



**SENATOR STEVE**  
**SANTARSIERO**  
PROUDLY SERVING THE 10TH SENATORIAL DISTRICT

# CLIMATE CHANGE

*The time for action is  
NOW!*



# Climate Change: *Basics*

---

What is it?

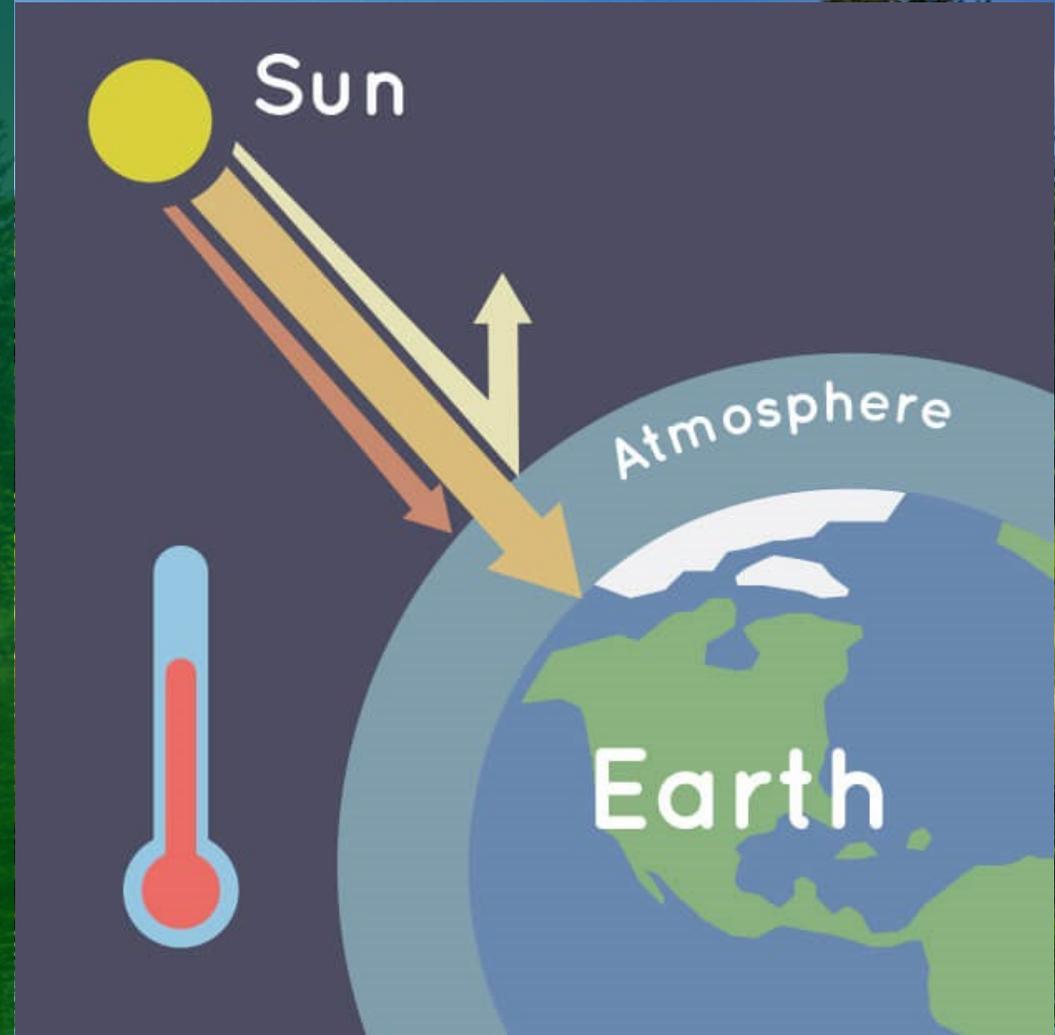
Why is it happening?

How do we know?

# The Greenhouse Effect

*Occurs when gases in Earth's atmosphere trap the Sun's heat.*

Without this effect, the Earth would be about 85 degrees colder, making our planet hostile to life.





