

Exhibit 2

May 1999

MICHAEL F. SHEEHAN

Address: 33126 Callahan Road
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Born: January 1, 1946
Brooklyn, New York

Marital Status: Married, two children

Education: J.D. (With Distinction) College of Law, University of Iowa,
May 1987.
Ph.D. (Economics) University of California at Riverside,
June 1979
Master of Arts (Economics)
University of California at Riverside, June 1973
Bachelor of Science (Economics, Magna Cum Laude)
University of California at Riverside, June 1972

Professional Licenses: Admitted to the Iowa Bar (June 1987).
Admitted to the Bar of the U.S. District Court for the
Northern District of Iowa (July 1987).
Admitted to the Oregon Bar (April 1988).
Admitted to the Bar of the U.S. District Court for the District
of Oregon (April 1990).
Admitted to the Bar of the Ninth Circuit Court of Appeals
(February 1992).

Academic References: Professor Peter Fisher
Graduate Program in Urban and Regional Planning, The
University of Iowa, Iowa City, Iowa 52242.
Professor Greg Hayden, Department of
Economics, University of Nebraska, Lincoln,
Nebraska 68510.

Professor K.C. Kogiku
Tsu 602-40 Tsu
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Professor Barney Hope
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California State University
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Prof. Harry Trebing
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Olds Hall, Rm. 113
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Department of Economics
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Professor Richard Moss, Department of Economics,
California State College, San Bernardino, California 92407.

Teaching Fields:

Public Utility Economics and Planning
State & Local Economic Development
Natural Resources and Environmental
Economics
Operations Research (Quantitative
Economics)
Law and Economics

**Research Interests
and Expertise:**

Public Utilities
State & Local Economic Development
Analysis of Risk and Environmental Safety
Law and Economics

Languages:

Spanish

Articles in Academic Journals:

"The Problem of Mass Evictions in Mobile Home Parks Subject to Conversion." 8 *Journal of Affordable Housing & Community Development Law* 231 Spring 1999.

"Why Ramsey Pricing is Wrong: The Case of Telecommunications Regulation: A Response to Harkenrider." *Journal of Economic Issues* (December 1993).

"Mobile Home Rent Control: Designing Local Regulations." *Land Use Law* 3 (November 1992) (With Roger Colton).

"Ramsey Pricing Without Cross-Subsidization? A Response to Professor Becker." *Journal of Economic Issues* (December 1991).

"Monopoly, the Holding Company, and Asset Stripping: The Case of Yellow Pages." *Journal of Economic Issues*, (March 1992). (Equal authors with Evan White).

"A Clarification of the Concept of 'Instrumental Valuation' in Neoinstitutional Economics." *Journal of Economic Issues* (March 1992). (Second author with Rick Tilman).

"Why Ramsey Pricing is Wrong: The Case of Telecommunications Regulation." *Journal of Economic Issues* (March 1991).

"Raising Local Government Revenues Through Utility Franchise Charges: If the Fee Fits Foot It". 21 *Urban Lawyer* 55 (Winter 1989). (With Roger Colton).

"Institutionalists Before Regulatory Commissions: The Value of Doing in Thinking, Teaching, and Writing" *Journal of Economic Issues*, December 1988.

"Corporate Control and the Decapitalization of Subsidiary Corporations: The Looting of the Bangor and Aroostook Railroad." *Journal of Economic Issues*, September 1988.

"A New Basis for Conservation Programs for the Poor: Expanding the Concept of 'Avoided Costs,'" *National Clearinghouse Review*. June 1987 (with Roger Colton).

"Seven-Cum-Eleven: Rolling the Toxic Dice in the U.S. Supreme Court," *Boston College Environmental Affairs Law Review*. V. 14, #3 (1987) (with Roger Colton and Kathleen Uehling).

"Regulatory Control of Natural Gas Procurement Practices in Illinois: Permissible Regulation or Preempted Activity?" 35 *DePaul Law Review* 317 (1986)(with Roger Colton). Reprinted in *Public Utility Law Anthology* v. IX (1986).

"Plant Closings and the Community: The Instrumental Value of Public Enterprise," *American Journal of Economics and Sociology*, V. 44, #4, October 1985.

"Institutional Development of Water Supply in California: The Miller-Lux Water Monopoly Controversy," *Social Science Journal*, V. 22, No. 1, January, 1985 (with Barney Hope, equal authors).

"The Political Economy of Centralized Water Supply in California," *Social Science Journal*, V. 20, #2, April 1983 (with Barney Hope, equal authors).

"Land Speculation in Southern California: The Roles of Railroads, Trolley Lines and Automobiles," *The American Journal of Economics and Sociology*, V. 41, #2, April 1982.

"Land Speculation in Southern California: Energy Monopoly, Fiscal Crisis and the Future," *The American Journal of Economics and Sociology*, V. 42, No. 1, January, 1983.

"The Importance of the Burden of Proof in Environmental Regulation," *The Environmental Professional*, V. 4, 1982.

"Possibilities for Local Public and Cooperative Ownership of Short Line Railroads," *Transportation Research Record*, 802 (1981), (with Peter Fisher).

"Game Theory Analyses Applied to Water Resource Problems," *Socio-Economic Planning Sciences*, V. 15, #3, (1981), (Sheehan, Kogiku). Reprinted in Kiichiro Kogiku, ed., *Resource Allocation Models: Essays on the Management of Resources and the Environment*, Tokyo (Aoyama Gakuin University Press) 1990.

"Policy Problems Associated with Waterborne Asbestos," *The Water Resources Bulletin*, April 1981, V. 17, #2.

"Reply to Discussion of 'Policy Problems Associated With Waterborne Asbestos,'" *The Water Resources Bulletin*, February 1983, V.19, #1. ("Discussion" by Michael Edson and Wm. Thompson in the same issue).

"Coordinating Public Utility Expansion, Industrial Siting and Pollution Control: A Workable Dynamic Programming Algorithm," *Socio-Economic Planning Sciences*, April 1977, V. 11, (Sheehan, Kogiku). Reprinted in Kiichiro Kogiku, ed., *Resource Allocation Models: Essays on the Management of Resources and the Environment*, Tokyo (Aoyama Gakuin University Press) 1990.

Articles in Trade Publications:

Employment and Jobs: The Employment Impact of Federal Environmental Investments National Commission for Employment Policy; Washington D.C. April 1995 (Research Report 95-02). With Skip Laitner and Marshall Goldberg.

"Utility Franchise Charges and the Rental of City Property," in *New Jersey Municipalities* December 1995, p.10ff.

"Cash for Clunkers Program Can Hurt the Poor." *State Legislatures* 33 (May 1993) (with Roger Colton).

Books:

On the Brink of Disaster: A State by State Analysis of Low-Income Natural Gas Heating Bills (Flying Pencil Publications: Scappoose, OR 1994) (With Roger Colton).

Articles in Books:

"Raising Local Government Revenues Through Utility Franchise Charges: If the Fee Fits Foot It," Reprinted in Freilich and Bushek, eds., *Exactions, Impact Fees and Dedications: Shaping Land-Use Development and Funding Infrastructure in the Dolan Era*, ABA, Chicago, 1995; p.233ff (With Roger Colton).

"Whose Goals and Whole Alternatives? How Bad Can a Private Goal Be and Still Define the EIS Under NEPA?," Presented to the National Park & Public Land Symposium, to be reprinted. (On the New World Mine proposal) 1995.

"Law and Economic Policy: The Institutionalist Contribution." In Warren Samuels ed., *Handbook of Evolutionary and Institutional Economics* (M.E. Sharpe, forthcoming).

"The Allocation of Wildfire Control Investments." (With Kiichiro Kogiku, equal authors) chapter 3 in Kiichiro Kogiku, ed., *Resource Allocation Models: Essays on the Management of Resources and the Environment*, Tokyo (Aoyama Gakuin University Press) 1990.

"A System Simulation Analysis of New Strategies for Long-run Cost Minimization in Wildfire Control." (With Kiichiro Kogiku, equal authors) chapter 4 in Kiichiro Kogiku, ed., *Resource Allocation Models: Essays on the Management of Resources and the Environment*, Tokyo (Aoyama Gakuin University Press) 1990.

"An Application of Multi-criteria Decision-making to Multiple Use Planning in U.S. Forests." (With Kiichiro Kogiku, equal authors) chapter 5 in Kiichiro Kogiku, ed., *Resource Allocation Models: Essays on the Management of Resources and the Environment*, Tokyo (Aoyama Gakuin University Press) 1990.

