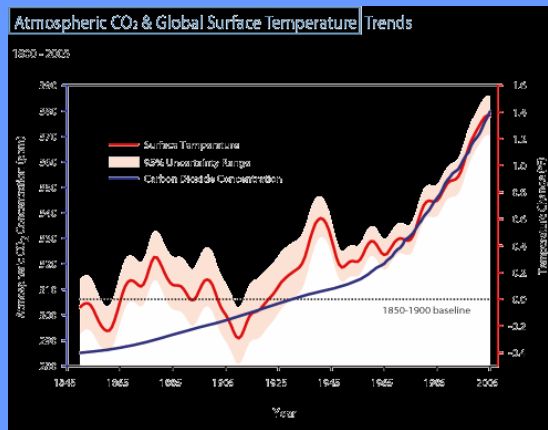


Your Carbon Footprint: The First "Step" Towards Reduction of Greenhouse Gas Emissions

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Introduction

Sea-level is rising, weather is becoming more severe, water supplies are being depleted, animals and people are dying, disease is spreading, and ice cover is decreasing. These are all very overwhelming and challenging problems caused by global climate change. So overwhelming, in fact, that it is difficult for an individual to know their role in climate change. How is each person affecting the world? By calculating a carbon footprint for an entity (individual, household, business, university, building, product, etc.), we can conceptualize the impact that the entity has on the environment. Also, we are able to identify the areas of highest impact and target those areas to reduce emissions. There are several ways to reduce a carbon footprint. These include efficient routines and utilizing carbon offsets. On a large scale, drastic measures will need to be taken to combat global warming. The Kyoto Protocol attempts to set goals to make a significant reduction in carbon dioxide emissions.



Carbon Footprint

What is it?



¶ The impact of human actions on the environment measured in terms of the greenhouse gas, carbon dioxide (CO₂). It is usually measured in pounds per year.

¶ It is measured in CO₂ because it is the most widely known greenhouse gas and because it is generated by the burning of fossil fuels as well as deforestation.

Calculate your own carbon footprint!

www.epa.gov/climatechange/emissions/ind_calculator.html

Reducing a Carbon Footprint

¶ Use the carbon footprint calculator to identify areas where your carbon emissions are highest
¶ Introduce more efficient practices into your lifestyle

- Purchase Energy Star appliances
- Minimize your travel
- Maximize capacity of your dishwasher, clothes washer, etc.
- Consider the products you buy and the processes required to make them

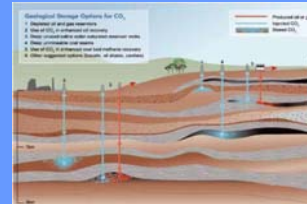


¶ Minimize your waste (recycle, reduce, re-use, repair broken items) and live more simply
¶ Consider purchasing carbon offsets to further reduce your impact on the environment

Carbon Offsets to Achieve Carbon Neutrality

¶ Carbon offsets come in two forms: paying to plant trees or investing in renewable energy technologies (wind energy, biomass/bioenergy, geothermal energy, hydropower, solar power).
¶ Carbon neutrality is a state of zero net release of carbon emissions.

**Currently, purchasing carbon offsets is the only way to achieve carbon neutrality. An energy source that produces zero emissions and is able to meet consumer demands does not exist.*



This figure demonstrates several possible geological storage areas for CO₂ (carbon sequestration). It is occurring or planned in places such as the U.S. Canada, Norway, and Algeria.

The Kyoto Protocol: a Step Towards Carbon Neutrality

¶ Established by the United Nations Framework Convention on Climate Change (UNFCCC)

http://unfccc.int/kyoto_protocol/items/2830.php

¶ Agreed on December 11, 1997

¶ Activated February 16, 2005

¶ Goal: to reduce greenhouse gas emissions, especially in industrialized countries. The aim was to leave some room for developing countries to grow and to increase their energy use. The document creates strict timelines and specific objectives.

¶ Some of the possible problems with the document:

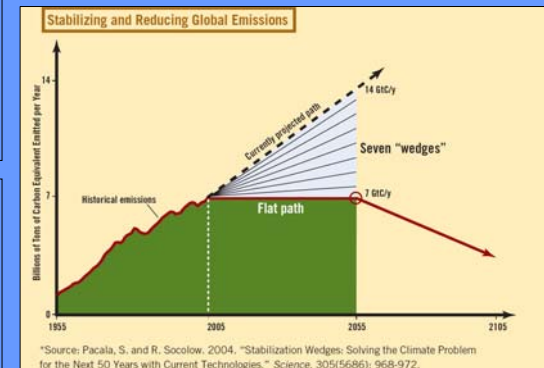
- Not clear that actions established in the Kyoto Protocol will cause a measurable change in global warming.
- Reduction of CO₂ emissions is expensive. Economic barriers could exclude parties.
- Continued population growth will cause a need for more energy and, therefore, more CO₂ emissions.
- People will continuously question the science behind global warming.
- Some may argue that global warming is a good thing.
- Parties involved disagree about how to reduce emissions.

Where is the United States?

- Hasn't ratified because of the possible economic implication
- Individual cities are committed to following the timeline and guidelines of the protocol due to the lack of federal initiative.

Possible "Wedge" Equivalents (see figure):

- "Producing 2 billion cars that travel 60 miles per gallon of gas instead of 30 miles per gallon"
- "Build 1 million 2 MW wind turbines to displace coal power"
- "Build 700 GW of nuclear power to displace coal power (twice current global nuclear capacity)"
- "Decrease car travel for 2 billion 30mpg cars from 10,000 to 5,000 miles per year"



*Source: Pacala, S. and R. Socolow. 2004. "Stabilization Wedges: Solving the Climate Problem for the Next 50 Years with Current Technologies." Science, 305(5686): 968-972.

This poster was developed as an assignment for Honors 295
**Population, Environment, and Sustainability—
Ethics for Living into the Future.**

References can be obtained by contacting the author.