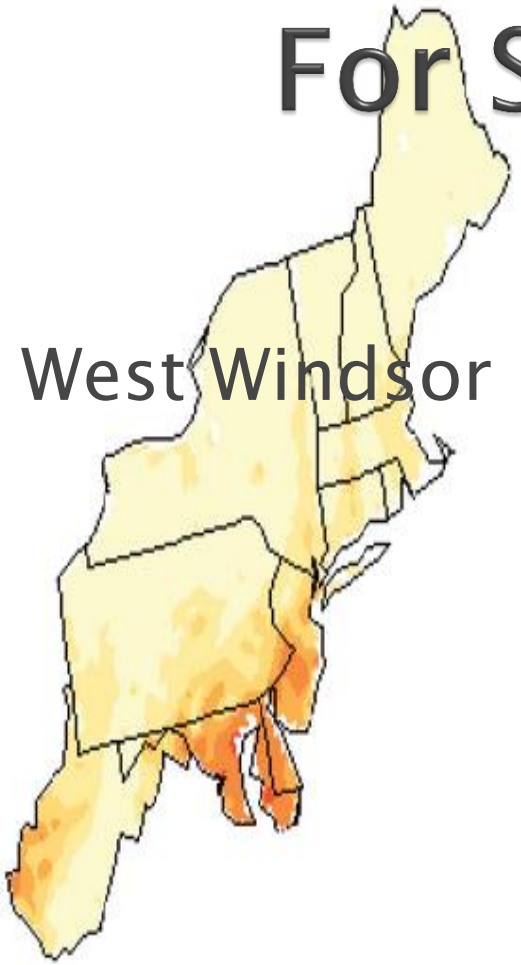
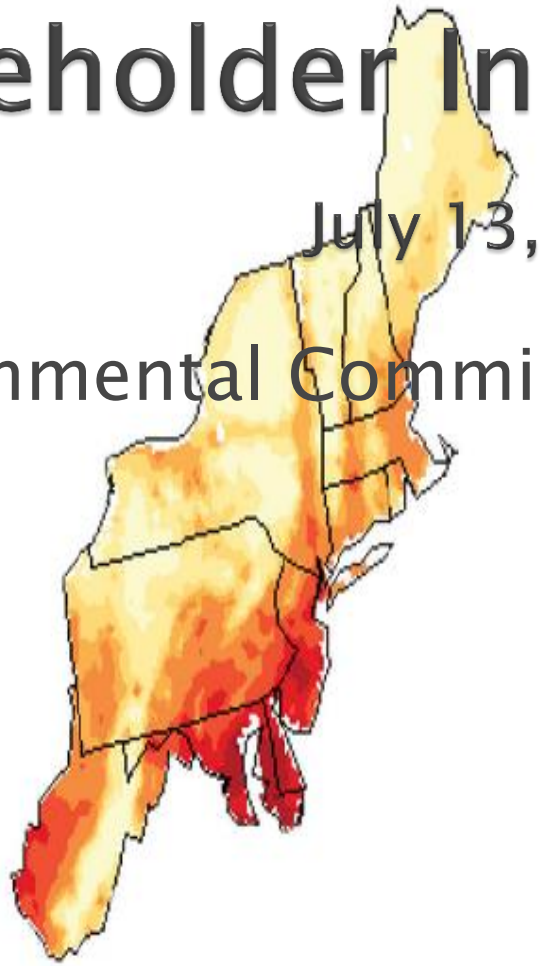
Presentation of Draft West Windsor Climate Action Plan For Stakeholder Input

