

By Thomas H. Maugh II, Los Angeles Times
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In a sharp change from its cautious approach in the past, the National Academy of Sciences on Wednesday called for taxes on carbon emissions, a cap-and-trade program for such emissions or some other strong action to curb runaway global warming.

Such actions, which would increase the cost of using coal and petroleum — at least in the immediate future — are necessary because "climate change is occurring, the Earth is warming ... concentrations of carbon dioxide are increasing, and there are very clear fingerprints that link [those effects] to humans," said Pamela A. Matson of Stanford University, who chaired one of five panels organized by the academy at the request of Congress to look at the science of climate change and how the nation should respond.

The three reports issued Wednesday, totaling more than 860 pages, provide the broad outlines for a U.S. response to the threat; two more reports are to come.

"This is the most comprehensive report ever on climate change," said atmospheric scientist Ralph J. Cicerone, the president of the academy. They outline "why the U.S. should act now to reduce greenhouse gas emissions and why we should have a national strategy to adapt to the inevitable." The reports are available online at <http://www.nationalacademies.org>.

Among other things, the reports recommend that a central agency be in charge of the response, possibly a greatly strengthened U.S. Global Change Research Program. They also lay out a series of potential ways to adapt to inevitable changes, such as shifting vulnerable populations away from coasts and finding ways to protect the limited water supplies in the Southwest.

The conclusions of the new reports generally reflect those of the Intergovernmental Panel on Climate Change released in 2007, but reflect a greater urgency because committee members had an additional five years of research to draw on, Matson said. As a consequence, for example, the academy panels concluded that ocean levels could rise by as much as 5 feet by the end of the century, compared to the IPCC estimate of a foot and a half increase.

Earlier this week, both the National Oceanic and Atmospheric Administration and NASA reported that 2009 was the warmest year worldwide in human history, reflecting the belief of most scientists that the situation will continue to worsen.

Perhaps the most contentious part of the reports will be the panel's recommendations for carbon emissions. "We focused primarily on carbon dioxide because it is responsible for so much of the problem," said Robert W. Fri of Resources for the Future, who chaired one of the committees, which are composed of elite scientists.

The panel recommended that the United States restrict its carbon emissions to a total of 170 to 200 billion tons of greenhouse gases during the period 2012 to 2050, which would represent as much as an 80% reduction of carbon compared to current projections.

"That's a very challenging task," Fri said. "At the current rate of 7 billion tons per year, we would use up the allotment well before 2050," he said. Moreover, "even if all available and emerging technologies could be deployed to their fullest technical potential, it is clear we will still need new and additional emission reduction options."

Congress has been wrestling with cap and trade, which would set a limit on the amount of carbon dioxide that could be released, but allow companies to buy and sell their own allotments. The Obama administration supports the approach and the House passed a bill last year that would implement it, but it got shunted aside in the Senate during the debate over healthcare.

A vote on a newer form of the bill could occur this summer.

Meanwhile, the government and communities need to prepare for threats that are likely no matter what actions we take, said Thomas J. Wilbanks of the Oak Ridge National Laboratory, the chair of a third panel that considered potential adaptations to global warming.

"The most dramatic possible threat, by 2050, is a sea level rise in the Gulf Coast of 2 to 4 feet., plus the prospect of more intense coastal storms," he said. "We may need to consider contingency plans ... such as movement of infrastructure and settlements away from vulnerable areas."

Preserving water supply in the Southwest, which will inevitably become more arid, will also be crucial, he added.

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