

Frank Ackerman, Principal Economist

Synapse Energy Economics | 485 Massachusetts Avenue, Suite 2 | Cambridge, MA 02139 | 617 453-7064
fackerman@synapse-energy.com

PROFESSIONAL EXPERIENCE

Synapse Energy Economics Inc., Cambridge, MA. *Principal Economist*, 2012 – present.

Consults on issues of energy economics, environmental impacts, climate change policy, and environmental externalities valuation.

Boston University, Global Economic Governance Institute, Boston, MA. *Senior Research Scholar*, 2016 – present.

Assisting in research on trade and environment, and advising graduate student research.

Massachusetts Institute of Technology, Cambridge, MA. *Lecturer, Department of Urban Studies and Planning*, 2014 –2015.

Taught graduate seminars on “Electricity, Economics, and Environment” and “Climate Economics and Policy.”

Stockholm Environment Institute – US Center, Somerville, MA. *Senior Economist and Director of Climate Economics Group*, 2007 – 2012.

Wrote extensively for academic, policy, and general audiences, and directed studies for a wide range of government agencies, international organizations, and nonprofit groups.

Tufts University, Global Development and Environment Institute, Medford, MA. *Senior Researcher*, 1995 – 2007.

Editor of GDAE’s *Frontier Issues in Economic Thought* book series, a coauthor of GDAE’s macroeconomics textbook, and Director of the institute’s Research and Policy program. Taught courses in the Tufts Department of Urban and Environmental Policy and Planning.

Tellus Institute, Boston, MA. *Senior Economist*, 1985 – 1995.

Responsible for research and consulting on aspects of economics of energy systems and of solid waste and recycling.

University of Massachusetts, Amherst, and Boston, MA. *Visiting Assistant Professor of Economics*, 1982 – 1984.

Dollars and Sense, Somerville, MA. *Editor and Business Manager*, 1974 – 1982.

EDUCATION

Harvard University, Cambridge, MA
Doctor of Philosophy in Economics, 1975

Swarthmore College, Swarthmore, PA
BA in Mathematics and Economics, 1967

AFILIATIONS

Economics for Equity and the Environment (E3 Network), Portland, OR
Co-founder and steering committee member, 2007 – present

Center for Progressive Reform, Washington, DC
Member scholar, 2002 – present

BOOKS

Ackerman, F., 2017. *Worst-Case Economics: Extreme Events in Climate and Finance*. London: Anthem Press.

Ackerman, F., E. A. Stanton. 2014. *Climate Change and Global Equity*. London: Anthem Press.

Ackerman F., E. A. Stanton. 2013. *Climate Economics: The State of the Art*. London: Routledge.

Ackerman, F., R. Kozul-Wright, R. Vos, eds. 2012. *Climate Protection and Development*. London: Bloomsbury Academic.

Gang, F., N. Stern, O. Edenhofer, X. Shanda, K. Eklund, F. Ackerman, L. Lailai, K. Hallding, eds. 2011. *The Economics of Climate Change in China: Towards a Low-Carbon Economy*. London: Earthscan.

Ackerman, F. 2008 hardcover and 2009 paperback. *Can We Afford the Future? Economics for a Warming World*. London: Zed Books.

Ackerman, F. 2008. *Poisoned for Pennies: The Economics of Toxics and Precaution*. Washington, DC: Island Press.

Ackerman, F., A. Nadal. 2004. *The Flawed Foundations of General Equilibrium: Critical Essays on Economic Theory*. London: Routledge.

Goodwin, N. R., J. A. Nelson, F. Ackerman, T. Weisskopf. 2004/2008 *Microeconomics in Context*, 2nd ed./ Russian and Vietnamese eds. New York: Houghton Mifflin/Armonk, NY: M.E. Sharpe.

Ackerman, F., L. Heinzerling. 2003 hardcover and 2005 paperback. *Priceless: On Knowing the Price of Everything and the Value of Nothing*. New York: The New Press.

Ackerman, F., N. R. Goodwin, L. Dougherty, K. P. Gallagher, eds. 2000. *The Political Economy of Inequality*. Washington DC,: Island Press.