**The concentration of CO<sub>2</sub> in the atmosphere is now higher than at any time in at least 800,000 years.**

# How do we know?

“We are more sure that greenhouse gas is causing climate change than we are that smoking causes cancer”  
– NASA atmospheric scientist Kate Marvel



*Global Temperature Rise*

*Rapid Sea Level Rise*

*Warming of the Oceans*

*Ocean Acidification*

*Shrinking Ice Sheets*

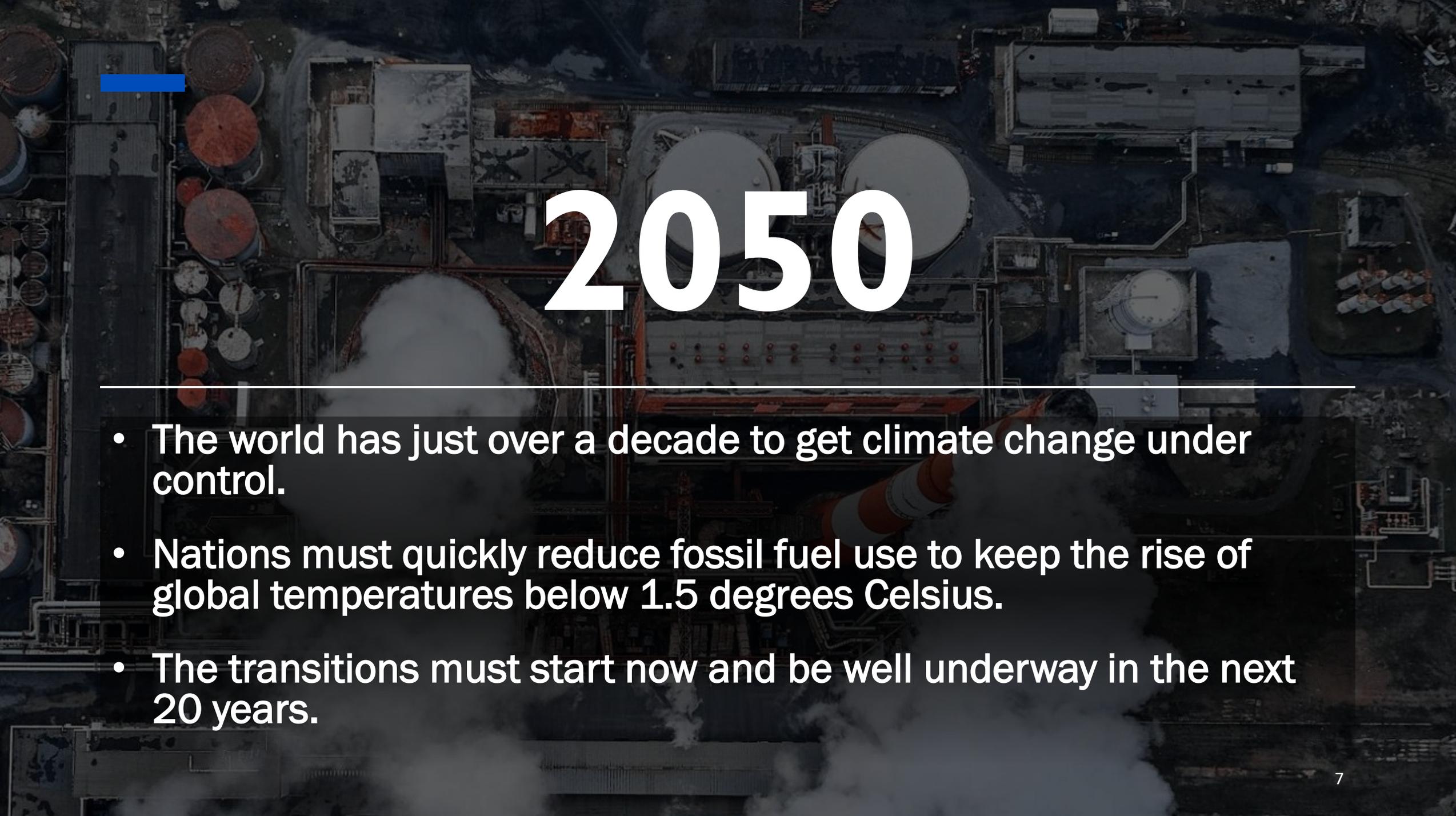
*Decreased Snow Cover*

*Worsening Drought*

6

# The Effects of Climate Change

---

An aerial photograph of an industrial facility, possibly a refinery or chemical plant, with various structures, pipes, and smokestacks. The image is dark and has a blue tint. A large white number '2050' is overlaid in the center. A blue horizontal bar is in the top left corner. A white horizontal line is below the number.

