ENDNOTES

Chapter 1

1. There have been many scientists deeply involved with the development of global climate change theory, but perhaps none as influential as the late climatologist Stephen H. Schneider, who wrote *The Genesis Strategy: Climate and Global Survival* in 1976 and *Global Warming* in 1989.

2. Traditional economic modeling would predict that the world will, as it has for centuries, continue to grow richer. This is an assumption as well as an explicit part of economic modeling, including the three dozen or so *integrated assessment models*, combined climate and economy models that have played a prominent role in climate debate and policy. They include the PAGE2002 model that was heavily relied upon by Nicholas Stern and his modeling team in producing the *The Stern Review on the Economics of Climate Change* (Cambridge Press, 2007), as well as models that call for much more modest action, such as the RICE and DICE models created by economist William Nordhaus and his associates. On the other hand, some economists warn that future generations will not necessarily be richer, either because natural and environmental capital will be depleted, undermining economic growth (Cameron Hepburn and Nicholas Stern, "The Global Deal on Climate Change" Ch. 3 in *The Economics and Politics of Climate Change* [D. Helm and C. Hepburn, eds., Oxford Press, 2009]), or because traditional economic models do not accurately model large changes in marginal values of environmental goods, which will become much more scarce in a climate-changed future (Thomas Sterner and U. Martin Persson, "An Even Sterner Review: Introducing Relative Prices into the Discounting Debate," 2 *Review of Environmental Law and Policy*, 61, 63 [2008]).

3. World Resources Institute, "Climate Analysis Indicators Tool, Yearly Emissions," online at http://cait.wri.org/cait.php?p. (accessed March 18, 2010, on file with author). Carbon dioxide is not the only greenhouse gas, but it is by far the most abundant.

4. World Resources Institute, "Climate Analysis Indicators Tool, Yearly Emissions," online at http://cait.wri.org/cait.php?p. (accessed March 18, 2010, on file with author).

5. National Development and Reform Commission, "People's Republic of China, China's National Climate Change Program" (2007), online at http://en.ndrc.gov.cn/newsrelease/P020070604561191006823.pdf.

6. World Resources Institute, "Climate Analysis Indicators Tool, Yearly Emissions," online at http://cait.wri.org/cait.php?p. (accessed March 18, 2010, on file with author).

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8. See, e.g., Evan Lehman, "Eight House Republicans, after Carrying Climate Effort Last Year, Fend off Attacks" *ClimateWire*, August 5, 2010 ("'I would not vote for it again in its current form because of the lack of progress in Copenhagen,' [Representative Leonard] Lance of New Jersey said of the cap-and-trade bill. 'I don't think we can do this alone. China and India have to come aboard.'"); "GOP: US Should Reject Climate Pact," *Seattle Times*, December 12, 2009, online at http://seattletimes.nwsource.com/html/politics/2010488118_apclimaterepublicans.html (accessed August 10, 2010).

9. US Department of Defense (2008) "National Defense Strategy," at 4–5.

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4. US Environmental Protection Agency, 2010. "US Greenhouse Gas Inventory Report," available online: www.epa.gov/climatechange/emissions/downloads10/US-GHG-Inventory-2010_Report.pdf (accessed February 10, 2011).

5. Gilbert Metcalf and David Weisbach, "The Design of a Carbon Tax," (January 8, 2009). University of Chicago Law & Economics, Olin Working Paper No. 447. Available at SSRN: http://ssrn.com/abstract=1324854.

6. US Department of the Interior, National Park Service, *Spanning the Gap: Newsletter of the Delaware Water Gap National Recreation Area*, Summer

1998 (reporting that the average ph of the Delaware Water Gap, between New Jersey and Pennsylvania, was 4.5, the same as for Coca Cola).

7. A 1997 cost-benefit analysis of the first twenty years of the Clean Air Act found that benefits outweighed the costs to industry and consumers by almost two orders of magnitude. While compliance costs over the years 1970 to 1990 totaled $523 billion, the benefits totaled $22.2 *trillion*. *United States Environmental Protection Agency, Executive Summary, Final Report to Congress on Benefits and Costs of the Clean Air Act 1970 to 1990,* ES-2 to ES-8 (1997), available online at www.epa.gov/air/sect812/812exec2.pdf. Since this estimate was a measure of just the benefits of reduced air pollution over twenty years, it is clear that the total damages of pollution over longer time scales would well exceed $22.2 trillion dollars. And since the largest component of damages from air pollution comes from sulfur dioxide, it is not an adventurous guess to say that the damages from sulfur dioxide over the nearly century of coal-fired power plant operations is very easily into the trillions of dollars.

8. It is now widely recognized that earlier estimates of damages from sulfur dioxide pollution were likely underestimates as they did not take full account of the effect of sulfur dioxide as particulate matter pollution, which has now emerged as the greatest threat to human health. See, e.g., Francine Laden et al., "Reduction in Fine Particulate Air Pollution and Mortality: Extended Follow-up of the Harvard Six Cities Study," 173 *American Journal of Respiratory and Critical Care Medicine* 667 (2006); C. Arden Pope III et al., "Lung Cancer, Cardiopulmonary Mortality, and Long-term Exposure to Fine Particulate Air Pollution," 287 *Journal of the American Medical Association* 1132 (2002); C. Arden Pope III et al., "Particulate Air Pollution as a Predictor of Mortality in a Prospective Study of US Adults," 151 *American Journal of Respiratory and Critical Care Medicine* 669 (1995); Douglas W. Dockery et al., "An Association Between Air Pollution and Mortality in Six US Cities," 329 *New England Journal of Medicine* 1753 (1993); "Health Effects Institute, Special Report: Reanalysis of the Harvard Six Cities Study and the American Cancer Society Study of Particulate Air Pollution and Mortality," available at http://pubs.healtheffects.org/view.php?id=6 (July 2000).

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10. 40 C.F.R. §76.6 & §76.7 (1996).

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15. Kyoto Protocol, Article 12.

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17. Internal Revenue Code §45 (2009).

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