

## Mitigation

International level

National level

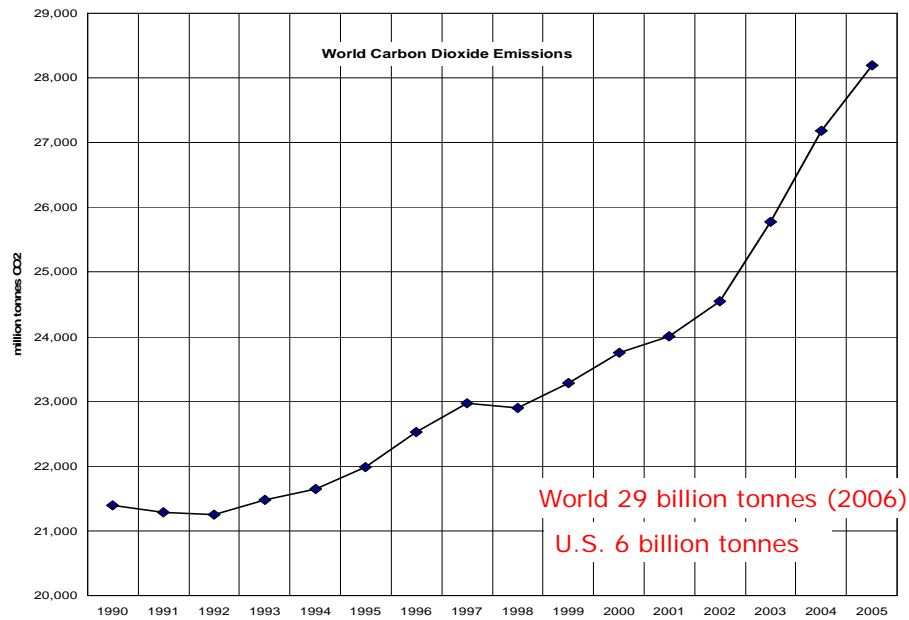
State level

Local level

Personal level

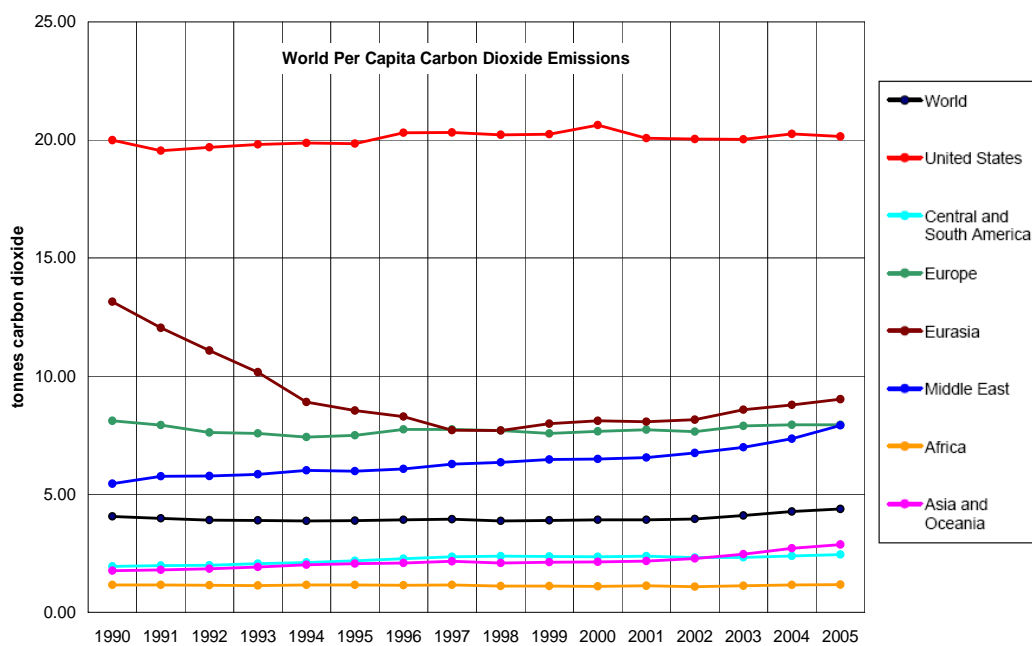
International Level

## World Carbon Dioxide Emissions



Source: <http://www.eia.doe.gov/environment.html>

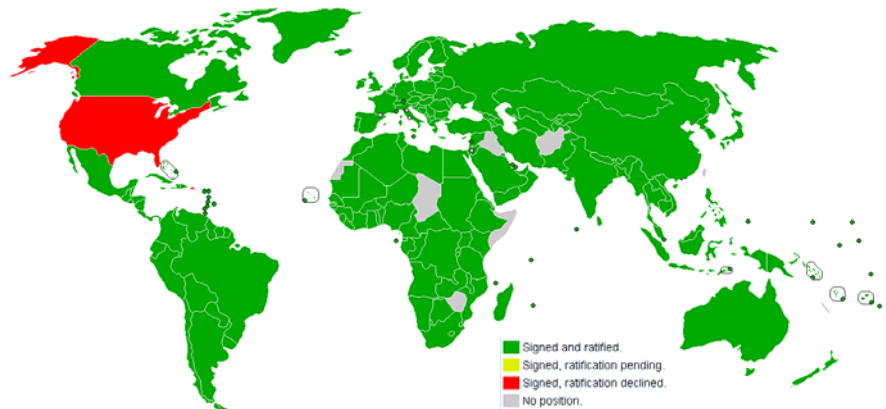
## Per Capita Emissions



Data source: <http://www.eia.doe.gov/environment.html>

Helen Cox, 2007

## Mitigation Efforts: Kyoto Protocol



The Kyoto Protocol, an international agreement to reduce emissions of six greenhouse gases, came into effect