


# The United States in a **WARMING WORLD**

  
The Political Economy of  
Government, Business, and Public Responses to  
**Climate Change**

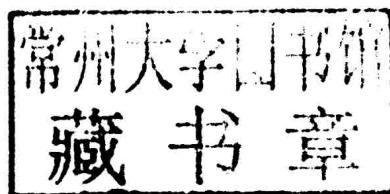


**THOMAS L. BREWER**

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## **The United States in a Warming World**

Addressing the widespread desire to better understand how climate change issues are handled in the United States, this book provides an unparalleled analysis of features of the US economic and political system that are essential to understanding its responses to climate change. The introductory chapter presents a firm historical context, with the remainder of the book offering balanced and factual discussions of government, business, and public responses to issues of energy policies, congressional activity on climate change, and US government involvement in international conferences. Abundant statistical evidence illustrates key concepts and supports analytic themes such as market failures, free riders, and the benefits and costs of alternative courses of action among industry sectors and geographic areas within the USA. Written for audiences both outside and within the USA, this accessible book is essential reading for anyone interested in climate change, energy, sustainable development, or related issues around the world.

THOMAS L. BREWER is a Senior Fellow at the International Centre for Trade and Sustainable Development (ICTSD) in Geneva. He taught graduate and undergraduate students at Georgetown University for twenty-five years, and he has been a consultant to the World Bank, the United Nations Conference on Trade and Development (UNCTAD), and the Organisation for Economic Co-operation and Development (OECD). Professor Brewer maintains two websites: [www.usclimatechange.com](http://www.usclimatechange.com) and [www.TradeAndClimate.net](http://www.TradeAndClimate.net).

To Marianne Wirenfeldt Asmussen,  
extraordinary inspiration and perfect partner,  
and  
to my daughters, Becky, Eva, Jennifer, and Sandy,  
each of whom is making a special contribution to improving the human  
condition

# Preface

*What to do about climate change?* The question has become a salient issue on the agendas of government and business as well as a concern of publics around the world. This book focuses on responses in the United States. It presents an analysis of the changing patterns and trends in perspectives about climate change, preferences about a broad array of actions that can be undertaken to address it, and the record of government and business responses to the problem. The analysis is also, in part, an account of how and why business and government in the USA have fallen behind efforts to address the problem in many other countries. The book thus addresses a wide range of questions: What does the public want government and business to do and not do? What are the specific measures that have and have not been taken by government and business? Why have government and business in the United States been laggards in their responses, compared with governments and firms in other countries? What are the economic and political constraints that need to be overcome for them to respond more effectively? What could be done to provide more leadership, domestically and internationally, on the issues?

The book offers a political economy perspective that answers these and other questions on the basis of an analytic framework with the following themes:

- *In order to understand the responses to climate change in the USA, it is necessary to understand the distinctive patterns in the interests, ideologies, institutions, and influence in the US political system.* Much of the book is about the economic geography and the political geography of the interests at stake, and how business, government, and the public have responded within the institutional context of the political system.
- *In order to succeed, efforts to address climate change must overcome two sets of market failures.* The first set is represented by costs in the form of negative externalities in the widespread use of fossil fuels and other activities that release greenhouse gases. The second set is represented by benefits in the form of positive externalities that lead to under-investment in energy efficiency and renewable energy projects with significant “public goods” payoffs or benefits in the form of positive externalities from the sequestration of greenhouse gases. The analysis thus includes an explicit

recognition of the importance of a range of market failures which are endemic features of the problem, and many of the potential solutions. A central challenge for government is to address these market failures with cost-effective and politically viable policies.

- *The responses of business, government, and the public vary across clusters of issues.* One cluster is focused on *pricing carbon dioxide and other greenhouse gases* by addressing the negative externalities associated with greenhouse gas emissions; and on measures that can be undertaken to internalize those costs, including market-based cap-and-trade systems and taxes. A second cluster of issues is focused on *facilitating energy technology innovation and diffusion* through regulations, subsidies, and other arrangements to capture the positive externalities associated with energy efficiency and low-carbon energy sources. The third cluster of issues involves *strengthening international cooperation* to cope with the limitations of a decentralized international political system and free-rider problems.

