CLIMATE CHANGE IN URBAN COMMUNITIES

GET INFORMED & TAKE ACTION

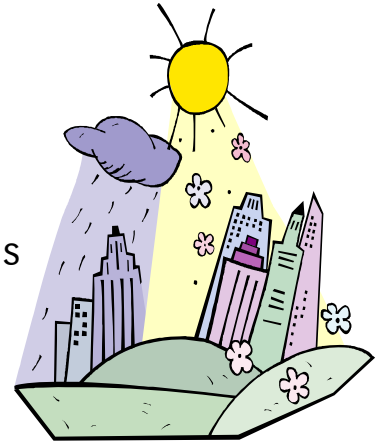
EPA
Region 1, New England

Overview

- What is climate change?
- Why is it a problem?
- What's happening to the New England climate now and in the future?
- How does energy connect to climate change?
- How can I help and save money at the same time?
- Will my actions make a difference?

Key Terms

Learning about climate change doesn't have to be confusing! Here are a few key words and phrases that you've heard before, and what they mean:



Weather = What is happening outside at any place at any time.

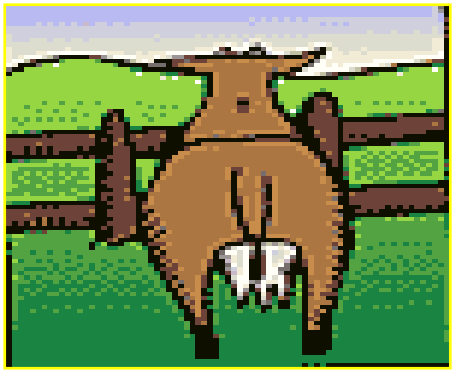
Climate Change = A change in the long term weather patterns and/or temperature in a location.

Global Warming = An increase in the Earth's temperature overall which can lead to changes in the climate and weather.

Greenhouse Gases = Gases released into the air that trap heat in the atmosphere.

What Are The Greenhouse Gases & How Are They Produced?

There is a "natural" way and a "man made" way Greenhouse gases are produced.