"An Analysis of Davenport City Finances." Appendix 6B (p. 181-191) in G. Daniels & K. Gagala, *Labor Guide to Negotiating Wages and Benefits*, Reston (Prentice-Hall), 1985 (with Peter Fisher).

"The Struggle Between the Electric Utility Industry and Small Scale Power Producers: Law, Politics and Economics in State and Federal Policymaking." Chapter 6 in Max Neiman and Barbara Burt, eds. *The Social Constraints on Energy Policy Implementation*, Lexington, D.C. Heath & Co. 1983.

"Economism, Democracy, and Hazardous Wastes: Some Policy Considerations" in Kamieniecki, O'Brien and Clarke, *Controversies in Environmental Policy*, Albany, SUNY Press, 1986.

"Nonrenewable Resources and the Development of Arid Lands: A Planning Approach," in *Alternative Strategies for Desert Development and Management*, UNITAR, Pergamon Press, 1979 (Adam Rose, Michael Sheehan, Dale Hurd).

**Professional
Administration:**

Member, Board of Directors, Association for Evolutionary Economics 1999-

Managing Partner, Osterberg and Sheehan,
Public Utility Economists, Iowa City.

Past Member, Research Advisory Committee, National
Regulatory Research Institute.

Past Member, Board of Editors, *Journal of Economic Issues*

Editor, *Reports on the Iowa Economy*.

Past-President, Association for Institutional Thought (AFIT)
(1988-9).

**Professional & Legal
References:**

Matthew Glasson Esq., Glasson, Grove and Sole, Cedar
Rapids, Iowa.

Ellen Johnson, Oregon Legal Services,
Hillsboro, Oregon.

David Girard, Columbia Legal Services,
Seattle.

Michael Mullett, General Counsel, Citizens Action Coalition,
Indianapolis, IN.

Mark Smith, Secretary-Treasurer, Iowa State Federation of
Labor, Des Moines, Iowa.

Diane Curran, Harmon, Curran, Gallagher & Spielberg
2001 "S" Street Suite 430, Washington, D.C. 20009-1125

**Utility-Related
Law Practice**

Ameritech Petition to the Indiana Utility Regulatory
Commission for Further Deregulation. Cause 40849. 1997-
8. Representing Citizen Action Coalition of Indiana, AARP
and United Seniors in Action.

*Petition of CAC et al for an Investigation into the Rates and
Charges of Ameritech Indiana.* Cause 41058. Representing
Citizen Action Coalition of Indiana, AARP and United
Seniors in Action. November 1997.

Indiana Bell Telephone dba Ameritech Indiana v. IURC et al
(Before the Indiana Court of Appeals). February 1998.
Representing Citizen Action Coalition of Indiana, AARP and
United Seniors in Action.

*Indiana Utility Regulatory Commission Investigation into All
Matters Relating to Access Charge and Universal Service
Reform.* Cause 40785. 1997-8. Representing Citizen Action
Coalition of Indiana, AARP and United Seniors in Action.

*In the Matter of the Application of U.S. West for an Increase
in Revenues* Docket UT 125 (Rate design) Before the
Oregon Public Utility Commission. 1997-8. Representing
AARP.

*In the Matter of the Petition of US West for a Ruling
Clarifying the Effect of Rate Reductions on Refund
Obligations* Docket UT 143 Before the Oregon Public
Utilities Commission. Representing AARP. 1997-8.

*US West Communications, Inc. v. Oregon Public Utilities
Commission,* CA A101358, Before the Oregon Court of
Appeals. Representing the Citizens Utility Board of Oregon
and AARP. August 1998.

**Practice Before
Courts (Economics):**

Shiprack v. Keisling, Secretary of State of the State of Oregon
No. 98C-17750 Review of statistical sampling methodology
for signature count to qualify initiatives. Fall 1998.

Aspenwall et al v. Parker NW Paving, Circuit Court for the
County of Multnomah. Calculation of gross value of sand
and gravel deposits. 1998.

Croctic v. Golden Pacific Homes, Multnomah County Circuit
Court Action. Consumer Fraud. Before an arbitrator.
Calculation of present value of damages. May 1998.

Green v. Sunpointe Associates, Civil Action No. C96-1542C
(U.S. Dist. Ct. Western District of Washington). Fair
Housing Act Class Action. Calculation of damages. 1997.

Garneau v. City of Seattle, Federal District Court. "Seattle's
Low-Income Tenant: Relocation Assistance Ordinance: A
Review of Professor Heyne's Economic Analysis." On behalf
of Evergreen Legal Services and the City of Seattle in
defense of the TRAO. January 1995.

Pacific Northwest Bell v. Eachus et. al.
(OPUC), Multnomah County Circuit Court.
Affidavits & testimony in support of CUB's resistance to (1)
Bell's request for a stay of a commission rate reduction order,
and (2) Bell's request for a protective order. On behalf of
Oregon Citizens' Utility Board. (Spring 1990).

Azul Pacifico v. City of Los Angeles. Federal District Court
for the Central District of California. Witness statement (33
pages) and oral testimony on the economics of mobilehome
rent control. On behalf of the City of Los Angeles. (January
1990).

IN RE: John & Reta Martin: Chapter 12
Bankruptcy. "Materials in Support of an Analysis of the
Appropriate Interest Rate Under 11 USC Section 1225(a)(5);"
and "Moody's Corporate Bond Composite: An Analysis in
Light of 11 USC 1129(b)." Fixed interest rate determination
in support of plan confirmation. Written reports. April
1987. Bankruptcy Court (ND, Iowa).

IN RE: De Los and Donna Martins: "Materials in Support of an Analysis of the Appropriate Interest Rate Under 11 USC Section 1129(b)(2)." Fixed interest rate determination in support of cramdown. Written report. April 1987. Bankruptcy Court (ND, Iowa).

IN RE: Paul and Gretchen Pothoven: "Materials in Support of an Analysis of the Appropriate Interest Rate Under 11 USC Section 1129(b)(2)." Fixed interest rate determination in support of cramdown. Written report plus testimony. April 1987. Bankruptcy Court (SD, Iowa).

"An Economic Analysis of Rules Adopting 6 Percent and \$6000 Limits on Excludable Assets Essential for Self-Support in Determining Medicaid Eligibility." A report (affidavit) prepared for Legal Services Organization of Indiana. February 1987.

IN RE: Merlin & Helen Theisen: "Materials in Support of an Analysis of the Appropriate Interest Rate Under 11 USC Section 1129(b)(2)." Fixed interest rate determination in support of cramdown. Written report. February 1987. Bankruptcy Court (ND, Iowa).

IN RE: L.C. & Gladys Cole: Chapter 11 Bankruptcy. "Materials in Support of an Analysis of the Appropriate Interest Rate Under 11 USC Section 1129(b)(2)." Fixed interest rate determination in support of cramdown. Written report plus testimony. February 1987. Bankruptcy Court (ND, Iowa).

IN RE: Donald & Sharalee Kurtenbach: Chapter 11 Bankruptcy. "Materials in Support of an Analysis of the Appropriate Interest Rate Under 11 USC Section 1129(b)(2)." Fixed interest rate determination in support of cramdown. Written report in lieu of testimony. February 1987. Bankruptcy Court (ND, Iowa).

IN RE: Manta C. Noe and John & Carol Noe: Chapter 11 Bankruptcy. "Materials in Support of an Analysis of the Appropriate Interest Rate Under 11 USC 1129(b)(2)." Fixed interest rate determination in support of cramdown. Written report plus testimony. February 1987. Bankruptcy Court (ND, Iowa).

IN RE: Leland & Evelyn Eganhouse: Chapter 11 Bankruptcy. "The Use of the Farm Profitability Index to Index Annual Payments Under the Reorganization Plan." Written report. July 1986.

IN RE: Robert & Joann Pestka: Chapter 11 Bankruptcy. "Materials in Support of an Analysis of the Appropriate Interest Rate Under 11 USC Section 1129(b)(2)." Fixed interest rate determination; written report. July 1986.

IN RE: Leland & Evelyn Eganhouse: Chapter 11 Bankruptcy. "Materials in Support of an Analysis of the Appropriate Interest Rate Under 11 USC Section 1129(b)(2)." Fixed interest rate determination; written report. July 1986.

IN RE: Wilbert Wuebker: Chapter 11 Bankruptcy. "Materials in Support of an Analysis of the Appropriate Interest Rate Under 11 USC Section 1129(b)(2)." Fixed interest rate determination; written report. May 1986.