on February 16, 2005. The protocol sets mandatory limits on greenhouse gas emissions for each of the party nations with the goal of reducing total global emissions to 5.2% below their 1990 values by 2012. As of 2008, 183 parties have ratified the protocol – but not the U.S.

wikipedia.org

## Per Capita Emissions

### Are countries meeting their Kyoto Protocol targets?

#### European Union (27 countries):

1990 (base year):	4243821.22 Gg CO <sub>2</sub> e
2006:	4151078.92 Gg CO <sub>2</sub> e
net change:	- 2.19 %

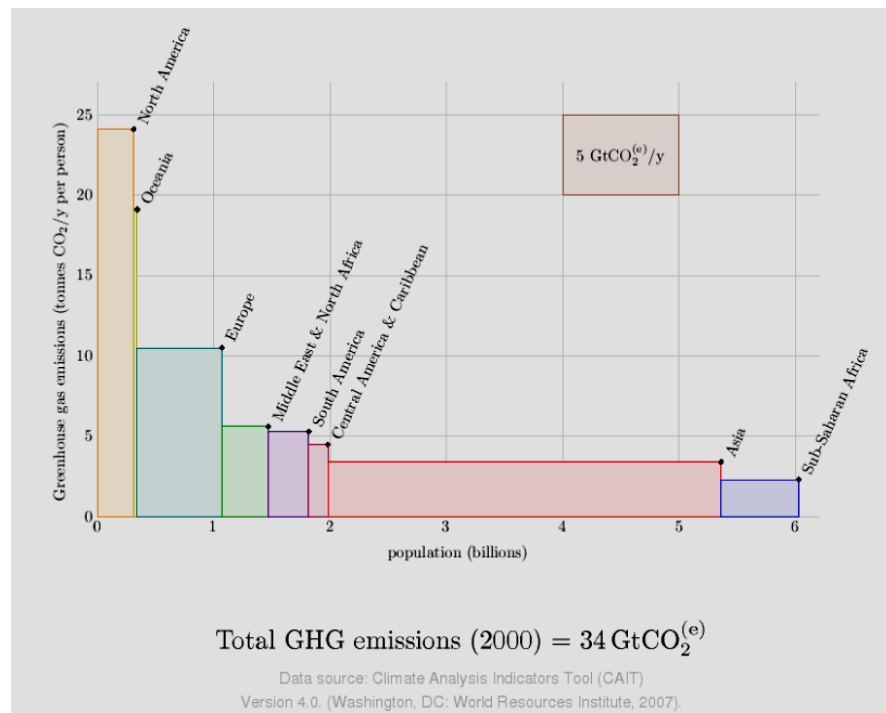
#### (U.S.

