

Geoffrey L. Keith, Principal Associate

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PROFESSIONAL EXPERIENCE

Synapse Energy Economics Inc., Cambridge, MA. *Principal Associate*, 2001 – 2006, 2009 – present.

Areas of focus include environmental and economic analysis related to power generation and regional power systems; renewable energy costs and characteristics; and analysis of the US fleet of fossil-fueled power plants. Examines regional scenarios for reducing greenhouse gases from the power sector and models power systems to assess costs and environmental impacts of policy proposals.

M. J. Bradley & Associates, Concord, MA. *Environmental/Energy Consultant*, 1996 – 2001.

Worked with environmental advocates and energy companies in support of more stringent air regulations and energy policies supporting clean energy technologies. Facilitated strategic partnerships to address regulatory and market barriers to distributed generation. Participated in regulatory and legislative proceedings relevant to renewable resources and distributed generation and coordinated communication between technology developers, advocates and energy and air regulators.

Rhode Island Division of Public Utilities and Carriers, Providence, RI. *Policy Analyst*, 1995 – 1996.

Analyzed the economic and environmental implications of electric industry restructuring proposals. Helped facilitate the Rhode Island Electric Industry Restructuring Collaborative and co-authored the Division's restructuring plan.

Institute for Resource and Security Studies, Cambridge, MA. *Intern*, 1992.

Managed research projects including the creation of a sustainability database for the City of Cambridge and a report on energy use in the city.

National Outdoor Leadership School, Lander, WY. *Field Instructor*, 1989 – 1990.

Completed instructors training program. Responsibility for the safety and education of students on 30-day wilderness expeditions in Alaska. Organized and led a 30-day trek in the Himalayas.

EDUCATION

Brown University, Providence, RI
Masters in Environmental Studies, 1995

Harvard Extension School, Cambridge, MA
Post-baccalaureate work in chemistry, statistics and economics, 1993

Tufts University, Medford, MA
Bachelor of Arts in English, 1988

PUBLICATIONS

Stanton, E. A., P. Knight, J. Daniel, B. Fagan, D. Hurley, J. Kallay, E. Karaca, G. Keith, E. Malone, W. Ong, P. Peterson, L. Silvestrini, K. Takahashi, R. Wilson. 2015. *Massachusetts Low Gas Demand Analysis: Final Report*. Synapse Energy Economics for the Massachusetts Department of Energy Resources.

Stanton, E. A., J. Daniel, T. Vitolo, P. Knight, D. White, G. Keith. 2014. *Net Metering in Mississippi: Costs, Benefits, and Policy Considerations*. Synapse Energy Economics for the Public Service Commission of Mississippi.

Comings, T., S. Fields, K. Takahashi, G. Keith. 2014. *Employment Effects of Clean Energy Investments in Montana*. Synapse Energy Economics for Montana Environmental Information Center and Sierra Club.

Keith, G., S. Jackson, J. Daniel, K. Takahashi. 2014. *Idaho's Electricity Sources: Current Sources and Future Potential*. Synapse Energy Economics for the Idaho Conservation League.

Comings, T., K. Takahashi, G. Keith. 2013. *Employment Effects of Investing in Select Electricity Resources in Washington State*. Synapse Energy Economics for Sierra Club.

Stanton, E. A., S. Jackson, G. Keith, E. Malone, D. White, T. Woolf. 2013. *A Clean Energy Standard for Massachusetts*. Synapse Energy Economics for the Massachusetts Clean Energy Center and the Massachusetts Departments of Energy Resources, Environmental Protection, and Public Utilities.

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

Keith, G., S. Jackson, A. Napoleon, T. Comings, J. Ramey. 2012. *The Hidden Costs of Electricity: Comparing the Hidden Costs of Power Generation Fuels*. Synapse Energy Economics for Civil Society Institute.

Keith, G., T. Woolf, K. Takahashi. 2012. *A Clean Electricity Vision for Long Island: Supplying 100% of Long Island's Electricity Needs with Renewable Power*. Synapse Energy Economics for Renewable Energy Long Island.