Ackerman, F., N. R. Goodwin, L. Dougherty, K. P. Gallagher, eds. 1998. *The Changing Nature of Work*. Washington, DC: Island Press.

Ackerman, F. 1997. *Why Do We Recycle? Markets, Values, and Public Policy*. Washington, DC: Island Press.

BOOK CHAPTERS (SINCE 2000)

Ackerman, F. and E. A. Stanton. 2015. "Climate Impacts on Agriculture: A Challenge to Complacency?" In *The Oxford Handbook of the Macroeconomic of Global Warming*, eds. Bernard, L. and W. Semmler. New York: Oxford University Press.

Noone, K., F. Ackerman. 2013. Tipping Points, Uncertainty, and Precaution: Preparing for Surprise. In *Managing Ocean Environments in a Changing Climate*, eds. Noone, K. J., U. R. Sumaila, and R. J. Diaz, 223–241. Oxford: Elsevier Science & Technology.

Ackerman, F. 2013. Valuing the Ocean Environment. In *Managing Ocean Environments in a Changing Climate*, eds. Noone, K. J., U. R. Sumaila, and R. J. Diaz, 243–275. Oxford: Elsevier Science & Technology.

Ackerman, F. 2011. Carbon Embedded in China's Trade. In *The Economics of Climate Change in China: Towards a Low Carbon Economy*, eds. Gang, F., N. Stern, O. Edenhofer, X. Shanda, K. Eklund, F. Ackerman, L. Lailai, and K. Hallding, 123–132. London: Earthscan.

Ackerman, F. 2011. Policy Implications of Carbon Pricing for China's Trade. In *The Economics of Climate Change in China: Towards a Low Carbon Economy*, eds. Gang, F., N. Stern, O. Edenhofer, X. Shanda, K. Eklund, F. Ackerman, L. Lailai, and K. Hallding, 423–432. London: Earthscan.

Ackerman, F. 2010. Cost-Benefit Analysis of Climate Change: Where It Goes Wrong. In *Economic Thought and US Climate Change Policy*, ed. Driesen, D. M., 61–81. Cambridge, MA: MIT Press.

Ackerman, F. 2009. The New Climate Economics: The Stern Review versus its Critics. In *Twenty-First Century Macroeconomics: Responding to the Climate Challenge*, eds. Harris, J. M. and Neva R. Goodwin, Part I, Chapter 2. Cheltenham, UK and Northampton, MA: Edward Elgar Publishing.

Ackerman, F. L. Heinzerling, and R. I. Massey. 2007. Wrong in retrospect: cost-benefit analysis of past successes. In *Frontiers in Ecological Economic Theory and Application*, eds. Erickson J. D. and J. M. Gowdy, Part I, Chapter 1. Cheltenham, UK: Edward Elgar Publishing.

Ackerman, F. 2002. Waste, Recycling, and Climate Change: US Perspective. In *Recovering Energy From Waste*, eds. Grover, V. I., V. K. Grover, W. Hogland. Enfield, NH: Science Publishers.

Ackerman, F. and K. P. Gallagher. 2001. Getting the Prices Wrong: The Limits of Market-Based Environmental Policy. In *Taking Sides: Clashing Views on Controversial Economic Issues*, eds. Swartz, T. R. and F. Bonello, 11th ed., Part 3. Issue 16. New York: McGraw Hill.

Ackerman, F. and K. P. Gallagher. 2000. Trade Liberalisation and Pollution-Intensive Industry in Developing Countries: A Partial Equilibrium Approach. In *Assessing the Environmental Effects of Trade Liberalisation Agreements: Methodologies*, ed. Organisation for Economic Co-Operation and Development, 267–278. Paris: OECD Press.

JOURNAL ARTICLES (SELECTED)

Ackerman, F. 2017. Review of Geoffrey Heal, *Endangered Economies*. *Journal of Economic Literature* 55, 1146-48.

Ackerman, F. 2017. Understanding Energy, From Both Sides. *Ecological Economics* 142, 318.