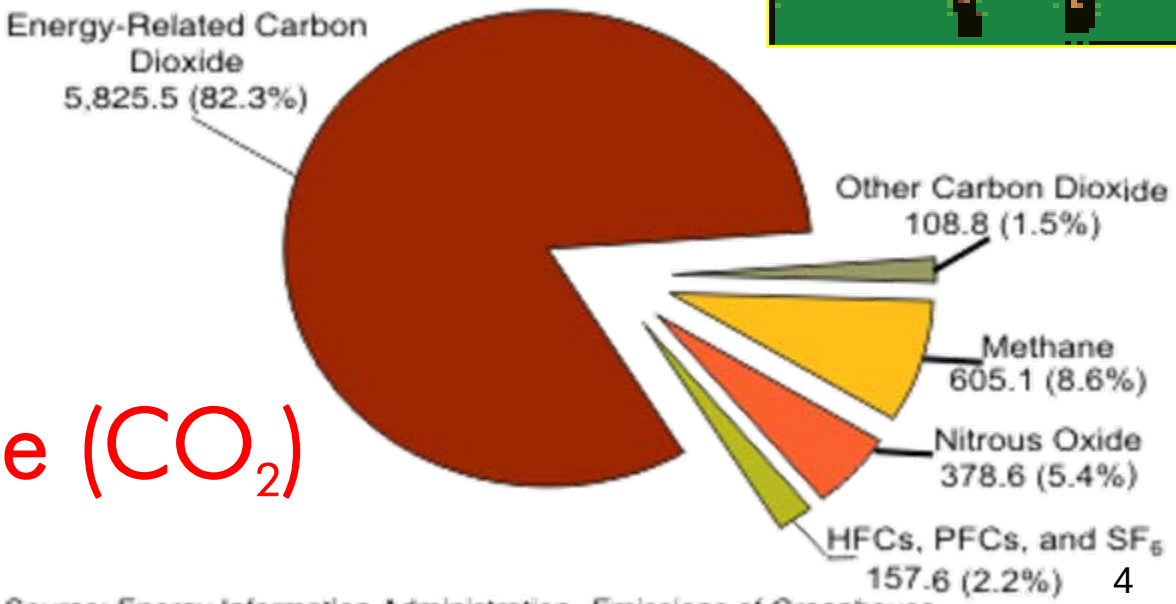
Water Vapor

Ozone

Nitrous Oxide

Methane

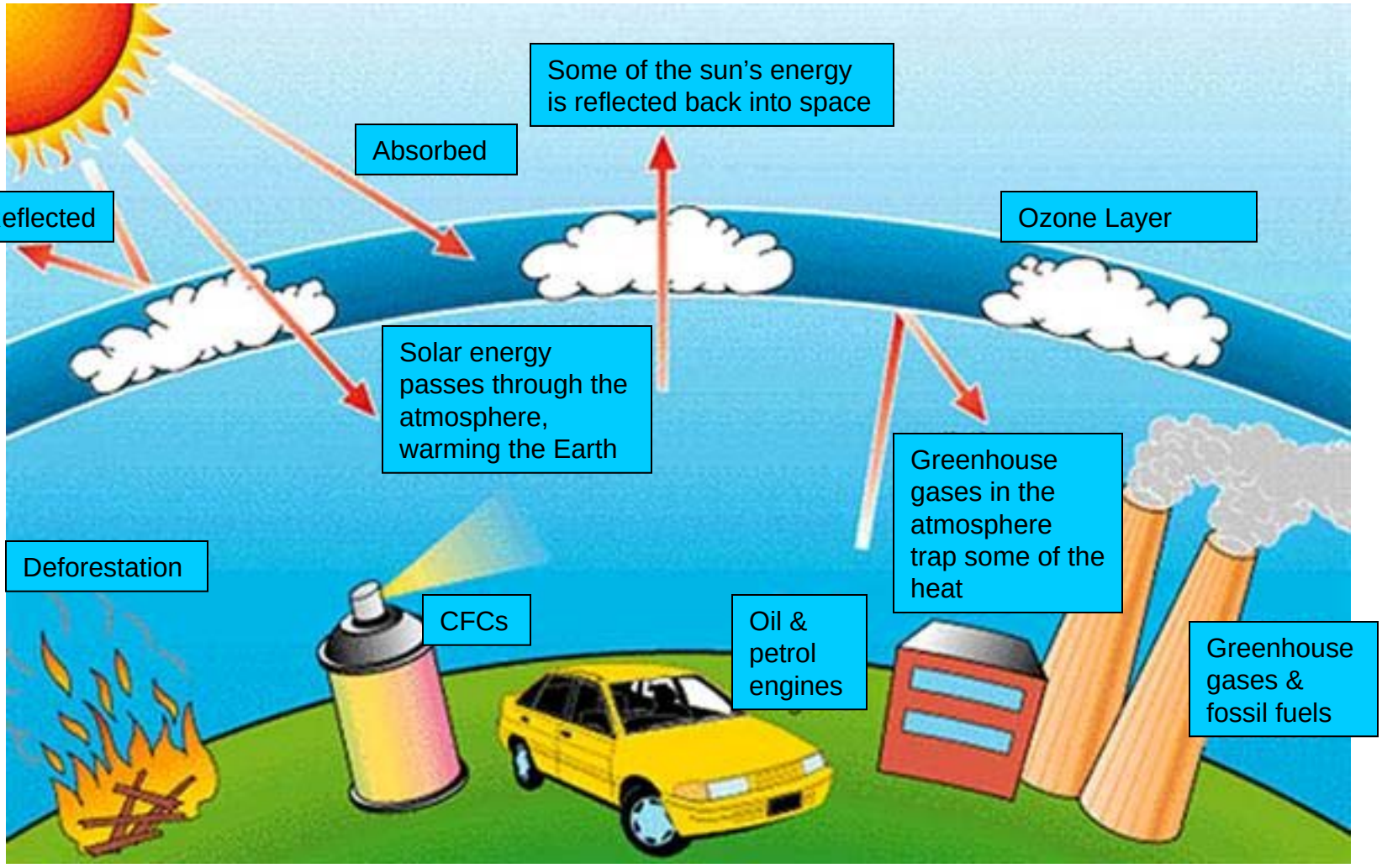
Carbon Dioxide (CO_2)



Source: Energy Information Administration, *Emissions of Greenhouse Gases in the United States 2006* (Washington, DC, November 2007)

Which One Of These Items Contribute to CO_2 Releases When Used?

