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# David Edwin White

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## PROFESSIONAL EXPERIENCE

**Synapse Energy Economics, Inc.**, Cambridge, MA. Senior Consultant, 1996 to present. Consulting on issues of energy economics, environmental impacts, and utility regulatory policy, including electric industry restructuring, electric power system planning, performance-based regulation, stranded costs, system benefits, market power, mergers and acquisitions, generation asset valuation and divestiture, nuclear and fossil power plant costs and performance, renewable resources, green marketing of electricity, environmental disclosure, climate change policy, environmental externalities valuation, energy conservation and demand-side management, electric power system reliability, avoided costs, fuel prices, dispatch modeling, economic analysis of power plants and resource plans, and risk analysis.

**G-W Associates**, Arlington, MA. Principal, 1985 to present. Engineering and environmental analysis. Design and development of computer software for scientific and engineering analysis. Design and implementation of database systems. Consulting on management information systems and operations research applications. Training and documentation for computer applications.

**Tellus Institute**, Boston, MA. Associate Scientist, 1980 to 1986. Participated in a number of electrical demand forecast studies, specializing in the evaluation of the potential for energy conservation and co-generation. Developed methodologies and computer programs for evaluating energy conservation policies. Developed a computer modeling system (LEAP) for evaluating the resource needs of developing countries. Participated in international energy planning studies and conducted training programs in a number of African and European countries.

**Massachusetts Institute of Technology Energy Laboratory**, Cambridge, MA. Research Associate, 1975 to 1980. Participated in a several energy policy studies which evaluated the future demand and supply for electricity in the United States. Designed and developed a mathematical programming model of the U.S. coal and electric utility industries.

## EDUCATION

Massachusetts Institute of Technology, Ph.D. Civil/Environmental Engineering.  
Case-Western Reserve University, M.S. Physics.  
The University of Akron, B.S. Physics.

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## SUMMARY OF RELEVANT EXPERIENCE

Dr. White has modeled most of the North American Electric Reliability Council (NERC) regions in the United States and Canada. Many of these projects have involved examining proposed mergers and their potential effects on market power and market prices. A recent focus has been on the analysis of long-term generation expansion plans and the role of uncertainty in those analyses.

Dr. White's recent work includes consulting on electric industry restructuring, stranded costs, system benefits, market power, mergers and acquisitions, generation asset valuation and divestiture, power plant costs and performance, renewable resources, power supply contracts and performance standards, green marketing of electricity, environmental disclosure, climate change policy, environmental externalities valuation, energy conservation and demand-side management, electric power system reliability, and electricity market simulation modeling for price forecasting and market power analysis.

## PUBLICATIONS

*2011 Carbon Dioxide Price Forecast*, prepared by Lucy Johnson, Ezra Hausman, Bruce Biewald, Rachel Wilson, and David White, February 11, 2011.

*Electricity Energy Efficiency Benefits of RGGI Proceeds: An Initial Analysis*, prepared for Regulatory Assistance Project by Max Chang, David White, Lucy Johnston, and Bruce Biewald, October 5, 2010.

*Avoided Energy Supply Costs in New England: 2009 Report*, prepared by Rick Hornby, David White, Bruce Biewald, Chris James, Ben Warfield, and Max Chang of Synapse, and Paul Chernick, Carl Swanson, Ian Goodman, Bob Grace, and Jason Gifford, October 23, 2009.

*Incorporating Carbon Dioxide Emissions Reductions in Benefit Calculations for Energy Efficiency: Comments on the Department of Energy's Methodology for Analysis of the Proposed Lighting Standard*, prepared by Bruce Biewald, David White, Jeremy Fisher, Max Chang, and Lucy Johnston, May 13, 2009.

*An Assessment of Santee Cooper's 2008 Resource Planning*, prepared by David Schlissel, Rachel Wilson, Lucy Johnston, and David White, April 22, 2009.

*Wholesale Natural Gas Prices in New England*, prepared by Rick Hornby, David White and Paul Peterson, August 2008.

*Energizing Virginia: Efficiency First*, by the American Council for an Energy-Efficient Economy (ACEEE). Utility avoided cost forecasts by David White and Rick Hornby of Synapse, September 2008.

