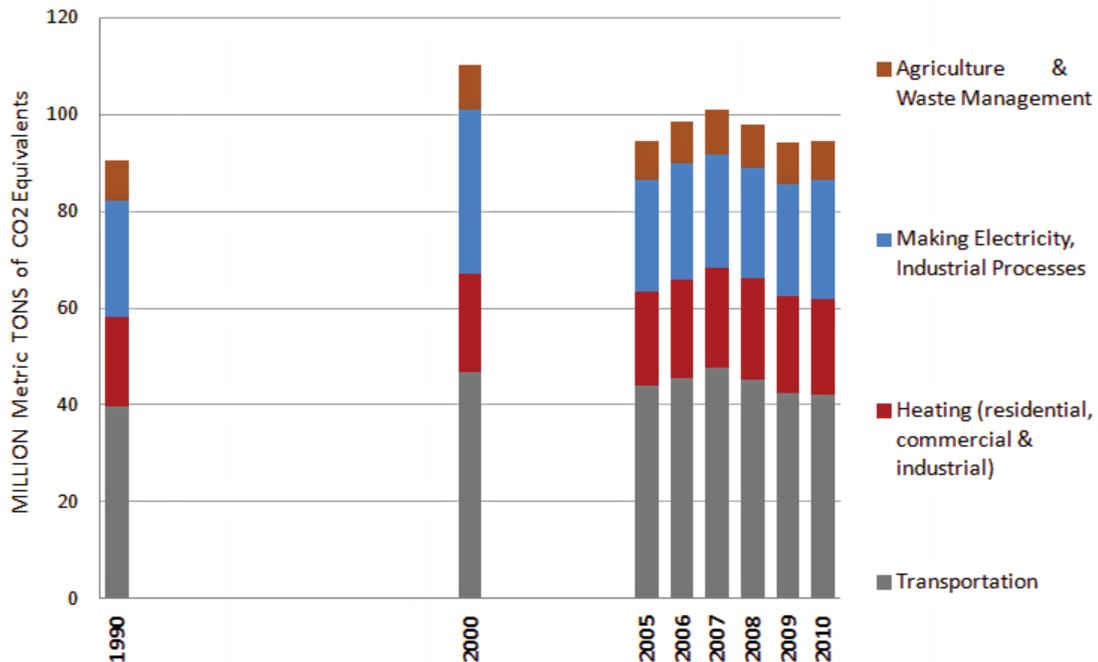


Pierce County Environmental Health 2014



Air Greenhouse Gas Emissions in Washington State



Data Source: Washington State Department of Ecology.

Greenhouse gas emissions are about at 1990 levels, while the population in Pierce County has almost doubled.

WHY CARE?

Hazards¹

- Saltwater intrusion in wells near the coast.
- Drier summers and reduced snowpack, reducing water in rivers and lakes, increasing contaminant concentrations in rivers and lakes, and the need for water storage.
- Wetter autumns and winters, increasing erosion, landslides, sedimentation, and flooding.
- Heavy rains and flooding may lead to water damage, mold, and poor indoor air quality.²
- Smog (ground-level ozone), harmful algae blooms, and bacteria that cause foodborne illness are likely to increase with higher temperatures.
- Increasing surface water temperatures, ocean acidification, and sea levels. Sea levels rose 7 inches during the 20th century and are expected to rise of another 2.6 inches by 2030 in our area.³
- Heavier rains, saturated soils, and rising sea levels

could increase the number and severity of landslides, especially in areas with high development or already unstable slopes.⁴

Exposure

- Drinking contaminated water, breathing smog, and eating contaminated food.
- Living in areas where flooding, erosion, or landslides occur, especially coastal areas. Living in housing with water damage and mold.

Greenhouse gas emissions may have different impacts due to particulate air pollution:

- Particulates in the atmosphere may have slowed earlier effects of global warming by reflecting sun light, preventing it from reaching the earth's surface.⁵
- Black carbon (soot) on snow and ice may contribute to global warming by darkening these surfaces and reducing their reflection of solar radiation.⁶

Human health impacts

- More ozone-related chronic lung disease and other respiratory problems.⁷

- More foodborne illnesses from bacteria and other pathogens.
- Many insects expand their ranges and reproduction with warmer temperatures and water, increasing risks from diseases like West Nile Virus.⁸

Who's most vulnerable?⁹

- People living on or near shoreline areas and in flood zones, and on shallow wells.
- Children, elderly, and others with asthma, other respiratory illnesses, or heart disease.
- Low-income individuals and communities with fewer resources to adapt to climate change.

Economic impacts¹⁰

- Acidification of marine waters is expected to increase threat to seafood supplies. Climate changes are expected to cost Washington residents, businesses and communities almost \$4 billion a year by 2020, and over \$6 billion by 2040. Costs include:
 - o Water supply and conservation costs to offset changes in snowmelt.
 - o Lost hydropower revenues.
 - o Shoreline protection, septic system, and other infrastructure costs from rising sea level.
 - o Seafood and agriculture impacts.
 - o Fighting wildfires.

WHAT CAN YOU DO?

Policy actions

In 2005 Washington State required cars, appliances, and public buildings to be more energy efficient. Since then, government agencies, businesses, employees, and residents have been saving energy by driving less, turning off lights, and other ways. Pierce County employees helped save more than \$1,650,000 by using less energy and other resources from 2009 to 2012.¹¹

Resilience and adaptation strategies that reduce impacts on vulnerable people and ecosystems are also critical as climates change and sea levels rise.¹²

Personal actions

- Save energy and money at home, work, and school:
 - o Drive less—walk, bike, bus, and carpool more. Live near where you work.
 - o Buy less stuff—buy things that are repairable and fix them: www.ifixit.org.
 - o Turn off lights and appliances, use energy efficient light bulbs and appliances, lower your thermostat a few degrees, and insulate your home better.¹³
 - o Encourage your employer, employees, and coworkers to save energy and participate in the Commute Trip



Catching a Pierce Transit bus to work.

Reduction program.

- Plant trees and other plants that use carbon dioxide and store carbon.

By driving less and taking the bus, carpooling, biking, and walking more to work, we save about 2 million gallons of fuel each year in Washington State, reducing greenhouse gas emissions each year by about 17,000 metric tons, about the amount of carbon in 73 railcars of coal.¹²

1 Focus on Impacts of Climate Change in Washington State, Washington State Department of Ecology, February 2009. Preparing for a Changing Climate, Washington State Department of Ecology, April 2012.

2 Climate Change, the Indoor Environment, and Health, Institute of Medicine, June 2011.

3 Sea Level and Coastal Hazards, Washington State Department of Ecology, August 2012.

4 Global Climate Change Impacts in the United States, United States Global Change Research Program, 2009.

5 State of the World 2009, Worldwatch Institute.

6 Global and regional climate changes due to black carbon, Ramanathan & Carmichael, Nature Geoscience 1, 2008.

7 The Medical and Public Health Impacts of Global Warming, Physicians for Social Responsibility.

8 Driven to Extremes: Health Effects of Climate Change, Environmental Health Perspectives, April 2007.

9 Preparing for a Changing Climate, Washington State Department of Ecology, April 2012.

10 Focus on Impacts of Climate Change in Washington State, Washington State Department of Ecology, February 2009.

11 Pierce County Sustainability 2012 Overview.

12 The International Challenge of Climate Change: Thinking Beyond Kyoto, Steve Rayner, 2005.

13 Consumer Reports Greener Choices Global Warming Solutions web page.