## Structure of the book and content of the chapters

The Introduction offers a brief chronological overview of the evolution of climate change issues in the United States starting in the 1950s. Chapter 1 presents data about industry sources of greenhouse gas emissions and the socio-economic impacts of climate change. There is an emphasis on the regional variations in both the sources and the impacts – and thus the economic geography – of the interests at stake. The first chapter therefore establishes the broad national, sectoral, and regional economic contexts within which climate change issues are addressed. The first chapter also puts the US emissions and the economics of the issues in an international comparative context.

Chapter 2 presents a more fine-grained analysis of business interests, attitudes, actions, and inactions. It emphasizes the differences among firms within industries as well as the differences among industries and business associations – differences which reveal significant gaps between firms that are leaders and firms that are laggards on climate change issues. A focus of the chapter is the evolution of the splits among firms, industries, and associations, as well as industry patterns and nationality patterns among leaders and laggards.

Chapter 3 presents data from survey research about the patterns and trends in public perceptions of the problem and preferences for policies that could address it. The effects of partisan identities, ideologies, and regions receive special attention.

Chapter 4 focuses on the roles and policies of governmental institutions at the local, state, and regional levels. In addition, court cases that have emerged from the relationships across levels of government in a federal political system receive special attention, as does the role of “swing states” in presidential elections.

Chapters 5, 6, and 7 focus on national and international policy issues, especially three principal issue clusters: using market-based cap-and-trade systems or taxes to internalize negative externalities in the form of the costs of greenhouse gas emissions and/or subsidies for sequestration; using subsidies, regulations, and other measures to facilitate energy technology innovation and diffusion; and strengthening international cooperation to overcome the inherent limitations of a decentralized international political system.

Chapter 8 discusses the challenges of leadership in government and business in the face of the extraordinarily difficult circumstances posed by multiple economic and political system constraints. It highlights economic and political realities based on the empirical analyses of Chapters 1–7, and it identifies key leadership issues and considers pathways to the future for addressing them.

The research for the book was mostly completed in January 2014.

## **Audiences**

I hope that students and instructors in university programs in political economy, political science, economics, public policy, law, business administration, and international relations, as well as environmental studies of course, will find the book useful to their particular needs.

Although the book is about the United States, I have consciously written it for students and other audiences outside the USA as well as for US audiences. I have learned from classroom presentations to students, as well as academic conferences, international climate change conferences, business groups, and citizens’ groups in many countries that there is a widespread desire to gain a better understanding of how climate change issues are addressed in the USA and why those issues have been such difficult challenges in the USA.

The most obvious professional audience for the book – regardless of country or vocation – is specialized professionals in both the public and private sectors, not only those who are directly involved in climate change issues as part of their daily responsibilities, but also scientific or technological professionals whose interests extend to the political and economic contexts of their work. In addition, others with an interest



in the politics and economics of climate change – or even more generally the politics and economics of the USA – may gain a better understanding of the US response to one of the principal challenges for government and business of the early twenty-first century.

### **Author disclaimer**

All of the materials and comments in the book are entirely my own personal responsibility as an independent scholar; nothing in the book should be attributed in any way to any of the organizations with which I have been affiliated. This disclaimer should be especially noted in regard to the Intergovernmental Panel on Climate Change (IPCC), for which I was a Lead Author in Working Group III for the Fifth Assessment Report (AR5). Nothing in this book should be construed to be a position of the IPCC. A similar disclaimer applies to my position on the Panel of Experts of the Council on Environmental Cooperation of NAFTA. Nor should any of the views expressed here be attributed to the International Centre for Trade and Sustainable Development (ICTSD) in Geneva, where I am a Senior Fellow, nor to the Centre for European Policy Studies (CEPS), an independent think tank in Brussels, where I am an Associate Fellow.

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In late 2010, I participated in a climate leadership workshop at MIT organized by Climate Interactive and SEED. The experience not only gave me ideas and information for the concluding chapter, it also helped me see many climate-related issues in a different light. I am thus appreciative of the work of the organizers, Sara Schaley, Drew Jones, Travis Frank, and Stephanie McCauley – and the other participants in the workshop.