*Synapse 2008 CO2 Price Forecasts*, prepared by David Schlissel, Lucy Johnston, Bruce Biewald, David White, Ezra Hausman, Chris James and Jeremy Fisher, July 2008

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***Advanced Metering Infrastructure- Implications for Residential Customers in New Jersey***, prepared for New Jersey Division of the Ratepayer Advocate by Rick Hornby, Charles Salamone, Stu Perry, David White, Kenji Takahashi, July 8, 2008.

***Review of AmerenUE February 2008 Integrated Resource Plan***, prepared by Rick Hornby, Jeff Loiter, Phil Mosenthal, Tom Franks, Bob Fagan and David White, June 2008.

***Forecast of New England Forward Capacity Market (FCM) Clearing Prices 2008 – 2017***, prepared by Doug Hurley, David White, Rick Hornby, May 2008.

***Impacts of Distributed Generation on Wholesale Electric Prices and Air Emissions in Massachusetts***, prepared by Michael W. Drunsic, David White and Rick Hornby, March 2008.

***Risk Analysis of Procurement Strategies for Residential Standard Offer Service***, prepared by Jonathan Wallach & Paul Chernick of Resource Insight and David White & Rick Hornby of Synapse, March 2008.

***Increasing Demand Response in Maine***, prepared by Rick Hornby, Chris James, Kenji Takahashi, Dr. David White, January 2008.

***Avoided Energy Supply Costs in New England: 2007 FINAL REPORT***, prepared Rick Hornby, Dr. Carl V. Swanson, Michael Drunsic, Dr. David E. White, Paul Chernick, Bruce Biewald and Jennifer Kallay, September 2007.

***ISO New England Scenario Analysis Companion Report Constructing a Future that Meets Regional Goals***, prepared by Paul Peterson, Doug Hurley, and David White, August 2007.

***Climate Change and Power: Carbon Dioxide Emissions Costs and Electricity Resource Planning***, prepared by Lucy Johnston, Ezra Hausman, Anna Sommer, Bruce Biewald, Tim Woolf, David Schlissel, Amy Roschelle and David White, March 2007.

***LMP Electricity Markets: Market Operations, Market Power, and Value for Consumers***, prepared by Ezra Hausman, Robert Fagan, David White, Kenji Takahashi, and Alice Napoleon for the American Public Power Association, February 2007.

***Ensuring Delaware's Energy Future: A Response to Executive Order No. 82***, prepared by the Delaware Cabinet Committee on Energy with technical assistance at Synapse Energy Economics from William Steinhurst, Bruce Biewald, David White, Kenji Takahashi, Alice Napoleon, Amy Roschelle, Anna Sommer and Ezra Hausman, March 8, 2006.

***Mohave Alternatives and Complements Study: Assessment of Carbon Sequestration Feasibility and Markets***, a Sargent & Lundy and Synapse Energy Economics, Inc. report prepared for Southern California Edison by Anna Sommer and William Steinhurst, February 2006.

***Potential Cost Impacts of a Renewable Portfolio Standard in New Brunswick***, prepared by Tim Woolf, David White, Cliff Chen and Anna Sommer for the New Brunswick Department of Energy, October 2005.

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***An RPM Case Study: Higher Costs for Consumers, Windfall Profits for Exelon***, a Synapse Energy Economics, Inc. prepared for Illinois Citizens Utility Board, by Ezra Hausman, Paul Peterson, David White, and Bruce Biewald, October 18, 2005.

***Electric Price Forecasts for St. Lawrence Hydroelectric Generation***, prepared for the International Joint Commission (IJC) by David White and Bruce Biewald, February 2005.

***Capacity for the Future: Kinky Curves and Other Reliability Options***, by Paul Peterson, David White, Amy Roschelle and Bruce Biewald, December 2004.

***A Responsible Energy Future***, prepared for the state Public Interest Research Groups (PIRGs) by Bruce Biewald, David White, Geoff Keith and Tim Woolf, July 2004.

***Electricity Prices in PJM: A Comparison of Wholesale Power Costs in the PJM Market to Indexed Generation Service Costs***, prepared for The PJM Interconnection, L.L.C. by Bruce Biewald, William Steinhurst, David White and Amy Roschelle, June 2004.

***A Balanced Energy Plan for the Interior West***, prepared for the Hewlett Foundation Energy Series, in collaboration with Western Resource Advocates and Tellus Institute, May 2004.