1990 (base year):	6135242.68 Gg CO <sub>2</sub> e
2006:	7017320.86 Gg CO <sub>2</sub> e
net change:	+ 14.38% )

source:[http://unfccc.int/national\\_reports/annex\\_i\\_ghg\\_inventories/national\\_inventories\\_submissions/items/4303.php](http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/4303.php)

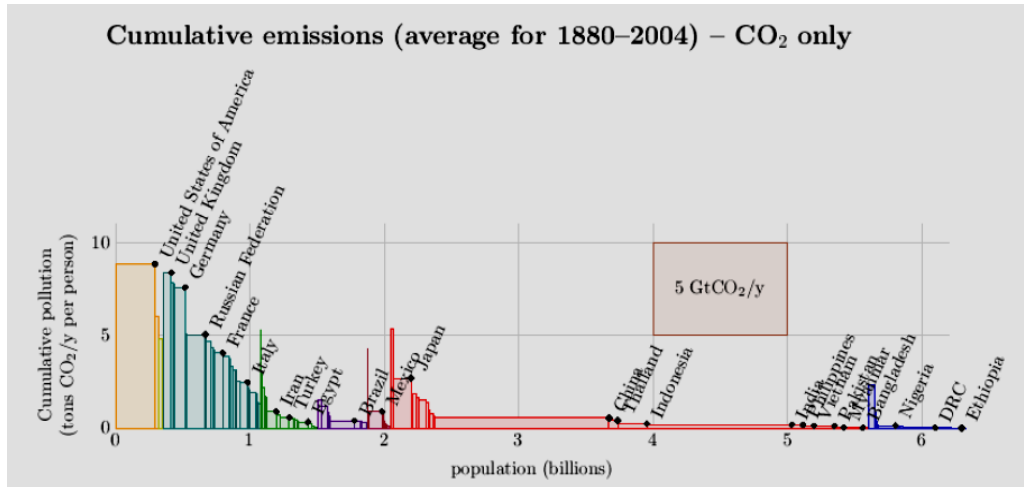
Helen Cox, 2009

## National Level



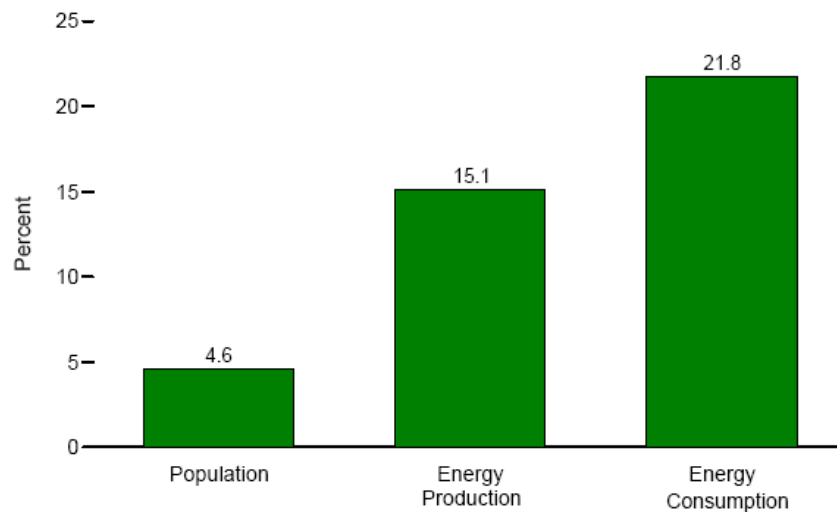
Source: <http://www.withouthotair.com/>

CO<sub>2</sub> emissions stay in atmosphere for hundreds of years. So, who is responsible for what's there?