Understanding the "Greenhouse Effect"



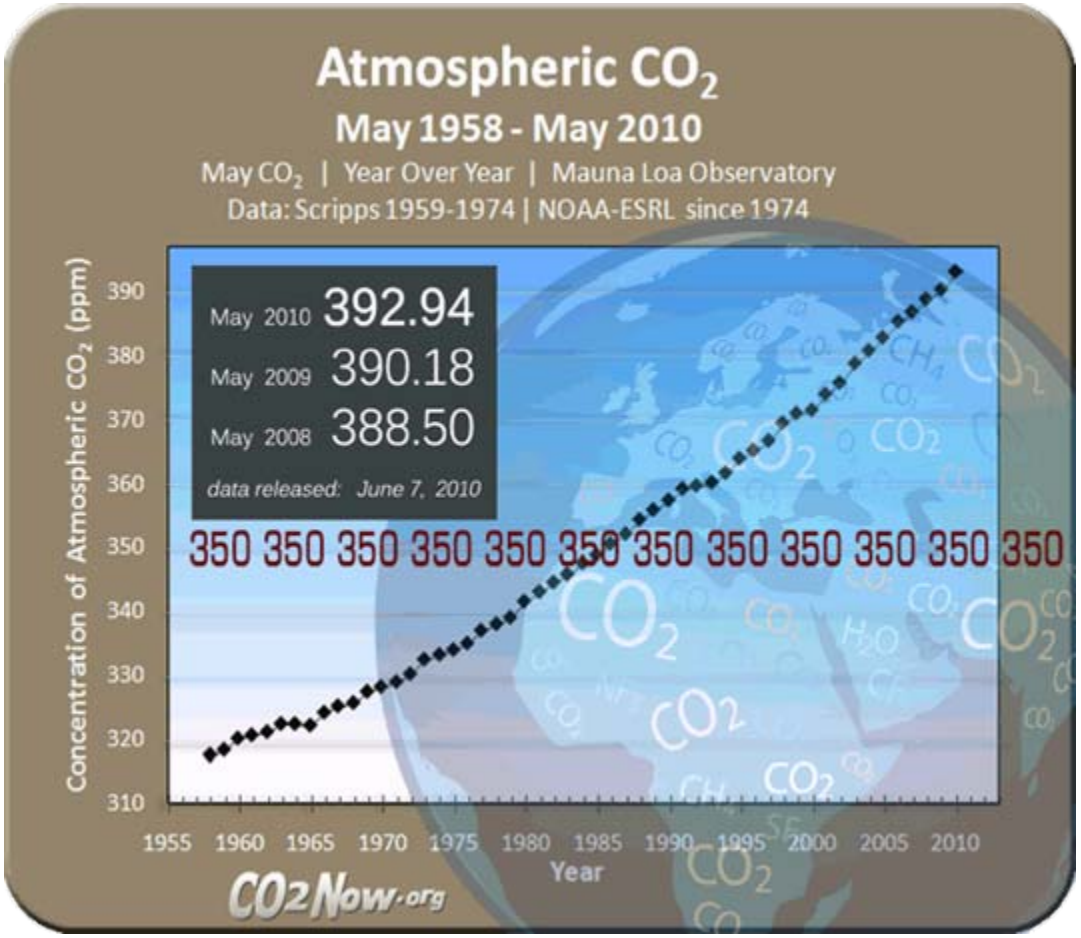
Our Environment & Health Will Change

- Sea levels will rise, flooding or altering Northeast coastlines.
- As temperatures rise, frequency of storms, like hurricanes and tornadoes, will likely increase.
- Places that get regular rain and snowfall like the Northeast will have extreme weather with increases in precipitation and drought.
- Higher temperatures and poor air quality can make asthma and other health problems even worse.
- Plants and animals that can't take the heat may become extinct or migrate North. Ones that can handle the heat, like insects, may thrive.
- Energy prices keep rising, and with warmer temperatures in the summer we'll have even higher energy bills from increased use of air conditioning!

CO_2 Levels Are On The Rise!