The Maine Association of Independent Neighborhoods, et. al. and Nancy Haggan v. Michael Petit Docket No. 83-0360-B, The U.S. District Court for the District of Maine. "An Economic Analysis of Rules Adopting 6 Percent and \$6000 Limits on Excludable Assets Essential for Self-Support in Determining Medicaid Eligibility." A report prepared for Pine Tree Legal Assistance, Inc. of Augusta, Maine. May 1986. (Favorable Decision: U.S. Dist. Ct. D. Maine, April 23, 1987. Docket No. 85-0174-B).

IN RE: Paul Kaufman: Chapter 11 Bankruptcy. "Materials in Support of an Analysis of the Appropriate Interest Rate Under 11 USC Section 1129(b)(2)." Fixed interest rate determination; written report. April 1986.

IN RE: John & Marie McAllister: Chapter 11 Bankruptcy. "Materials in Support of an Analysis of the Appropriate Interest Rate Under 11 USC Section 1129(b)(2)." Fixed and variable interest rate determinations; written report plus testimony. March 1986.

IN RE: Byron & Connie Greiman: Chapter 11 Bankruptcy. "Materials in Support of an Analysis of the Appropriate Interest Rate Under 11 USC Section 1129(b)(2)." Fixed interest rate determination; written report. March 1986.

IN RE: Cyrus & Annette Hopkins: Chapter 11 Bankruptcy. "Materials in Support of an Analysis of the Appropriate Interest Rate Under 11 USC Section 1129(b)(2)." Fixed interest rate determination; written report plus testimony. March 1986.

IN RE: Daniel & Helen Wolf: Chapter 11 Bankruptcy. "Materials in Support of an Analysis of the Appropriate Interest Rate Under 11 USC Section 1129(b)(2)." Fixed interest rate determination in support of the debtors successful cramdown effort. Written report plus testimony. February 1986.

**Practice Before
Regulatory
Commissions:**

In the Matter of Investigation and Hearing on Possible Reduction in Rates and Charges of Entergy New Orleans, Inc. for Electric and Gas Service in New Orleans Docket No. UD-97-1. Before the New Orleans City Council. May-June 1997. Expert written testimony on the franchise agreement. On behalf of the Alliance for Affordable Energy.

Petition of Northern Indiana Public Service Company for Approval of a Natural Gas Alternative Regulatory Plan. Before the Indiana Utility Regulatory Commission. Expert written testimony on the proposal. On behalf of Citizens Action Coalition of Indiana. February 1997. (Settled).

With Respect to Setting Rates Pursuant to Franchise for the Forest Grove Transfer Station. Before the METRO Council (Portland, Oregon). Preparation of studies and other materials. On behalf of the Metro Staff. 1996-7.

Hydro Resources Inc. Application to Construct and Operate the Crownpoint Uranium Solution Mining Project at Crownpoint, NM, Before the U.S. Nuclear Regulatory Commission. Docket No. 40-8968. 1997. Review of the economics of the proposal (issues related to financial capability, cost benefit analysis and need). On behalf of ENDAUM and the Southwest Research and Information Center.

In Re Indianapolis Power and Light Cause No.39938. Written rebuttal testimony on rate base, rate of return, and estimation of plant value. Before the Indiana Utility Regulatory Commission. On behalf of Citizens Action Coalition of Indiana. June 1995.

In Re Indianapolis Power and Light Cause No.39938. Written testimony on rate base, rate of return, and estimation of plant value. Before the Indiana Utility Regulatory Commission. On behalf of Citizens Action Coalition of Indiana. April 1995.

Petition of PSI Energy, Inc. for Authority to Raise Rates Cause 39584 Written testimony on utility incentive programs. Before the Indiana Utility Regulatory Commission. On behalf of Citizens Action Coalition of Indiana. July 1994.

In Re Kauai Electric Division Docket No. 94-0097. Written testimony on utility rate design, and low-income and conservation programs. Before the Hawaii Public Utility Commission. On behalf of the Legal Aid Society of Hawaii. March 1995.

Economic Development and Incentive Tariffs Rulemaking Supplemental comments on the efficacy and design of economic development tariffs. Before the Public Utility Commission of Texas Project No. 11434. On behalf of the Texas Ratepayers' Organization to Save Energy. January 1994.

**In Re Request for Increased Rates for Denver Water
Comment and Exhibits on Late Payment Fees, Low-
income conservation programs, Rate Design and Rate
Shock. Prepared on behalf of ACORN. January 1994.**

Economic Development and Incentive Tariffs Rulemaking
Prepared comments on the efficacy and design of economic
development tariffs. Before the Public Utility Commission of
Texas Project No. 11434. On behalf of the Texas Ratepayers'
Organization to Save Energy. May 1993.

**In the Matter of the Application of MAUI ELECTRIC
COMPANY, LTD. for Approval of Rate Increases and
Revised Rate Schedules and Rules. Written testimony on
the issues of conservation, low-income rate design, late
payment charges and rate shock. Before the Hawaii Public
Utilities Commission Docket No. 7000 on behalf of Legal
Aid Society of Hawaii. November 1992.**

**Petition of PSI Energy, Inc. for Approval of its Phase
Environmental Compliance Plan... Prepared written
testimony on the utility's proposed incentive plans and
allowance banking proposal. Before the Indiana Utility
Regulatory Commission, Cause No. 39346. On behalf of the
Citizens Action Coalition of Indiana. September 1992.**

**Comments: In the Matter of the Application of Randy
Heller for a Major Partition and Variance in the Rural
Residential-5 Zone. Written comments on zoning issues.
Before the Columbia County, Oregon Board of
Commissioners on behalf of the Scappoose-Spitzenberg
CPAC. May 1991.**

**In the Matter of the Investigation into the Portland
Extended Area Service Region Docket UM-261.
Supplemental written testimony on the issues of rate design
and cross subsidization. Before the Oregon Public Utility
Commission on behalf of the Citizens' Utility Board of
Oregon. February 1991.**

In the Matter of: An Adjustment of Gas and Electric Rates of Louisville Gas and Electric Company. Case No. 90-158. Prepared written testimony on the issues of rate design, cost of service, and residential conservation programs. Before the Kentucky Public Service Commission on behalf of the Attorney General of Kentucky. November 1990.

In the Matter of the Investigation into the Portland Extended Area Service Region. Docket UM-261. Prepared written testimony on the issues of rate design, cost of service, and cross-subsidization. Before the Oregon Public Utility Commission on behalf of the Citizens' Utility Board of Oregon. October 1990.

In the Matter of: Rate Adjustment of the Western Kentucky Gas Company. Case No. 90-013. Prepared written testimony on the issues of rate design, cost of service, and residential conservation programs. Before the Kentucky Public Service Commission on behalf of the Attorney General of Kentucky. May 1990.

In the Matter of: Notice of Adjustment of Rates of Kentucky-American Water Company. Case No. 89-348. Prepared written testimony on the issues of rate design, cost of service, rates charges for public fire hydrants, and residential conservation. Before the Kentucky Public Service Commission on behalf of the Lexington-Fayette Urban County Government and the Office of the Attorney General of Kentucky. March 1990.

In the Matter of the Investigation into the Revenue Requirements and Rate Spread of Pacific Northwest Bell Telephone Company, d/b/a US West Communications, Inc. Docket UT-85. Direct written testimony on telecommunications rate design. Before the Oregon Public Utility Commission on behalf of the Citizen's Utility Board of Oregon. May 1989.

IN RE: City of Sheldon v. Iowa Public Service Company. Docket NO. SPU-88-7. Petition of the City of Sheldon for a certificate to establish a municipal electric utility. Expert written testimony on valuation principles and associated regulatory issues. Before the Iowa Utility Regulatory Board. On behalf of the City of Sheldon. March 1989.

In the Matter of the Investigation of Cost-of-Service Studies and the Rate design of ALASCOM, Inc. Docket U-87-25. Expert written testimony on intrastate toll rate design and issues relating to the provision of telecommunication services for the hearing impaired. Before the Alaska Public Utilities Commission. On behalf of the Alaska Consumer Advocacy Program. February 1989.

IN RE: Docket No. DPU 86-36. Investigation into the Pricing and Ratemaking Treatment to be Afforded New Electric Generating Facilities Which Are Not Qualifying Facilities. Expert written testimony on the regulatory treatment of conservation and demand side management programs. Before the Massachusetts Department of Public Utilities, on behalf of the Hampshire Community Action Commission (National Consumer Law Center). June 1988.

