

**TESTIMONY OF PETER C. FRUMHOFF, PH. D
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AND
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UNION OF CONCERNED SCIENTISTS
BEFORE THE
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE**

OCTOBER 28, 2009

Madame Chair and distinguished Members of the Committee, thank you for the opportunity to speak with you today. I am Dr. Peter Frumhoff, Director of Science and Policy at the Union of Concerned Scientists (UCS) and Chief Scientist of the UCS Climate Campaign. I have been privileged to serve as a lead author on multiple reports of the Intergovernmental Panel on Climate Change (IPCC) and guide several assessments of climate change impacts on the United States.

The Union of Concerned Scientists strongly supports the inclusion of sound domestic and international climate adaptation investments as an essential complement to emissions reductions within the Clean Energy Jobs and American Power Act of 2009 (S. 1733).

As you know, the US National Academy of Sciences, and virtually every major U.S. and international scientific body with relevant expertise has affirmed that (i) global warming is unequivocal and primarily human-caused, (ii) climate-related impacts are occurring now and are expected to increase in severity and extent, and (iii) meeting the climate challenge requires two approaches: *both* swift and deep reductions in our emissions of heat-trapping gases *and* investments in adaptation to help us cope with those impacts that are now unavoidable.

Why both? Adaptation is essential, as substantial near-term impacts are locked in due to the heat-trapping gases we have already emitted. Much of that heat has been absorbed by the earth's oceans. As the oceans release that heat, the atmosphere will further warm over the next several decades. Further, the carbon dioxide released when we burn fossil fuels and clear forests lingers in the atmosphere, continuing to trap heat for many years.

Smart investments to prepare for now unavoidable impacts are essential, for example, to ensure that our nation's low-lying coastal infrastructure are resilient to rising sea-levels; our public health systems can cope with more frequent extreme heat and changing disease vectors; and our cities and industries can manage the additional stress that climate change will increasingly place on our nation's freshwater resources through declining snow packs and more frequent and more severe floods and droughts.

It is also directly in our national interest to help the most vulnerable developing nations cope with now unavoidable climate change. I am pleased that the proposed legislation includes provisions to support international adaptation.

But adaptation alone is not sufficient. Beyond the next few decades, the cost and the *feasibility* of adaptation depend on how swiftly and deeply we reduce our emissions. In June of this year, a team of more than 30 of our nation's top scientists released a major assessment of "Global Climate Change Impacts in the United States." (Karl et al., 2009) This peer-reviewed federal report -- initiated and largely carried out under the Bush administration -- documents extensive impacts across our nation if we do not swiftly reduce our heat-trapping emissions.

By the end of this century, for example:

- Extreme heat waves as severe as Chicago experienced in 1995, killing more than 700 people, are conservatively projected to occur every year in **Indianapolis, Minneapolis**, and other Midwestern cities. (Karl et al., 2009 Page 118)
- An average summer in **Missouri** is projected to have more than two months of days over 100 degrees Fahrenheit. (Karl et al., 2009 Page 29) An average summer day in **Michigan** is projected feel like a summer day does today in Texas (Hayhoe et al., 2009).
- In **Minnesota, Michigan and Wisconsin**, heavy downpours - twice as frequent now as they were a century ago (Karl et al., 2009 Page 20) - are projected to increase further and cause widespread flooding, damage to infrastructure, and delay planting of crops
- In **New York, New Hampshire, Vermont and Maine**, the winter snow season is conservatively projected to be cut in half and reduced to just a week or two in **Pennsylvania** (Karl et al., 2009 Page 107) . The ski industry across the Northeast stands to lose \$400-800 million in annual revenue (Ackerman and Stanton, 2009).

U.S. leadership in reducing heat-trapping emissions – by levels as great, and perhaps ultimately greater than those proposed within the Clean Energy Jobs and American Power Act – is essential to keep these and other impacts from becoming the legacies of climate disruption that we leave for our children and grandchildren.

I and my colleagues at the Union of Concerned Scientists are pleased to support this legislation, and to work with this committee to ensure that the Act (S.1733) maintains and strengthens provisions to reduce emissions and adapt to those changes that we can no longer avoid. We strongly encourage that this historic legislation be reported out of this committee and passed by the full Senate as swiftly as possible.

Further information on climate science, impacts and solutions is included in my written submission. Thank you.

References

Global Climate Change Impacts in the United States, Thomas R. Karl, Jerry M. Melillo, and Thomas C. Peterson, (eds.). Cambridge University Press, 2009.

Ackerman, F. and E. A. Stanton, 2009. *Climate Change in the United States: The Prohibitive Costs of Inaction*. Cambridge, MA, Union of Concerned Scientists.

Hayhoe, K., J. VanDorn, V. Naik, and D. Wuebbles. 2009. *Climate change in the Midwest: Projections of future temperature and precipitation*. Cambridge, MA: Union of Concerned Scientists.

Peter Frumhoff also submitted the United States Global Change Research Program's report entitled Global Climate Change Impacts in the United States. That report can be downloaded from this website:
<http://www.globalchange.gov/publications/reports/scientific-assessments/us-impacts/download-the-report>.