World Meteorological Organization (5/2010)

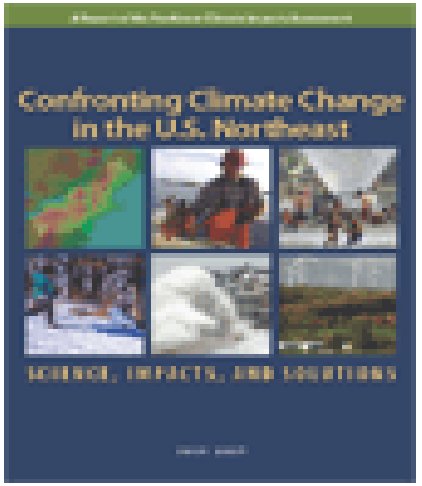
- Atmospheric CO_2 levels are highest ever recorded
- The amount of CO_2 in the atmosphere is increasing exponentially at a rate of about 0.5% per year
- 38 percent rise since the late 1700's



The Science Is Real – No Doubt About It!

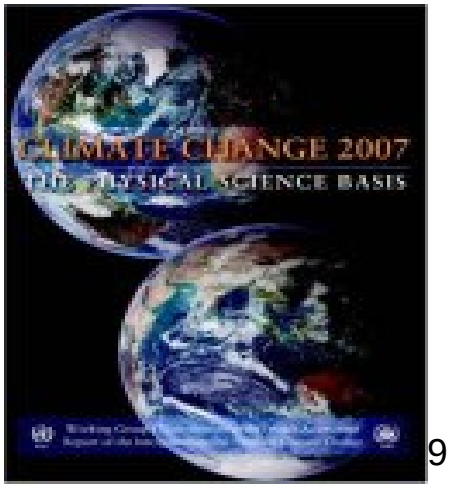
Union of Concerned Scientists & NECIA reports (2007)