Ackerman, F. 2017. “Combating climate change, by the books.” A review of Nicholas Stern, “Why are we waiting? The logic, urgency, and promise of tackling climate change”, and Naomi Klein, “This changes everything: Capitalism vs. the climate.” *Climate Policy* vol. 17 no. 3, 397-400.

<http://dx.doi.org/10.1080/14693062.2015.1096232>

Ackerman, F., C. Munitz. 2016. “A critique of climate damage modeling: Carbon fertilization, adaptation, and the limitations of FUND.” *Energy Research & Social Science* 12: 62-67.

Ackerman, F. 2015. “The world before climate change.” *Journal of Natural Resources Policy Research* 7 (2-3): 157-160.

Ackerman, F., M. Whited, P. Knight. 2014. “Would banning atrazine benefit farmers?” *International Journal of Occupational and Environmental Health* 20 (1): 61-70.

Hansen, J., P. Kharecha, M. Sato, V. Masson-Delmotte, F. Ackerman, D. J. Beerling, P. J. Hearty, et. al. 2013. “Assessing ‘Dangerous Climate Change’: Required Reduction of Carbon Emissions to Protect Young People, Future Generations and Nature.” *PLoS ONE* 8(12): e81648. doi:10.1371/journal.pone.0081648.

Ackerman, F., J. Fisher. 2013. “Is there a water-energy nexus in electricity generation? Long-term scenarios for the western United States.” *Energy Policy*, August: 235–241.

Ackerman, F., E. A. Stanton, R. Bueno. 2013. “Epstein-Zin utility in DICE: Is risk aversion irrelevant to climate policy?” *Environmental and Resource Economics* 56 (1): 73–84.

Ackerman, F., C. Munitz. 2012. “Climate damages in the FUND model: A disaggregated analysis.” *Ecological Economics* 77 (May): 219–224.

Ackerman, F. and E. A. Stanton. 2012. “Climate Risks and Carbon Prices: Revising the Social Cost of Carbon.” *Economics: The Open-Access, Open-Assessment E-Journal* 6 (2012-10): 1–25, <http://dx.doi.org/10.5018/economics-ejournal.ja.2012-10>.

Ackerman, F., E. A. Stanton, R. Bueno. 2011. “CRED: A new model of climate and development.” *Ecological Economics* 85 (January): 166–176.

-
- Ackerman, F., E. A. Stanton, S. DeCanio, E. Goodstein, R. Howarth, R. Norgaard, C. Norman, K. Sheeran. 2010. "The Economics of 350." *Solutions* 1 (5): 49–56.
- Ackerman, F., E. A. Stanton, R. Bueno. 2010. "Fat Tails, Exponents, Extreme Uncertainty: Simulating Catastrophe in DICE." *Ecological Economics* 69 (8): 1657–1665.
- Ackerman, F. 2010. "Carbon Markets Are Not Enough." *United Nations Conference on Trade and Development (UNCTAD), Trade and Environment Review, 2009/2010*:26–30.
- Stanton, E. A., F. Ackerman. 2009. "Climate and development economics: Balancing science, politics and equity." *Natural Resources Forum* 33 (4): 262–273.
- Ackerman, F., S. DeCanio, R. Howarth, K. Sheeran. 2009. "Limitations of Integrated Assessment Models of Climate Change." *Climatic Change* 95 (3-4): 297–315.
- Stanton, E. A., F. Ackerman, S. Kartha. 2009. "Inside the Integrated Assessment Models: Four Issues in Climate Economics." *Climate and Development* 1 (2): 166–184.
- Ackerman, F., E. A. Stanton, C. Hope, S. Alberth. 2009. "Did the Stern Review Underestimate US and Global Climate Damages?" *Energy Policy* 37 (7): 2717–2721.
- Ackerman, F., K. Gallagher. 2008. "The Shrinking Gains from Global Trade Liberalization in Computable General Equilibrium Models." *International Journal of Political Economy* 37 (1): 50–77.
- Ackerman, F. 2008. "Climate Economics in Four Easy Pieces." *Development* 51 (3): 325–331.
- Ackerman, F. 2008. "Hot, It's Not: Reflections on *Cool It!* by Bjorn Lomborg." *Climatic Change* 89 (3-4): 435–446.
- Ackerman, F., E. A. Stanton. 2008. "Can Climate Change Save Lives? A comment on 'Economy-wide estimates of the implications of climate change: Human health'". *Ecological Economics* 66 (1): 8–13.
- Ackerman, F., W. Johncheck. 2008. "Mad Cows and Computer Models: The US Response to BSE." *New Solutions* 18 (2): 145–156.
- Ackerman, F., E. A. Stanton, B. Roach, A.-S. Andersson. 2008. "Implications of REACH for Developing Countries." *European Environment* 18 (1): 16–29.
- Heinzerling, L., F. Ackerman. 2008. "Law and Economics for a Warming World." *Harvard Law and Policy Review* 1 (2): 331–362.
- Ackerman, F., M. Ishikawa, M. Suga. 2007. "The Carbon Content of Japan-US Trade." *Energy Policy* 35 (9): 4455–4462.
- Ackerman, F. 2007. "The Economics of Atrazine." *International Journal of Occupational and Environmental Health* 13 (4): 441–449.
- Ackerman, F., E. A. Stanton, R. Massey. 2007. "European Chemical Policy and the United States: The Impacts of REACH." *Renewable Resources Journal* 25 (1).

