



**pennsylvania**  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Energy Programs Office



# Pennsylvania Climate Action Plan 2018

Tom Wolf, Governor

Patrick McDonnell, 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)
- Set up a voluntary registry of GHG emissions
- Administer a climate change advisory committee(bimonthly)

# Why a Climate Action Plan?

## According to 2015 Pennsylvania Climate Impacts Assessment:

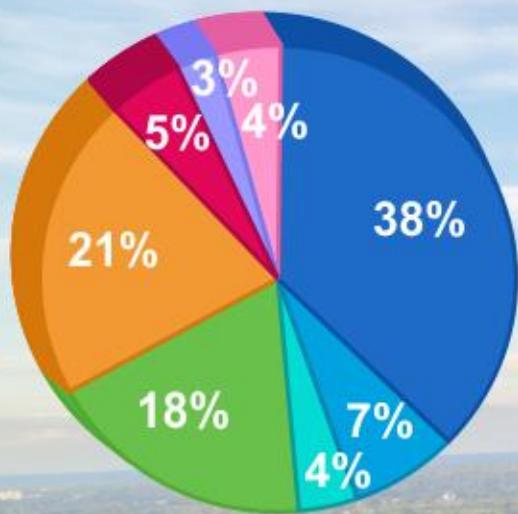
- Over past 110 years, temperatures in PA increased by more than 1.8°F and are expected to increase by an additional 5.4°F by 2050
- Cities are expected to see increased frequency of 100+ degree days
- Annual precipitation in PA has increased by 10% since early 20th century and is expected to increase by another 8% by 2050, with a winter increase of 14%

# Why a Climate Action Plan?

## Climate change impacts will vary by sector:

- PA dairy production is likely to be negatively affected due to losses in milk yield caused by heat stress
- Warmer climates in southern states could stimulate a large-scale movement of poultry and hog production north to states like PA
- PA's downhill ski and snowboard resorts are not expected to remain financially viable past mid-century
- Impacts of climate change on trout (cold-water) fishing are expected to be particularly severe in southeastern and northwestern PA

# GHG Emissions by Sector in 2015



## Greenhouse Gas Emissions by Sector in 2015\*

- Energy Production<sup>a</sup>
- Residential Fuel Consumption<sup>b</sup>
- Commercial Fuel Consumption<sup>b</sup>
- Industrial Fuel Consumption<sup>b</sup>
- Transportation Fuel Consumption<sup>b</sup>
- Industrial Processes
- Agriculture
- Waste

\*Latest data available.

<sup>a</sup> Includes emissions from electricity generation, coal mining, and natural gas and oil production.

<sup>b</sup> Includes emissions from direct fuel consumption; excludes emissions from electricity