# 2050

- The world has just over a decade to get climate change under control.
- Nations must quickly reduce fossil fuel use to keep the rise of global temperatures below 1.5 degrees Celsius.
- The transitions must start now and be well underway in the next 20 years.

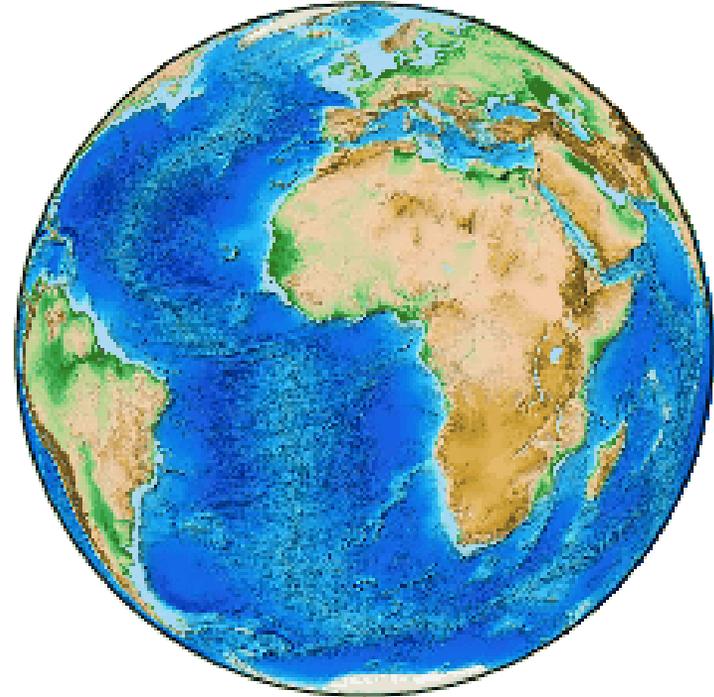
---

# Paris Climate Agreement

---

A global action plan to fight climate change and adapt to its impacts.

- Aims to limit the global temperature increase in this century to 2 degrees Celsius above preindustrial levels, while pursuing means to limit the increase to 1.5 degrees.
- At present, 197 countries have adopted the agreement and ratified by 187 as of Nov. 2019.



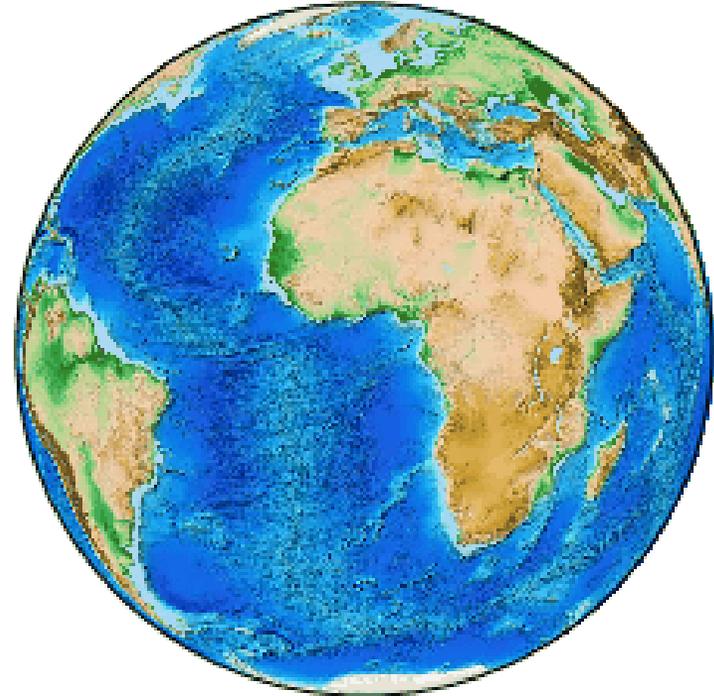
---

# Paris Climate Agreement

---

The U.S. committed to cutting overall greenhouse gas emissions by 26 to 28 percent below 2005 levels by 2025.

- U.S. initiatives to achieve the target include the Clean Power Plan:
  - A state-by-state program to cut carbon pollution from the power sector; and
  - The tightening of automotive fuel economy standards to reduce transportation emissions.