July 13, 2015

West Windsor Environmental Commission



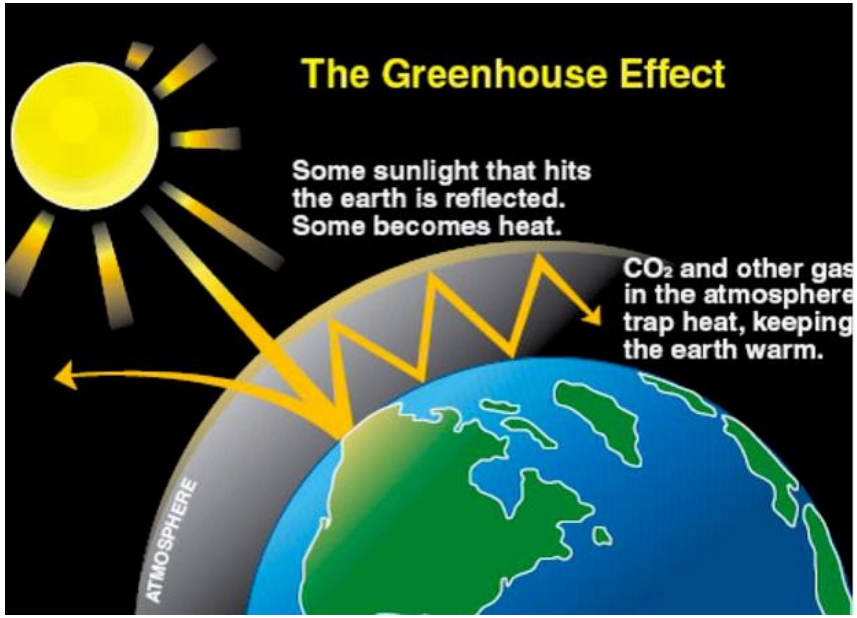


West Windsor Climate Action Plan

- Summarizes the science and the risks
- Estimates greenhouse gas emissions (our carbon footprint)
- Sets emission reduction goal
- Proposes a plan of action
- Initiates a discussion on planning for climate change

Climate Science

- We are already beginning to experience a changing climate
- The climate is changing principally due to an increasing concentration of GHGs in the atmosphere, particularly carbon dioxide (CO2)
- GHGs trap heat in the atmosphere, causing global warming

