

Ezra D. Hausman, Ph.D.

Synapse Energy Economics
22 Pearl Street, Cambridge, MA 02139
(617) 661-3248 ext. 242 • fax: (617) 661-0599
www.synapse-energy.com
ehausman@synapse-energy.com

SUMMARY

I have worked since 1998 as an electricity market analyst with a focus on market design and market restructuring, as well as pricing of energy, capacity, transmission, losses and other electricity-related services. I have recently performed market analysis, prepared testimony and/or provided other expert support to clients in a number of areas, including:

- Electricity and capacity price forecasting and asset valuation
- Efficient and cost-effective pricing of generating capacity
- The impact of environmental and other regulations, including future CO₂ regulations, on electricity markets
- The role of the electric sector in addressing global climate change
- The impact of increased Liquefied Natural Gas (LNG) imports in the U.S. natural gas and electricity markets.

I hold a Ph.D. in atmospheric science from Harvard University, a Master's degree in applied physics from Harvard University, a Master's degree in water resource engineering from Tufts University, and a Bachelor of Arts degree from Wesleyan University.

PROFESSIONAL EXPERIENCE

Synapse Energy Economics Inc., Cambridge, MA. Research Associate, 2005-present.
Conducting research, writing reports, and presenting expert testimony pertaining to consumer, environmental, and public policy implications of electricity industry regulation. Focus of work includes:

- Electricity industry regulation and restructuring
- Efficient and cost-effective pricing of generating and transmission capacity
- Long-term electric power system planning and market design
- Electricity market analysis and price forecasting
- Impact of air quality and environmental regulations on electricity markets and pricing
- Natural gas and Liquefied Natural Gas (LNG) market dynamics
- Energy efficiency and renewable energy programs and policies, and their role in the electricity market
- Power plant performance and economics
- Market power and market concentration analysis in electricity markets
- Consumer and environmental protection.

Charles River Associates (CRA). Cambridge, MA. Senior Associate, 2004-2005.
CRA acquired Tabors Caramanis & Associates in October, 2004.

Tabors Caramanis & Associates. Cambridge, MA. Senior Associate, 1998-2004.
Modeling and analysis of electricity markets, generation and transmission systems. Projects included:

- Several market transition cost-benefit studies for development of Locational Marginal Price (LMP) based markets in US electricity markets
- Long-term market forecasting studies for valuation of generation and transmission assets,
- Valuation of financial instruments relating to transmission system congestion and losses
- Natural gas market analysis and price forecasting studies
- Co-developed an innovative approach to hedging financial risk associated with transmission system losses of electricity
- Designed, developed and ran training seminars using a computer-based electricity market simulation game, to help familiarize market participants and students in the operation of LMP-based electricity markets.
- Developed and implemented analytical tools for assessment of market concentration in interconnected electricity markets, based on the “delivered price test” for assessing market accessibility in such a network
- Performed regional market power and market power mitigation studies
- Performed transmission feasibility studies for proposed new generation and transmission projects in various locations in the US
- Provided analytical support for expert testimony in a variety of regulatory and litigation proceedings, including breach of contract, bankruptcy, and antitrust cases, among others.

Global Risk Prediction Network, Inc. Greenland, NH. Vice President, 1997-1998.
Developed private sector applications of climate forecast science in partnership with researchers at Columbia University. Specific projects included a statistical assessment of grain yield predictability in several crop regions around the world based on global climate indicators (Principal Investigator); a statistical assessment of road salt demand predictability in the United States based on global climate indicators (Principal Investigator); a preliminary design of a climate and climate forecast information website tailored to the interests of the business community; and the development of client base.

Hub Data, Inc. Cambridge, MA. Financial Software Consultant, 1986-1987, 1993-1997.
Responsible for design, implementation and support of analytic and communications modules for bond portfolio management software; and developed software tools such as dynamic data compression technique to facilitate product delivery, Windows interface for securities data products.

Abt Associates, Inc., Cambridge, MA. Environmental Policy Analyst, 1990-1991.
Quantitative risk analysis to support federal environmental policy-making. Specific areas of research included risk assessment for federal regulations concerning sewage sludge disposal and pesticide use; statistical alternatives to Most-Exposed-Individual risk assessment paradigm; and research on non-point sources of water pollution.

Massachusetts Water Resources Authority, Charlestown, MA. Analyst, 1988-1990.
Applied and evaluated demand forecasting techniques for the Eastern Massachusetts service area. Assessed applicability of various techniques to the system and to regional planning needs; and assessed yield/reliability relationship for the eastern Massachusetts water supply system, based on Monte-Carlo analysis of historical hydrology.

Somerville High School. Somerville, MA. Math Teacher, 1986-1987.
Courses included trigonometry, computer programming, and basic math courses.

EDUCATION

Ph.D., Earth and Planetary Sciences. Harvard University, Cambridge, MA, 1997.

S.M., Applied Physics. Harvard University, Cambridge, MA, 1993.

M.S., Civil Engineering. Tufts University, Medford, MA, 1990.

B.A., Wesleyan University, Psychology. Middletown, MA, 1985.

FELLOWSHIPS AND AWARDS

UCAR Visiting Scientist Postdoctoral Fellowship, 1997.

Postdoctoral Research Fellowship, Harvard University, 1997.

