

October 11, 2005

To: Oregon Governor Ted Kulongoski
Oregon Senate and House Members
Oregon Local Government Officials
Oregon Business and Civic Leaders

The undersigned economists write to express a collective professional judgment that global warming poses significant risks to Oregon's economy and welfare. We believe that prompt action to reduce these risks would be a sound investment in Oregon's future prosperity and well-being.

Changes in Oregon's average temperature, water resources, and sea levels have been documented. Future trends in temperature and sea level about which the majority of professional scientists now agree, are likely to impose significant economic costs on key sectors of the state's economy. Having considered available evidence about the potential economic impacts of climate change in Oregon (see accompanying report and fact sheet), we set forth eight propositions and three recommendations to sharpen the focus on steps to create opportunities and manage the risks as Oregon enters uncharted climate territory.

During the twentieth century, the earth's average temperature increased by about one degree Fahrenheit, an increase that makes the earth hotter than at any time in at least the past one thousand years. Scientists have concluded that the unusual warming of the late twentieth century is due to human activities that affect the atmosphere. Scientists have also concluded that emissions of carbon dioxide, methane, and other so-called "greenhouse gases" from the combustion of carbon-based fossil fuels for energy production, industry, and transportation are the primary cause of the warming.

In the Pacific Northwest, average temperatures have increased more than the global average – about 1.3 degrees Fahrenheit. Given trends in greenhouse gas emissions and present understanding of the climate system, climate scientists project an additional warming in the Northwest of 2.7 degrees Fahrenheit above the current (elevated) average temperature by the decade of the 2020s, and approximately 5.4 degrees Fahrenheit by the 2050s. In other words, scientists anticipate that additional warming about as large as the entire warming observed during the twentieth century will occur *each decade* for the foreseeable future.

The projected increases in temperature pose many risks to Oregon's ecosystems, economy, and social institutions. There are risks associated with an accelerated reduction in the mountain snowpack, causing very large reductions in summer stream flows and an intensification of summer drought, especially on the east side of the Cascades. There are risks tied to a sea level rise of as much as three feet above present levels by the end of this century. And there is a real risk of abrupt climate change – sudden shifts in temperature or climate patterns that can occur when thresholds in the climate system are crossed—and that risk will increase with continued changes in the global climate.

A limited number of economic studies have considered the implications of this warming trend for sectors of Oregon's economy and attempted to evaluate the magnitude of likely costs. Acknowledging that efforts to date are preliminary, we nonetheless agree that available evidence supports the following eight propositions:

1. Rising average temperatures due to global warming will impose economic costs on many Oregonians in the near term, primarily due to lower river flows and restricted supplies of water associated with the loss of mountain snowpack and earlier snowmelt.
2. In the longer term, but within this century, these and other costs are likely to increase as negative effects of rising temperatures and rising sea levels on water supplies, beach loss and coastal infrastructure, agricultural crop production, and forests, fisheries, and other resources become more pronounced.
3. Rising average temperatures also increase the risk of certain catastrophic events that can affect Oregon.
4. Many of the projected changes to Oregon's environment and natural resources (e.g., large reductions in summer water supplies, loss of mountain snow, beach inundation, and changes in regional ecosystems) are likely to have negative effects on Oregonians' jobs, incomes, and quality of life.
5. An insurance approach – spending now to protect against potentially large future costs with an unknown probability generated by climate change – can be a prudent way to protect against both the risks themselves and the future costs of reducing those risks, which are expected to increase the longer action is delayed.
6. “Insurance premiums” against climate change risks include reasonable measures to reduce greenhouse gas emissions, to displace fossil energy use through improved efficiency and local non-carbon polluting energy sources, and to encourage in-state investment in renewable energy technologies and energy efficiency.
7. Such an insurance approach at the state level has the greatest chance of success if undertaken in conjunction with similar efforts by other states and regions.
8. Supporting the development of industries associated with the clean and renewable energy sectors may lay a foundation for job and income growth in Oregon and demonstrate leadership that benefits the state's economy and well-being.

Given these propositions, we urge the state's public and private sector decision makers to make three commitments now for Oregon's future:

1. **Act to reduce emissions:** Accelerate concrete actions to reduce Oregon's emissions of greenhouse gases and to encourage global emissions reductions.
2. **Prepare for higher temperatures and sea levels:** Factor the risks of rising temperatures and sea levels into infrastructure, energy, water, salmon, public health, and economic development planning processes at the state and local levels.
3. **Invest in economic opportunities:** Adopt business and job development strategies that capture competitive advantage in the manufacture, use, and export

of energy efficiency and renewable energy technologies and other technologies that reduce emissions and enhance adaptation.