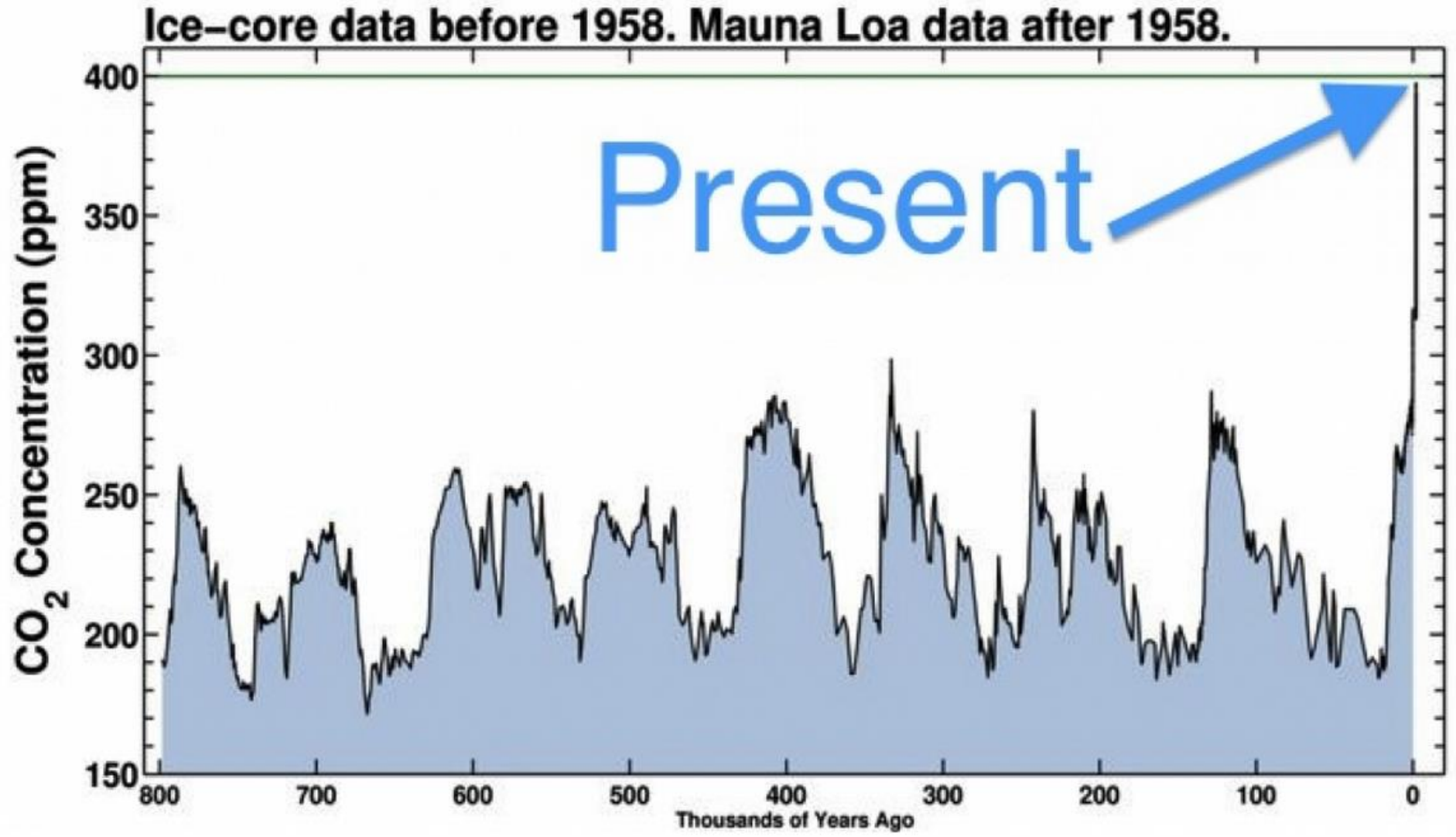


Climate Science

- Combustion of fossil fuels for transportation, electricity generation, building heating and industrial processes is the principal sources of anthropogenic CO2
- The CO2 concentration in the atmosphere has recently reached the 400 part per million (PPM) level, and is rising at a rate of two parts per million per year

Atmospheric CO2 Concentration – Past 800,000 Years

Source: Climatecentral.org

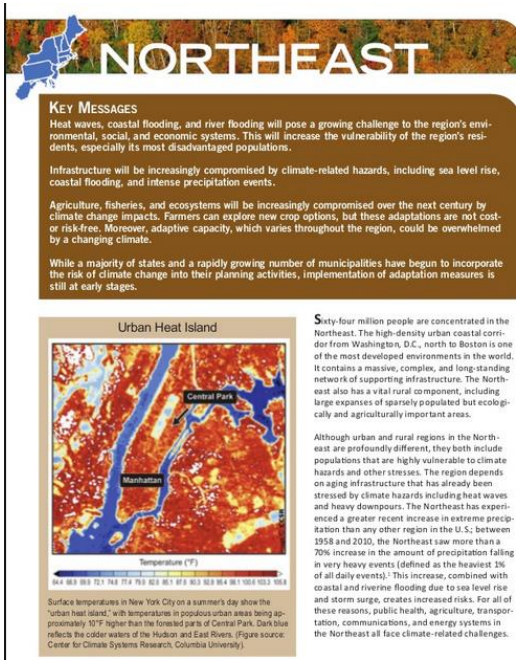


National Climate Assessment
Northeast United States

http://nca2014.globalchange.gov/report/regions/northeast

Our area can expect increasing:

- **Heat Waves**
- **Intense Precipitation**
- **Flooding**



NORTHEAST

KEY MESSAGES

Heat waves, coastal flooding, and river flooding will pose a growing challenge to the region's environmental, social, and economic systems. This will increase the vulnerability of the region's residents, especially its most disadvantaged populations.

Infrastructure will be increasingly compromised by climate-related hazards, including sea level rise, coastal flooding, and intense precipitation events.