Certificate of Distinction in Teaching, Harvard University, 1997.

Graduate Research Fellowship, Harvard University, 1991-1997.

Invited Participant, UCAR Global Change Institute, 1993.

House Tutor, Leverett House, Harvard University, 1991-1993.

Graduate Research Fellowship, Massachusetts Water Resources Authority, 1989-1990.

Teaching Fellowships:

Harvard University: *Principles of Measurement and Modeling in Atmospheric Chemistry; Hydrology; Introduction to Environmental Science and Public Policy; The Atmosphere.*

Wesleyan University: *Introduction to Computer Programming; Psychological Statistics; Playwriting and Production.*

PUBLICATIONS AND REPORTS

Hausman, E.D., K. Takahashi, D. Schlissel and B. Biewald, "The Proposed Broadwater LNG Import Terminal: An Analysis and Assessment of Alternatives" Synapse Energy report on behalf of the Connecticut Fund for the Environment and Save The Sound, March 2, 2006.

Hausman, E.D., P. Peterson, D. White and B. Biewald, "RPM 2006: Windfall Profits for Existing Base Load Units in PJM: An Update of Two Case Studies" Synapse Energy report

prepared on behalf of Pennsylvania Office of Consumer Advocate and the Illinois Citizens Utility Board, February, 2006.

Hausman, E.D., K. Takahashi, and B. Biewald, “The Glebe Mountain Wind Energy Project: Assessment of Project Benefits for Vermont and the New England Region” Report prepared on behalf of Glebe Mountain Wind Energy, LLC., February, 2006.

Hausman, E.D., K. Takahashi, and B. Biewald, “The Deerfield Wind Project: Assessment of the Need for Power and the Economic and Environmental Attributes of the Project” Report prepared on behalf of Deerfield Wind, LLC., January, 2006.

Hausman, E.D., P. Peterson, D. White and B. Biewald, “An RPM Case Study: Higher Costs for Consumers, Windfall Profits for Exelon” Synapse Energy report to the Illinois Citizens Utility Board, October, 2005.

Hausman, E.D. and G. Keith, “Calculating Displaced Emissions from Energy Efficiency and Renewable Energy Initiatives” Content for EPA website, 2005 (in prep.)

Rudkevich, A., E.D. Hausman, R.D. Tabors, J. Bagnal and C. Kopel, “Loss Hedging Rights: A Final Piece in the LMP Puzzle” *Hawaii International Conference on System Sciences, Hawaii*, January, 2005 (*accepted*).

Hausman, E.D. and R.D. Tabors, “The Role of Demand Underscheduling in the California Energy Crisis” *Hawaii International Conference on System Sciences, Hawaii*, January, 2004.

Hausman, E.D. and M.B. McElroy, The reorganization of the global carbon cycle at the last glacial termination, *Global Biogeochemical Cycles*, 13(2), 371-381, 1999.

Norton, F.L., E.D. Hausman and M.B. McElroy, “Hydrospheric transports, the oxygen isotope record, and tropical sea surface temperatures during the last glacial maximum” *Paleoceanography*, 12, 15-22, 1997.

Hausman, E.D. and M.B. McElroy, “Variations in the oceanic carbon cycle over glacial transitions: a time-dependent box model simulation” presented at the spring meeting of the American Geophysical Union, San Francisco, 1996.

PRESENTATIONS AND WORKSHOPS

Energy Modeling Forum: Participant in coordinated academic exercise focused on modeling US and world natural gas markets, December, 2004.

Massachusetts Institute of Technology (MIT): Guest lecturer in Technology and Policy Program on electricity market structure, the LMP pricing system and risk hedging with FTRs, 2002-2005.

LMP: The Ultimate Hands-On Seminar. Two-day seminar held at various sites to explore concepts of LMP pricing and congestion risk hedging, including lecture and market simulation exercises, July-December, 2003.

Learning to Live with Locational Marginal Pricing: Fundamentals and Hands-On Simulation. Day-long seminar including on-line mock electricity market and congestion rights auction, December 2002.

LMP in California. Series of seminars on the introduction of LMP in the California electricity market, including on-line market simulation exercise. 2002.

EXPERT TESTIMONY

Illinois Pollution Control Board (Docket No. R2006-025) – April 2006

Profile testimony on behalf of the Illinois EPA regarding the costs and benefits of proposed mercury emissions rule for Illinois power plants.

Federal Energy Regulatory Commission (Docket Nos. ER055-1410-000 and EL05-148-000) - February 2006

Affidavit filed on setting of model parameters for PJM's proposed RPM capacity market model.

State of Vermont Public Service Board – February 2006

Profile testimony in support of Certificate of Public Good pursuant to 30 V.S.A. §248 for proposed Catamount Wind Project.

State of Vermont Public Service Board – February 2006

Profile testimony in support of Certificate of Public Good pursuant to 30 V.S.A. §248 for proposed Deerfield Wind Project.

Long Island Sound LNG Task Force – January 2006

Presentation of study on the need for and alternatives to the proposed Broadwater LNG storage and regasification facility in Long Island Sound.

Iowa Utilities Board (Docket No. SPU-05-15) – November 2005

Whether Interstate Power and Light's should be permitted to sell the Duane Arnold Energy Center nuclear facility to FPLE Duane Arnold, Inc., a subsidiary of Florida Power and Light.