***Comments on the RPS Cost Analyses of the Joint Utilities and the DPS Staff***, a Synapse Energy Economics, Inc. report prepared for the Renewable Energy Technology and Environment Coalition by Bruce Biewald, Cliff Chen, Anna Sommer, William Steinhurst, and David E. White. September 2003.

***Modeling Demand Response and Air Emissions in New England***, a Synapse Energy Economics, Inc. report prepared for the U.S. Environmental Protection Agency, by Geoff Keith, Bruce Biewald, David White, and Mike Drunic, August 2003.

***Cleaner Air, Fuel Diversity and High-Quality Jobs: Reviewing Selected Potential Benefits of an RPS in New York State***, a Synapse Energy Economics, Inc. report prepared for the Renewable Energy Technology and Environment Coalition by Geoff Keith, Bruce Biewald, David White, Anna Sommer and Cliff Chen. July 2003.

***The New England Experiment: An Evaluation of the Wholesale Electricity Markets***, a Synapse Energy Economics, Inc. report provided to the Connecticut Office of Consumer Counsel, Maine Office of the Public Advocate, and New Hampshire Office of Consumer Advocate, by Paul Peterson, David White, Bruce Biewald, and Cliff Chen, June 2003. ***A Clean Energy Plan for the Interior West***, prepared for the Land and Water Fund of the Rockies, with Tellus Institute, Ron Lehr and Jayson Antonoff, forthcoming.

***Air Quality in Queens: Cleaning Up the Air in Queens County and Neighboring Regions***, prepared for a collaboration of Natural Resources Defense Council, Keyspan Energy, and the Coalition Helping to Organize a Kleaner Environment, May 2003.

***The Maryland Renewable Portfolio Standard: An Assessment of Potential Cost Impacts***, prepared for the Maryland Public Interest Research Group, March 2003.

***Powering the South: A Clean and Affordable Energy Plan for the Southern United States***, prepared with and for the Renewable Energy Policy Project and a coalition of Southern environmental advocates, January 2002.

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*Updated Avoided Energy-Supply Costs for Demand-Side Management Screening in Massachusetts*, a Resource Insight report for the AESC Study Group, by Paul Chernick, Susan Geller, Bruce Biewald, and David White, December 2001.

*Updated Avoided Energy-Supply Costs for Demand-Side Management Screening in Massachusetts*, a Resource Insight report for the AESC Study Group, by Paul Chernick, Susan Geller, Bruce Biewald, and David White, November 2001.

*Electricity Market Analysis of Coal Waste Regulations: An Illustrative Midwest Case Study*, a Synapse Energy Economics report prepared for US Environmental Protection Agency by Bruce Biewald, David White, and Montserrat Ramiro, October 2001.

**New Jersey Board of Public Utilities (Docket No. EM01050308)**, Analysis of the proposed merger between Conectiv and PEPCo, September 2001.

**New Jersey Board of Public Utilities (Docket No. EM00110870)**, Analysis of the proposed merger between FirstEnergy and GPU, April 2001.

**Vermont Public Service Board (Dockets Nos. 6120 and 6460)**, Used and useful policy issues, electricity market prices, and above market costs of the purchase from Hydro Quebec, March 2001.

*Repowering the Midwest: The Clean Energy Development Plan for the Heartland*, prepared for the Environmental Law and Policy Center and a coalition of Midwest environmental advocates, February 2001.

*Marginal Price Assumptions for Estimating Customer Benefits of Air Conditioner Efficiency Standards*, comments on the Department of Energy's proposed rules for efficiency standards for central air conditioners and heat pumps, on behalf of the Appliance Standards Awareness Project, December 2000.

**Massachusetts Department of Environmental Protection – July 2000**  
Comments on reliability implications of proposed emission standards for power plants.

**Arkansas Public Service Commission (Docket No. 00-048-R) – June 2000**  
Requirements for electricity market power analyses.

**West Virginia Public Service Commission (Case No. 98-0452-E-GI) – August 1999**  
AEP and Allegheny Power restructuring, market power, divestiture of generation, electric system market price modeling, statistical analysis of comparable sales, and responsibility for stranded costs and gains.