Hausman, E., T. Comings, G. Keith. 2012. *Maximizing Benefits: Recommendations for Meeting Long-Term Demand for Standard Offer Service in Maryland*. Synapse Energy Economics for Sierra Club.

Keith, G., B. Biewald, E. Hausman, K. Takahashi, T. Vitolo, T. Comings, P. Knight. 2011. *Toward a Sustainable Future for the US Power Sector: Beyond Business as Usual 2011*. Synapse Energy Economics for Civil Society Institute.

Hausman, E., T. Comings, K. Takahashi, R. Wilson, W. Steinhurst, N. Hughes, G. Keith. 2011. *Electricity Scenario Analysis for the Vermont Comprehensive Energy Plan 2011*. Synapse Energy Economics for Vermont Department of Public Service.

Keith, G., B. Biewald, K. Takahashi, A. Napoleon, N. Hughes, L. Mancinelli, E. Brandt. 2010. *Beyond Business as Usual: Investigating a Future Without Coal and Nuclear Power in the U.S.* Synapse Energy Economics for Civil Society Institute.

Napoleon, A., G. Keith, C. Komanoff, D. Gutman, P. Silva, D. Schlissel, A. Sommer, C. Chen, A. Rochelle, J. Levy, P. Kenney. 2007. *Quantifying and Controlling Fine Particulate Matter in New York City*. Synapse Energy Economics for Coalition Helping Organize a Kleaner Environment, Natural Resources Defense Council (NRDC), and Reliant Energy.

Zalcman, F., Takahashi K., G. Keith, W. Steinhurst. 2006. *A Comprehensive Process Evaluation of Early Experience under New York's Pilot Program for Integration of Distributed Generation in Utility System Planning*. Synapse Energy Economics and Pace Law School Energy Project for New York State Energy Research and Development Authority (NYSERDA).

Woolf, T., K. Takahashi, G. Keith, A. Rochelle, P. Lyons. 2005. *Feasibility Study of Alternative Energy and Advanced Energy Efficiency Technologies for Low-Income Housing in Massachusetts*. Synapse Energy Economics for Low-Income Energy Affordability Network (LEAN) and Action for Boston Community Development, and Action Inc.

Keith, G., B. Biewald. 2005. *Methods for Estimating Emissions Avoided by Renewable Energy and Energy Efficiency*. Synapse Energy Economics for US Environmental Protection Agency.

Keith, G., B. Biewald, D. White. 2004. *Evaluating Simplified Methods of Estimating Displaced Emissions in Electric Power Systems: What Works and What Doesn't*. Synapse Energy Economics for North American Commission for Environmental Cooperation (CEC).

Keith, G., B. Biewald, K. Takahashi. 2004. *The Searsburg/Readsboro Wind Project: An Analysis of Project Economics and An Analysis of Need*. Synapse Energy Economics for enXco Inc.

Biewald, B., D. White, G. Keith, T. Woolf. 2004. *A Responsible Electricity Future: An Efficient, Cleaner and Balanced Scenario for the US Electricity System*. Synapse Energy Economics for National Commission on Energy Policy and National Association of State PIRGs.

Keith, G., B. Biewald, D. White. 2004. "Designing Demand Response Programs in New England to Achieve Air Quality Benefits" *Electricity Journal* 17 (4): 79 – 87.

Keith, G., B. Biewald, D. White, F. Zalcman. 2003. *A Clean Electricity Plan for the Hudson River Valley*. Synapse Energy Economics and Pace School of Law for the Hudson River Foundation.

Keith, G., B. Biewald, A. Sommer. 2003. *Estimating the Emission Reduction Benefits of Renewable Electricity and Energy Efficiency in North America: Experience and Methods*. Synapse Energy Economics for the Center for Environmental Cooperation.

Keith, G., B. Biewald, D. White, M. Drunsic. 2003. *Modeling Demand Response and Air Emissions in New England*. Synapse Energy Economics for US Environmental Protection Agency.