Agriculture, fisheries, and ecosystems will be increasingly compromised over the next century by climate change impacts. Farmers can explore new crop options, but these adaptations are not cost- or risk-free. Moreover, adaptive capacity, which varies throughout the region, could be overwhelmed by a changing climate.

While a majority of states and a rapidly growing number of municipalities have begun to incorporate the risk of climate change into their planning activities, implementation of adaptation measures is still at early stages.

Urban Heat Island

Surface temperatures in New York City on a summer's day show the "urban heat island," with temperatures in populous urban areas being approximately 10°F higher than the forested parts of Central Park. Dark blue reflects the colder waters of the Hudson and East Rivers. (Figure source: Center for Climate Systems Research, Columbia University).

Sixty-four million people are concentrated in the Northeast. The high-density urban coastal corridor from Washington, D.C., north to Boston is one of the most developed environments in the world. It contains a massive, complex, and long-standing network of supporting infrastructure. The Northeast also has a vital rural component, including large expanses of sparsely populated but ecologically and agriculturally important areas.

Although urban and rural regions in the Northeast are profoundly different, they both include populations that are highly vulnerable to climate hazards and other stresses. The region depends on aging infrastructure that has already been stressed by climate hazards including heat waves and heavy downpours. The Northeast has experienced a greater recent increase in extreme precipitation than any other region in the U.S.; between 1958 and 2010, the Northeast saw more than a 70% increase in the amount of precipitation falling in very heavy events (defined as the heaviest 1% of all daily events).[1] This increase, combined with coastal and riverine flooding due to sea level rise and storm surge, creates increased risks. For all of these reasons, public health, agriculture, transportation, communications, and energy systems in the Northeast all face climate-related challenges.

Residents, environment and infrastructure (such as electric grid) will be increasingly vulnerable.

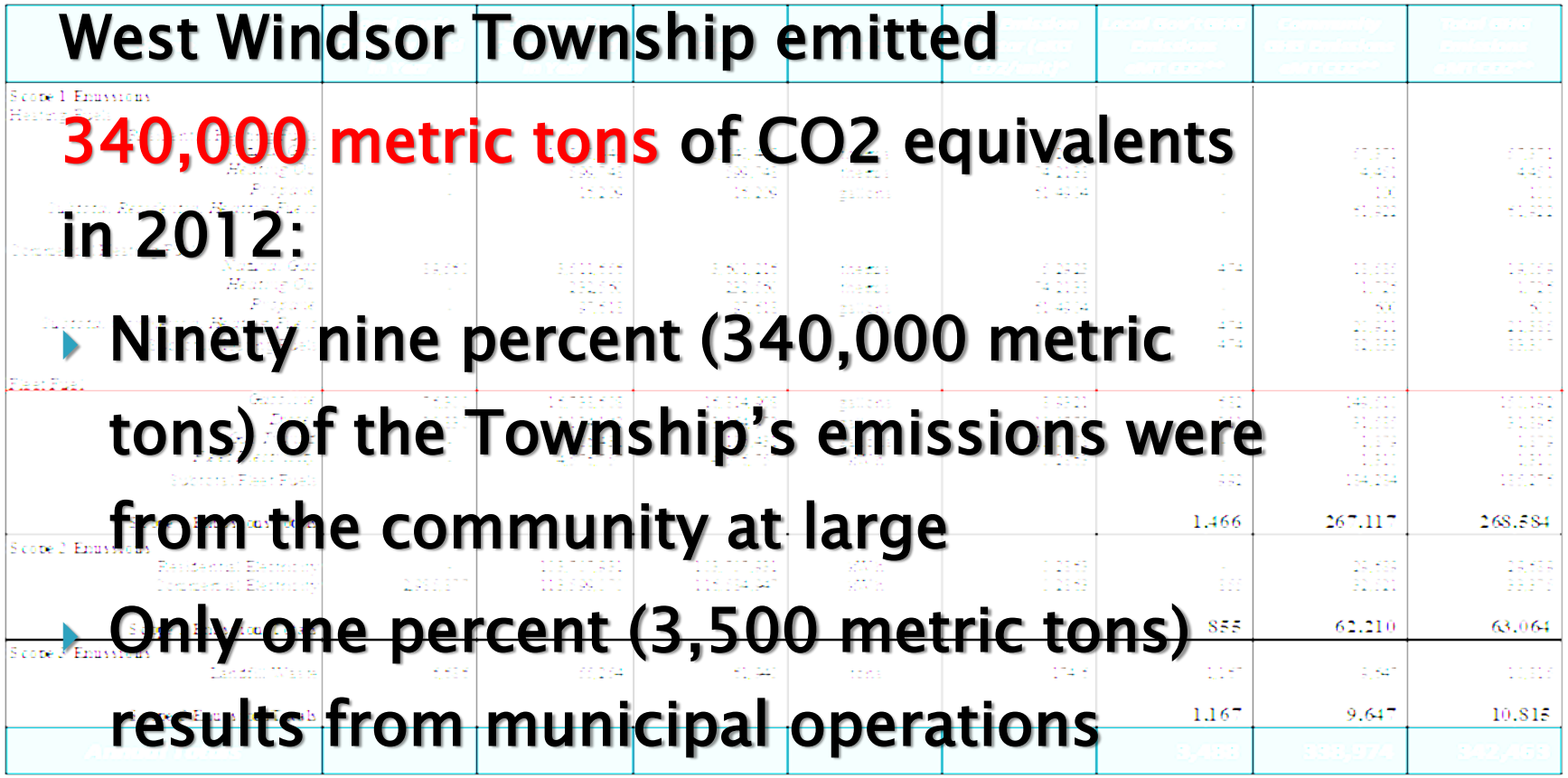
Many states and towns are making preparations.

