEV)	Hyundai Ioniq 5 (BEV)	Chevy Bolt EUV (BEV)
Dealer Price	\$28,190	\$41,015	\$41,245	\$34,495
Gov. Incentives	\$0	\$0	\$7,500	\$7,500
Purchase Price	\$28,190	\$41,015	\$33,745	\$26,995
Annual Maintenance	\$1,000	\$800	\$500	\$500
Annual Fuel	\$981	\$297	\$210	\$210
Total Annual Cost	\$1,981	\$1,097	\$710	\$710
5-year Cost	\$38,097	\$46,502	\$37,294	\$30,543
10-year Cost	\$48,004	\$51,990	\$40,843	\$34,091
Annual CO2e (metric ton)	2.1	1.0	0.6	0.6



LED Street Light Upgrade Locations

Estimated 1300 total City-owned street lights. Estimated 715 poles with 752 fixtures to be upgraded to LED. Estimated , of which estimated 408 are eligible for CDBG funding (Residential, LowMod, not Flood Plain). Currently, fixtures are a mix of High-Pressure Sodium Vapor, Mercury Vapor and Metal Halide.

Prepared: 8/27/2020
by Kevin Lugo, SSW Manager



Easton Wastewater Treatment Plant RNG Opportunity

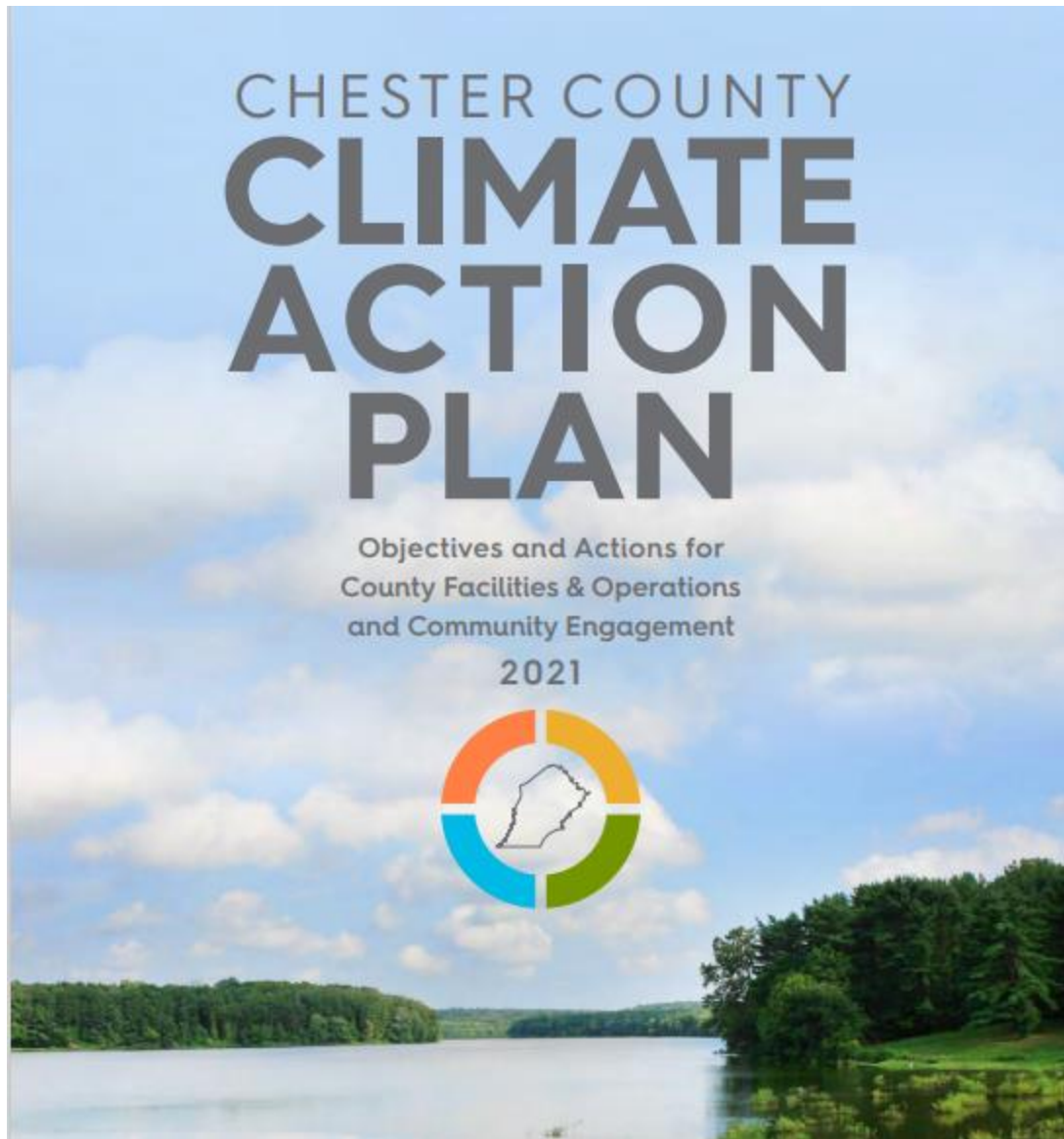
PATRICK MARTIN & MICHAEL STAHLY
WILSON ENGINEERING SERVICES, PC

This presentation is provided through support and funding from the U.S. Department of Energy's State Energy Program and the Pennsylvania Department of Environmental Protection.