# Call to Action

## **PA Leaders, Citizens, and Businesses should:**

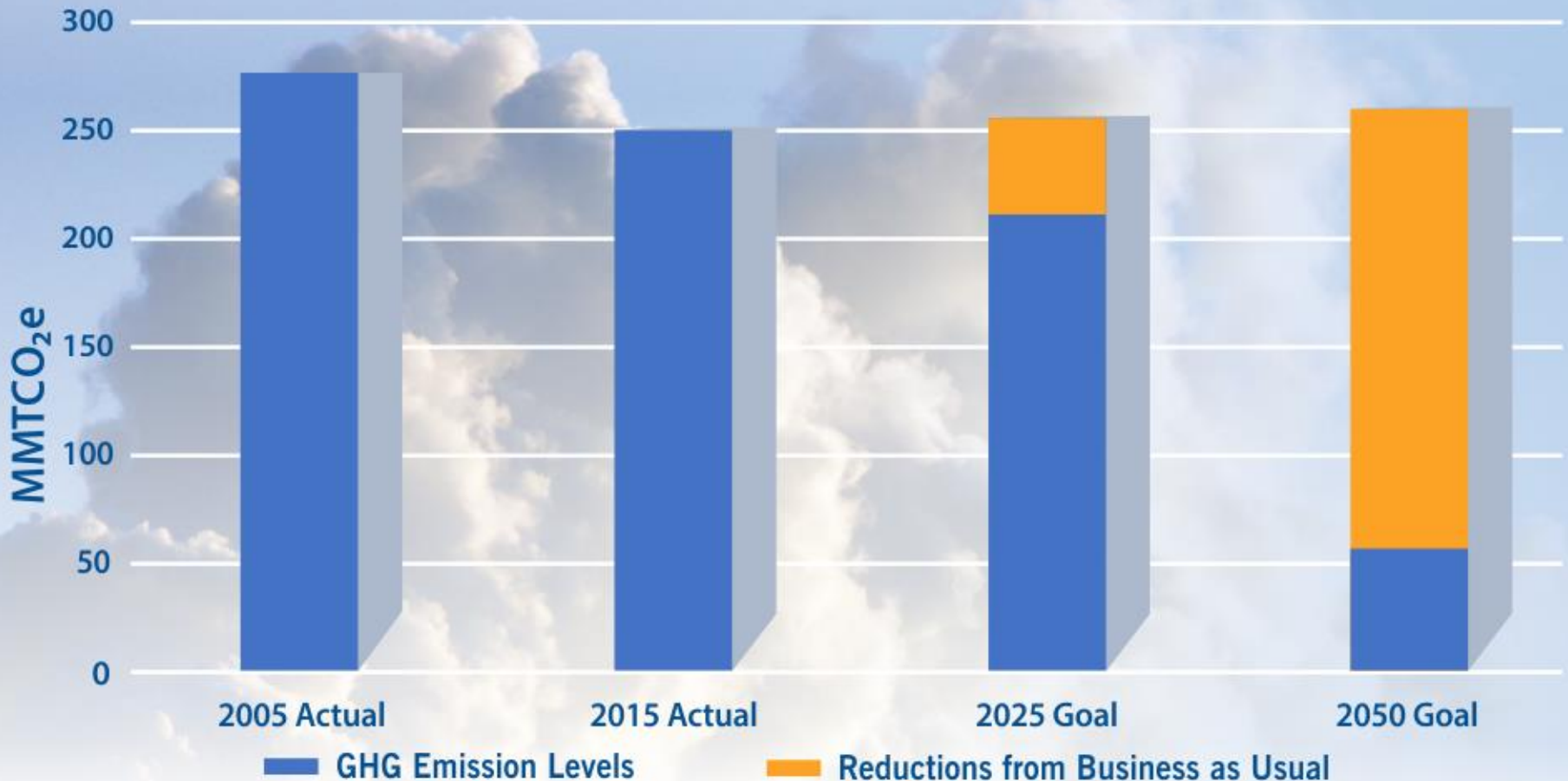
- Consider how PA's climate will change in the future
- Understand the impacts from those changes
- Take action to adapt to those changes and reduce GHG emissions

# Climate Action Plan Goals

- Minimize disruptions to Pennsylvania's citizens, economy, and environment from climate-related hazards.
- Increase PA's ability to prepare for and adapt to changing conditions and respond to and recover from climate-related disruptions.
- Maintain cost-effectiveness.

# Plan Targets

## Greenhouse Gas Reductions Needed to Meet 2025 and 2050 Goals



GHG = greenhouse gas; MMT<sub>CO<sub>2</sub>e</sub> = million metric tons of carbon dioxide equivalent