- Northeast states specific future scenarios, vulnerabilities

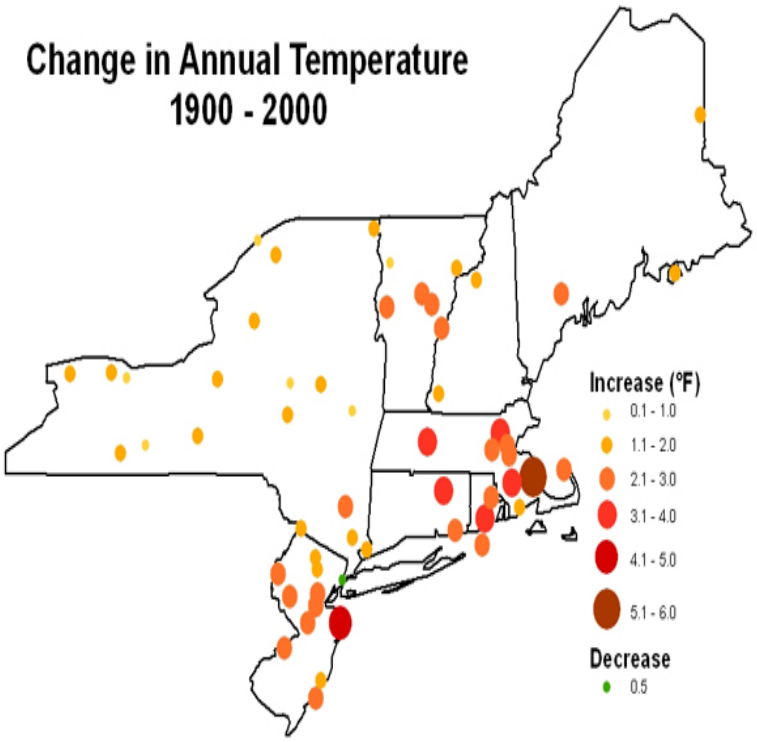


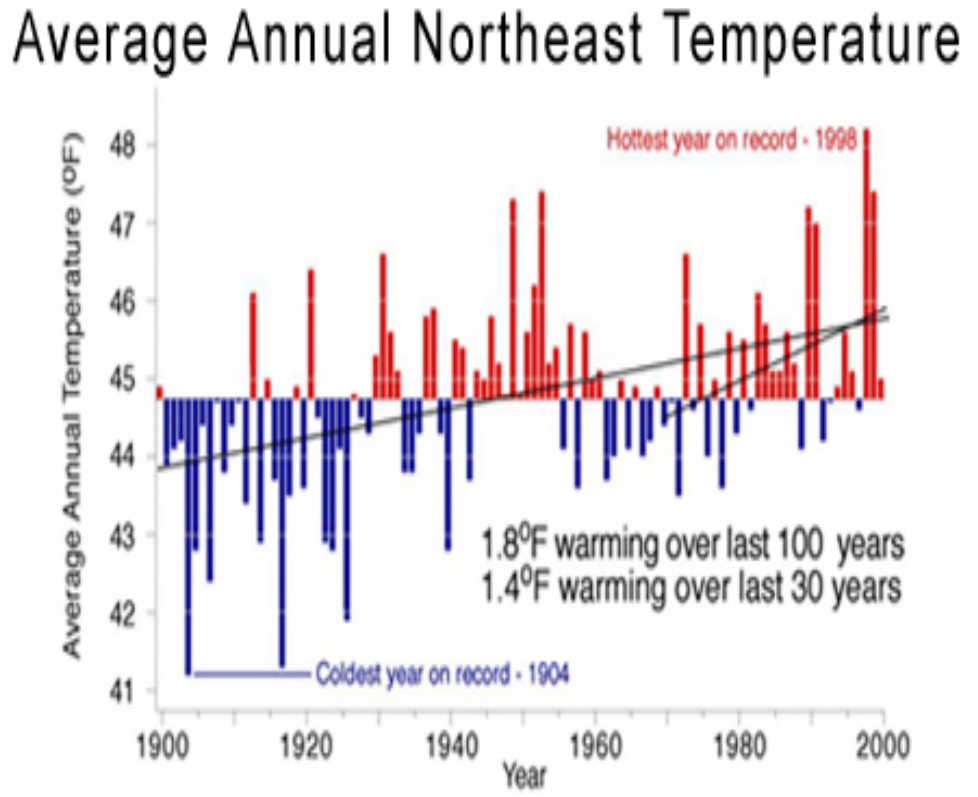
Intergovernmental Panel on Climate Change (IPCC) reports (2007)

- "Evidence unequivocal" (A Summary for Decision Makers 10/2007)
- Increase in storm intensity, erosion & scouring, precipitation dumps, but also droughts
- Sea level Rise
- Wetlands impacts
- Altered chemistry in the ocean
- Ecosystem services, habitat effects



Temperature: What's Happening In New England?





What Is Going On Now In Urban Areas?

- Disproportionate exposure to cumulative risks
- Lack of greenspace
- Inadequate access to transportation

What Are Urban Heat Islands?

- Urban heat islands are elevated temperatures in cities compared to more suburban or rural surroundings.
- Contributing factors: Little or no green space, lots of concrete and paved spaces, high population, many buildings.
- The annual mean air temperature of a city with one million or more people can be 1.8 to 5.4°F (1 to 3°C) warmer than its surroundings.

	Total # of Households	Total Occupied Units	Black (Not Hispanic)	Hispanic	Elderly (65 years or older)	Below Poverty Level
All Occupied Units	3,131,000	39.7%	58.5%	54.6%	37.5%	51.5%
Renters	1,608,900	48.1%	59.1%	58.4%	38.7%	56.3%
Homeowners	1,522,100	30.9%	57.4%	48.9%	36.8%	38.8%

Table 1. Percent of households without access to any air conditioning by race and SES – Los Angeles-Long Beach Metropolitan Area, California (2003)*

* Percentages are likely an underestimate of the true value due to the fact that more than one category may apply to a single unit in the dataset.

Adapted from: American Housing Survey for the Los Angeles-Long Beach Metropolitan Area 2004 (USCB 2004).

Trash Is A Big Problem In The United States

- *Municipal Solid Waste (MSW)* is our trash and consists of everyday items such as product packaging, grass clippings, furniture, clothing, bottles, food scraps, newspapers, appliances and batteries.

- Used paper and paper products make up the largest proportion of our trash-about 40%.

- In the United States, we generated about 254 million tons of trash in 2007.

We Are A Part Of The Problem!

Check out these facts:

- Each person produces about 4.5 pounds of trash per day.
- Americans throw away enough office paper each year to build a 12 foot high wall of paper from New York City to Seattle, WA.
- Every three months, Americans landfill enough aluminum to rebuild our entire commercial air fleet.