Keith, G., D. White, M. Ramiro, B. Biewald. 2002. *The Emission Reduction Workbook*. Synapse Energy Economics for Ozone Transport Commission.

Schlissel, D., G. Keith, D. White, M. Drunsic. 2002. *Comments on EPA's Proposed Clean Water Act Section 316(b) for Cooling Water Intake Structures at Phase II Existing Facilities*. Synapse Energy Economics for Riverkeeper, Inc.

Johnston, L., G. Keith, T. Woolf, B. Biewald, E. Gonin. 2002. *Predicting Avoided Emissions from Policies that Encourage Energy Efficiency and Clean Power*. Synapse Energy Economics for Ozone Transport Commission.

Johnston L., G. Keith, T. Woolf, B. Biewald, E. Gonin. 2002. *Survey of Clean Power and Energy Efficiency Programs*. Synapse Energy Economics for Ozone Transport Commission.

M. J. Bradley & Associates. 2001. *Distributed Resources and their Emissions: Modeling the Impacts*. Prepared for Natural Resources Defense Council (NRDC) and Institute for Lifecycle Analysis.

M. J. Bradley & Associates. 2000. *Utility Tariffs and Charges Affecting Distributed Generation*. Report and inventory prepared for the Natural Resources Defense Council (NRDC).

M. J. Bradley & Associates. 1999. *Emissions Trading and Fuel Cells: Issues and Opportunities*. 1999. Prepared for Northeast Fuel Cell Work Group.

STAPPA/ALAPCO. 1999. *Reducing Greenhouse Gases and Air Pollution: A Menu of Harmonized Options*.

Natural Resources Defense Council and Public Service Electric & Gas. 1997. *Benchmarking the Air Emissions of Electric Utility Generators in the Eastern United States*.

PRESENTATIONS

Keith, G. 2003. "Estimating Emission Reductions from Efficiency and Renewable Resources." Presentation at a conference of the Commission for Environmental Cooperation in Washington, DC, June 2003.

Keith, G. 2003. "The Environmental Impacts of Load Response in New England." Presentation to the New England Demand Response Initiative (NEDRI) in Holyoke, MA, July 2003.

Keith, G. 2002. "Distributed Generation and Air Emissions in the US." Presentation at Distributed Generation: Technologies for a New Energy Market conference in Pescara, Italy, April 2002.

Keith, G. 2001. "Potential Emissions from Diesel Generators." Presentation at the Globalcon Energy Conference on Energy Technology and Policy in Atlantic City, NJ, March 2001.

Keith, G. 2001. "Capacity Crises and Air Emissions." Presentation at the Electric Utility Environmental Conference in Tucson, AZ, January 2001.

Keith, G. 2000. "Lessons from Existing Credit Trading Programs." Presentation at NYSERDA/ASERTTI Conference on Developing Tradable Credits for Renewable Energy in Lake George, NY, October 2000.

Keith, G. 2000. "Clean Energy Opportunities and Barriers." Presentation at a roundtable meeting of New York State Legislature on Energy and Environmental Technologies in Albany, NY, May 2000.

Keith, G. 1999. "Coordinating Energy and Environmental Policy to Support Clean Energy." Presentation at the OTC/ECOS Environmental Technologies Conference in Pittsburgh, PA, June 1999.

TESTIMONY

Public Service Commission of Wisconsin (Docket No. 6690-CE-187): Direct and surrebuttal testimony regarding the review of Wisconsin Public Service Corporation's application for a certificate for construction of the Weston 4 generating plant. On behalf of Citizens' Utility Board. June 25, 2004.

New York State Board on Electric Generation Siting and the Environment (Case 01-F-1276): Direct testimony in the matter of the Application by TransGas Energy Systems LLC for a Certificate of Environmental Compatibility and Public Need to Construct and Operate a 1,100 Megawatt Combined Cycle Generating Facility in the Borough of Brooklyn, New York. On behalf of The Brooklyn Borough President and the Greenpoint Williamsburg Waterfront Task Force. September 29, 2003.

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