**Connecticut Department of Public Utility Control (Docket No. 99-03-36) – July 1999**  
Connecticut Light and Power Company standard offer service, market prices for electricity and the influence of market power, simulation analysis of the New England electricity market.

**Connecticut Department of Public Utility Control (Docket No. 99-02-05) – April 1999**  
Market power, market prices, and simulation modeling as related to the application of Connecticut Light & Power Company for recovery of stranded costs.

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**Maryland Public Service Commission (Case No. 8797) – January 1999**

Simulation analysis of the ECAR market and projected market prices for electricity for estimation of Potomac Electric Company's stranded generation costs and unbundled rates.

**Maryland Public Service Commission (Case No. 8795) – December 1998**

Simulation analysis of the PJM market and projected market prices for electricity for estimation of Delmarva Power and Light Company's stranded generation costs and unbundled rates.

**Vermont Public Service Board (Docket No. 6107) – September 1998**

Excess capacity, used & useful, and the economics of Green Mountain Power's purchase from Hydro Quebec.

*Avoided Energy-Supply Costs for Demand-Side Management Screening in Massachusetts*, a Resource Insight report for the AESC Study Group, by Rachel Brailove, Paul Chernick, Susan Geller, Bruce Biewald, and David White, July 7, 1999.

*Stranded Nuclear Waste: Implications of Electric Industry Deregulation for Nuclear Plant Retirements and Funding for Decommissioning and Spent Fuel*, by Bruce Biewald and David White, January 15, 1999.

*The Role of Ozone Transport In Reaching Attainment in the Northeast: Opportunities, Equity and Economics*, a Synapse Energy Economics report for the Northeast States for Coordinated Air Use Management, by Tim Woolf, David White, Bruce Biewald, and William Moomaw, July 1998.

*Grandfathering and Environmental Comparability: An Economic Analysis of Air Emission Regulations and Electricity Market Distortions*, a Synapse Energy Economics report for the National Association of Regulatory Utility Commissioners, by Bruce Biewald, David White, Tim Woolf, Frank Ackerman, and William Moomaw, June 11, 1998.

*Analysis of Market Power in the APS and Duquesne Service Territories*, prepared for the Maryland Office of People's Counsel, by Bruce Biewald and David White, February 9, 1998.

*Horizontal Market Power in New England Electricity Markets: Simulation Results and a Review of NEPOOL's Analysis*, prepared for the New England Conference of Public Utility Commissioners, by Bruce Biewald, David E. White, and William Steinhurst, June 11, 1997 (a draft was published as Vermont DPS Technical Report No. 39 in March, 1997).

*Full Environmental Disclosure for Electricity: Tracking and Reporting Key Information*, a Regulatory Assistance Project report funded by the Pew Charitable Trusts, the Joyce-Mertz Gilmore Foundation, the U.S. EPA, and the U.S. DOE, by David Moskovitz, Tom Austin, Cheryl Harrington, Bruce Biewald, David E. White, and Robert Bigelow, March 1997.

**"Follow the Money: A Method for Tracking Electricity for Environmental Disclosure,"** Bruce Biewald, David White, and Tim Woolf, *The Electricity Journal*, May 1999.

*New England Tracking System*, a methodology for a region-wide electricity tracking system to support the implementation of restructuring-related policies, prepared for the New England Governors' Conference, with Environmental Futures and Tellus Institute, October 1998.

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**“Implications of Premature Nuclear Plant Closures: Funding Shortfalls for Nuclear Plant Decommissioning and Spent Fuel Transportation and Storage,”** Bruce Biewald and David White, prepared for the United States Association for Energy Economics and International Association for Energy Economics, 19<sup>th</sup> Annual North American Conference, Albuquerque, NM, October 1998.

**"Counting the Costs: Scientific Uncertainty and Valuation Perspective in EXMOD,"** Stephen Bernow, Bruce Biewald, William Dougherty, and David White, presented at technical meeting of the International Atomic Energy Agency, Vienna, Austria, December 1995.

*New York State Environmental Externalities Cost Study*, a Hagler Bailly Consulting report prepared for the Empire State Electric Energy Research Corporation (ESEERCO), by R.D. Rowe, C.M. Lang, L.G. Chestnut, D.A. Latimer, D.A. Rae, S.M. Bernow, D.E. White, Oceana Publications, December 1995.

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