I have been affiliated with five organizations in Europe: currently as Senior Fellow at the International Centre for Trade and Sustainable Development (ICTSD) in Geneva, and as Associate Fellow at the Centre for European Policy Studies (CEPS) in Brussels; and previously as Research Director for Climate Strategies, which is a non-profit international network of researchers based in Cambridge, UK; Visiting Research Fellow at Oxford University's Smith School of Enterprise and the Environment; and Schöller Foundation Senior Research Fellow at the Friedrich-Alexander-Universität Erlangen-Nürnberg. I am indebted to them all for their professionally stimulating environments. A generous grant from the Schöller Foundation in Germany was instrumental in facilitating progress on the book and other related research; I am deeply appreciative of their support.

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discussions, and some of them only indirectly through their writings. As for people with whom I have had direct contact while pursuing my research interests, some must remain anonymous because of the sensitivities of their positions in government or business. They include people in the US government, as well as corporations, environmental organizations, and experts in think tanks and universities in the USA. In addition, I have discussed these issues with professionals in the capital cities and commercial centers of numerous countries. Among the people in think tanks and NGOs that I can mention by name, I would like especially to thank Ricardo Melendez-Ortiz of ICTSD, Christian Egenhofer of the Centre for European Policy Studies, Andreas Falke of Friedrich-Alexander-Universität Erlangen-Nürnberg, Michael Grubb of Climate Strategies, and Sir David King of Oxford University. At ICTSD, in addition to its Chief Executive Ricardo Melendez-Ortiz, my colleagues have included Ahmed Abdel Latif, Christophe Bellmann, Andrew Crosby, Natalia Cubilla, Caroline Imesch, Ingrid Jegou, Joachim Monkelban, Pedro Roffe, Mahesh Sugathan, and Deborah Vorhies. The ICTSD team is one of the world's finest human resources on climate change issues. At Climate Strategies, I benefited from working with its co-founders Michael Grubb and Benito Müller, Managing Directors Jon Price and Richard Folland, Board members Hans-Jurgen Stehr and Michele Colombier, Research Director Neil Hamilton, Research Manager Dora Fezekas, as well as Antonia Baker, Birgit Berry, Simone Cooper, Heleen de Coninck, Susanne Droege, Angela Köppl, Anna Korppoo, Michael Mehling, Aysel Michaelowa, Karsten Neuhoff, Misato Sato, Stefan Schleicher, Grace Stobbart, Andreas Turk, and Peter Wooders.

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Chapter 3, excerpt concerning the attitudes of young people; from Climate Change Communications, for Lauren Feldman, Matthew C. Nisbet, Anthony Leiserowitz, and Edward Maibach (2010), “The Climate Generation? Survey Analysis of the Perceptions and Beliefs of Young Americans.” Joint Report of American University’s School of Communication, The Yale Project on Climate Change, and George Mason University’s Center for Climate Change Communication. Accessed at [www.climatechangecommunication.org](http://www.climatechangecommunication.org) on May 9, 2010.

Chapter 4, Appendix 4.3, “Insurer Climate Risk Disclosure Survey by state insurance commissioners”; from National Association of Insurance Commissioners (2010), “Insurer Climate Risk Disclosure Survey, Adopted Version, March 28, 2010.” Accessed at [www.namic.org](http://www.namic.org) on January 5, 2011.

Chapter 4, Box 4.1, “US Conference of Mayors’ Climate Protection Agreement”; from US Conference of Mayors (2005), “Climate Protection Agreement (As endorsed by the 73rd Annual US Conference of Mayors meeting, Chicago).” Accessed at [www.usmayors.org](http://www.usmayors.org) on March 10, 2010.

Chapter 4, Box 4.4, “The Environmental Protection Agency (EPA) and the state of Texas at odds”; from Greenwire (2011), “CLIMATE: Texas Faces Uphill Legal Battle against EPA,” January 5. Accessed at [www.eenews.net](http://www.eenews.net) on January 6, 2011.

Chapter 4, Figure 4.1, “Urban versus rural temperature trends in the USA”; from Cambridge University Press, for Brian Stone, Jr. (2012), *The City and the Coming*

*Climate: Climate Change in the Places We Live*. Cambridge: Cambridge University Press.