The basis for these propositions and recommendations is discussed more fully, with complete documentation, in the accompanying report, *The Economic Impacts of Climate Change in Oregon*.¹

Oregon's elected leaders, public agencies, and businesses have already taken initiative on global warming, but much remains to be done.

We believe that the anticipated changes to Oregon's environment and resources, and the adjustments that businesses, households, and communities will have to make, are without precedent. Many changes seem largely unavoidable, and some are clearly imminent.

Now is the time to act, to prepare, and to invest. Oregon's future is at stake.

Respectfully submitted,

William F. Barnes, Assistant Professor of Economics, University of Portland

Katie Baird, Assistant Professor of Economics, University of Washington

Cliff Bekar, Associate Professor of Economics, Lewis and Clark College

Yoram Bauman, Ph.D. Economics

Radhika Balakrishnan, Professor of Economics and International Studies

Marymount Manhattan College

Nathan Sivers Boyce, Assistant Professor of Economics, Willamette University

Al Campbell, Assistant Professor of Economics, University of Utah

Arthur J. Caplan, Associate Professor of Economics, Utah State University

Kimberly Clausing, Associate Professor of Economics, Reed College

Paul Courant, Professor of Economics and Professor of Public Policy, University of Michigan

Fred Curtis, Professor of Economics, Drew University

Brian Czech, Adjunct Professor of Economics, Virginian Polytechnical Institute and State University

Ernest R. Diedrich, Professor of Economics, St. Johns University and the College of St. Benedict

Peter Dorman, Professor of Economics, Evergreen State College

David E. Ervin, Professor, Environmental Studies, Coordinator of Academic Sustainability Programs, affiliated Faculty Department of Economics, Portland State University

Anthony Fisher, Professor of Agricultural and Resource Economics, University of California, Berkeley

Bill Ganley, Department of Economics & Finance, Buffalo State College

James Grant, Professor of Economics, Lewis and Clark College

Don Goldstein, Professor of Economics, Allegheny College

Eban Goodstein, Professor of Economics, Lewis and Clark College

¹ As signatories, our endorsement of this letter does not necessarily imply our endorsement of the background report or related materials.

Darwin C. Hall, Co-Director, Environmental Science & Policy, Professor of Economics,
California State University

Martin Hart-Landsberg, Professor of Economics, Lewis and Clark College

Richard P.F. Holt, Professor of Economics and Churchill Honors, Southern Oregon
University

Hart Hodges, Assistant Professor and Director, Center for Economic and
Business Research, Western Washington University

Richard B. Howarth, Professor of Economics, Dartmouth College.

William Jaeger, Associate Professor of Agricultural Economics, Oregon State University

Laurie Johnson, Assistant Professor, Department of Economics
University of Denver

Mark Johnson, Associate Professor of Economics, Chicago State University

Patricia Koss, Department of Economics, Portland State University

Yoko Nagase, Assistant Professor of Economics, Lawrence University

Donald H. Negri, Professor of Economics, Willamette University

Ernie Niemi, Economist, ECONorthwest

Noelwah R. Netusil, Professor of Economics, Reed College

Richard B. Norgaard, Professor of Energy and Resources and of Agricultural and
Resource Economics, University of California, Berkeley

Arthur MacEwan, Professor and Chairperson, Department of Economics,
University of Massachusetts Boston

Donald M. McLeod, Associate Professor, Agricultural and Applied Economics, University
of Wyoming

Sian Mooney, Assistant Professor, Department of Agricultural and Applied Economics,
University of Wyoming

Tracy Mott, Associate Professor, Department of Economics, University of
Denver

Mehmet Odekon, Professor, Department of Economics, Skidmore College

Michael Perelman, Economics Department, California State University

Richard C. Porter, Professor Emeritus of Economics, University of Michigan

Eugene A. Rosa, Edward R. Meyer Professor of Natural Resource & Environmental
Policy Thomas S. Foley Institute for Public Policy, Washington State University

Karin Sable, Associate Professor of Economics and Environmental Studies, University of
Puget Sound

Kristen A. Sheeran, Economics Department, St. Mary's College of Maryland

Laurence Shute, Professor Emeritus, Department of Economics, California State Polytechnic
University, Pomona

Karl Storchmann, Associate Professor Economics Department, Whitman College

Frank Thompson, Lecturer in Economics, University of Michigan

Robert Tokle, Professor of Economics, Idaho State University

Linda Wilcox Young, Professor and Chair, Department of Economics,
Southern Oregon University

Thomas E. Weisskopf, Professor of Economics, University of Michigan

Michael Yates, Professor Emeritus of Economics, University of Pittsburgh at Johnstown

June Zaccane, Associate Professor Emerita of Economics, Hofstra University