Ackerman, F., I. Finlayson. 2006. "The Economics of Inaction on Climate Change: A Sensitivity Analysis." *Climate Policy* 6 (5): 509–526.

Ackerman, F. 2006. "The Unbearable Lightness of Regulatory Costs." *Fordham Urban Law Journal* 33 (4): 1071–1096.

Ackerman, F. 2006. "La valutazione degli effetti della liberalizzazione commerciale: un esame critic." *QA Rivista dell'Associazione Rossi-Doria*, 3:7–39. Previously published as "The Shrinking Gains from Trade: a Critical Assessment of Doha Round Projections" Global Development and Environment Institute Working Paper 05-01.

Heinzerling, L., F. Ackerman, R. Massey. 2005. "Applying Cost-Benefit to Past Decisions: Was Environmental Protection Ever a Good Idea?" *Administrative Law Review* 57 (1): 155–192.

Ackerman, F., L. Heinzerling. 2002. "Pricing the Priceless: Cost-Benefit Analysis of Environmental Protection." *University of Pennsylvania Law Review* 150 (5): 1553–1584.

Ackerman, F., K. Gallagher. 2002. "Mixed Signals: Market Incentives, Recycling and the Price Spike of 1995." *Resources, Conservation and Recycling* 35 (4): 275–295.

Ackerman, F. 2002. "Still Dead After All These Years: Interpreting the Failure of General Equilibrium Theory." *Journal of Economic Methodology* 9 (2): 119–139.

Peters, I., F. Ackerman, S. Bernow. 1999. "Economic Theory and Climate Change Policy." *Energy Policy* 27:501–504.

Ackerman, F., B. Biewald, W. Moomaw, T. Woolf, D. White. 1999. "Grandfathering and Environmental Compatibility: The Costs of Cleaning Up the Clean Air Act." *Energy Policy* 27:929–940.

REPORTS AND PAPERS (SELECTED)

Allison, A., J. Hall, F. Ackerman. 2018. *Cleaner Cars and Job Creation*. Synapse Energy Economics for the Union of Concerned Scientists.

Ackerman, F., P. Knight. 2017. *Economic Impacts of Completing the Dakota Access Pipeline*. Synapse Energy Economics.

Knight, P., P. Luckow, B. Biewald, A. Horowitz, A. Allison, F. Ackerman. 2017. *New England's Shrinking Need for Natural Gas: An analysis of policy impacts on natural gas use in New England's electric sector*. Synapse Energy Economics for the Connecticut Fund for the Environment, Consumers for Sensible Energy, Mass Energy Consumers Alliance, Pipe Line Awareness Network for the Northeast, Sierra Club Connecticut, and Sierra Club Massachusetts.

Ackerman, F., P. Knight, B. Biewald. 2016. "Estimating the Cost of Saved Energy: The EIA 861 Database." Synapse Energy Economics.

