
# What the Experts Say About Global Climate Change

# INTRODUCTION

In 1988, NASA's James Hansen caught the immediate attention of the media and policy makers when he testified before a Senate committee that the unusually hot summer of that year was evidence that climate change was already under way. Since then, the alleged threat of catastrophic warming due to rising levels of greenhouse gases has become the premier environmental policy issue at home and on the international scene.

With a steady and compelling stream of evidence eroding support for forecasts of climate change apocalypse, however, climate scientists now largely discount predictions of drastic warming made by computer models designed to study climate dynamics.

Nevertheless, policy makers have continued to move toward developing climate change mitigation strategies, despite the growing uncertainty among scientists. Though most nations have backed away from tough positions on "targets and timetables" for emissions reductions staked out at the 1992 Rio conference, many responses are still being considered, including carbon-based energy taxes. Thus, climate change has become as important an economic issue as an environmental concern.

The prevailing international caution toward strict economic measures to reduce greenhouse gas emissions reflects a recognition of the economic realities that must be considered when addressing climate change issues. Economists across the globe have warned that measures such as a carbon-based energy tax could severely disrupt domestic economies and international competition.

Global climate change is positioned to become a defining issue in international and domestic economics and politics in the near future. Indeed, the decisions the United States and other nations make regarding climate change will have a dramatic impact on America's future.

This brochure highlights important aspects of the climate change issue through the words of scientists, economists and other experts who are deeply involved in various areas of the debate.

## SCIENTIFIC CONSENSUS?

*"The ways in which science and society are governed are quite different, and the difference causes friction when scientific progress is of societal concern....When society — through its agent government — says, 'I need the answer now,' the two systems have serious misunderstandings....Science gives an educated guess as to whether saccharin is carcinogenic, or dioxin is deadly poisonous, or the climate is warming, and later revises the first estimate, bewildering the public....At the frontier, scientists are individualists, not consensus groups."*

Editorial titled "Science and Society," *Science* magazine, April 1993.

*"A poll was carried out by Greenpeace International during December 1991 and January 1992 among 400 scientists....To the major question whether business-as-usual policies might instigate a runaway greenhouse effect at some (unspecified) 'future time,' only 13 percent of the 113 respondents thought it 'probable,' 32 percent 'possible' and 47 percent 'probably not.'"*

"Science and Fiction of the Greenhouse Effect and Carbon Dioxide,"
The Global Institute for the Study of Natural Resources, 1992.

*"A national Gallup survey of 400 experts shows uncertainty about the scientific basis for the theory of human-induced global warming. The Gallup Organization surveyed members of the two pre-eminent professional societies comprised of climate, atmospheric and oceanographic scientists, the American Meteorological Society and the American Geophysical Union. The uncertainty revealed in the Gallup survey contrasts with the content of nearly 400 major media reports in which most sources assert that the theory is valid."*

Press release detailing the results of a Gallup survey for the Center for Science, Technology and the Media, 1991.

*"One might think that growing skepticism about warming would have some influence on public debate, but the insistence on scientific unanimity continues unabated. Unanimity in science is virtually nonexistent on far less complex matters. Unanimity on an issue as uncertain as global warming would be surprising and suspicious."*

"Global Warming: The Origin and Nature of the Alleged Scientific Consensus," by Dr. Richard Lindzen, professor of meteorology, Massachusetts Institute of Technology. *Cato Review of Business and Government*, Spring 1992.

# GLOBAL COOLING?

*"There are ominous signs that the earth's weather patterns have begun to change dramatically and these changes may portend a drastic decline in food production—with serious political implications for just about every nation on earth."*

This statement appeared in a *Newsweek* article warning of climate change. The year was 1975, and the alleged danger was global cooling. Today's forecasts of a catastrophic warming resemble closely those made in the 1970s about global cooling. Claims about global cooling remind us of the uncertainties that complicate our understanding of climate change science. They also underscore the need to approach global warming with caution until science can truly justify drastic policy responses.

*"When meteorologists take an average of temperatures around the globe they find that the atmosphere has been growing gradually cooler for the past three decades. The trend shows no indication of reversing. Climatological Cassandras are becoming increasingly apprehensive, for the weather aberrations they are studying may be the harbinger of another ice age."*

From "Another Ice Age," *Time*, June 24, 1974.

*"The facts have emerged, in recent years and months, from research into past ice ages. They imply that the threat of a new ice age must now stand alongside nuclear war as a likely source of wholesale death and misery for mankind."*

From "In the Grip of a New Ice Age," by Nigel Calder,
*International Wildlife*, July 1975.

*"The cooling has already killed hundreds of thousands of people in poor nations. It has already made food and fuel more precious, thus increasing the price of everything we buy. If it continues, and no strong measures are taken to deal with it, the cooling will cause world famine, world chaos, and probably world war, and this could all come by the year 2000."*

From *The Cooling*, by Lowell Ponte, 1976.