Even Less Trash is Being Recycled in Our Urban Cities!

- Recycling takes materials that would normally be waste (aluminum, plastic, paper, etc.) and turns them into new products.
- In New England, many of our urban community's recycling rates fall far below the national goal of 35%.

Municipality	*Recycling Rate*	*Period Covered*
• Boston	16.0 %	FY 2009
• Providence	8.5 %	CY 2005
• Hartford	11.4 %	FY 2003

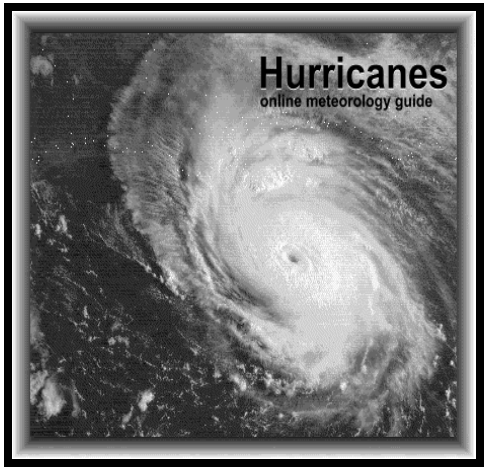
Did You Know?

- Recycling 1 ton of aluminum saves the equivalent of 2,330 gallons of gasoline.
- Making paper from recycled paper reduces contributions to air pollution by 95%.
- 5 plastic soda bottles yield enough fiber for one extra large T-shirt, one square foot of carpet, or enough fiber fill to fill one ski jacket.
- A recycled fleece jacket uses 25 soda bottles as raw material.

How Can I Help and Save Money?

Start recycling, reusing or reducing what you buy!