Chapter 4, Map 4.1, “Cities in the US Conference of Mayors’ Climate Protection Agreement”; from US Conference of Mayors (2010), “Cities that Have Signed On.” Accessed at [www.usmayors.org](http://www.usmayors.org) on March 10, 2010.

Chapter 5, Table 5.4, “Potential ultimate beneficiaries of allowances and auctions in Kerry–Lieberman bill”; from Belfer Center for Science and International Affairs, Harvard University, for Robert Stavins (2010), “An Economic View of the Environment: The Real Options for US Climate Policy,” July 23. Accessed at <http://belfercenter.ksg.harvard.edu> on July 24.

Chapter 6, Box 6.5, “Market failures that constrain technological innovation and diffusion”; from *Ecological Economics*, for Adam B. Jaffe, Richard G. Newell, and Robert N. Stavins (2005), “A Tale of Two Market Failures: Technology and Environmental Policy,” *Ecological Economics*, 54: 164–174.

Chapter 6, Figure 6.1, “McKinsey marginal cost curve for GHG abatement technologies”; from McKinsey Company, for McKinsey (2007), “Reducing US Greenhouse Gas Emissions: How Much at What Cost?” Accessed at [www.mckinsey.com](http://www.mckinsey.com) on February 26, 2011.

Chapter 6, Figure 6.2, “Changes in US government wind power subsidies and changes in wind industry installations”; from Bipartisan Policy Center (2010), “Reassessing Renewable Energy Subsidies.” Accessed at [www.bipartisanpolicy.org](http://www.bipartisanpolicy.org) on May 2, 2011.

Chapter 7, Appendix 7.2, “Simulation model used to measure the gap between the target and the pledges”; from Climate Interactive (2010), “C-SPAN.” Accessed at [www.climateinteractive.org](http://www.climateinteractive.org) on December 10, 2010.

Chapter 7, Box 7.6, “Criteria for a multilateral climate change agreement”; from Cambridge University Press, for Joseph E. Aldy and Robert N. Stavins (2007), “Architectures for an International Global Climate Change Agreement: Lessons for the Policy Community,” in Joseph E. Aldy and Robert N. Stavins, editors, *Architectures for Agreement: Addressing Global Climate Change in the Post-Kyoto World*. Cambridge: Cambridge University Press.

Chapter 7, excerpt of meeting during COP meeting in Copenhagen; from *New York Times* Syndicate, for Tobias Rapp, Christian Schwägerl and Gerald Traufette (2010),

“The Copenhagen Protocol: How China and India Sabotaged the UN Climate Summit,” *Der Spiegel*, May 5, 2010. Accessed at [www.spiegel.de](http://www.spiegel.de) on October 24, 2010.

Chapter 8, Appendix 8.3, “Policy recommendations and quotes by Republicans for Environmental Protection”; from ConservAmerica, for Republicans for Environmental Protection (2011), “Energy and Climate Change. Policy Paper. Executive Summary.” Accessed at [www.rep.org](http://www.rep.org) on May 12, 2011; and Republicans for Environmental Protection (2011), “Why Conservation is Conservative As Expressed by History’s Preeminent Conservative Minds: A Comprehensive Collection of Conservative Quotations.” Accessed at [www.rep.org](http://www.rep.org) on May 12, 2011.

Chapter 8, Appendix 8.4, “Statement by a group of leading scholars”; from Vox, for “Thinking Through the Climate Change Challenge, An Open Letter,” January 16, 2011.

Chapter 8, Appendix 8.5, “Spectrum of government-market mixes”; from *Oxford Review of Economic Policy*, for Cameron Hepburn (2010), “Environmental Policy, Government, and the Market,” *Oxford Review of Economic Policy*, 26: 117–136.

Chapter 8, Appendix 8.7, “Discussion of international institutional venue issues”; from Belfer Center for Science and International Affairs, Harvard University, for Daniel Bodansky (2010), “The International Climate Change Regime: The Road from Copenhagen,” Harvard Project on International Climate Agreements. Accessed at [www.belfercenter.ksg.harvard.edu](http://www.belfercenter.ksg.harvard.edu) on April 10, 2013.



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