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EMPLOYMENT

Synapse Energy Economics Inc., Cambridge, MA. *Senior Consultant*, 2007 - present.
Analysis and consulting on energy policy, climate change, renewable energy, energy efficiency, consumer advocacy, environmental compliance and technology and business strategy within the energy industry.

Independent research, analysis, and consulting, 2002 – present.
Energy work includes efficiency studies, rate design, performance-based ratemaking, renewable energy, technology assessment, cost benefit analysis, design and evaluation of demand-side load response and efficiency programs, and policy analysis.

Tellus Institute for Resource and Environmental Strategies, *Co-founder, Vice President, and Director*, 1977-2002.
Energy consulting on myriad topics. Led Industrial Eco-Efficiency (E2) Initiative to promote integrated assessment of pollution prevention and energy efficiency. The Initiative created software for financial analysis of projects within firms, and the *E2 Financing Directory*, a U.S. EPA data base of resources for New England businesses seeking financing for E2 projects.

State University of New York at Albany, Allen Center and Graduate School of Public Affairs, *Associate Professor*, 1974-1978

Rensselaer Polytechnic Institute, Department of History and Political Science, *Assistant Professor*, 1973-1974.

Department of Environmental Conservation, Albany, New York, *New York Civil Service Public Administration Intern*, 1973.

EDUCATION

Clark University, (A.B.)

University of Chicago

Massachusetts Institute of Technology, (Ph.D.)

EXPERT TESTIMONY*

Rate Design & Cost Allocation

Before:

Nevada Public Service Commission, docket 94-7001 (1995)
New Jersey Board of Public Utilities, docket ER02080506 (2003)
New York Public Service Commission, case 91-E-1185 (1991)
Ontario Energy Board, H.R. 24 submission (1996)
Rhode Island Public Utilities Commission, docket 2036 (1992)
Utah Public Service Commission, docket 02-057-02 (2002).

Energy Efficiency & Renewable Energy

Before:

Colorado Public Utilities Commission, dockets 99A-377EG (1999), 00A-008E (2000)
Delaware Public Service Commission, docket 94-83 (1995)
Maine Public Utilities Commission, docket 91-213 (1992)
New Jersey Board of Public Utilities, dockets EX04040276 (2004), GR01040280 (2001),
EX99050347 (2000 and 1999), EE98060402 (1998), EX94120585U (1998), ER97020101 (1997)
North Carolina Utilities Commission, docket E-100 (1990)
Ohio Public Utilities Commission, cases 91-700-EL-FOR (1993), 92-708-EL-FOR (1992)
Ontario Energy Board, EBROs 497 (1998), 495 (1997), 487 (1994)
Utah Public Service Commission, docket 01-035-01 (2001)
Vermont Public Service Board, docket 5330 (1990)
Wisconsin Public Service Commission, dockets 05-CE-117 (2002), AP7 (1995)

*Testimony listed here was defended before agencies noted. Testimony that was filed but not heard is listed in the next section. List of testimony prior to 1990 available upon request

PUBLICATIONS, PAPERS & REPORTS

- 2007: **Independent Administration of Energy Efficiency Programs: A Model for North Carolina.** A Synapse Energy Economics report to Clean Water for North Carolina. Senior author.
- 2005: **New Jersey's Proposed Renewable Portfolio Standards Rule: Analysis and Recommendations.** Report to: New Jersey Division of the Ratepayer Advocate.
- 2005: **Emerging Technologies for a Second Generation of Gas Demand-Side Management.** Draft report to: Enbridge Gas Distribution Inc. and Union Gas Ltd. Senior author.
- 2004: **Policy & Program Actions: Buildings & Facilities.** For the Stakeholders of the Rhode Island Greenhouse Gas (GHG) Process to develop the RI Climate Change Action Plan.
- 2002: **Final Report on Energy Efficiency and Renewable Energy.** Report of the Air Pollution Prevention Forum to the Western Regional Air Partnership.
- Development Of Options: Scoping Paper.** For the Working Group on Buildings & Facilities of the Rhode Island GHG Process. Senior author.
- Testimony of David Nichols, New Jersey Board of Public Utilities.** Pre-filed testimony on demand-side management cost recovery in a Public Service Electric & Gas Company matter that was settled. Prepared for the Division of the Ratepayer Advocate. Tellus Institute Study 01-109.
- 2001: **"Load Response: New, or Déjà Vu?"** in *Electricity Journal*, vol. 14, no. 4, May. Co-author.
- An Economic Analysis of Achievable New Demand-Side Management Opportunities in Utah.** Prepared for the System Benefits Charge Stakeholder Advisory Group to the Utah Public Service Commission. Tellus Study 00-076. Principal author.
- "The Role of Regulators in Promoting Energy Efficiency and Renewable Technologies,"** in *Pace Environmental Law Review*, vol. 18, no. 2.
- 2000: **Measuring Results from Climate Change Programs: Performance Indicators for GEF.** Global Environmental Facility Monitoring and Evaluation Working Paper 4. Co-author.
- Institutional and Governance Issues V.1: Planning Approaches.** A Thematic Review published by the World Commission on Dams. Principal author.