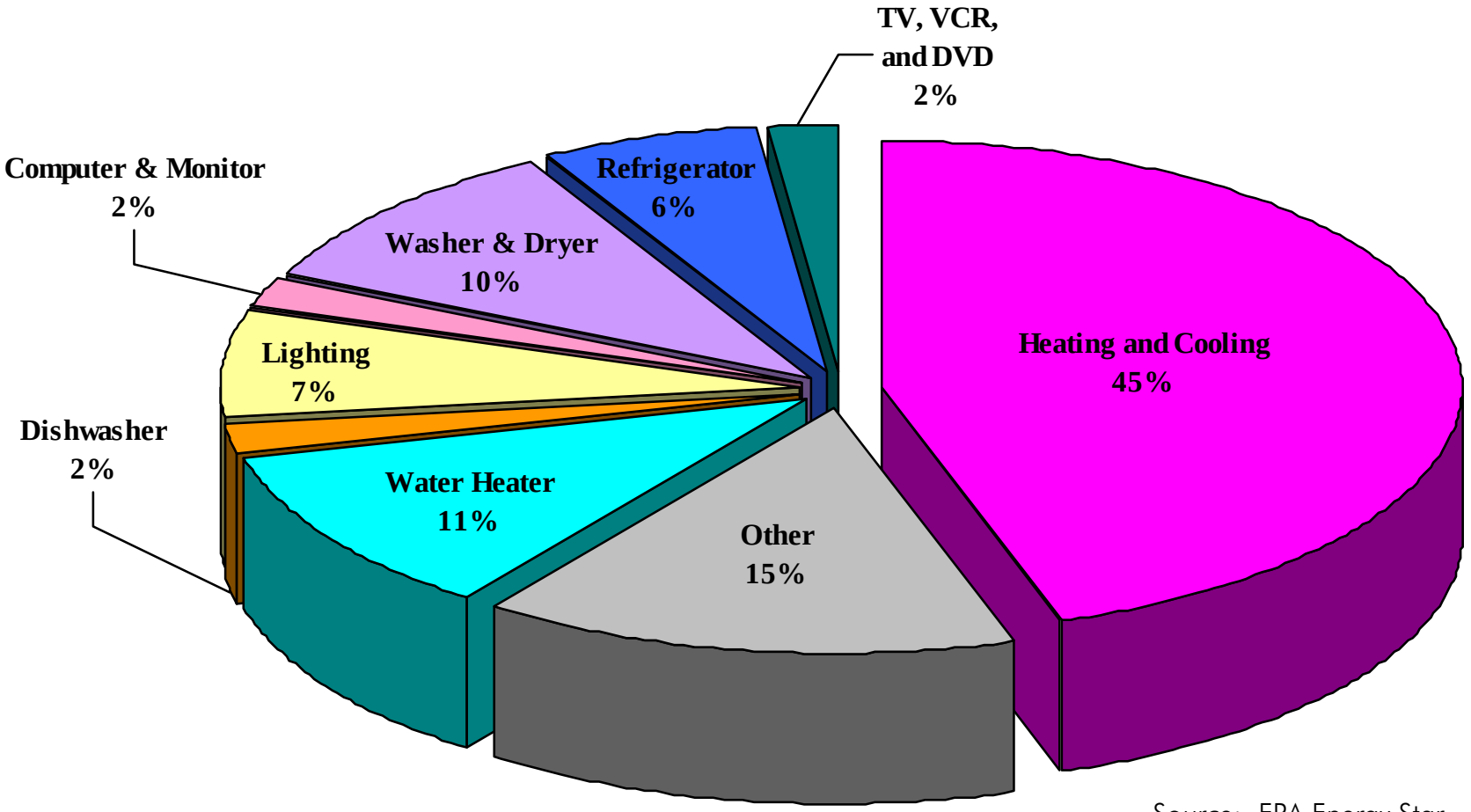
CLIMATE CHANGE Is About ENERGY Use



ENERGY Use Is About CLIMATE CHANGE

Where Does My Money Go?

ENERGY STAR reports that the typical American household spends approximately $2,000/year on home energy bills



Source: EPA Energy Star

How Can I Help and Save Money?

Use less energy in your home and where you work and tell your friends how they can too.

- U.S. house-holds spend about $100 per year to power devices on stand-by mode.
- Showers account for 2/3 of all household water-heating costs.

Money Isn't All You're Saving

Don't lose or waste energy in your home.

- Every year, more than $13 billion worth of energy leaks from houses through small holes and cracks.

Weatherization Tips

Reduce your home or apartment's heating and cooling costs by 30% with proper weatherization techniques

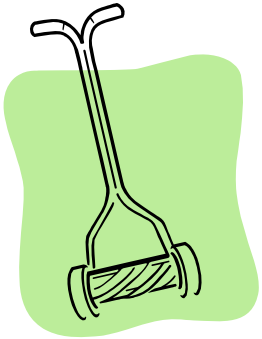
Trap heat in the winter

- Open window shades during the day and close all shades at night.
- Test for air leaks.
- Remember to close fireplace dampers when not in use.

Trap cool air in the summer

- Apply reflective films to south-facing windows to reduce heat from the sun.
- During the day, keep shades on west- and south-facing windows closed.

What Else Can I Do to Help?

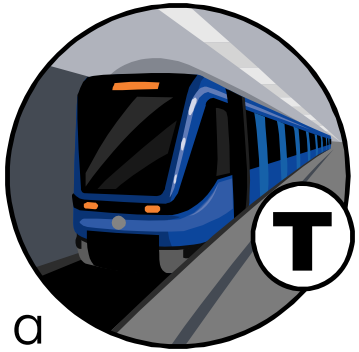




- Make gasoline mileage a real factor in your decision
  - Combine errands
- Clean up the trunk
  - An extra 100 pounds in your car reduces fuel economy by up to 2%

Will These Things Really Make a Difference?