Source: <http://www.withouthotair.com/>

## U.S. Share of World, 2005



## Federal Bills

On January 16, 2007 Senators Sanders and Boxer introduced bill **S. 309**, the **Global Warming Pollution Reduction Act**, to “amend the Clean Air Act to reduce emissions of carbon dioxide and other purposes”. This act calls for a reduction in emissions in order to prevent global temperature from increasing an additional 2 degrees Celsius above the pre-industrial average. This bill aims to contain carbon dioxide concentrations to 450 ppm, and reduce greenhouse gases by 80% below 1990 levels by 2050.

**This bill never became law.** This bill was proposed in a previous session of Congress. Sessions of Congress last two years, and at the end of each session all proposed bills and resolutions that haven't passed are cleared from the books.

## Federal Bills

Introduced by Rep. Tom Udall (D-CO) and Rep. Todd Platts (R-PA) on February 8, 2007, bill **HR 969**, the “**Renewable Energy Standard Bill**”, requires 20% of generated energy to come from renewable sources, such as wind and solar, by 2020. Energy producers can earn, trade, borrow, and purchase credits for meeting requirements.

**This bill never became law.**

## Federal Bills

Introduced by Senator Dianne Feinstein on January 22, 2007, bill **S. 357**, the “**Ten in Ten Fuel Economy Act**” (now **CAFÉ standards**), increases fuel economy standards by 10% over 10 years to an average of 35 miles per gallon for cars and light trucks by 2019.

Now:

**Energy Independence and Security Act of 2007** - Repeals the current requirement that the average fuel economy standard for passenger automobiles manufactured after model year 1984 be 27.5 miles per gallon.

Requires the combined fuel economy average for model year 2020 to be at least 35 miles per gallon for the total fleet of passenger and non-passenger automobiles manufactured for sale in the United States for that model year.

## Federal Bills under consideration

H.R. 232: **Greenhouse Gas Registry Act**

H.R. 1329: To amend title 49, United States Code, to support efforts by States and eligible local and regional entities **to develop and implement plans to reduce greenhouse gas emissions** from the transportation sector, and for other purposes.

S. 5: A bill to improve the economy and security of the United States by **reducing the dependence of the United States on foreign and unsustainable energy sources** and the risks of global warming, and for other purposes.

H.R. 594: To amend the Internal Revenue Code of 1986 to reduce emissions of carbon dioxide by **imposing a tax on primary fossil fuels based on their carbon content**.

## Federal Bills under consideration

However - there are opponents:

H.R. 391: To amend the Clean Air Act to provide that greenhouse gases are not subject to the Act, and for other purposes.

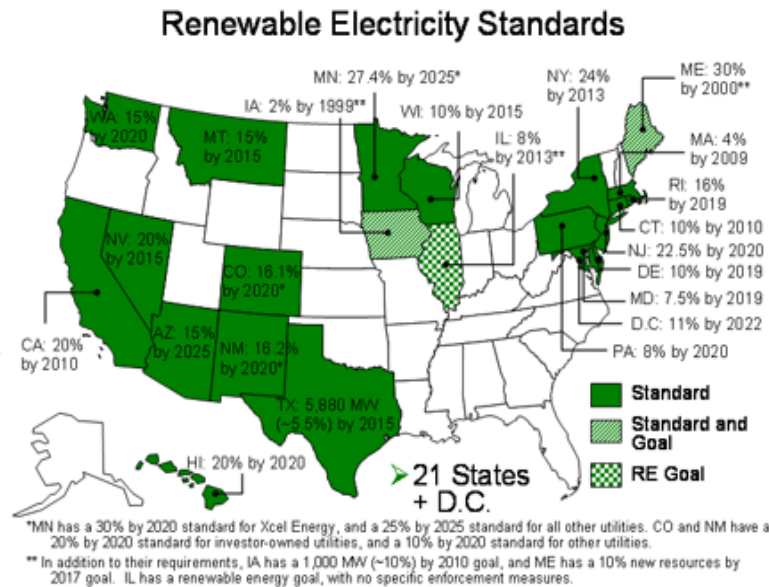
H.R. 391: To amend the Clean Air Act to provide that greenhouse gases are not subject to the Act, and for other purposes.