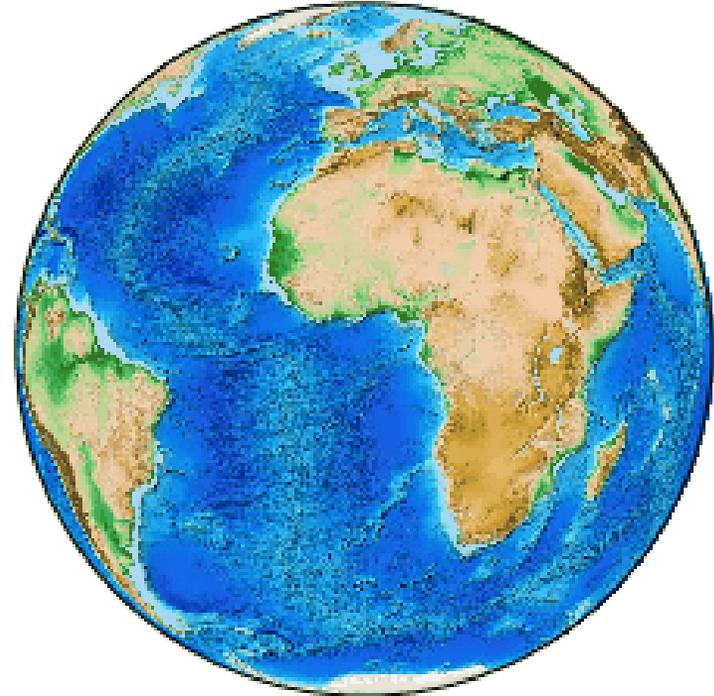


# Paris Climate Agreement

---

## Where are we now?

- The planet is currently on pace to warm 3.2 C by the end of the century, and is set to cross 1.5 C of warming by 2035 and 2 C around 2050.
- Climate Action Tracker rates the U.S. as "critically insufficient," meaning their emissions reductions commitments fall "well outside" their fair share and, if adopted by all nations, would lead to warming above 4 C.







# Climate Change at Home

---

How is it effecting our  
community?

What can we do about it?



# How Is Climate Change Effecting Pennsylvania?

---

-  More flooding
-  More heat and respiratory deaths
-  Increased disease and pests
-  Disruptions to agricultural systems



# Pennsylvania

---

*Already Feeling the Effects of Climate Change*

## Tornadoes

We had 34 confirmed tornadoes in 2019, more than 2X our average of 16.



## Flooding

2018: \$163.5 million in public infrastructure flood damaged - only \$62 million covered by federal disaster aid.



## Poor Air Quality

Phila. region experienced increase in Ozone Action Days between 2014-16. Nearly 3 of every 10 days are of degraded air quality.



# Pennsylvania Is Becoming:

---

## Warmer

- Pennsylvania's climate has warmed more than 1° C (1.8° F) over the past 110 years.
- Our 5 warmest summers on record are the past 5 summers.
- December of 2015 was warmest December on record—smashing previous record by more than 4 degrees

## Wetter

- Average annual precipitation has increased 10% over the last 110 years.
- It rained 63.97 inches in 2018, the wettest year on record.
- July 2018 marked the wettest 4-year period ever recorded.