Ackerman, F. 2016. "Europe's regulations at risk: The environmental costs of the TTIP." Global Economic Governance Initiative, Boston University,
https://www.bu.edu/pardeeschool/files/2016/04/ACKERMAN.final_.pdf.

Comings, T., Allison, A., Ackerman, F. 2016. *Consumer Savings from 2025 Corporate Average Fuel Economy Standards (CAFE)*. Synapse Energy Economics for Consumers Union.

Synapse Energy Economics, Labor Network for Sustainability and 350.org. 2015. *The Clean Energy Future: Protecting the Climate, Creating Jobs, and Saving Money*.

Ackerman, F., T. Comings. 2015. *Employment after Coal: Creating New Jobs in Eastern Kentucky*. Synapse Energy Economics for the Mountain Association for Community Economic Development.

Fisher, J., T. Comings, F. Ackerman, S. Jackson. 2015. *Clearing Up the Smog: Debunking Industry Claims that We Can't Afford Healthy Air*. Synapse Energy Economics for Earthjustice.

Ackerman, F., J. Daniel. 2015. *The True Costs of Generic Drug Regulation*. Synapse Energy Economics for the American Association of Justice.

Woolf, T., E. Malone, F. Ackerman. 2014. *Cost-Effectiveness Screening Principles and Guidelines for Alignment with Policy Goals, Non-Energy Impacts, Discount Rates, and Environmental Compliance Costs*. Synapse Energy Economics for Northeast Energy Efficiency Partnerships (NEEP) Regional Evaluation, Measurement and Verification Forum.

Daniel, J., F. Ackerman. 2014. *Critical Gaps in the 2014 Big Rivers Integrated Resource Plan*. Synapse Energy Economics for Sierra Club.

Ackerman, F. 2014. *Richard Tol on climate policy: A critical view of an overview*. Synapse Energy Economics.

Luckow, P., E. A. Stanton, B. Biewald, S. Fields, S. Jackson, J. Fisher, F. Ackerman. 2014. *CO₂ Price Report, Spring 2014*. Synapse Energy Economics.

Ackerman, F., J. Daniel. 2014. *(Mis)understanding Climate Policy: The Role of Economic Modelling*. Synapse Energy Economics for Friends of the Earth (England, Wales & Northern Ireland) and WWF-UK.

Stanton, E. A., F. Ackerman, J. Daniel. 2014. *Comments on the 2013 Technical Update of the Social Cost of Carbon*. Synapse Energy Economics for the Environment, Economics and Society Institute.

Stanton, E. A., M. Whited, F. Ackerman. 2014. *Estimating the Cost of Saved Energy in Utility Efficiency Programs*. Synapse Energy Economics for the U.S Environmental Protection Agency.

Ackerman, F., S. Jackson, S. Fields. 2014. *Sustainable Development for the Navajo Nation: Replacing the Navajo Generating Station with Renewable Energy*. Synapse Energy Economics for Chorus Foundation.

Luckow, P., E. A. Stanton, B. Biewald, J. Fisher, F. Ackerman, E. Hausman. 2013. *2013 Carbon Dioxide Price Forecast*. Synapse Energy Economics.

Stanton, E. A., P. Knight, F. Ackerman. 2013. *LaSalle Fleet Benefits Rebuttal*. Synapse Energy Economics for Whitt Law.

Ackerman, F., M. Whited, P. Knight. 2013. *Atrazine: Consider the Alternatives*. Synapse Energy Economics for Natural Resources Defense Council (NRDC).

Stanton, E. A., J. Daniel, F. Ackerman, S. Jackson. 2013. *Review of EPA's June 2013 Steam Electric Effluent Limitations and Guidelines (40 CFR Part 423)*. Synapse Energy Economics for Earthjustice, Environmental Integrity Project, and Sierra Club.

Whited, M., F. Ackerman, S. Jackson. 2013. *Water Constraints on Energy Production: Altering our Current Collision Course*. Synapse Energy Economics for Civil Society Institute.