Best Practices Guide: Integrated Resource Planning for Electricity. US Agency for International Development and the Institute of International Education, Washington, D.C. Co-author.

Paper, “What’s A Policy Maker To Do?” Western Regional Air Partnership Air Pollution Prevention Forum, Scoping of Energy Efficiency. San Francisco, May.

Paper, “State Renewable Energy Policies.” Spring 2000 Conference of the National Pollution Prevention Roundtable.

Reducing Peak Demands Through Customer-Side Initiatives. Report to Citizens Utility Board, Chicago. Tellus Study 00-061. Senior author.

1999: **Regulatory Incentives for Demand-Side Management.** Report to the West Kootenay Power Company Demand-Side Management Committee. Tellus Study 98-211.

Funding for Energy-Related Public Benefits: Needs and Opportunities With and Without Restructuring. Report to the Colorado Governor’s Office of Energy Management and Conservation. Senior Author. Tellus Study 98-002.

Support for Energy-Related Public Benefits: Funding Approaches and Related Options. Report to the American Council for an Energy-Efficient Economy. Tellus Study 99-017. Senior author.

Development of Climate Change Program Performance Indicators. Report to the Global Environmental Facility. Senior author. Tellus Study 98-222.

Paper, “Environmental Benefits of Low-Income Weatherization,” in Evaluation in Transition: Working in a Competitive Energy Industry Environment. Proceedings of 1999 International Energy Program Evaluation Conference, pp. 427-434. Co-author.

Paper, “Auditing Performance in a ‘Standard Offer’ Efficiency Program,” in Evaluation in Transition. Proceedings of the 1999 International Energy Program Evaluation Conference, pp. 649-656. Co-author.

1998: **Incentive Rate Regulation and Integrated Resource Planning.** Pre-filed testimony on behalf of the Regroupement national des Conseils régionaux de l’environnement du Québec. Co-author.

Incentives for DSM Performance. Pre-filed testimony on behalf of Enbridge Consumers Gas; Ontario Energy Board EBRO 497-01, Exhibit C, Appendix D.

Energy Efficiency in Colorado: Progress and Potential. Report to the Governor’s Office of Energy Conservation and Management. Tellus Study 98-002/C1.

Gas Energy Efficiency Technologies: Cost-Effectiveness Screening. Report to the Massachusetts Division of Energy Resources. Tellus Study 96-180/C. Senior author.

Institutional Conservation Program Process Evaluation Report. Report to the Ohio Department of Development, Office of Energy Efficiency. Tellus Study 95-247. Co-author.

Home Weatherization Assistance Program Process Evaluation. Report to the Ohio Office of Energy Efficiency. Tellus Study 95-247/PE. Co-author.

Home Weatherization Assistance Program Environmental Impact Analysis. Report to the Ohio Office of Energy Efficiency. Tellus Study 95-247/EN. Co-author.

Home Weatherization Assistance Program in Ohio: Economic Impact Evaluation. Report to the Ohio Office of Energy Efficiency. Tellus Study 95-247/EC. Co-author.

Costs and Benefits of the Consumers Gas Company's Natural Gas Vehicle Program. Study Tellus 98-001E. Co-author.

High Efficiency Boilers: Economic and Achievable Potential. Report to the Consumers Gas Company of Ontario, Ltd. Tellus Study 98-001C/8. Co-author.

1997: **Sustainable Electricity for New England: Regulatory and Other Governmental Tools to Support Environmentally Sustainable Technologies in the Context of Electric Industry Restructuring.** The R/EST Project. Report to the New England Governors' Conference. Tellus Study 95-310. Co-author.

Paper, "Industrial Eco-Efficiency and Total Cost Assessment." Association of Energy Services Professionals Conference, Boca Raton, Florida, December.

1996: **Article, "Gas Utility Portfolio of Market-Oriented DSM,"** in *Strategies*, vol. 7, no. 3.

Market-Oriented Demand-Side Management: An Assessment of Consumers Gas Demand-Side Management After Two Years. Tellus Study 96-001.

Action Plan. Report to the Technology Group, Massachusetts Industrial Services Program. Tellus Study 95-222. Project Manager.

