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Game over on global warming?

Action would have to be radical -- but climate change can be slowed.

By Alan Zarembo, Times Staff Writer
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Everybody in the United States could switch from cars to bicycles.

The Chinese could close all their factories.

Europe could give up electricity and return to the age of the lantern.

But all those steps together would not come close to stopping global warming.

A landmark report from the United Nations' Intergovernmental Panel on Climate Change, released Friday, warns that there is so much carbon dioxide and other greenhouse gases in the atmosphere that even if concentrations held at current levels, the effects of global warming would continue for centuries.

There is still hope. The report notes that a concerted world effort could stave off the direst consequences of global warming, such as widespread flooding, drought and extreme weather.

Ultimately eliminating the global warming threat, however, would require radical action.

To stabilize atmospheric levels of carbon dioxide — the primary contributor to global warming — CO2 emissions would have to drop 70% to 80%, said Richard Somerville, a theoretical meteorologist at the Scripps Institution of Oceanography in La Jolla.

Such a reduction would bring emissions into equilibrium with the planet's ability to absorb carbon dioxide. The last time the planet was in balance was more than 150 years ago, before the widespread use of coal and steam engines.

What would it take to bring that kind of reduction?

"All truck, all trains, all airplanes, cars, motorcycles and boats in the United States — that's 7.3% of global emissions," said Gregg Marland, a fossil fuel pollution expert at Oak Ridge National Laboratory in Tennessee.

Closing all fossil-fuel-powered electricity plants worldwide and replacing them with windmills, solar panels and nuclear power plants would make a serious dent — a 39% reduction globally, Marland said.

His calculation doesn't include all the fossil fuels that would have to be burned to build the greener facilities, though.

Trees could be planted to absorb more carbon dioxide. But even if every available space in the United States were turned into woodland, Marland said, it would not come close to offsetting U.S. emissions.

"There is not enough land area," he said.

The United States accounts for nearly a quarter of the carbon dioxide released each year, according to government statistics. China, in second at about 15%, is gaining fast.

If the rest of the world returned to the Stone Age, carbon concentrations would still rise.

Carbon does not dissipate rapidly. Some is eventually absorbed by oceans and plants, but about half stays in the atmosphere. And there is no easy way to get it out.

Maintaining current levels would require reducing worldwide carbon dioxide emissions by more than 20 billion tons a year, federal statistics suggest.

For some perspective on that number, consider an icon of the green movement: a 2007 Toyota Prius. Driving it 12,000 miles releases 4,200 pounds of carbon dioxide.

If hybrid cars replaced all 245 million cars in the United States — more than a third of the cars in the world — the carbon savings would be less than 3% of the needed reduction.

Rapid industrial development in some of the most populous nations has compounded the

problem. Their burgeoning emissions could swamp environmental gains in other countries.

In India, carbon dioxide emissions increased 39% between 1993 and 2004 — nearly double the global rate. The figure was 36% in Indonesia. China, which saw a 45% rise, now opens a coal-fired power plant every week to 10 days.

Given the scale of the problem, experts see no realistic way to lower the concentration of atmospheric carbon.

In fact, Robert Socolow, a carbon mitigation expert at Princeton University, said that even if the entire world stopped burning fossil fuels, carbon wouldn't approach pre-Industrial Revolution levels for several hundred years.

The only possibility now is to slow the buildup of carbon. If emissions can be reduced enough, the gradual process of warming can be stretched into centuries.

From this perspective, there is some hope. Though the savings from any one measure may look small, in combination, they could add up to something significant, experts said.

There is no shortage of ideas.

The Environmental Protection Agency's administrator, Stephen L. Johnson, said high-efficiency appliances and other products in the Energy Star program last year eliminated greenhouse gas emissions equal to the pollution from 23 million cars.

"As a citizen, each of us has an opportunity to make a difference," he said Friday after the release of the U.N. report.

He urged people to use compact fluorescent light bulbs, which provide the same light as a standard bulb on two-thirds of the energy.

Replacing one standard light bulb in every U.S. home would prevent greenhouse gases equivalent to the emissions of nearly 800,000 cars.

Tips from TerraPass Inc. of Menlo Park, Calif., include going back to clotheslines.

The company, which promotes alternative energy, says eliminating a family's dryer could save electricity equivalent to 1,016 pounds of carbon dioxide a year.

Socolow said the ultimate solution might rely on technology.

He said his research suggested that by improving energy efficiency now and phasing out fossil fuels over the next 100 years, carbon concentrations could remain within safe levels.

The biggest polluter, he said, should lead the way: "The U.S. is going to have to decarbonize."

Global emissions

Carbon dioxide is the largest source of global greenhouse gas emissions, and is expected to rise steadily in the coming decades.

Greenhouse gases, 2001
Carbon dioxide: 82%*
Other carbon dioxide: 2%
Other gases: 2%
Nitrous oxide: 5%
Methane: 9%

**From fossil fuel combustion*

Global CO2 emissions by fuel type, 2006

Oil: 40%
Coal: 40%
Natural gas: 20%

Source: Department of Energy

TASKS AND QUESTIONS:

1. **According to the text, which countries are the biggest CO2 polluters?**

2. **How are the industrial revolution and the industrialization of developing countries connected to global warming?**

3. **Which suggestions (realistic and unrealistic) to curb global warming does the text present? What is said about the contributions of private households?**

4. **According to the text, can global warming be stopped at all? Can CO2 emissions be eliminated?**

source: http://www.latimes.com/news/science/la-sci-emissions5feb05,0,3805894.story?page=2&track=tothtml