

The United States has put more CO2 into the atmosphere than anybody else, but without too much trouble we now can take the lead in slowing climate change, argue CMU professors JAY APT and M. GRANGER MORGAN

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The Intergovernmental Panel on Climate Change, made up of climate scientists from around the world, recently released the summary of its fourth assessment report on climate science after six years of new work. The report makes it plain that carbon dioxide released by humans is changing the climate but that there are practical ways to control CO2 emissions.

Soon China's emissions of carbon dioxide may grow to the same level as those from the United States. Many argue that for this reason, the United States should do nothing to control CO2 emissions from its power plants and cars until China does more to curtail greenhouse gas emissions. The day after the climate panel's report, U.S. Secretary of Energy Samuel Bodman rejected U.S. limits, saying "We are a small contributor to the overall, when you look at the rest of the world."

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While that may be a politically effective strategy to justify delay, it is important to understand that it's not based on sound science.

When people hear this argument they probably think in terms of familiar air pollution, such as sulfur dioxide. Once it enters the atmosphere, normal pollution stays there only a few hours or days. Carbon dioxide is not like that. Much of it stays in the atmosphere for a century or more. Climate change is caused by the cumulative impact of all the CO2 that human activities have added to the atmosphere since the beginning of the industrial revolution.

If a town dump had been filled to capacity by waste from one factory operating for many decades, the responsibility for cleaning it up should not be shared equally with a brand-new factory that just opened.

The United States is responsible for 27 percent of all carbon dioxide from fossil fuels currently in the atmosphere. Europe is responsible for 20 percent, China for 8 percent and India for 3 percent. The European Union has set out to reduce its emissions to 8 percent

below 1990 levels by 2012. Today EU emissions are the same as they were in 1990. Since 1990, U.S. emissions have increased by 20 percent.

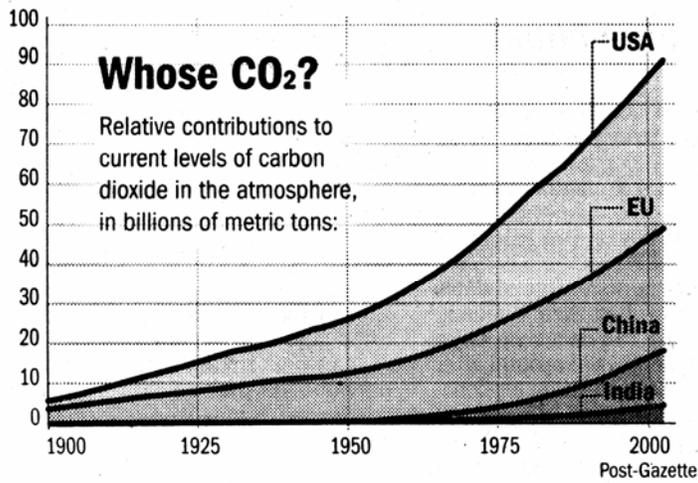
If we could paint all the CO₂ molecules in the atmosphere that came from China red and all those from the United States blue, even with China's continued rapid growth, the number of red molecules would not match the count of blue ones until roughly the middle of this century.

Those who argue for delay next claim that reducing U.S. CO₂ emissions would wreck our economy. But take coal-fired power plants, which produce just over half of U.S. electricity and much more CO₂ than any other type of power plant. Technology now exists at commercial scale that can eliminate almost all CO₂ from the exhaust of coal power plants. The price increase to end customers would be only about 20 percent, smaller than some of the recent increases that have occurred for other reasons. There are many other clean technologies and plenty of room in our economy to reduce our emissions of CO₂.

Despite dire predictions back in the 1970s, the U.S. economy thrived while cleaning up conventional pollution discharges in the 1980s and 1990s. Doing that cost several times more than it would cost to dramatically reduce emissions of CO₂.

Whatever is done, we must start very soon. The cost of carbon control would nearly double if we introduced it in a panic after the start of dangerous climate effects, such as an accelerated melting of the Greenland ice cap that would raise sea levels and swamp coastal cities. If controls are delayed, aging coal plants will be replaced with new high-emissions plants that could last for 40 years or more. This would make the cost of future reduction much higher.

Since the United States has put the largest single share of carbon dioxide into the air (where much of it has stayed), we must begin to take the lead in reducing it. In a few decades, China, India, Brazil and other developing countries also will have to undertake serious controls. But they will not do so until we take the lead and show how it can be done in an efficient and affordable way.



Source: Calculations by Jay Apt based on the Oak Ridge National Laboratory's online publication "Regional CO₂ Emissions from Fossil-Fuel Burning, Cement Manufacture and Gas Flaring: 1751-2002" and CO₂ decay parameters from Australia's Commonwealth Scientific and Industrial Research Organisation.