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## Mitigation Efforts: Renewable Electricity Standards

Twenty-one states and Washington D.C. have implemented renewable electricity standards. These require electricity providers to generate a certain percentage of their power from renewable energy sources by a given year.



[http://www.ucsusa.org/clean\\_energy/clean\\_energy\\_policies/res-at-work-in-the-states.html](http://www.ucsusa.org/clean_energy/clean_energy_policies/res-at-work-in-the-states.html)

State Level

## California

California is the 12<sup>th</sup> largest emitter of carbon dioxide in the world

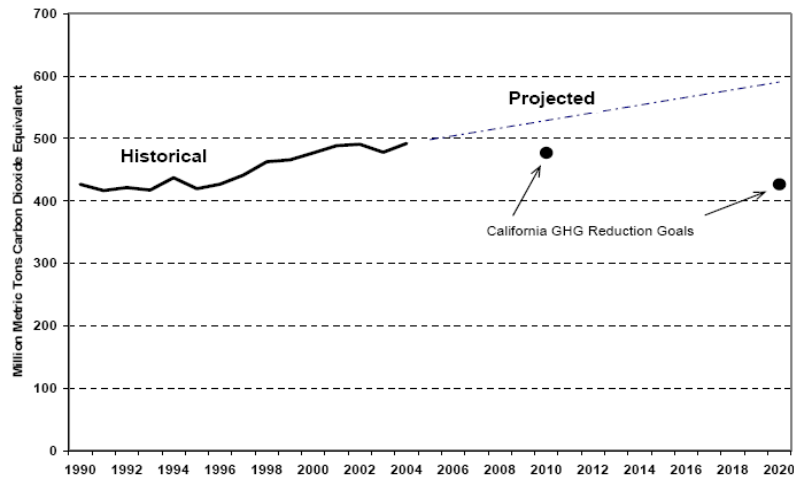
On June 1<sup>st</sup>, 2005 Governor Schwarzenegger signed Executive Order S-3-05, establishing Greenhouse gas targets for the State.

On September 27, 2006 Governor Schwarzenegger signed Assembly Bill 32, California Global Warming Solutions Act of 2006, authored by Assembly Speaker Fabian Nunez (D-Los Angeles).

## Mitigation Efforts: California

- AB 32 requires that the statewide greenhouse gas emissions be cut to their 1990 levels by 2020. This will require a cut in emissions from the State's largest emitters by about 25%.
- Beginning in 2008 the California Air Resources Board will require industry to report on their G-H gas emissions.
- Reductions will be continued to 80% below 1990 levels by 2050.

# California



Projected emissions assume no new emissions reduction strategies. Also shown are the targets for years 2010 and 2020.

In order to meet the 2010 target business-as-usual emissions would need to be reduced by 68 million tonnes, and to meet the 2020 target, emissions would need to be reduced by 177 million tonnes.