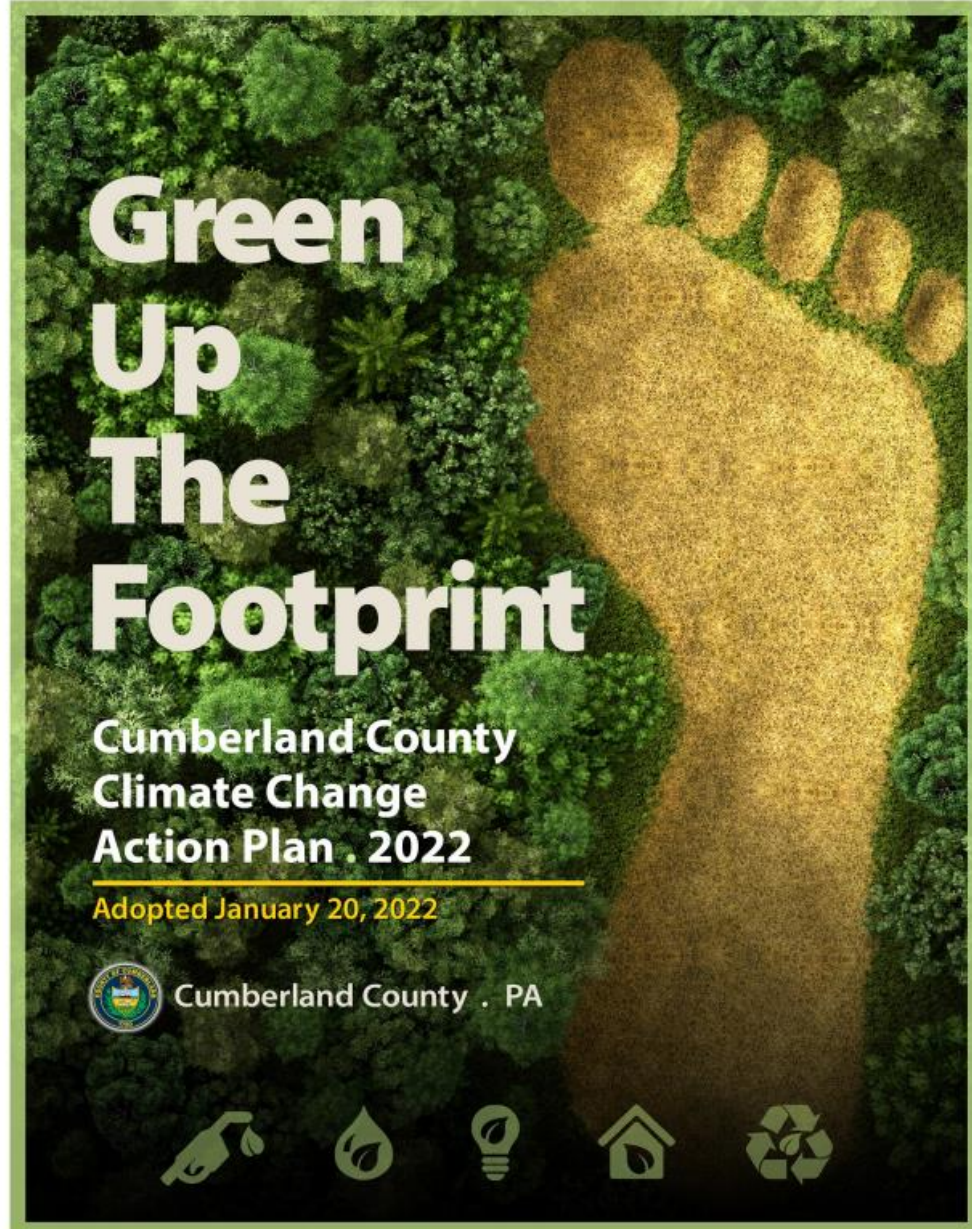


Elizabeth Township

- Very limited energy management prior to program, began with energy inventory to understand energy usage assets and how energy usage and cost are spread across Township assets.
- Assistance tasks include:
 - Energy Inventory
 - Utility Billing Review
 - Energy Assessment of Major Buildings
 - Rebate Pre-application Assistance for Wastewater Pump Station Upgrades
- Program has identified ~\$13,000 of annual savings, and ~\$150,000 of potential energy incentives for the township, some of which are already being realized.



- Had more sophisticated processes already in place for energy management, have implemented ECMs already –are interested in furthering their impact and understanding potential moving forward.
- Assistance tasks include:
 - Energy Star Certification of Administration Building
 - Energy Assessment of Wastewater Treatment Facility
 - Solar PV Feasibility Assessment
 - Electrification Analysis for Small Rolling Equipment



- Solar PV Assessment
 - Internal Operations
 - Potential for County Warehouses
- Light-Duty Fleet Electrification

Shared Energy Manager Results

Table 1: Quantitative Totals for Identified Energy Management Opportunities¹

Year 1

Municipality	Annual Cost Savings (\$)	Incentive Funding Potential ² (\$)	Electric Savings (kWh)	Natural Gas Savings (MCF)	Annual GHG Emissions Reduction (MT CO _{2e}) ³
Bellefonte Borough	\$141,097	\$106,310	2,359,715	0	857