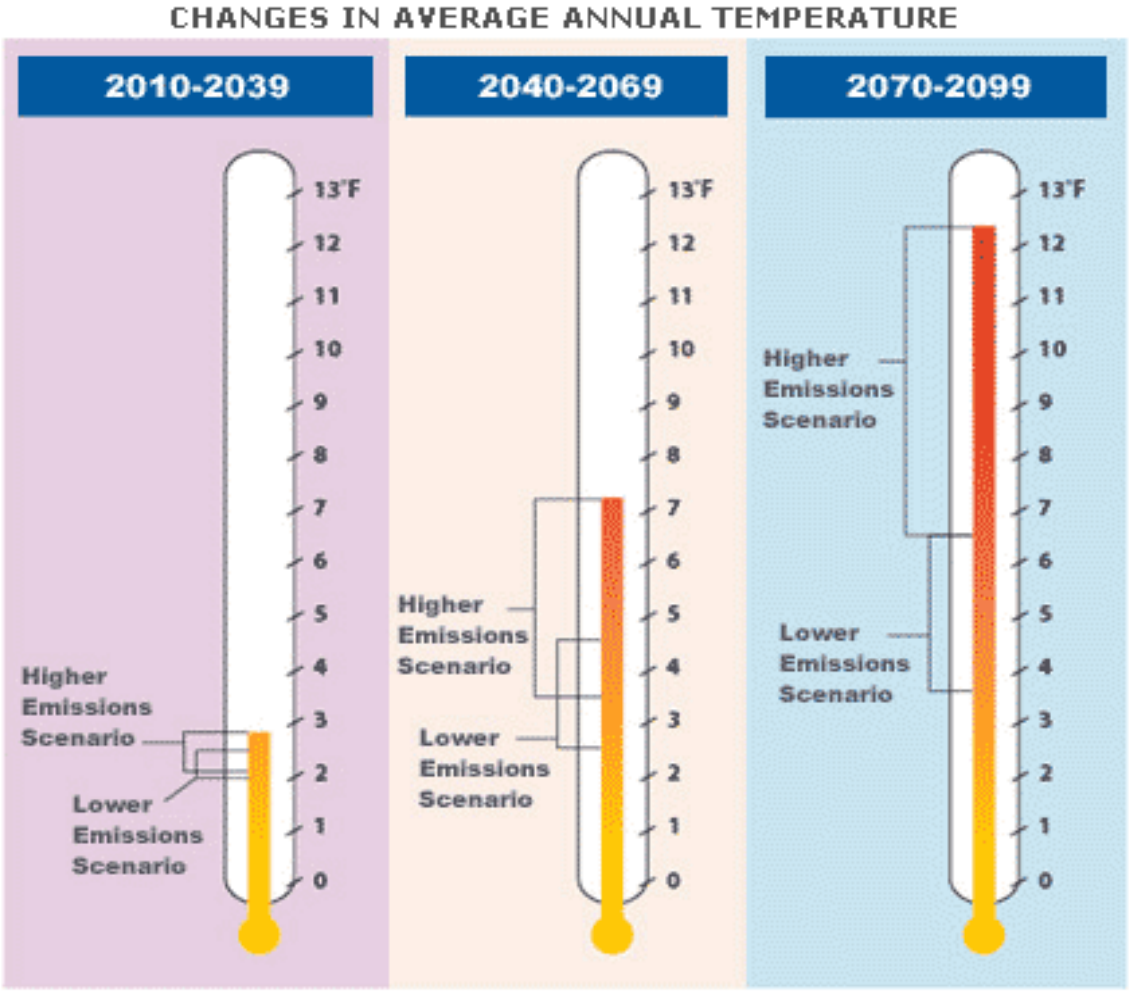
In a word. . .YES!



- Driving 50 less miles this month means 50 less pounds of CO_2 into the atmosphere.
- Recycling 1 glass jar saves enough electricity to light a regular 60 watt bulb for 4 hours or an energy efficient bulb for 20 hours.

- If every American home replaced just one light bulb with an "Energy Star" qualified bulb, we would save enough energy to light more than 3 million homes for a year
- Recycling a single aluminum can saves enough energy to power a TV for 3 hours.
- Recycling a stack of paper 3 feet high saves one tree.

What Effect Will Our Choices Have?



Confronting Climate Change in the U.S. Northeast: Science, Impacts, and Solutions (PDF): A report of the Northeast Climate Impacts Assessment (NEICA), July 2007

Most Important Things To Remember About Climate Change

- Climate Change is real and is not going away.
- Climate Change is a global problem but it's our individual actions that will help solve it.
- Tell your family and friends about climate change and how to save energy.
- Promote green jobs in your community.
- If you make these small changes it can protect the environment for our children and save money.

Resources, Services, and Assistance Programs

- There are a number of federal and state specific resources, services, and assistance programs available to you!
- The programs offer a host of benefits ranging from energy rebate programs and tax credits to transportation services.
- Please see our resource guide or contact your local utility company for more information.