# Strategies and Actions

## Summary of Strategies:

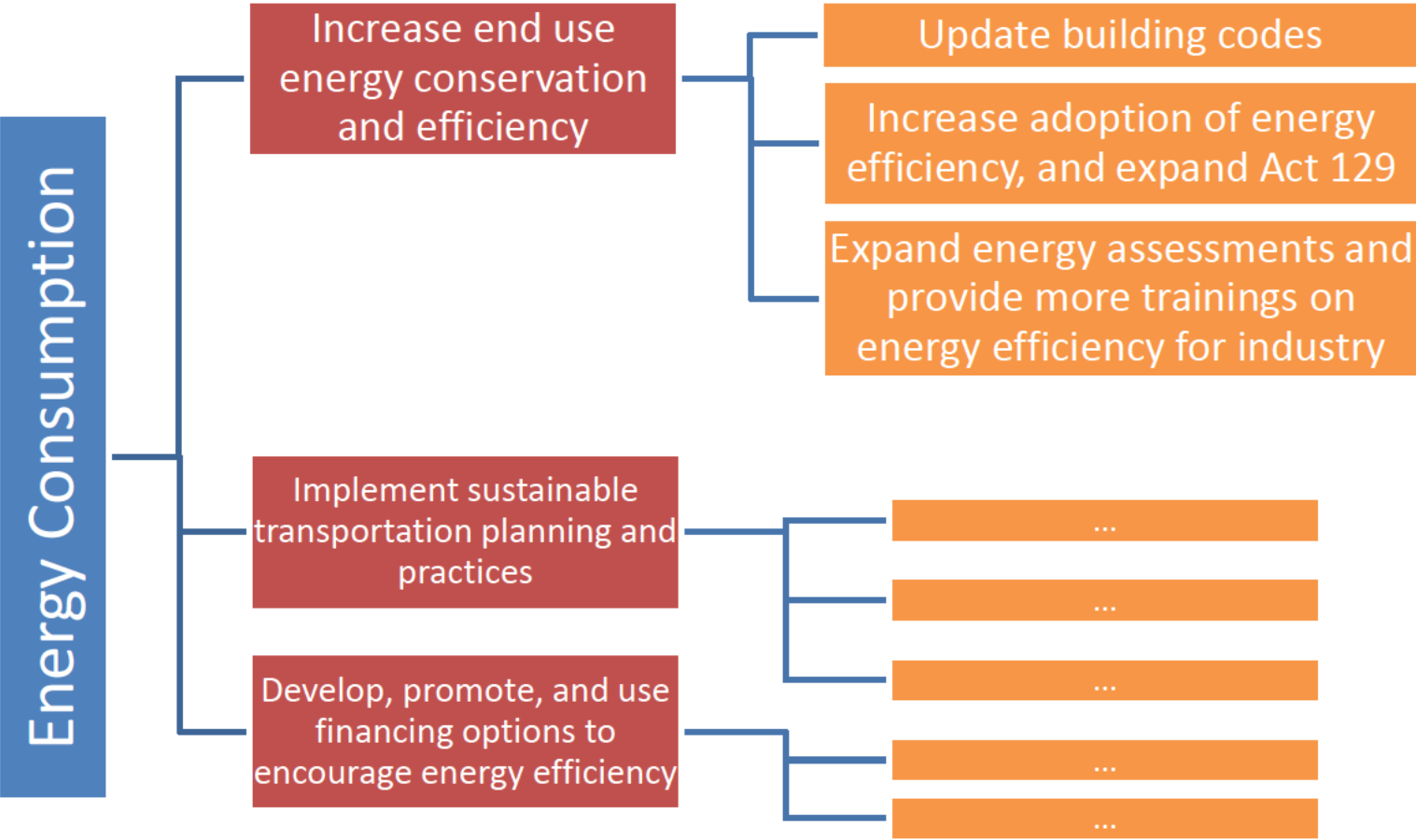
- 8 Sectors
- 19 Strategies
- Over 100 Leadership Actions
- 15 Quantitatively Analyzed Actions
- Additional Actions for Citizens and Businesses