Chester County	\$82,210	\$57,381	1,426,581	0	272
City of Reading	\$17,378	\$16,949	182,783	632	34
Elizabeth Township	\$26,054	\$148,265	129,770	101	22
Indiana Borough	\$158,933	\$398,530	1,089,564	710	275

Table 1 - Quantitative Totals for Identified Energy Management Opportunities

Year 2

Municipality	Estimated Savings (\$/yr)	Estimated Incentive Potential (\$)	Estimated Electric Savings (kWh/yr)	Estimated NG Savings (mmBtu/yr)	Estimated Gasoline/Diesel Savings (gal/yr)	Estimated GHG Emissions Reduction (MT CO _{2e} /yr)
Abington Township	\$16,863	\$21,451	-139,126	23,764	-	136
Ben Avon Borough	\$13,711	\$2,514	-101,220	2,030	-	54
Cumberland County	\$31,792	\$266,070	258,102	-	2,428	98
City of Easton	\$379,596	-	116,992	528	-	64
City of Shamokin	-	-	-	-	-	-

ENERGY SAVINGS PERFORMANCE CONTRACTING (ESPC)

Through Pennsylvania's Guaranteed Energy Savings Act (GESA)

Energy Efficiency and Conservation Block Grant Program

Overview

OFFICE: State and Community Energy Program	NEW PROGRAM: No
FUNDING AMOUNT: \$550,000,000	FUNDING MECHANISM: Formula and Competitive Grants
RECIPIENTS: State/Local Government/Tribes	PERIOD OF AVAILABILITY: Available until expended

SEM Expanded Scope and Size

Pennsylvania C-PACE | Commercial Property Assessed Clean Energy

ABOUT | PROPERTY OWNERS | COUNTIES | FINANCE | PROJECTS | CONTACT US

Property Owners
Take control of energy costs and see a positive cash flow

[LEARN MORE](#)