IN RE: Docket No. DPU 87-280. Western Massachusetts Electric Company. Expert written testimony on the cost effectiveness and economic justification of certain demand side management pilot programs. Before the Massachusetts Department of Public Utilities, on behalf of the Hampshire Community Action Commission (National Consumer Law Center) March 1988.

IN RE: Public Service Corporation of Indiana. Cause 37414 (Application to reduce rates). Expert written testimony on the issue of whether PSI's Marble Hill-related financial emergency continued, and whether PSI should be allowed to temporarily reduce rates via certain changes in accumulated tax accounting. Before the Indiana Utility Regulatory Commission, on behalf of the Citizens Action Coalition and the City of Terre Haute. April 1988.

IN RE: Public Service Corporation of Indiana. Cause 37414-S1 (Investigation to determine whether existing rates ought to be reduced). Prepared written testimony on the issue of the financial condition of PSI. Before the Indiana Utility Regulatory Commission on behalf of the Citizens Action Coalition and the City of Terre Haute. April 1988.

IN RE: New York State Electric and Gas Corporation. Cases 29541 and 29542. Expert written testimony on cost allocation and "economic development" rates. Before the Public Service Commission of the State of New York. July 1987. On behalf of the Public Utility Law Project. Albany, New York.

IN RE: Petition of CAC, City of Terre Haute, et al for a Reduction in the Retail Electric Rates of Public Service Company of Indiana. Cause No. 38411 Affidavit dealing with excess earnings. October 1987.

IN RE: Application of IBP, Inc. for a Water Withdrawal Permit for its Proposed Manchester Plant. Draft Water Use Permit No. 14,808. "Comments on the Public Health Impacts of Radium Contamination in the Jordan Aquifer." Before the Iowa State Department of Natural Resources. September 1987. On behalf of a coalition of local farmers and environmentalists.

IN RE: Western Massachusetts Electric Company. Docket No. D.P.U. 86-280. Expert written testimony on the economics of conservation investments targeted to low income and 'bad debt' customer subgroups. Before the Massachusetts Department of Public Utilities. March 1987. On behalf of the Hampshire Community Action Commission (National Consumer Law Center).

IN RE: Iowa Gas Company Request for Increased Rates. Docket No. RPU-85-22. Expert written testimony on rate design, interruptible rates for industrial users, and the allocation of franchise/user fee expenses. Before the Iowa State Commerce Commission. January 1986. On behalf of the City of Des Moines.

IN RE: Proposal to Set Maximum Rates Small Loan Companies Are Allowed to Charge Pursuant to Iowa Code Section 536.13.1(B) and 536.13(2). Docket No. ARC 5900. Before the Iowa State Banking Board. Written testimony opposing the proposal to increase the maximum rates to 36% per annum. October 1985. On behalf of the Iowa City Ratepayers Association.

IN RE: Union Electric Company Request for Increased Rates. Docket No. RPU-85-9. Expert written testimony on the question of whether the Callaway Nuclear Facility was a cost effective source of power to Iowa, and analyzing the impact of the proposed rates on economic development in Iowa. Before the Iowa State Commerce Commission. July 1985. On behalf of the Cities of Keokuk and Ft. Madison and Lee County, Iowa.

IN THE MATTER OF: Application of Duke Power Company for Approval of a General Increase in Electric Rates and Charges. Docket No. 85-78-E. Technical appendices in support of the expert written testimony of David E. Osterberg. Before the South Carolina Public Service Commission. July 1985. On behalf of the Consumer Advocate of the State of South Carolina.

IN RE: Rules Regarding Permissible Additional Charges for Involuntary Unemployment Insurance Premiums. Docket No. ARC 5249. Before the Administrator of the Iowa Consumer Credit Code. Written testimony on the impact of this type of insurance on consumers. February 1985.

IN THE MATTER OF: Union Electric Company. Docket No. 84-0109. Expert written testimony comparing the cost of power from Callaway Nuclear Station to other sources of power; utility planning; and the treatment of excessive costs. Before the Illinois State Commerce Commission. September 1984. For the Governor's Office of Consumer Services (Illinois).

Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Niagara Mohawk Power Corporation: Case Nos. 28798, 28799, 28800. Before the Public Service Commission of the State of New York. Expert written testimony on the disposition of the savings from the availability of federal hydroelectric power on the Niagara-Mohawk system. September 1984. For the Public Utility Law Project (New York).

IN RE: Northwestern Bell Telephone Company. Docket No. RPU-84-7. Expert written testimony on discriminatory allocation of costs, cost causation, and the jurisdictional treatment of jurisdictionally unnecessary costs. Before the Iowa State Commerce Commission. June 1984. For the coalition for Fair utility Rates and the ISU Government of the Student Body.

IN RE: Wisconsin Power and Light Company. Docket No. 6680-UR-14. Expert written testimony on rate of return. June 1984. Before the Wisconsin Public Utilities Commission. For the Citizens Utility Board.

IN RE: Young Radiator. NPDES Permit 04-07-1-02. Report submitted on the sufficiency of the terms of the proposed permit. Before the Iowa Department of Water, Air and Waste Management. April 1984. For: Local Citizens, Centerville, Iowa.

IN RE: Peoples Natural Gas Company, Division of InterNorth Inc. Docket No. RPU-83-20. Expert written testimony on conservation funding and the regulatory treatment of excess capacity. Before the Iowa State Commerce Commission. October 1983. For the Iowa Ratepayers Association.

IN RE: Iowa Electric Light and Power Company. Docket No. RUP-83-23 (TF-83-264). Expert written testimony on utility planning and excess capacity. Before the Iowa State Commerce Commission. September 1983. For the Iowa Ratepayers Association.

IN RE: Iowa-Illinois Gas and Electric Company. Docket No. RPU-83-22. Supplemental written testimony on the issue of the prudence of company management. Before the Iowa State Commerce Commission. October 1983. For the Iowa Ratepayers Association.

Iowa Power and Light Company; Iowa Southern Utilities Company; and Iowa Illinois Gas and Electric Company. Docket No. RPU-82-39. Expert written testimony on the natural gas purchasing practices of the above listed utilities. Before the Iowa State Commerce Commission. September 1983. For the Iowa Ratepayers Association.

In the Matter of the Application of Otter Tail Power Company for Authority to Establish Increased Rates for Electric Service in South Dakota. Docket No. F-3418. Expert written testimony before the South Dakota Public Utilities Commission on the issue of rate design (the OSL Rate). July 1983. For the Citizens Organized for the Purpose of Equality (COPE), Sisseton, South Dakota.

IN RE: Petition for a Special Exception for the Construction of a High Voltage Transmission Line within Iowa City, Iowa. Expert written testimony on utility planning. Before the Iowa State Commerce Commission. November 1982. For the Iowa City Ratepayers Association.

Prepared written testimony in Docket No. FCU-82-5 before the Iowa Commerce Commission on the subject of the regulatory treatment of winter utility shutoffs. December 1982. Citizens/Labor Energy Coalition.

IN RE: Rate Making Treatment of Excess Electric Utility Generating Capacity. Docket No. RMU-82-4. Expert written testimony on rate making treatment of excess electric utility generating capacity. Before the Iowa State Commerce Commission. November 1982, p. 27. Community Action Research Group.

IN RE: Petition for Franchise of 4.2085 Miles of 72,000 Volt Transmission Line in Clayton County, Iowa. Docket No. E-19540. Supplementary written testimony on utility planning and forecasting. Before the Iowa State Commerce Commission. April 1982.

IN RE: Iowa Public Service Company. Docket No. RPU-81-8. Supplemental direct written testimony on rate of return, excess capacity and utility planning. Before the Iowa State Commerce Commission. September 1981, p. 14. Woodbury County Community Action Agency and Citizens/Labor Energy Coalition.

IN RE: Iowa-Illinois Gas and Electric Company. Docket No. RPU-81-5. Expert written testimony on utility planning and forecasting. Before the Iowa State Commerce Commission. September 1982. On behalf of Iowa Planners Network.

IN RE: Iowa Public Service Company. Docket No. RPU-81-8. Expert written testimony on rate of return and other issues. Before the Iowa State Commerce Commission. August 1981. On behalf of Woodbury County Community Action Agency and Citizens/Labor Energy Coalition.

IN RE: Iowa Power and Light Application for a Revision of Rates. Docket Nos. RPU-78-23 and RPU-80-36. Expert written testimony on rate design. Before the Iowa State Commerce Commission. February 1981. On behalf of the Citizens/Labor Energy Coalition.