Gasco Proposed Demand-Side Management Plan. Report to The Gas Company of Hawaii. Tellus Study 93-271. Co-author.

1995: **Testimony of David Nichols, N.J. Board of Public Utilities.** Pre-filed testimony on

demand-side management issues in a Public Service Electric & Gas Co. matter that was settled. Prepared for the Division of the Ratepayer Advocate. Tellus Study 95-101.

Industrial Demand-Side Management in a Transitional Era. Report to Wisconsin's Environmental Decade. Tellus Study 94-146. Principal investigator.

Testimony of David Nichols, Nevada Public Service Commission. Pre-filed testimony on DSM issues in a Nevada Power Company matter that was settled. Prepared for the Office of Consumer Advocate. Tellus Study 94-193C/T-2.

Paper, "Bidding for Interruptibility," in *Fourth International Energy Efficiency and DSM Conference*. Bala Cynwyd, PA: SRC International, pp. 539-544.

Paper, "Industrial Demand-Side Management in Transition," in *Partnerships, Productivity, and the Environment*, Proceedings of the ACEEE 1995 Summer Study on Energy Efficiency in Industry, Volume II, pp. 197-208.

1994: **Evaluation of Pacific Gas & Electric Company's Interruptible Bidding Program.** Report to the Advisory and Compliance Division, California Public Utilities Commission. Tellus Study 93-136. Project Manager.

Report to the Staff of the Arkansas Public Service Commission Concerning SWEPCO's Proposed Promotional Practices. Tellus Study 92-153C. Co-author.

Reviews of Metropolitan Edison Co., Pennsylvania Power & Light Co. and Pennsylvania Electric Company 1995 Demand Side Management Filing. Prepared for the Pennsylvania Office of Consumer Advocate. Tellus Study 94-071. Co-author.

Review of Union Electric Company's Electric Utility Resource Planning Compliance Filings. Prepared for the Missouri Office of Public Counsel. Tellus Study 93-254. Co-author.

1993: **Advertising Costs in Demand-Side Management Programs.** Report to Corporation Commission Staff, Phoenix, Arizona. Tellus Study 93-103. Principal investigator.

Economic Opportunities Through Energy Efficiency and the Energy Policy Act of 1992. Jefferson City: Environmental Improvement and Energy Resources Authority. Report to the Missouri legislature pursuant to House Concurrent Resolution 16. Co-author.

Integrated Resource Planning Concepts and Approaches. Report to Hydro-Québec and the Public Interest Groups and Associations. Tellus Study 92-155. Co-author.

Proposed Rules Governing Integrated Resource Planning for Electric and Natural Gas Utilities Regulated by the State of Kansas. Tellus Study 92-105. Co-author.

Gasco Integrated Resource Plan Report. Before the Public Utilities Commission of Hawaii, docket No. 7261. Prepared for The Gas Company of Hawaii. Tellus Study 92-181. Co-author.

1992: **Evaluation of Public Service Electric & Gas Demand-Side Management Resource Plans,** docket no. EX-90040304. Report to the New Jersey Rate Counsel Division, Department of Public Advocate. Tellus Study 92-055. Principal investigator.

Evaluation of Atlantic Electric DSM Resource Plan, docket no. EX90040304. Report to the N.J. Rate Counsel. Tellus Study 92-055B. Principal investigator.

Paper, “Bidding for Performance: The Large Commercial Gas Conservation Program at Wisconsin Gas Company,” in *Implementation of Demand-Side Management*, Proceedings of the National DSM Implementation Conference, pp. 84-90. Bala Cynwyd, PA: Synergic Resources Corporation, 1992. Principal author.

1991: **Paper, “Gas Substitution in Electric Utility DSM,”** in *Proceedings: 5th National Demand-Side Management Conference*. Palo Alto, CA: Electric Power Research Institute, Report EPRI CU-7394, pp. 231-234.

Comments of Pennsylvania Office of Consumer Advocate on the Pennsylvania Power and Light Company Demand-Side Management 1991 Plan. Tellus Study 90-201D. Principal investigator.

Improved Energy Efficiency Through Building Standards: An Opportunity for Long Island. Report to Long Island Power Authority. Tellus Study 90-028/BC. Co-author.

Long Island Power Authority Comments on the LILCO 1991-92 and 1990 Long Range Electric Conservation & Load Management Plan. Tellus Study 90-028. Principal investigator.

1990: **Conservation and Capacity Optimization Alternatives to the PGT/PG&E Gas Pipeline Project.** Report to the California Public Utilities Commission. Tellus Study 90-003. Co-author.