# Strategies and Actions

8 Sectors

19 Strategies

> 100 Actions



# Sectors

Energy  
Consumption

Energy  
Production

Agriculture

Ecosystems  
& Forestry

Outdoor Rec.  
& Tourism

Waste  
Management

Water  
Resources

Human  
Health



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# 19 Strategies

1. Increase end use **energy conservation & efficiency**
2. Implement **sustainable transportation** planning & practices
3. Develop, promote, & use **financing options to encourage energy efficiency**
4. Increase use of **clean, distributed electricity generation** resources
5. Create a diverse portfolio of **clean, utility-scale electricity generation**
6. **Reduce** upstream **impacts of fossil fuel energy** production
7. **Increase** production & use of **alternative fuels**
8. Use **agricultural best practices**
9. Provide resources & **technical assistance to farmers** to adapt
10. **Protect ecosystem resilience**, including forest systems where species will shift
11. Monitor, identify, & **address ecosystem vulnerabilities**
12. **Help the outdoor tourism industry** manage shifting climate patterns
13. Reduce & **use waste sent to landfills**
14. Use **stormwater best management practices**
15. Promote integrated water resources management & **water conservation**
16. Improve reliability & accessibility of **public information about climate-related health risks**
17. Bolster **emergency preparedness** and response
18. **Lead by example** in commonwealth & local government practices & assets
19. **Incorporate** historical & projected **climate conditions into siting & design** decisions for long-term infrastructure

# 15 Modeled Leadership Actions

- Update building codes
- Increase adoption of energy efficiency, and expand Act 129
- Create an Act 129-like conservation and efficiency program for natural gas
- Expand energy assessments and provide more trainings on energy efficiency for industry
- Reduce vehicle miles traveled for single-occupancy vehicles
- Implement a strategic plan and incentives for increasing electric vehicle use
- Increase the use of clean public transportation through electric municipal bus fleets
- Invest in and promote building-scale solar
- Incentivize and increase use of combined heat and power (CHP)
- Increase Alternative Portfolios Energy Standard (AEPS) Tier 1 targets, and further increase in-state generation and use of renewables
- Implement policy to maintain nuclear generation at current levels
- Limit carbon emissions through an electricity sector cap and trade program
- Implement policies and practices to reduce methane emissions across oil and natural gas systems
- Increase recovery and use of gas from coal mines, agriculture, wastewater, and landfills for energy
- Increase adoption rate of and provide training for no-till farming practices

# Job Creation

If the 15 quantified actions were implemented, approximately 40,000 jobs would be created by 2050.

## Number of Annual Jobs Supported



# Key Takeaways

- Suite of strategies recommended in the Plan maximize GHG reductions and are cost-effective
- Commonwealth government will need to prioritize and phase implementation for quantified and non-quantified strategies in the Plan
- Actions which are low cost and have large GHG and economic benefits offer PA the best short-term solutions
- Actions that may take more time and resources to implement and have more tradeoffs to consider still need to be enacted, as they'll help PA maximize the impact of the Plan
- Ambitious and quick action is needed by all actors, including leadership, businesses, and citizens

# ▶ Lead by Example – State Government

## **On April 29, 2019, Governor Tom Wolf announced Pennsylvania's membership in the U.S. Climate Alliance**

- Alliance states commit to:
  - Implement policies that advance the goals of the Paris Agreement, aiming to reduce greenhouse gas emissions by at least 26-28 percent below 2005 levels by 2025
  - Track and report progress to the global community in appropriate settings, including when the world convenes to take stock of the Paris Agreement
  - Accelerate new and existing policies to reduce carbon pollution and promote clean energy deployment at the state and federal level



# ▶ Lead by Example – State Government

## **Executive Order 2019-01 directs commonwealth agencies to:**

- Reduce energy use by 3% per year and 21% by 2025 from 2017 levels
- Procure renewable energy to offset at least 40% of the Commonwealth's annual electricity use
- Design and construct new buildings/renovation projects as a high-performance buildings
- Replace 25% of the state vehicle fleet with battery electric and plug-in electric hybrid cars by 2025

# ▶ Lead by Example – State Government

- Establish energy management plan for public facilities
- Track energy and water usage via Energy Star Portfolio Manager
- Maximize onsite renewable energy generation and purchase RECs
- Consider Energy Star and LEED certification, as well as net zero and Passive House standards for new construction and major renovation of public facilities
- Implement climate resilience in public facilities, such as least impact backup power generation and climate resilient vegetation
- Require energy efficient and alternative fuel use in fleet vehicles
- Enroll facility managers in energy efficiency training
- Learn from best practices within and outside of PA



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# Thank you!

## David Althoff

Director

Energy Programs Office

[dalthoff@pa.gov](mailto:dalthoff@pa.gov)

DEP Climate Website: [www.dep.pa.gov/climate](http://www.dep.pa.gov/climate)

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