IN RE: Iowa State Commerce Commission Rules Regarding Rates for Cogeneration and Small Power Production. Statement of David Osterberg and Michael F. Sheehan on rates for Small Power Producers under Section 210 of the Public Utility Regulatory Policies Act of 1978. Before the Iowa State Commerce Commission. January 1981. On behalf of Continental Hydro Corporation.

IN RE: Iowa Electric Light and Power's Request for Authorization to Construct a 650 MW Coal-fired Generating Plant at Panora, Iowa. Written testimony providing a critique of certain aspects of the applicant's demand forecasting methodology (with David Osterberg). Before the Iowa State Commerce Commission. November 1980.

IN RE: Rules Requiring the Filing of Certain "Cost-of-Service" Information with the Iowa State Commerce Commission. Written testimony evaluating the Rules proposed by Commission Staff. RMU-80-1. Before the Iowa State Commerce Commission. Legal Services and Citizens/Labor Energy Coalition.

IN RE: Rate Increase Request by Iowa Power and Light. Written testimony evaluating: 1) the economic rationale for special rates for certain electric appliances; 2) the justification for proposed changes in customer charges; and 3) various alternative block rates. Before the Iowa State Commerce Commission. March 1981.

**Service on
Government
Commissions &
Committees:**

Columbia County Solid Waste Advisory Committee. 1998-Present. Columbia County, Oregon.

Conservation Acquisition Council, Columbia River People's Utility District (Columbia County, Oregon). 1992-6.

AT&T Consumer Advisory Panel (1990-1995)

Research Advisory Committee, National Regulatory Research Institute, Ohio State University, Columbia, Ohio. 1990-1993.

Citizen Planning Advisory Commission, Columbia County, Oregon 1990-Present

Rate Advisory Committee, Columbia River Peoples' Utility District (Columbia County, Oregon). 1990-6.

Community Energy Management Advisory Board, Energy Policy Council (State of Iowa) 1984-87.

Iowa City, Iowa: City Franchise Commission (1983-4).

Recent Studies:

BOLI's Treatment of Laborer, Truck Driver and Carpenter Classifications in its 1999 Prevailing Wage Determination Prepared for the Fair Contracting Foundation, Portland, OR. April 1999.

Method for Calculating Gross Value of a Sand and gravel Deposit in the Ground Draft March 1999

Principles for Valuing a Municipal Distribution Utility in 1998 May 1998.

Home-Based Enterprise in Oregon: Improving Local Regulation of an Important Economic Asset September 1996.

An Investigation into the Elements of Regulatory Success and Failure: Ten Studies Prepared on behalf of METRO (the three county planning agency for the Portland, Oregon region). 1997.

Fair Housing Plan: Analysis of Impediments and Strategies to Address Them (With Roger Colton) August 1996. On behalf of Washington County and the City of Beaverton, Oregon.

Lone Star's Plan to Strip Mine Columbia County Formal economic study presented to the Columbia County Planning Commission in In Re Applications PA 4-96, 5-96, 6-96 for map amendments and zone changes from agriculture and industry to surface mining. On behalf of the Scappoose-Spitzenberg CPAC. November 1996.

In the Matter of the Application of WEBCO for Approval of the Preliminary Plat for the Brookfield Subdivision Before the City of St. Helens, Oregon. Study presented on behalf of the Friends of Good Planning. November 1996.

The Comparative Economics of Nebraska Revised Statutes §70-1010 A study dealing with the statutory standard for compensating rural electric providers when municipal electric utilities expand to keep pace with urban growth. Presented to the Natural Resources Committee of the Nebraska Legislature. October 1996.

Home-Based Enterprise in Oregon: Improving Local Regulation of an Important Economic Asset Winner of the Cascade Policy Institute's 1996 Oregon Better Government Competition. September 1996.

Fiscal Stability and Risk Management Over Time: Planning for Reasonable Fund Balances and Reserves January 1996.

County Sponsored Water Districts to Facilitate the Construction of High Density Rural Subdivisions: An Evaluation Presented to the Columbia County Board of Commissioners on behalf of the Scappoose-Spitzenberg CPAC. November 1995.

Fair Market Value for the Franchise: Law and Economics of Franchise Renewal in Louisville On behalf of the Legal Aid Society of Louisville, KY. March 1995.

Transfer Stations, Curbside Haulers, Landfills: Survey of Costs June 1996.

Comparison of Regulatory Standards for Rate Regulation of Transfer Station Franchisees December 1995

Environment and Jobs: The Employment Impacts of Federal Environmental Investments National Commission for Employment Policy: Washington, D.C., April 1995. Research Report No. 95-02. With Skip Laitner, Marshall Goldberg, and Marc Baldwin.

Growing Cities: Valuation and Compensation Issues in Dealing With Rural Electric Co-ops, Prepared on behalf of the American Public Power Association. (With Roger Colton and Richard Cvarak) August 1995.

An Assessment of Low-Income Energy Needs in Washington State Prepared on behalf of the Washington State Department of Community Development. November 1993. pp.319. (With Roger Colton, Skip Laitner, Adrienne Quinn, Scott Foster, and Gregory Holmes).

Economic Development Utility Rates: Targeting, Justifying, Enforcing November 1993 (With Roger Colton).

Environmental Site Assessment: Leasehold Site for New Library, Government Block, Scappoose, Oregon Prepared on behalf of the Scappoose Public Library District. October 1993.

Of Sunflowers and Dandelions: A Comparative Analysis of Low-Income Rate Discounts May 1993.

Affordable Housing and Section 8 Utility Allowances: An Evaluation and a Proposal for Action. Part I: Adequacy of Annual Allowances March 1993 (With Roger Colton).

Affordable Housing and Section 8 Utility Allowances: An Evaluation and a Proposal for Action. Part II: Adequacy of Monthly Allowances March 1993 (With Roger Colton).

Affordable Housing and Section 8 Utility Allowances: An Evaluation and a Proposal for Action. Part III: Individualized Relief March 1993 (With Roger Colton).

Major Telecommunications Problems for Consumers: An Agenda for Consumer Advocates Prepared for TURN. November 1992.

Valuation and Compensation Issues in Establishing a Municipal Electric Operation: A Manual for Professional Staff Prepared for the American Public Power Association (Draft: May 1992).

Financial Plan and Review of Options Prepared on behalf of the Scappoose (Oregon) Public Library District. April 1992.

Externalities and Least Cost Planning in Wisconsin: The Question of Job Impacts Prepared for Economic Research Associates, Eugene, Oregon. March 1992.

The Impact of the Clean Air Act Amendments of 1990 on Missouri Prepared for Economic Research Associates, Eugene, Oregon. September 1991.

Energy Efficiency, Economic Development and the Funding Problem Prepared for Economic Research Associates, Eugene, Oregon. November 1991.

Energy and Economic Development: Tuning Agency Powers to New Opportunities Prepared for Economic Research Associates, Eugene, Oregon, 1991.

A Preliminary Assessment of the Local Economic and Fiscal Impacts of a National Forest in Southern Iowa Prepared for the Iowa Natural Heritage Foundation, January 1990. (With David Osterberg, Skip Laitner, and Peter Fisher).

An Analysis of the Finances of the State of Iowa. Prepared for the Iowa United Professionals. February 1991.

Low-Income Weatherization as a Stimulus to Economic Development in Washington. Prepared for the Washington State Department of Community Development. January 1991 (With Skip Laitner).

The Economics of Energy Efficiency Building Codes for Cities With Municipally Owned Utilities Prepared under contract to Economic Research Associates, Eugene, Oregon. August 1990.

Elements of a Standard Minimum Program for Low Income Ratepayers in Utility Rate Cases. A discussion paper for general circulation. May 1990.

Incentive Rates for Large Manufacturing Concerns: A Review and a Proposal. Prepared for the Texas Department of Agriculture. November 1989.

Regional Citizen Advisory Groups to Multistate Utility Holding Companies: A Public Interest Review. Prepared as part of a Michigan Divestiture Review Fund study of the pros and cons of an Ameritech Citizen Advisory Group. March 1989.

Making Allies of Law, Labor and the Environment: An Exposition for Labor Lawyers. Prepared for the Lawyers Coordinating Committee of the AFL-CIO. (With Matthew Glasson and Peggy Hillman). May 1989.

Issues in Demand-Side Management. Prepared for the Department of Public Service, State of Vermont. February 1989.

The Problem of Mass Evictions in Mobilehome Parks Subject to Conversion. Prepared for Oregon Legal Services for presentation to the City Council of the City of Forest Grove, Oregon. February, 1989.