Our "Carbon Footprint"
Green House Gas (GHG) Emissions

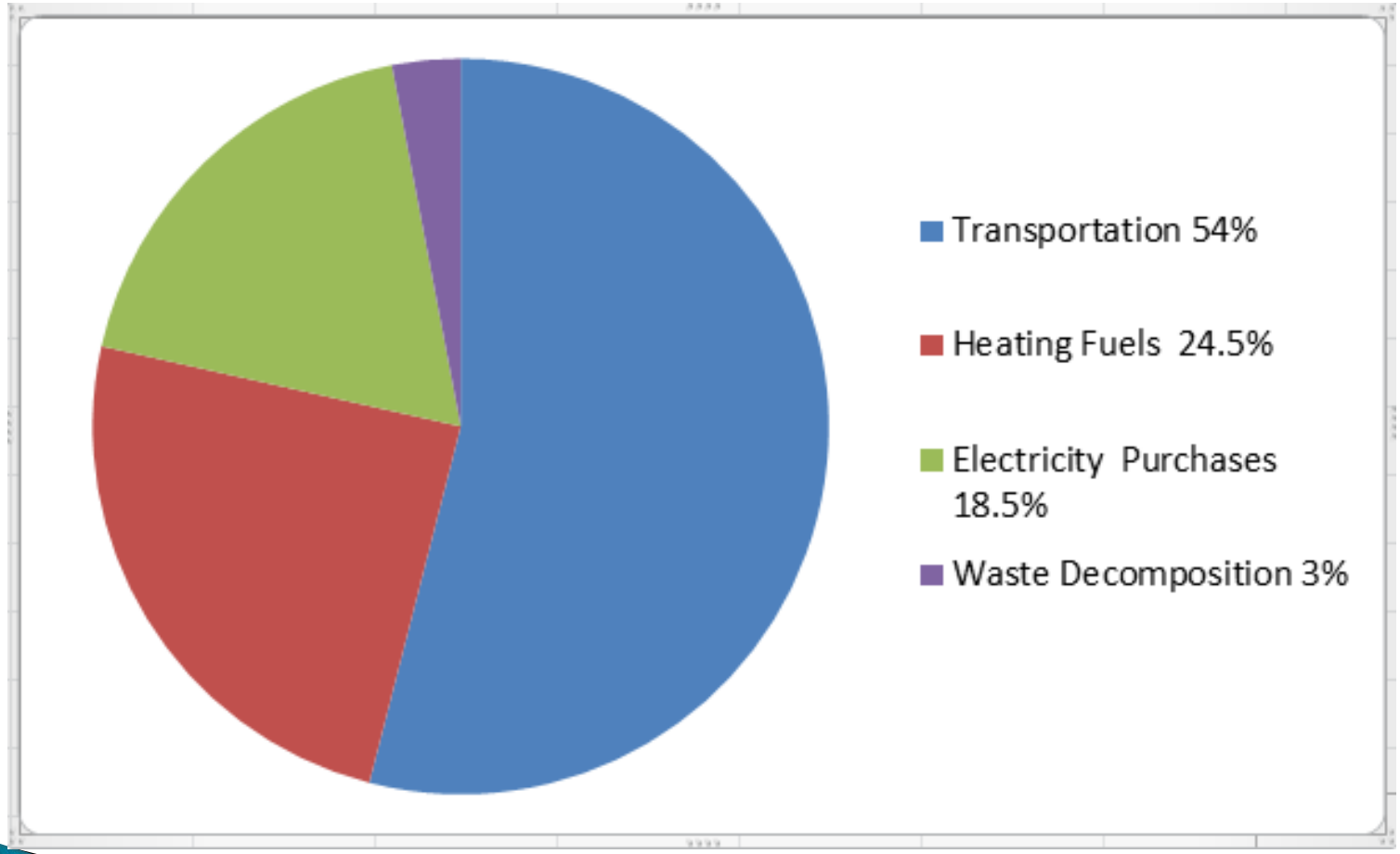
West Windsor Township emitted

340,000 metric tons of CO2 equivalents in 2012:

- **Ninety nine percent (340,000 metric tons) of the Township's emissions were from the community at large**
- **Only one percent (3,500 metric tons) results from municipal operations**



West Windsor "Carbon Footprint"
GHG Emission Sources



Visualize West Windsor's GHG Emissions 342,000 Tons of CO2

Source: EPA GHG Calculator

72,000

Passenger vehicles

or

4,527

tanker trucks' worth of gasoline

or

38,483,178

gallons of gasoline consumed

or

31,204

homes' energy use for one year

Voluntary GHG Reduction Goal

- Proposed goal = NJ's Global Warming Response Act:
  - Stabilization of greenhouse gas emissions at 1990 levels by 2020
  - Reduction of emissions to 80 percent below 2006 levels by 2050
- Overall reduction needed: 96,000 metric tons between the present and 2020:
  - 50,000 metric tons due to "Business as Usual" (e.g. increased vehicle MPG)
  - 46,000 metric ton reduction requires active CAP program

Representative Municipal Actions

- Implement energy audit recommendations
- Building retro-commissioning
- Employee awareness
- Efficient vehicles
- Waste reduction
- Promote alternatives to single vehicle use purchasing green electricity
- Community education programs