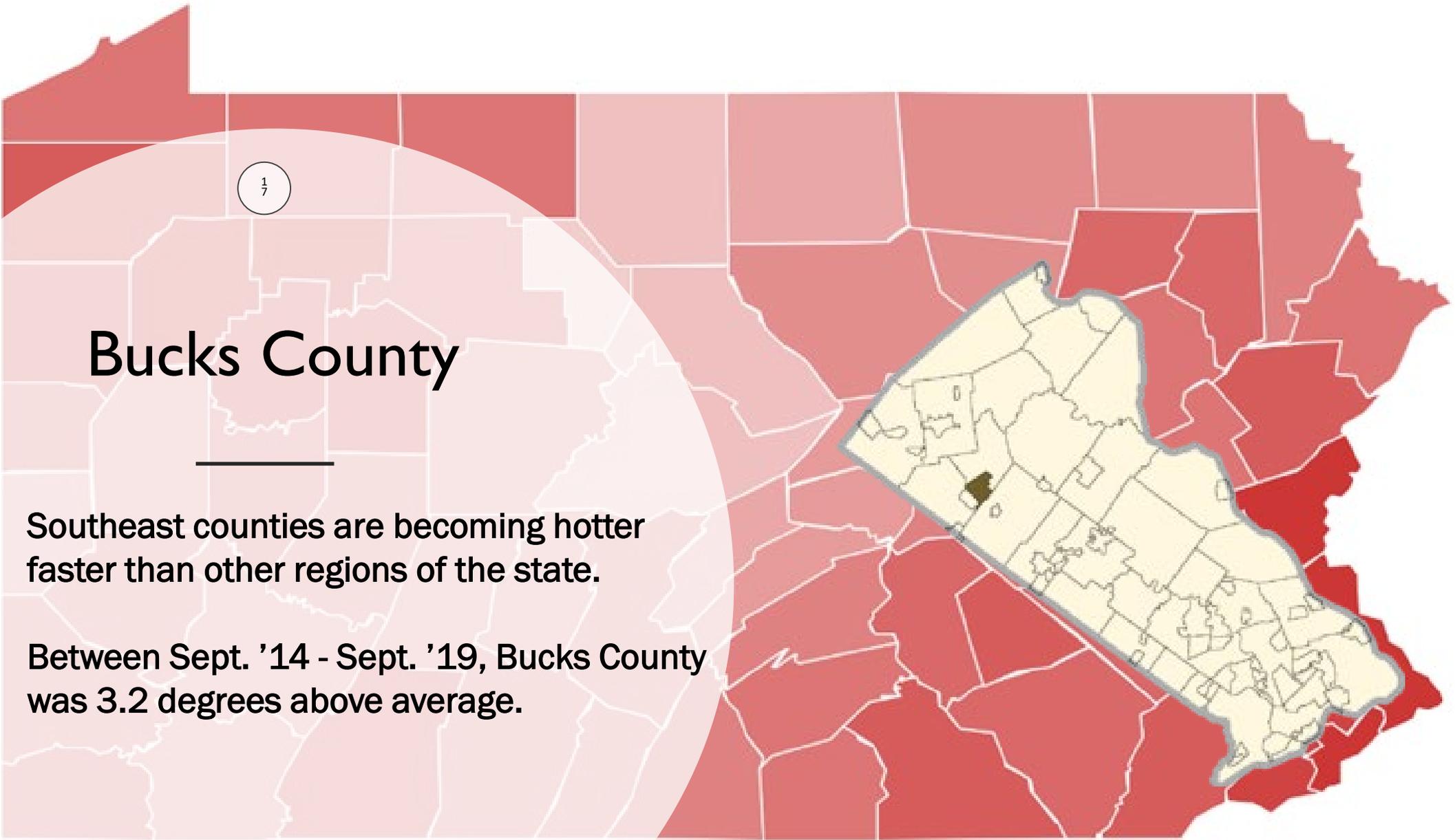


# Agriculture Faces Steep Challenges

Pennsylvania's **58,000** farm families continue to care for over **7.7 million** acres of farmland.

Farmers and agribusinesses are the leading economic drivers of the state.