The Monopolies' Campaign to Fleece POTS: Can Plain Old Telephone Service Be Saved?: Some Recommendations. Prepared for the Citizens Action Coalition of Indiana. October 1988.

An Analysis of Davenport City Finances (Revised). Prepared for the Davenport Association of Professional Firefighters, for presentation to an Iowa Public Employment Relations Board arbitrator. Davenport: September, 1988.

An Analysis of Davenport City Finances (Revised). Prepared for the Union of Professional Police, for presentation to an Iowa Public Employment Relations Board arbitrator. Davenport: September, 1988.

The Problem of Political and Administrative Corruption in State Economic Development Programs. Prepared for the Association for Ethical Government. July 1988.

Of Ratebases, Subscriber Line Charges, and Other Strange Beasts: The Public Interest Economist as Ms. Goodwrench in Energy/Utility Litigation. Prepared for the National Consumer Law Center for presentation to the NLADA Conference, Berkeley, California. July 1988.

An Analysis of Davenport City Finances. Prepared for the Davenport Association of Professional Firefighters, for presentation to an Iowa Public Employment Relations Board factfinder. Davenport: June, 1988.

An Analysis of Davenport City Finances. Prepared for the Union of Professional Police, for presentation to an Iowa Public Employment Relations Board factfinder. Davenport: June, 1988.

Economic Vitality for Iowa: A Choice of Programs and Philosophies. Prepared for the Alamakee County Almanac: May 1988. (With David Osterberg).

The Monopolization of the Meatpacking Industry: Tactics and Results, 1978-1983. (With David Osterberg). Fall 1987-Spring 1988.

The Iowa Department of Transportation RISE Grant to the City of Manchester/Manchester Enterprises, Inc.: A Case of Official Misconduct. A Complaint to the Iowa Attorney General. (66 pages) July 1987.

Francis Lauer Youth Services, Cerro Gordo County, Iowa. An Analysis in Support of the Transition From Cerro Gordo County Agency to Non-Profit Corporation. Presented to the Cerro Gordo County Board of Supervisors on Behalf of Francis Lauer Youth Services. (52 pages). July 1987.

Predatory Competition, Jobs, and the Supply of Hogs: The Role of State Assistance in the Collapse of the Independent Hog Packing Industry in Iowa. Presented to the Iowa Transportation Commission. May 1987.

Combining Fire and Ambulance Service to Improve Service and Lower Cost. Prepared for the Davenport Association of Professional Firefighters (Local 17, International Association of Firefighters). March 1987.

Of Market Rates and Indubitable Equivalents: Law and Economics in Determining the Appropriate Interest Rate in Farm Chapter 11 Cramdowns. January 1987. 80pp. (With Roger Colton).

Researching the American Corporation: Purposes and Methods. January 1987. 50pp.

Local Regulation of Utilities in Nebraska: A Guide for Local Officials. Prepared for the Nebraska State Energy Office. Lincoln, Nebraska. December 1986. 150pp.

A Comparison of Base Wages Plus Fringe Benefits at Various Plants (in the meatpacking industry). Prepared for the United Food and Commercial Workers Local 222. November 1986.

Public/Private Enterprise as an Economic Development Strategy for States and Cities Prepared for the Economic Development Administration of the U.S. Department of Commerce. July 1986. (With Peter S. Fisher and Roger Colton).

Evaluation of the Energy Management Technician Pilot Program, Prepared for the Iowa State Energy Policy Council. June 1986.

The Future of Pork Packing in Monmouth, Prepared for the City of Monmouth, Illinois, and the Illinois Development Finance Authority. June 1986.

An Analysis of Davenport City Finances (Revised) Prepared for the Iowa State Policemen's Association, Local #2. April 28, 1986.

An Analysis of Davenport City Finances (Revised), Prepared for the International Association of Firefighters, Local 17. April 18, 1986.

The Des Moines-ICA Sewage Treatment Facilities Plan: The Economic Ramifications of a 1991 Completion Date Prepared for the City of Des Moines for presentation to the U.S. Environmental Protection Agency. April 1986.

Municipal Regulation of Cable TV Holding Companies After the Cable Communications Policy Act of 1984: (Heritage Corporation and the Siege of Block 80) Prepared for the Iowa City Ratepayers Association. April 1986.

An Analysis of Davenport City Finances. Prepared for the International Association of Firefighters, Local 17. February 1986.

An Analysis of Davenport City Finances: Preliminary Report. Prepared for the Iowa State Policemen's Association, Local #2. February 1986.

An Analysis of the Finances of the City of Council Bluffs. Prepared for the Fraternal Order of Police, Council Bluffs Lodge #1. January 1986.

Telephones for People: Providing for the Old, the Young, the Rich, the Poor, the Middle, Business and Workers, Cityfolks and Farmfolks. Minority Report of Six Members of Northwest Bell Citizens Council #2. October, 1985.

Thinking About Inter-Class Telephone Subsidies: (The Tale of the Gardener's Pay). Prepared for the Iowa Ratepayers Association. April 1985.

The Great Gumdrops Monopoly: A Parable. Prepared for Northwest Bell Citizen Council #2, April 1985.

Universal Service: Materials for Discussion. Prepared for Northwest Bell Citizen Council #2, April 1985.

The Economic Impacts of a Prevailing Wage Law for Iowa State Construction Projects. Prepared for the Iowa State Building and Construction Trades Council. February 27, 1985. (with Peter S. Fisher).

A Primer on Bypass. Prepared for Northwest Bell Citizen Council #1, January 1985.

Materials on Telephone Rates: The Consumer Position. Prepared as Part I of a manual on telephone regulation for consumer groups. January 1985.

An Analysis of Davenport City Finances: A Preliminary Report. Prepared for the Iowa State Policemen's Association Local 2. January 1985.

Combining Fire and Ambulance Service. Prepared for the City of Rock Island on behalf of the Rock Island Firefighters Local 26. October 1984.

Designing Electric Rates to Conserve Community Resources, Enhance Local Productivity and Stem the Outward Flow of Energy Dollars: The OSL Rate Design Proposal for Nebraska. Prepared for the Nebraska Energy Office. (With Skip Laitner). October 1984.

An Analysis of City Finances: Burlington, Iowa. Prepared for Local 301 International Association of Firefighters. March 1984.

An Analysis of Dubuque City Finances. Prepared for the Operating Engineers. March 1984.

An Analysis of City Finances: Burlington, Iowa. Prepared for Local 828. The American Federation of State, County and Municipal Employees. March 1984. With Peter Fisher.

Source Reduction in Hazardous Materials Regulation: A Strategy for Both Economic Development and the Environment. Prepared for the Select Advisory Panel on Hazardous Waste Management of the Iowa Department of Water, Air, and Waste Management. February 1984.

The Electric Ratepayers Protection Act: An Evaluation. Prepared for and presented to the Consumer Protection Committee of the Missouri Legislature. January 1984.

Investments in Energy Engineering and Technology at the Local Level: Planning an Assist from State Agencies. Prepared for the Nebraska Energy Office, February 1984.

The Impact of Increasing Concentration in the Meatpacking Industry on Iowa's Livestock Producers and Communities. Prepared for Reports on the Iowa Economy. June 1983.

Policy Options for Dealing with the Impact of Continuing Energy Price Increases on the Iowa Economy for the Iowa State Legislature. February 1983 (LEAG).

An Analysis of Proposals for the Reform of the Iowa Tax System (with Peter S. Fisher). December 1982.

Reforming Iowa's Individual Income Tax to More Fully Account for Tax Shelters (with Peter S. Fisher). October 1982.

The Iowa City Electric Franchise: A Report to the City Manager. January 1982.

A Comparison of Major Cities in Iowa and Surrounding States by Income, Wage Levels, and Housing and Food Costs. March 1983.

IBP at Stanwood: Estimating the Regional Impact. February 1983.

A Program of Progressive Tax Policies for the State of Iowa (with Peter S. Fisher). February 1982.

Municipal and Cooperative Operation of Branch Railroad Lines in Iowa: Two Alternatives to Abandonment For the Iowa State Legislature (Peter Fisher and Michael Sheehan). December 1980.

Book Reviews:

Review of Walter Adams and James W. Brock, *Antitrust Economics on Trial: A Dialogue on the New Laissez Faire*, In *The Journal of Economic Issues* (December 1992).

Review of James A. Gross, *Teachers on Trial: Values, Standards & Equity in Judging Conduct and Competence*. In *The Journal of Labor Studies*. Summer 1990.