<http://www.energy.ca.gov/2006publications/CEC-600-2006-013/CEC-600-2006-013-SF.PDF>

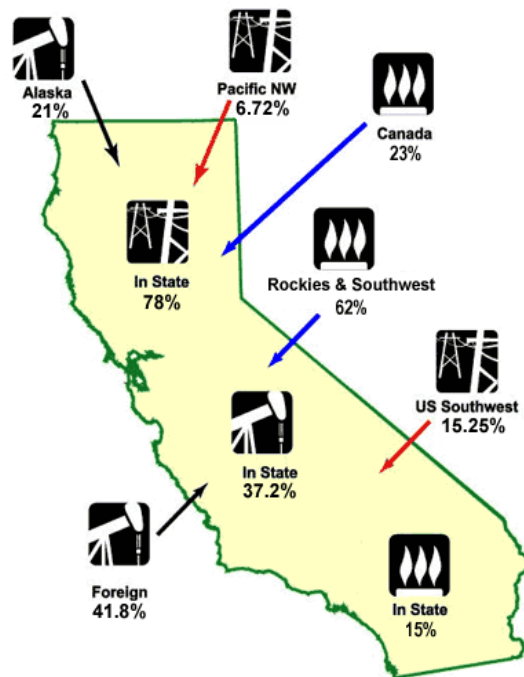
## Energy Sources for California

California's major sources of energy for electricity, petroleum and natural gas.

In-state electricity resources comprise:

coal (15.7%),  
hydroelectricity (19.0%),  
natural gas (41.5%),  
nuclear power (12.9%) and  
renewable power (10.9%).

Current California law  
requires that 20% come from  
renewable sources by 2010.



## CALIFORNIA'S ENERGY SOURCES

<http://www.energy.ca.gov/html/energysources.html>

## Low Carbon Fuel Standard for California

In 2007 the State legislature passed SB 210: The Low Carbon Fuel Standard (LCFS) bill.

LCFS requires fuel providers to gradually reduce the carbon content of passenger vehicle fuels sold in California.

Fuel providers must reduce the carbon content of fuels by 10% by the year 2020.

- blending of ethanol with gasoline
- electric and hybrid vehicles
- alternative fuel vehicles



**Vetoed by governor: Oct 14, 2007**

## Clean Car Discount Bill for California

AB 493, the California Clean Car Discount Bill, will provide individuals with rebates up to \$2,500 on new vehicles that emit low levels of GHG. Surcharges will be levied on the purchases of dirtier new vehicles.

**(Died – Feb 4, 2008.)**



Note: California accounts for more than 10 percent of all new vehicles sold in the United States.

## Regional Level

### Los Angeles

U.S. EPA honors Los Angeles for being top in energy efficient buildings / Riverside also on list of cities with the **most “Energy Star” buildings in the U.S.** 03/03/2009

California Attorney General Edmund G. Brown Jr. and Los Angeles Mayor Antonio Villaraigosa announced (Dec, 2007) that the Port of Los Angeles will reduce greenhouse gases. Under the agreement **the Port will also construct a 10 Mega-Watt photovoltaic solar system** to offset approximately 17,000 metric tons of carbon dioxide equivalent annually.

16 February 2009: Green street light program - In a partnership between the Clinton Climate Initiative and the City of Los Angeles, President Bill Clinton and Mayor Antonio Villaraigosa today announced **the largest LED (light-emitting diode) green street light program ever undertaken by a city**, which will reduce CO2 emissions by 40,500 tons and save \$10 million annually.

## Los Angeles

Measure B, the Solar Energy and Job Creation Program is a major step moving L.A. toward meeting its ambitious environmental goals. The initiative calls for the **installation of solar electrical generation facilities with a capacity of 400 megawatts within the City of Los Angeles in five years**. Currently, the LADWP generates **75 percent of its electricity using fossil fuels**, with a significant amount generated by coal-fired power plants.

Measure B would prevent the generation of 400,000 tons of greenhouse gases into our air. The impact was calculated to be an increase of approximately one dollar per month for the average residential.