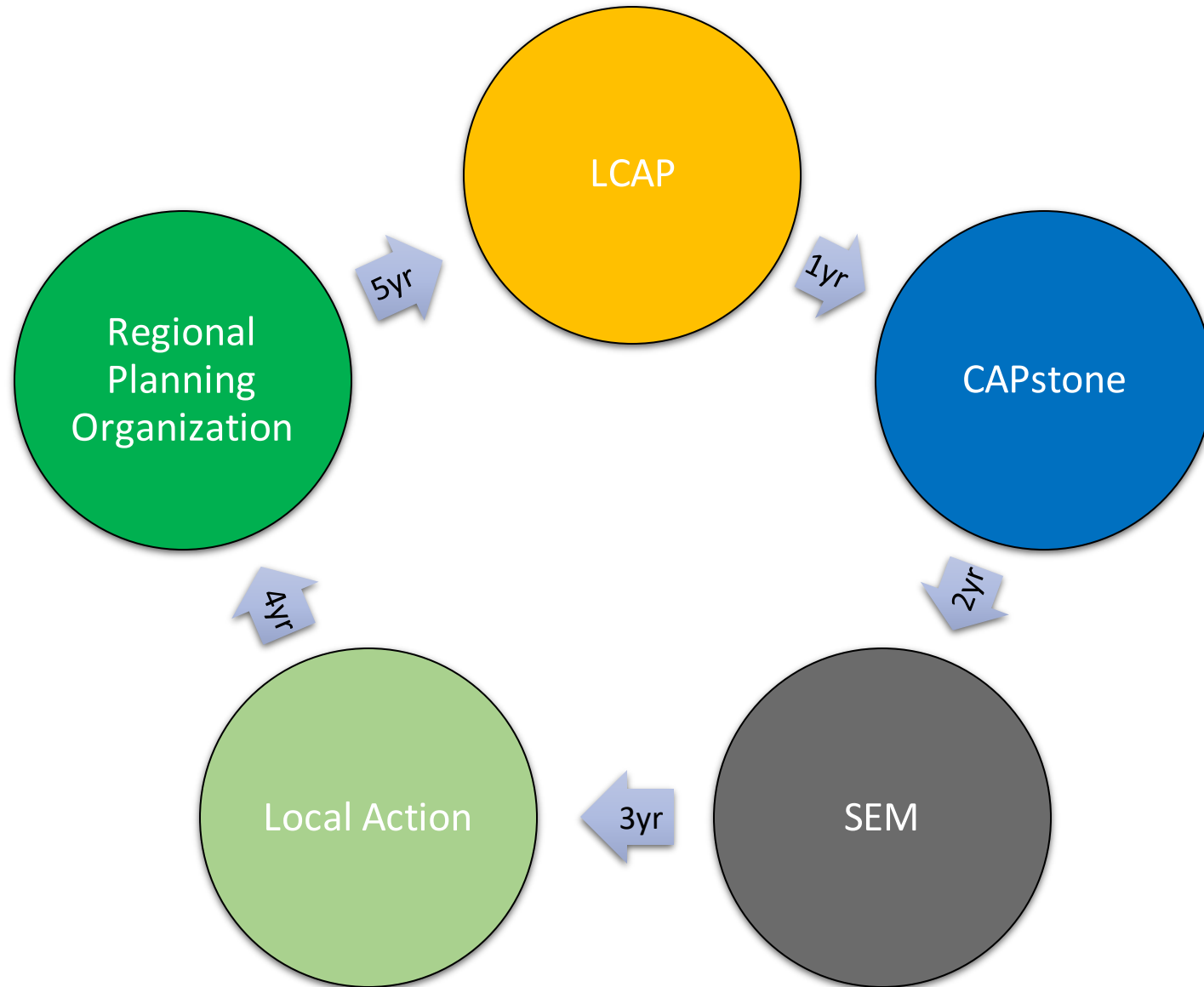
Pennsylvania C-PACE

Duquesne Light Company - Residential Energy Efficiency Program

Duquesne Light Co residential energy efficiency rebate program



What's Next





If you are interested in SEM or
CAPstone,
please contact:

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PADEP Energy Programs Office

chnafe@pa.gov

717-783-9722

DEP Website: www.dep.pa.gov