Review of Ronald M. Green and Richard J. Reibstein, *Negligent Hiring: Fraud, Defamation, and Other Emerging Areas of Employer Liability*. In *The Journal of Labor Studies*. Fall 1989.

Review of Lawrence E. Rothstein, *Plant Closings: Power, Politics, and Workers*, in *The Journal of Economic Issues*. March 1988.

Review of John Munkirs, *The Transformation of American Capitalism: From Competitive Market Structure to Centralized Private Sector Planning*, in *The Journal of Economic Issues*, March 1986.

Review of Claes Brudenius and Mats Lundahl, *Development Strategies and Basic Needs in Latin America*, in *The Annals of Regional Science*, July 1985.

Review of Samuel P. Epstein, et al., *Hazardous Wastes in America*, in *The Environmental Professional*, V.6, #1. 1984.

David Morell and Christopher Magorian, *Sitting Hazardous Waste Facilities: Local Opposition and the Myth of Preemption*, in *The Environmental Professional*, V.5, #3/4. 1983.

Staughton Lynd, *The Fight Against Shutdowns: Youngstown's Steel Mill Closings*, in *The Journal of Economic Issues*, September 1984.

Michael S. Baram, *Alternatives to Regulation: Managing Risks to Health, Safety and the Environment*, in *The Environmental Professional*, V.5, #3/4. 1983.

Richard A. Berk, et al., *Lessons in Conservation from the Great California Drought*, in *The Water Resources Bulletin*. October 1983.

Review of Lawrence B. Lee, *Reclaiming the American West: A Historiography and Guide*, in *The Water Resources Bulletin*, V. 18, #4. August 1982.

Review of Mario Barrera, *Race and Class in the Southwest*, in *The Journal of Economic History*, V. 42, #2. June 1982.

Review of Robert D. Friedman, *Sensitive Populations and Environmental Standards*, in *The Environmental Professional*, V. 3, #3. 1982.

Review of E. Englebert's *California's Water Planning and Policy*, in *The Water Resources Bulletin*. October 1981.

Review of Charles T. Unseld, et al., eds., *Sociopolitical Effects of Energy Use and Policy*. Washington, D.C.: National Academy of Sciences, 1979, in *The Journal of Economic Issues*. December 1981.

Review of W. W. Robinson, *California Land*, In *The Journal of Economic History*. June 1980.

Review of Wm. C. Peters, *Exploration and Mining Geology*, in *The Journal of Energy and Development*. Autumn 1980.

Review of Burnham, P. Beckwith, *The Theory of Free or Communist Distribution*, in *The Social Science Journal*. January 1981.

Review of Russ Talbot, *The European Community's Regional Fund*, in *The Annals of Regional Science*. July 1980.

Review of Louis P. Cain, *Sanitation Strategy for a Lakefront Metropolis: The Case of Chicago* in *The Water Resources Bulletin*. April 1980.

Review of M. R. Goodall, et al., *California Water: A New Political Economy* in *The Water Resources Bulletin*. February 1980.

Review of Shabad and Mote, *Gateway to Siberian Resources: The Baikal-AMVR Mainline*, in *Growth and Change*. July 1979.

Review of N. Birnbaum, ed., *Beyond The Crisis, History of Political Economy*, in *History of Political Economy*, Vol. 11, No. 1. Spring 1979.

Review of *Mathematics of Environmental Processes*, in *Journal of Energy and Development*, Vol. 3, No. 2. Spring 1978.

Review of A. Zaubermann's, *The Mathematical Revolution of Soviet Economics*, in *History of Political Economy*, Vol. 8, No. 2. Summer 1976 (H. Sherman second author).

**Post Graduate
Courses:**

Oregon Land Use Law, OSB. Portland, Oregon December 1996.

Advanced Insurance Issues Facing Oregon Businesses. OSB Portland, Oregon September 1996.

National Park and Public Land Ecosystems: Meeting the Challenge of Common Boundaries and Conflicting Mandates. Sponsored by the Center for Environmental and Resource Law. Snowbird, Utah. April 1995. (Paper presented: "Whose Goals and Whose Alternatives? How Bad Can a Private Goal Be and Still Define the EIS Under NEPA?")

Federal Civil Litigation in Oregon, OSB. October 1994.

Economic Considerations in Managing Hazardous Waste, The Tenth Annual Hazardous Waste Law and Management Conference. Sponsored by the Northwestern School of Law. October 1993.

Spanish Language Refresher: 120 hours. El Centro Cultural. Hillsboro, Oregon. 1988-9. (Certificate).

Natural Gas Regulation Training Conference, National Consumer Law Center, Pittsburgh, Pennsylvania, November 1982.

Faculty Workshop Program on Breeder Reactor Technology, Argonne National Laboratory, Argonne-West, Idaho Falls, Idaho, August 2-5, 1982.

Workshop on Appraisal of Utilities and Railroad Property for Ad Valorem Taxation. National Tax Association -- Tax Institute of America. Wichita State University, July 27-30, 1981. (Certificate)

Simulation Modeling and Analysis. Institute for Professional Education. Los Angeles, September 1978. (Certificate)

Employment History: **Current:** Managing Partner: Osterberg & Sheehan,
Public Utility Economists, Scappoose, Oregon
& Mount Vernon, Iowa.

Partner: Fisher, Sheehan and Colton, Public
Finance and General Economics, Scappoose,
Oregon, Iowa City, Iowa, and Belmont, MA.

Private practice of law.

1989-92 Counsel, Telecommunications Law Project,
Citizens' Utility Board of Oregon, Portland,
Oregon.

1979-84 Assistant Professor, Graduate Program in
Urban and Regional Planning; and Research
Associate at the Institute of Urban and Regional
Research, The University of Iowa, Iowa City,
Iowa 52242.

1979 Lecturer, Graduate School of Administration,
UCR, (Analysis of Projects). (Winter)

1976-9 Lecturer, Department of Economics, California
State College at San Bernardino.

1978 Consultant, Richard Terry & Associates,
*Impact of Federal Sewer Sizing Limitations on
Economic Growth in the West San Bernardino
Valley.*

1977-8 Research Associate, UCR-USDA (Forest Fire
Damage Functions).

1977 Water Resource Consultant, Janczyk &
Sheehan, Riverside (water quality problems in
the Santa Ana and San Jacinto watersheds).

1976-7 Holder of a Regent's Fellowship, UCR.

Spr 1976 Research Assistant (Geothermal Development
Project), Department of Economics, UCR.

1976 Teaching Assistant (Microeconomics),
Department of Economics, UCR). (Fall,
Winter)

Affiliations:

Association for Evolutionary Economics
Association for Institutional Thought
Lawyers Coordinating Committee, AFL/CIO
Oregon Bar Association
Policy Studies Association

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SUMMARY

I have worked for twenty-four years as a consultant and attorney on complex management, engineering, and economic issues, primarily in the field of energy. This work has involved conducting technical investigations, preparing technical analyses, presenting expert testimony, providing support during all phases of litigation, and advising clients during settlement negotiations. I have received undergraduate and advanced engineering degrees from the Massachusetts Institute of Technology and Stanford University and a law degree from Stanford Law School

PROFESSIONAL EXPERIENCE

Failure Analysis - Evaluated the causes of power plant and system outages, equipment failures, and component degradation, determined whether these problems could have been anticipated and avoided, and assessed liability for repair and replacement costs.

Management Assessment - Assessed whether management fully disclosed potential risks to investors. Investigated whether management fully disclosed or withheld material facts from regulators. Evaluated whether large construction projects totaling more than \$40 billion were prudently designed and constructed. Investigated more than one hundred nuclear power plant outages to determine if they were caused or extended as the result of imprudent management. Evaluated management responses to equipment and component failures. Assessed the adequacy of utility quality assurance and maintenance programs. Examined the selection and supervision of contractors and subcontractors. Evaluated the reasonableness of contract provisions and terms in proposed power supply agreements.

System Operations and Reliability Analysis - Evaluated the planning for new utility generating and transmission facilities totaling over \$10 billion. Evaluated whether new utility generating and transmission additions were needed to ensure adequate system reliability. Examined utility off-system capacity purchases. Explored the opportunities for off-system sales by electric utilities. Evaluated whether there was excess generating capacity on electric utility systems.

Economic Analysis -. Quantified the economic consequences of management imprudence. Evaluated purchased power availability and cost. Prepared continued operation versus retirement economic analyses for major electric generating facilities.