Savings from the Smart Money Program: An Audit of the 125 MegaWatt Demand Reduction. Report to Wisconsin Electric Power Company and the Wisconsin Public Service Commission. Tellus Study 89-127. Principal investigator.

Paper, “Tracking Results in Demand-Side Management Programs,” in *Demand-Side Management Conference*. Toronto: Canadian Electrical Association, pp. 344-356.

Paper, “Tracking Activity and Results in DSM Programs,” in *Proceedings, ACEEE 1990 Summer Study on Energy Efficiency in Buildings*, pp. 6.109-6.118. Principal author.

Article, “The Conservation Utility: A New Institutional Approach,” in UNEP’s *Industry and Environment Review*, Vol. 13, No. 2. Co-author.

List of publications & papers prior to 1990 available upon request.

OTHER PROFESSIONAL ACTIVITY

- 2007 Consultant to Nova Scotia Utility and Review Board for Nova Scotia Power’s electric integrated resource planning process.
- 2001-2007 Technical consultant to the Rhode Island Department of Environmental Management for the state’s greenhouse gas process and *Climate Change Action Plan*.
- 1996-2007 Consultant to the New Jersey Division of Rate Counsel for:
- New Jersey Clean Energy Council;
 - New Jersey Energy Master Plan;
 - Governor’s Renewable Energy Task Force;
 - comments on draft electricity & gas restructuring legislation;
 - advice to Consumer Protection Task Force (restructuring issues);
 - evaluation of off-tariff rate agreements; and
 - evaluation of gas and electric utilities’ DSM cost recovery.
- 1994-99;
2004-5 Consultant to Enbridge Gas Distribution Inc. (Ontario) for development and implementation of natural gas demand-side energy efficiency plans and programs.
- 2004-5 Consultant to Enbridge Gas - New Brunswick for development of an electric demand-side energy efficiency system for New Brunswick.
- 2002-3 Consultant to the Western Regional Air Partnership for the Air Pollution Prevention Forum’s *Final Report on Energy Efficiency and Renewable Energy* and supporting technical analyses.
- 2002 Presentation to National Association of Energy Service Companies, Mid-Year Conference, Chicago.
- 2002 Lead instructor, U.S. Agency for International Development (USAID) training

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- courses in Electric Resource Planning and Demand-Side Management. Bangalore and Jaipur, India.
- 2002 Instructor, USAID training course in Integrated Resource Planning. Jakarta, Indonesia.
- 1999 Lead instructor, USAID training course in Electric Resource Planning at Tellus Institute, Boston.
- 1998 Presentation to the Advisory Committee on Resource Planning of the Québec Energy Board, Montreal.
- 1998 Panelist, Pollution Prevention & Energy Efficiency Training Session, Pollution Prevention Roundtable Conference, Cincinnati.
- 1996 Consultant to the Kentucky Attorney General—technical assistance on utility cost recovery for demand side management programs.
- 1995-1998 Consultant to Massachusetts Division of Energy Resources for development of policy, program and cost-effectiveness frameworks for gas utility demand-side management.
- 1995 Consultant to Nevada Office of Advocate for Customers of Public Utilities for assessment of Sierra Pacific Power integrated resource plan, docket 95-5001.
- 1994-98 Consultant to The Gas Company of Hawaii for development of DSM programs.
- 1992-95 Technical agent to the commissioners, District of Columbia Public Service Commission, Formal Case No. 917, phases I and II.
- 1993-4 Consultant to the Staff of the Arkansas Public Service Commission for review of the integrated resource plans of three electric utilities.
- 1993 Technical agent to the commissioners, D.C. Public Service Commission, Formal Case No. 929.
- 1992-93 Consultant to Ohio Office of Consumers' Counsel for training of staff and assessment of utility integrated resource plans.
- 1990-93 Consultant to Long Island Power Authority for implementation of conservation programs and participation in New York PSC cases 28223, 91-E-0382, and 92-E-0291.
- 1992 Consultant to Minnesota Office of Attorney General for assessment of Northern States Power integrated resource plan, docket E-002/RP-91-682.

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- 1990-91 Consultant to Connecticut Municipal Electric Energy Co-operative. Commercial customer surveys, end-use data base development, and DSM option screening.
- 1990 Presenter, “Evaluating Residential Conservation Programs,” at “Affordable Comfort IV” Conference, Philadelphia.
- 1990 Consultant to Wisconsin Gas Company: preparation and implementation of gas DSM bid.
- 1988-90 Independent representative on three-party panel administering Madison (Wisconsin) Gas & Electric Company conservation competition pilot program.

Other professional activity prior to 1990 available upon request.