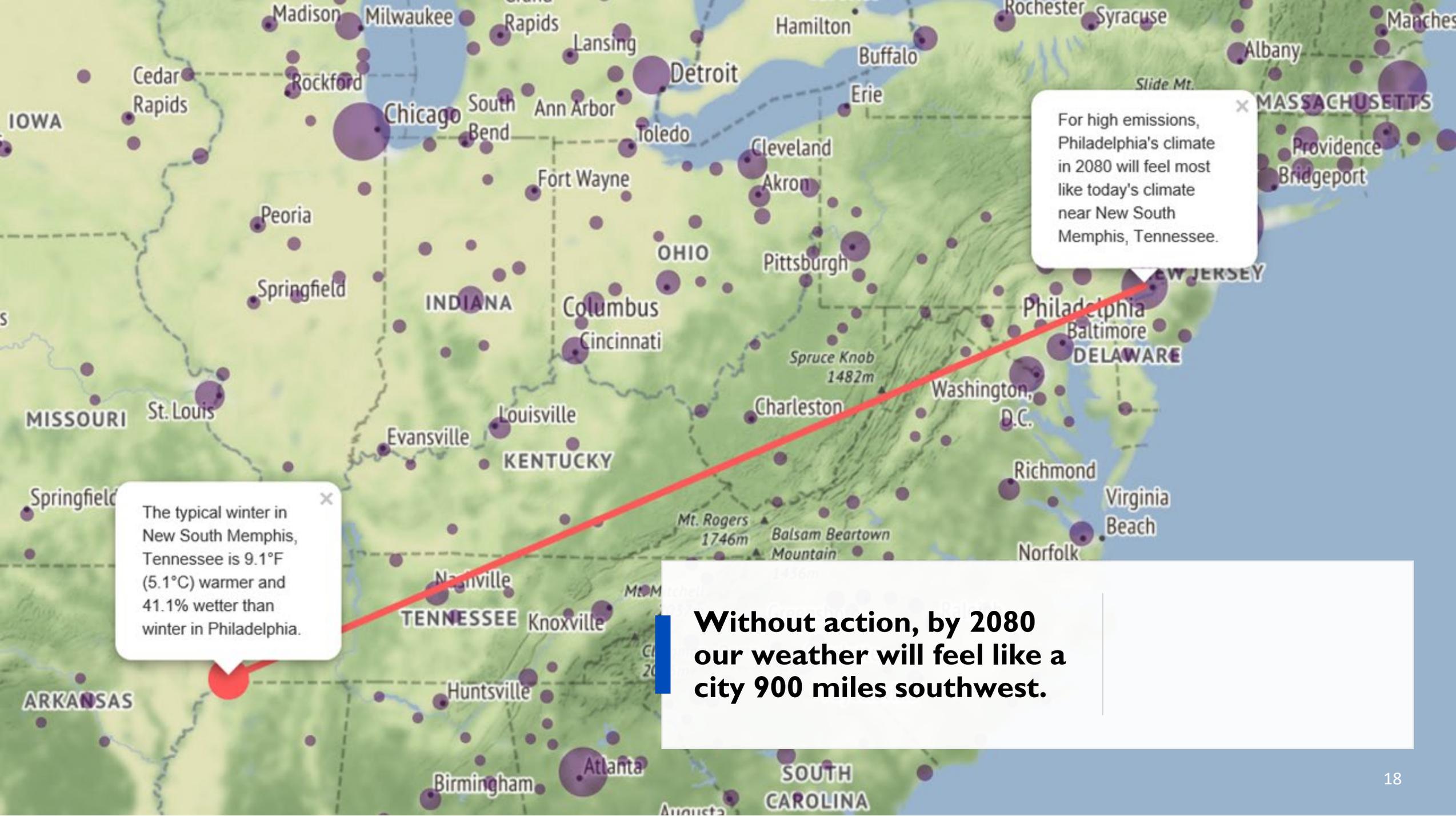
# Bucks County

Southeast counties are becoming hotter faster than other regions of the state.

Between Sept. '14 - Sept. '19, Bucks County was 3.2 degrees above average.

Temperature anomaly, Sept. 2014 - Sept. 2019

0.0°F 0.2°F 0.4°F 0.6°F 0.8°F 1.0°F 1.2°F 1.4°F 1.6°F 1.8°F 2.0°F 2.2°F 2.4°F 2.6°F 2.8°F 3.0°F 3.2°F 3.4°F



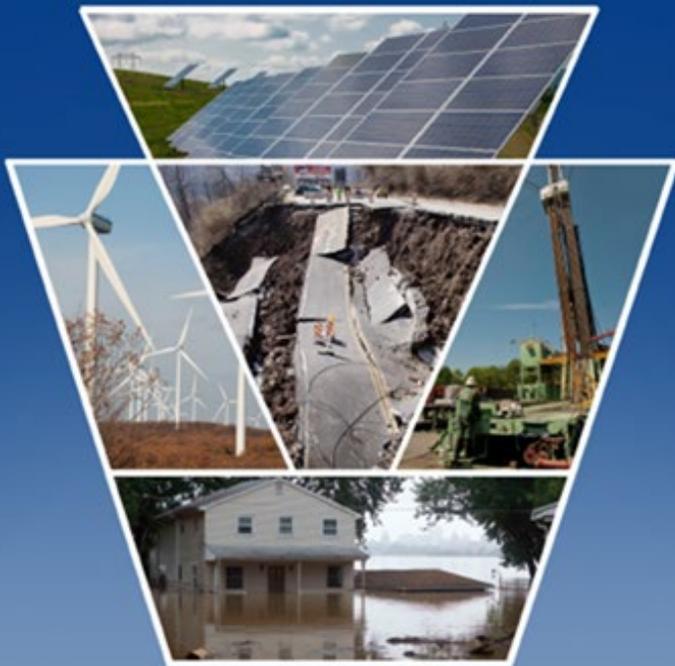
For high emissions, Philadelphia's climate in 2080 will feel most like today's climate near New South Memphis, Tennessee.