Representative Community Actions

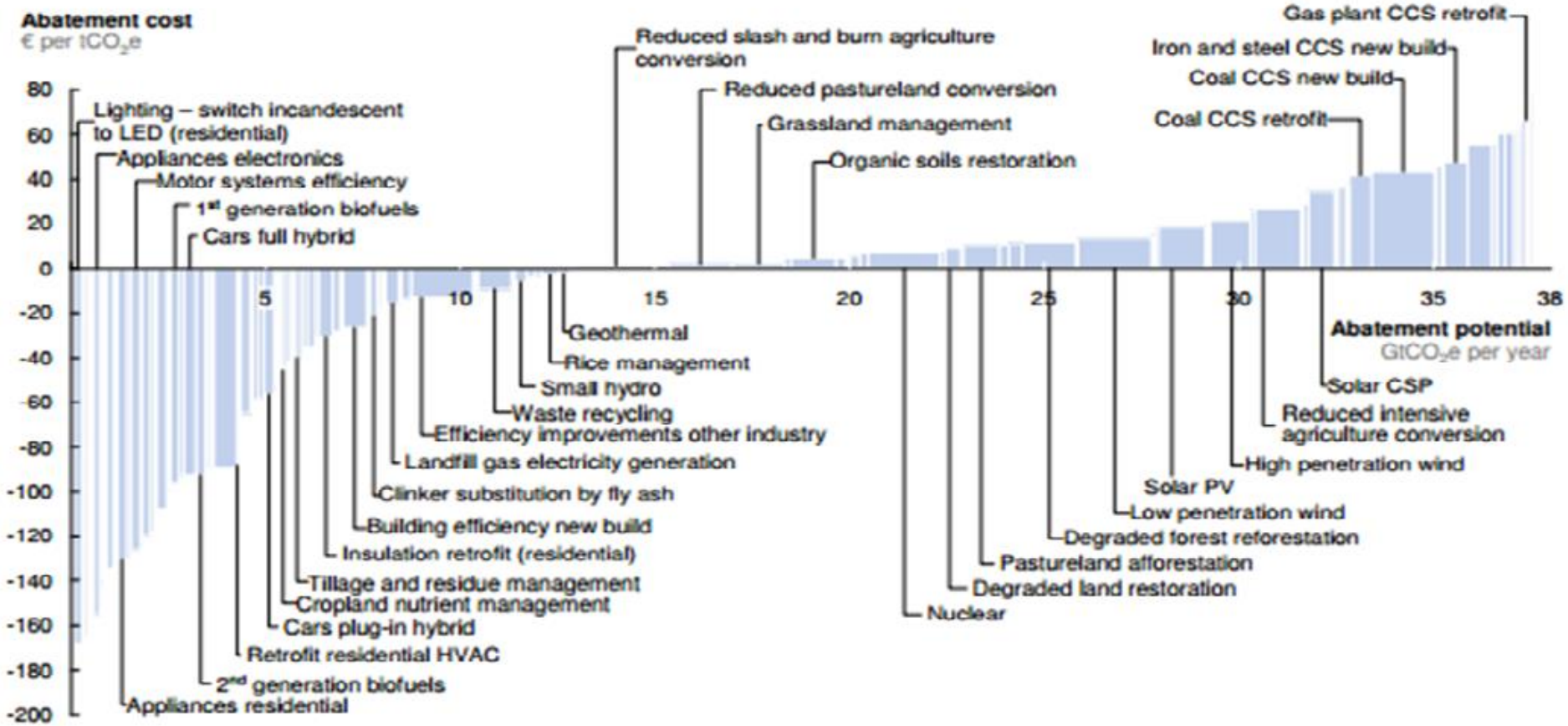
Transportation

- Reduce vehicle miles traveled
- Promote transition to more efficient/ alternative fueled vehicles
- Provide employee incentives for walking, biking, carpooling, or using mass transit
- Bolster Anti-Idling program

- Increase awareness of energy efficiency incentives
- Improve waste reduction and recycling
- Energy star purchases

GHG Mitigation Cost Curve

Source: mckinsey.com



Source: Mckinsey.com

Adapt – Resilience – Prepare

- Anticipate increased heat waves, droughts, flooding and power outages
- Consider effects on vulnerable citizens, such as senior citizens
- Consider effects on public health, transportation, utilities/power, emergency services
- Raise awareness among residents about the need for preparation and self-reliance
- Implement Little Bear Brook Flood Hazard Assessment Study?
- Monitor New Jersey Climate Adaption Alliance

Next Steps

- Stakeholder review
  - Municipal Officials
  - Community Groups, Residents, Businesses
- Municipal adoption of “purpose and intent”
- Implementation and reporting

Why is this Climate Action Plan Important?

Scientists Agree:	There's Hope:
• It's Us • It's Bad • It's Getting Worse	• Reduce Emissions • Prepare • Stay Informed