# CLIMATE MODELLING

Computer programs called general circulation models (GCMs) use mathematical equations to simulate the dynamics of climate change. As with any computer program, the results are only as reliable as the program itself. GCMs are not sufficiently sophisticated for purposes of predicting climate changes.

*"General circulation computer models used to project climate change are too primitive to be the basis for policy decisions because they do not fully integrate significant factors such as cloud cover, ocean interactions, and biofeedbacks. Current temperature records cannot be duplicated by the models."*

From *Global Climate Change: What is Known?*,
Washington International Energy Group, 1992.

*"Model projections of large warming depend on projected large increases in atmospheric $CO_2$, and mechanisms within the models which act to greatly amplify the climate response to increasing $CO_2$. The projections depend on questionable economic, population, and energy scenarios....The amplification mechanisms depend on what is likely to be a severe misrepresentation of the relevant physical processes....Recent data suggest that these processes may be acting in a manner opposite to what current models produce. Under the circumstances, the possibility of large warming, while not disproven, is also without a meaningful scientific basis."*

From "Absence of Scientific Basis," *National Geographic Research and Exploration*, by Richard Lindzen, professor of meteorology at
Massachusetts Institute of Technology, 1993.

*"Decision makers must be aware of the severe limitations of the models. While these models may provide some useful information on global-scale climate changes, both the American Meteorological Society and the Royal Meteorological Society have recently concluded in their respective policy statements that the models are incapable of providing detailed predictions at highly localized geographic scales....Obviously, if policies regarding global change are going to be based on the predictions of the models, it is absolutely imperative that the policy makers appreciate the strengths, weaknesses, and limitations of the existing general circulation models."*

From *The Heated Debate*, by Robert Balling, director of the
Office of Climatology at Arizona State University, 1992.

*"It took meteorology nearly forty years to produce consistently reliable numerical weather forecasts for as little as a mere three days ahead. Medium-range weather prediction effectively ends a day after it starts; any claims beyond that point are wishful thinking. With that kind of record, we should know better than to promise rapid advances in climate modeling. The climate system is orders of magnitude more complex than the physics of the circulatory subsystem we call atmosphere; if we were to be realistic, we should promise no more than a few tentative initial results some twenty years from now."*

Professor H. Tennekes, former research director of the Royal Dutch Meteorological Institute, from the *Journal of the Royal Meteorological Society*, 1990.

*"One of the major shortcomings of the use of climate models is that, in order to make a 100-year forecast in a reasonable computing time of a limited number of months, the surface of the Earth has to be divided in relatively large blocks....The unavoidable oversimplification is that each block is supposed to be characterized by only one temperature, by one figure for humidity, one for cloud cover, one for average height above sea level and also only one figure for each of the other quantities affecting the climate. This poor degree of resolution is such an insufficient approximation of the reality that it overshadows perhaps all the other shortcomings, how severe they may be."*

From "Science and Fiction of the Greenhouse Effect and Carbon Dioxide," by Frits Boetcher of the Global Institute for the Study of Natural Resources, 1992.

*"Modellers will continue to develop and refine new models by turning to larger computers to run them and more observations to improve and verify them. We must ask the indulgence of society to recognize that immediate, definitive answers are not likely, as coupling of higher-resolution atmosphere, ocean, land surface, and chemistry submodels will take a decade or more to develop."*

From "The Science of Climate Modelling," a chapter by climate modeller Stephen Schneider from *Global Warming: The Greenpeace Report*, 1989.

*"Over [the past century], the temperature of the planet appears to have increased by 0.5 degrees Celsius; however, much of this warming may be explained by a variety of non-greenhouse factors. In addition, fully 75 percent of the warming of the past century occurred before the end of the Second World War, long before most of the trace gases were added to the atmosphere. Furthermore, the celebrated warming of the 1980s and 1990s is seriously challenged by recent satellite-based global temperature measurements that show essentially no warming at all....The bottom line is simple — despite a public perspective to the contrary, the global temperature record provides little support for the catastrophic view of the greenhouse effect."*

From "The Global Temperature Data," National Geographic Research and Exploration, by Robert Balling, Jr., director of the Office of Climatology and associate professor of geography at Arizona State University, 1993.

## A PRUDENT RESPONSE

The jury is clearly out on the validity of predictions of an enhanced greenhouse effect. However, uncertainty is not a justification for idleness. Policy makers must act in the face of uncertainty to craft a climate change response strategy that is consistent with our country's economic and environmental goals. At the same time, further research on climate change issues is critical to answer lingering questions.

The consensus among scientists, economists and policy makers is that until our understanding of climate change improves, the United States should avoid drastic action. Instead, the United States should take measures that help the country achieve its economic goals as well as reduce greenhouse gas emissions. Examples of such measures include the Environmental Protection Agency's voluntary "green" programs and technology cooperation efforts provided for under the National Energy Policy Act.