Los Angeles Solar B		
Yes or no	Votes	Percentage
Yes	109,183	49.7%
<b>X No</b>	<b>110,505</b>	<b>50.3%</b>
Total votes	219,688	

## CSUN

### Support and encourage local alternative energy projects.



In 2005 CSUN installed a 1 megawatt fuel cell power plant — the single largest fuel cell power plant at any university in the world. The power plant provides environmentally friendly power to the campus, and reduces the university's CO2 emissions by 60 million pounds during its lifetime. The plant will generate electricity for the university's facilities and surplus heat for buildings, showers and food service hot water, and for heating the swimming pool.

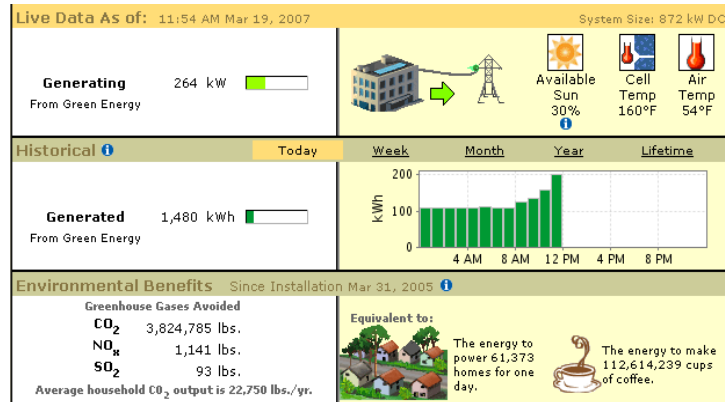
In 2001, CSUN installed six microturbines through a partnership with the South Coast Air Quality District and LADWP as a way to save energy and reduce its reliance on the state's fragile electrical grid.



## CSUN



CSUN, with support of LADWP and the Gas Company has installed nearly 6,000 solar panels totaling nearly 700,000 watts of power on the campus as a way of providing power while saving energy and reducing costs.



## Personal Level



## 10 SIMPLE THINGS YOU CAN DO - to help stop global warming.

1. **Replace regular lightbulbs with compact fluorescent ones.** 150 pounds of carbon dioxide (CO<sup>2</sup>) saved a year.
2. **Drive less.** 1 pound of CO<sup>2</sup> for every mile you don't drive!
3. **Recycle more.** 2400 pounds of CO<sup>2</sup> saved every year if half your household waste is recycled.
4. **Keep your tyres properly inflated.** Improves gas mileage by more than 3%. Every gallon saved means 20 pounds of CO<sup>2</sup> kept out of the atmosphere!
5. **Use less hot water.** Install a low flow showerhead (350 pounds of CO<sup>2</sup> saved per year); wash clothes in cold or warm water (500 pounds saved per year).
6. **Avoid products with a lot of packaging.** 1,200 pounds of CO<sup>2</sup> saved per year if you reduce rubbish by 10%.
7. **Reduce your heating and air-conditioning usage.** Save 2000 pounds of CO<sup>2</sup> a year by turning heating down by 2° in winter and air-conditioning by 2° in summer.
8. **Plant a tree.** Just one tree absorbs a ton of CO<sup>2</sup> in its lifetime.
9. **Turn off electronic devices instead of setting to standby.** Turning off TVs, DVDs, Stereos and computers saves thousands of pounds of CO<sup>2</sup> every year.
10. **Be a part of the solution. Learn more at [aninconvenienttruth.co.uk](http://aninconvenienttruth.co.uk)**

**Take the Pledge**

SPREAD THE WORD! ENCOURAGE YOUR FRIENDS TO SEE  
**an inconvenient truth**  
at Cinemas September 15

Logos: United International Pictures, Columbia Pictures, Regency Entertainment, and a PG-13 rating.

## What you can do: Websites

If you visit only one site, visit this one from the Union of Concerned Scientists:

<http://www.ucsusa.org/>

Facts and figures from the EPA:

<http://www.epa.gov/climatechange/>

What you can do (Inconvenient Truth):

<http://www.climatecrisis.net/>

The scientific facts from the IPCC (Intergovernmental Panel on Climate Change):

<http://www.ipcc.ch/>