The typical winter in New South Memphis, Tennessee is 9.1°F (5.1°C) warmer and 41.1% wetter than winter in Philadelphia.

**Without action, by 2080 our weather will feel like a city 900 miles southwest.**

# CLIMATE CRISIS

The Rising Cost of Inaction



A special report by Pennsylvania Auditor General  
**EUGENE A. DEPASQUALE**



# The Price We Pay for Doing Nothing

---

*\$261 million Per year*



This Photo by Unknown Author is licensed under [CC BY-SA](#)

## What is State Government Doing About It?

- Gov. Wolf Executive Orders
- Set greenhouse gas reduction targets for state government
- Established GreenGov Council
- Directed DEP to join RGGI
- Joined U.S. Climate Alliance
- Joined Transportation and Climate Initiative



**What Am I Doing About It?**



## Sen. Santarsiero's Legislative Action

### Senate Bill 600

- Increases renewable energy statewide to 30% by 2030.

### Senate Bills 707-709

- Provides State Attorney General enhanced enforcement power of pollution, clean streams, and safe drinking water.



<https://www.senatorstevesantarsiero.com/climate/>

Track legislation and get updates on environmental news



CARBON COUNTDOWN CLOCK

## How much of the world's carbon budget have we spent?

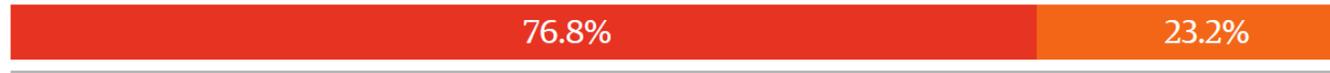
Carbon countdown clock: how much of the world's carbon budget have we spent?

2,225,979,918,976

Total carbon budget used since 1870, in tons (CO2-e)

674,020,081,024

Total carbon budget remaining in tons (CO2-e), if we want to limit human-induced warming to less than 2C



2,900,000,000,000  
total carbon budget in tons (CO2-e)

58,010

Total emissions in tons (CO2-e) since you started reading this

16 years, 355 days, 10 hrs, 33 mins, 6 secs

Until we will exceed the IPCC's 2C carbon budget, if our emissions stay as they are now

# Pennsylvania's Renewable Energy Future

---

Coal Industry



Natural Gas Industry



Solar and Wind





**Solar & Wind = Zero Carbon Emissions**

# Bucks County Transition Subcommittee on Energy & Environment

- Appointed as Chairman in January 2020.
- Subcommittee's work will focus on things the county can do on energy and how environmental issues impact the county.
- A final report with recommendations will be issued this Spring.



A man in a dark blue suit and tie is smiling and talking to a woman with curly hair. They are in a crowd of people, some of whom are blurred in the background. A blue horizontal bar is at the top left.

# What Can You Do?

---

*Contact your elected officials!*

The main reason elected officials do anything difficult is because their constituents make them.

# WAYS TO REDUCE YOUR CARBON FOOTPRINT

## Small Changes

- Understand your carbon footprint.
- Carpool to work or use mass transit.
- Switch to LED light bulbs.
- Use a programmable thermostat.
- Reduce food waste.
- Move towards a plant-based diet.

# WAYS TO REDUCE YOUR CARBON FOOTPRINT

## Big Changes

- Power your home with renewable energy.
  - Install solar panels on your roof.
  - Shop for a renewable energy supplier.
- Invest in energy-efficient appliances.
- Going car-free or electric/hybrid.
- Volunteer.

SMALL  
BUSINESS **BIG**  
**IMPACT**

Transportation  
Electricity Production  
Manufacturing  
Commercial Building  
Raise Awareness

# THANK YOU

For access to this presentation, visit:  
[www.senatorstevesantarsiero.com](http://www.senatorstevesantarsiero.com)