*"A five-year delay on major policy decisions regarding carbon dioxide limits will lead to a small amount of additional warming in the next century. How small will the additional warming be? The calculations show that a five-year delay in limiting carbon emissions will make the world warmer in the next century by at most one-tenth of a degree, compared to how warm it would be if there were no delay....An additional warming of one-tenth of a degree in the 21st century is a very small penalty to pay for better information on government decisions that, if taken unwisely, can be extraordinarily costly to the U.S. economy."*

From "Global Warming Update: Recent Scientific Finds,"
by the George C. Marshall Institute, Washington, DC, 1992.

*"The scientific base for a greenhouse warming is too uncertain to justify drastic action at this time. There is little risk in delaying policy responses to this century-old problem since there is every expectation that scientific understanding will be substantially improved in the next decade."*

From "What to do About Greenhouse Warming: Look Before You Leap,"
by S. Fred Singer, Roger Revelle and Chauncey Starr, *Cosmos 1991*, April 1991.

*"As independent scientists researching atmospheric and climate problems, we are concerned by the agenda for the United Nations Conference on Environment and Development...being developed by environmental activist groups and certain political leaders....[The] policy initiatives derive from highly uncertain scientific theories. They are based on the unsupported assumption that catastrophic global warming follows from the burning of fossil fuel and requires immediate action. We do not agree....We are disturbed that activists, anxious to stop energy and economic growth, are pushing ahead with drastic policies without taking note of recent changes in the underlying science. We fear that the rush to impose global regulations will have catastrophic impacts on the world economy, standard of living, and health care, with the most severe consequences falling upon developing countries and the poor."*

From a letter signed by more than 50 scientists, most of whom are or were in leadership positions in the American Meteorological Society, 1991.

## ECONOMIC IMPACT

The United States relies heavily on carbon-based fuels, such as coal and oil. They are crucial to producing and transporting the goods and services on which the U.S. economy is built. As a result, drastic measures to curb emissions of greenhouse gases (i.e., carbon-based energy taxes) could have a severe impact on our domestic economy, as well as on our ability to compete with our international competitors, who depend much less heavily on these energy sources.

*"Drastic, precipitous — and, especially, unilateral — steps to delay the putative greenhouse impacts can cost jobs and prosperity and increase the human costs of global poverty, without being effective. Stringent controls enacted now would be economically devastating — particularly for developing countries for whom reduced energy consumption would mean slower rates of economic growth — without being able to delay greatly the growth of greenhouse gases in the atmosphere. Yale economist William Nordhaus, one of the few who have been trying to deal quantitatively with the economics of the greenhouse effect, has pointed out that…'those who argue for the strong measures to slow greenhouse warming have reached their conclusion without any discernible analysis of the costs and benefits.'"*

From "What to do About Greenhouse Warming: Look Before You Leap,"
by S. Fred Singer, Roger Revelle and Chauncey Starr, *Cosmos 1991*, April 1991.

*"The real effect of the energy tax will be to increase costs to American businesses so that they are less competitive in the global market, costing American jobs. Moreover, we were doing just fine without the new taxes and rules. Between 1973 and 1991, the U.S. increased its Gross Domestic Product by 48.7 percent, while reducing the amount of energy it took to produce a dollar of GDP by 26.1 percent. During the same period automobile efficiency improved by almost 60 percent and total energy consumption declined by 12.5 percent. This hardly suggests profligate energy use….But even if these worst-case [global warming] predictions were true, the energy tax would still be aimed at the wrong target. Experts agree that the increase in future emissions of alleged greenhouse gases will come primarily from developing countries. The tax will not apply to these nations."*

Milton R. Copulos, president of the National Defense Council, a private non-profit research institute, 1993.

*"In view of the uncertainties about the nature of the global warming problem, what should we do? The sensible actions to take are those that are helpful even if the enhanced greenhouse does not exist. An example is improving energy efficiency. Here is an area where good macroeconomic policy dovetails with good environmental policy....The high road of [economic] incentives [to encourage energy efficiency] is in sharp contrast to the common suggestion for dealing with global warming by enacting a stiff carbon tax....The effects of a carbon tax on income and employment in the United States would be very negative."*

From "Earth Summit, Global Warming, and the Citizen: Economics, Science, and Emotion," by Murray Weidenbaum, director of the Center for the Study of American Business, 1992.

*"An international effort will be needed for controlling these [greenhouse gas] emissions. However, since the effects of increased greenhouse emissions on global climate are not well understood, it would be premature and economically disruptive to adopt drastic solutions to a situation that is still being defined. Indeed, policies—such as a high carbon tax—that would make energy use prohibitively expensive would limit the economic growth that is required to encourage strong environmental protection measures."*

From "The Cost of Controlling Carbon Dioxide Emissions," a study by W. David Montgomery, former Carter administration energy official, for Charles River Associates, 1991.


Global Climate Coalition
1331 Pennsylvania Ave. NW
Suite 1500 - North Tower
Washington, DC 20004-1703