

Congressional Brief: Climate Change

Greenhouse gases are a small part of the earth's atmosphere. However, they are critical to making the planet habitable — keeping the earth from being a freezing rock in space like Mars. The Kyoto Protocol is an international treaty designed to reduce greenhouse gas emissions from industrial countries an average of 5 percent below their 1990 levels by 2012. Greenhouse gas concentrations will continue to increase because fast-growing countries that do not have to reduce emissions under the Kyoto Protocol — such as China, India, South Korea, Brazil and Indonesia — will account for as much as 85 percent of the projected increase in the next two decades. Indeed, China surpassed the United States to become the largest greenhouse gas emitter more than 15 years before anticipated.

Key Facts about Greenhouse Gases and Temperatures

- Carbon dioxide (CO₂) is a naturally occurring greenhouse gas.
- CO₂ and other trace gases are less than 4 percent of the greenhouse gases in the atmosphere. Water vapor makes up the more than 96 percent.
- Humanity's contribution to all greenhouse gases in the atmosphere is only about one-fourth of 1 percent.
- For the past 400,000 years, temperature and CO₂ levels have varied approximately together. However, the earth's temperature has consistently risen and fallen hundreds of years prior to increases and declines in CO₂ levels.
- The earth was as warm or warmer in Roman times and in Medieval times as it is at present, even though CO₂ levels were considerably lower than they are today.
- Despite rising emissions and CO₂ concentrations, the earth's temperature ceased to rise after 1998 and in the last two years has fallen so that the present average temperature is equal to that experienced last in 1979.

Key Facts about the Effects of Climate Change

- Since the last ice age, sea levels have risen, but the current *rate* of sea level rise is far lower than the historic average.
- Polar bear numbers increased dramatically from around 5,000 in the 1950s to as many as 25,000 today, higher than at any time in the 20th century.
- Neither the number nor the strength of hurricanes has increased outside of the range of natural variability.

- Weather-related deaths have declined dramatically over the past eight decades.

Key Facts about the Kyoto Protocol

The United States is not a signatory to Kyoto, but it has slowed the growth of emissions far more than the European Union, despite increased population and higher economic growth rates.

- Even if all of the signatories to Kyoto reduced their greenhouse gas emissions by the required amount, the Earth would be only 0.07°C to 0.19°C cooler than it would be absent Kyoto in 2100.
- The Kyoto Protocol will impose economic costs 7 times greater than the benefits it provides.
- Reducing emissions by the amount required by the Kyoto Protocol would cost more than \$165 billion annually.
- Capping greenhouse gas concentrations at 550 parts per million (ppm) would cost multiple trillions of dollars per year.
- If every nation adopted the Kyoto Protocol, it would prevent less than 0.2 percent of the number of malaria cases expected in 2085, reduce expected hunger by only 1.5 percent and reduce the costs from flooding by 18.1 percent.
- Halting the rise in CO₂ emissions at 550 ppm (about double their pre-industrial levels) would only reduce malaria by 0.4 percent, hunger by 9.7 percent and the cost of coastal flooding by 80.1 percent.
- At a May 2011 meeting of the G-8, Japan, Canada and Russia announced that they would not participate in a post-Kyoto agreement capping greenhouse gas emissions.

NCPA Policy Recommendations

At a cost of less than \$10 billion annually, focused adaptation is relatively cheap. Steps taken now to adapt to warmer conditions — like using pesticides to kill malarial mosquitoes, improving farming practices and ending coastal development subsidies —would prevent much more harm than Kyoto.

Benefits of Spending to Promote Human Well-Being

The Copenhagen Consensus, an international group of leading economists, including Nobel Prize winners, has calculated the relative costs and benefits of different actions to increase general human well-being and reduce widespread ills. They found, for instance:

- Every dollar spent fighting HIV/AIDS returns \$40 in benefits.
- Every dollar spent fighting malnutrition or tuberculosis produces \$30 in benefits.
- Every dollar spent fighting heart disease in developing nations provides \$25 in benefits.
- Every dollar spent fighting malaria (in developing countries) or reducing farm subsidies and agricultural trade barriers (in developed countries) yields \$15 in benefits.
- By contrast, the benefits of reducing carbon emissions range from 25 cents (cutting carbon emissions alone) to 90 cents (with significant investment in technology) for every \$1 spent.

No Regrets Policies

Eliminate All Subsidies to Fuel Use. The International Energy Agency estimates that energy subsidies worldwide amount to around \$300 billion with more than 70 percent of the subsidies going to fossil fuel production or use.

- Such subsidies reduce energy prices below what the market would set, encouraging excess demand for fossil fuels and increasing greenhouse gas emissions while discouraging the development of alternative energy sources by reducing research expenditures by private energy companies.
- An international agreement to end energy subsidies with binding targets would be a significant victory for emissions reduction.

Repeal the Federal Flood Insurance Program. Much of the investment in potentially vulnerable coastal areas is a result of the National Flood Insurance Program (NFIP), which subsidizes the risk of development. Ending the program would be an adaptation to a world with rising sea levels, while also discouraging problematic development at current levels of seas, rivers and storm surges.

Liberalize Approval of Biotechnology. Crops can be genetically engineered that require less fertilizer and pesticides, as well as substantially less tilling. As a result, energy use and associated emissions could be reduced.

- Genetically engineered crops could increase the carbon-sequestration potential of agriculture.
- Crops could be made more resistant to climate extremes, and thus to problems which global warming might exacerbate.

Remove Regulatory Barriers to Building New Nuclear Power Plants. Nuclear power is the only technology capable of providing emissions-free energy on the scale required to significantly reduce carbon emissions.

- In the United States, nuclear-generated electricity avoids almost 700 million metric tons of CO₂ emissions annually.
- Worldwide, emissions avoided from nuclear generation reach almost 2 billion metric tons.