Ackerman, F., T. Comings, P. Luckow. 2013. *A Review of Consumer Benefits from a Corporate Average Fuel Economy (CAFE) Standards*. Synapse Energy Economics for Consumers Union.

Stanton, E. A., F. Ackerman, T. Comings, P. Knight, T. Vitolo, E. Hausman. 2013. *Will LNG Exports Benefit the United States Economy?* Synapse Energy Economics for Sierra Club.

Ackerman, F., T. Vitolo, E. Stanton, G. Keith. 2013. *Not-so-smart ALEC: Inside the attacks on renewable energy*. Synapse Energy Economics for Civil Society Institute.

Stanton, E. A., F. Ackerman. 2013. *Climate Impacts on Agriculture: A Challenge to Complacency?* Global Development and Environment Institute Working Paper 13-01.

Wilson, R., P. Luckow, B. Biewald, F. Ackerman, E. Hausman. 2012. *2012 Carbon Dioxide Price Forecast*. Synapse Energy Economics.

Ackerman, F., E. A. Stanton, R. Bueno. 2012. *Climate Policy and Development: An Economic Analysis*. E3 Network Working Paper.

Stanton, E. A., F. Ackerman. 2010. *No State Left Behind: A Better Approach to Climate Policy*. E3 Network White Paper.

Stanton, E. A., F. Ackerman, K. Sheeran. 2010. *Understanding Interstate Differences in US Greenhouse Gas Emissions*. Stockholm Environment Institute (SEI-US) Working Paper WP-US-1004.

Ackerman, F. 2009. *Financing the Climate Mitigation and Adaptation Measures in Developing Countries*. Prepared as G-24 Discussion Paper No. 57 for United Nations Conference on Trade and Development. Previously published as Stockholm Environmental Institute (SEI-US) Working Paper WP-US-0910.

TESTIMONY (RECENT)

New York State Department of Environmental Conservation (DEC #3-5522-00011/0004 and #3-5522-00011/00030): Direct and rebuttal testimony regarding permanent fish protection outages at Indian Point Energy Center. On behalf of Riverkeeper, Scenic Hudson, and Natural Resources Defense Council. June 26, 2015 and August 10, 2015.

Commonwealth of Kentucky, Kentucky Public Service Commission (Case No. 2013-00199): Direct testimony regarding the Application of Big Rivers Electric Corporation for a General Adjustment in Rates. On behalf of Ben Taylor and the Sierra Club. October 28, 2013.

State of Nevada, Public Utilities Commission of Nevada (Docket No. 13-07021): Direct testimony regarding the proposed merger of NV Energy, Inc. and MidAmerican Energy Holdings Company. On behalf of the Sierra Club. October 24, 2013.

Commonwealth of Kentucky, Kentucky Public Service Commission (Case No. 2012-00535): Direct testimony regarding the Application of Big Rivers Electric Corporation for a General Adjustment in Rates. On behalf of Ben Taylor and the Sierra Club. May 24, 2013.

State of Indiana, Indiana Utility Regulatory Commission (Cause No. 44217): Direct testimony regarding Duke Energy Indiana's Certificates of Public Convenience and Necessity. On behalf of Citizens Action Coalition, Sierra Club, Save the Valley, and Valley Watch. November 29, 2012.

United States Congress House Committee on Energy and Commerce (Hearing on “The American Clean Energy and Security Act of 2009”): Direct testimony titled “Climate Change: The Costs of Inaction” explaining the economic implications for the United State of natural disasters and resource demands as a result of global climate change. April 22, 2009.

United States Congress House Committee on Energy and Commerce, Subcommittee on Energy and Environment (Hearing on “The Climate Crisis: National Security, Public Health, and Economic Threats”): Direct testimony titled “Climate Change: The Costs of Inaction” explaining the economic implications for the United State of natural disasters and resource demands as a result of global climate change. February 12, 2009.

United States Congress House Committee on Ways and Means (Hearing on “Preventing Climate Change”): Direct testimony titled “Climate Change: The Costs of Inaction” explaining the economic implications for the United State of natural disasters and resource demands as a result of global climate change. September 18, 2008.

Resume dated April 2018