Electric Industry Restructuring and Deregulation - Presented and published papers on the potential impact of electric industry restructuring and economic deregulation on nuclear power plant safety. Assisted clients in quantifying stranded plant costs. Explored the potential impact on utility maintenance programs of the adoption of performance-

based regulation. Evaluated the technical and economic risks of proposed corporate acquisitions by clients.

Expert Testimony - Presented the results of management, technical and economic analyses as testimony in more than fifty proceedings before regulatory boards and commissions in eighteen states, before two federal regulatory agencies, and in state and federal court proceedings.

Litigation Support - Participated in all aspects of the development and preparation of case presentations on complex management, technical, and economic issues. Assisted in the preparation and conduct of pre-trial discovery and depositions. Helped identify and prepare expert witnesses. Aided the preparation of pre-hearing motions and post-hearing briefs and appeals. Assisted counsel in preparing for hearings and oral arguments. Advised counsel during settlement negotiations.

REPRESENTATIVE SIGNIFICANT ACHIEVEMENTS

Evaluated the prudence of Niagara Mohawk Power Corporation's management of construction of the Nine Mile Point Unit No. 2 Nuclear Station. Presented testimony that formed the basis for a decision by the New York State Public Service Commission that \$300 million of the cost of the unit should be permanently excluded from rates.

Analyzed whether a new coal-fired generating unit represented excess capacity on the Northern Indiana Public Service Company system. Presented testimony that led to a finding by the Indiana Public Service Commission that the new unit was not used and useful and, consequently, that a four year phase-in of the utility's investment in the plant was appropriate. This resulted in a permanent savings for consumers of more than \$65 million.

Investigated the prudence of Southwest Gas Corporation's plastic and steel pipe repair and replacement programs. The results of this investigation formed the basis for a settlement by the staff of the Arizona Corporation Commission and the utility that shared pipe repair and replacement costs between ratepayers and shareholders.

Evaluated whether outages of the Wolf Creek Nuclear Plant had been caused or extended by utility mismanagement. Presented testimony that formed the sole basis for a finding by the Kansas Corporate Commission that the utility should bear \$6.9 million of replacement power costs incurred during the outages.

Investigated whether outages of the three units at the Palo Verde Nuclear Generating Station were caused or extended by management imprudence. The results of this investigation formed the basis for a settlement by the staff of the California Public Utilities Commission and the Southern California Edison Company that shared outage-related costs between ratepayers and shareholders.

Evaluated whether Northeast Utilities had prudently managed the 1992/1993 replacement of the steam generators at Millstone Unit No. 2.

Assisted clients in evaluating the technical and economics risks associated with purchasing majority ownership in an electric utility company that was a minority owner of the Seabrook Nuclear Station.

CLIENTS

Regulatory Commissions in Arkansas, Arizona, California, Kansas and Maine; municipal utilities in Massachusetts, North Carolina, New York and Texas; state attorneys general in five states; state consumer counsels or public advocates in twelve states; independent power producers; law firms; investment firms; shareholders of investor-owned utilities; municipalities and counties in four states; the majority owners of the Great Bay Power Company; elected officials in two states; citizen utility boards in Illinois and Wisconsin; the Associated Industries of Massachusetts; and the Environmental Law and Policy Center of the Midwest.

WORK HISTORY

1994 - Present: President, Schlissel Technical Consulting, Inc.

1983 - 1994: Director, Schlissel Engineering Associates

1979 - 1983: Private Legal and Consulting Practice

1975 - 1979: Attorney, New York State Consumer Protection Board

1973 - 1975: Staff Attorney, Georgia Power Project

EDUCATION

1983-1985: Massachusetts Institute of Technology
Special Graduate Student in Nuclear Engineering and Project Management,

1973: Stanford Law School
Juris Doctor

1969: Stanford University
Master of Science in Astronautical Engineering,

1968: Massachusetts Institute of Technology
Bachelor of Science in Astronautical Engineering,

PROFESSIONAL MEMBERSHIPS

- * New York State Bar since 1981
- * The Federal Bar since 1975
- * American Nuclear Society
- * National Association of Corrosion Engineers
- * National Academy of Forensic Engineers (Correspondent Affiliate)

ATTACHMENT 1

TESTIMONY

COURT OR COMMISSION	CASE OR DOCKET	CLIENT	DATE	ISSUE(S)
Maryland Public Service Commission	8795	Maryland Office of People's Counsel	December 1998	Future operating performance of Delmarva Power Company's nuclear units.
Maryland Public Service Commission	8794/8804	Maryland Office of People's Counsel	December 1998	Baltimore Gas and Electric Company's proposed replacement of the steam generators at the Calvert Cliffs Nuclear Power Plant. Future operating performance of nuclear units.
Indiana Utility Regulatory Commission	38702-FAC-40-S1	Citizens Action Coalition of Indiana and Indiana Consumers for Fair Utility Rates	November 1998	Whether the current outages of the two units at the D.C. Cook Nuclear Plant were caused or extended due to mismanagement.
Arkansas Public Service Commission	98-065-U	General Staff of the Arkansas Public Service Commission	October 1998	Results of investigation into Entergy's proposed replacement of the steam generators at the ANO Unit 2 Steam Generating Station.
Massachusetts Department of Telecommunications and Energy	97-120	Massachusetts Office of Attorney General	October 1998	Whether the recent outages of the three units at the Millstone Nuclear Station were caused or extended due to mismanagement. The appropriate Transition Charge for the Western Massachusetts Electric Company.
Connecticut Department of Public Utility Control	98-01-02	Connecticut Office of Consumer Counsel	September 1998	Review of nuclear operations, nuclear operating and capital costs, system reliability improvement costs, and other aspects of utility rate filing.
Illinois Commerce Commission	97-0015	Illinois Citizens Utility Board	May 1998	Whether any of the outages of the twelve Commonwealth Edison Company nuclear units during 1996 were caused or extended by management imprudence. Whether the equipment problems, personnel performance weaknesses, and program deficiencies which led to or extended unit outages could have been avoided or addressed prior to the outage. Quantification of outage-related fuel and replacement power costs.
Public Service Commission of West Virginia	97-1329-E-CN	Consumer Advocate Division of the Public Service Commission of West Virginia	March 1998	Whether a proposed 765 kV transmission line from Wyoming, West Virginia, to Cloverdale, Virginia is needed to enable the Appalachian Power Company to adequately and reliably serve the needs of customers in its Eastern/Southern service areas. Whether the proposed transmission line will enhance Appalachian Power Company's ability to make regional power transfers to support other utilities' system reliability needs.
Illinois Commerce Commission	97-0018	Illinois Citizens Utility Board	March 1998	Whether any of the outages of the Clinton Power Station during 1996 were caused or extended by management imprudence. Whether the equipment problems, personnel performance weaknesses, and program deficiencies which led to or extended plant outages could have been avoided or addressed prior to the outage. Quantification of outage-related fuel and replacement power costs.

COURT OR COMMISSION	CASE OR DOCKET	CLIENT	DATE	ISSUE(S)
Connecticut Department of Public Utility Control	97-05-12	Connecticut Office of Consumer Counsel	October 1997	The costs associated with the current extended outages of the three units at the Millstone Nuclear Power Station.
New Jersey Board of Public Utilities	ER96030257	New Jersey Division of Ratepayer Advocate	August 1996	Calculation of replacement power costs.
Illinois Commerce Commission	95-0119	Illinois Citizens Utility Board	February 1996	Whether any of the outages of the twelve Commonwealth Edison Company nuclear units during 1994 were caused or extended by management imprudence. Whether the equipment problems, personnel performance weaknesses, and program deficiencies which led to or extended unit outages could have been avoided or addressed prior to the outage. Quantification of outage-related fuel and replacement power costs.
Public Utility Commission of Texas	13170	Texas Office of Public Utility Counsel	December 1994	Whether any of the outages of the River Bend Nuclear Station during the period October 1, 1991 through December 31, 1993 were caused or extended by management imprudence. Whether the equipment problems, personnel performance weaknesses, and program deficiencies which led to or extended plant outages could have been avoided or addressed prior to the outage. Quantification of outage-related fuel and replacement power costs.
Public Utility Commission of Texas	12820	Texas Office of Public Utility Counsel	October 1994	The Operations and Maintenance expenditures related to extended outages of the two units at the South Texas Nuclear Generating Station.
Wisconsin Public Service Commission	6630-CE-197 6630-CE-209	Wisconsin Citizen Utility Board	September and October 1994	The reasonableness of the projected cost and schedule estimates for the planned replacement of the steam generators at the Point Beach Nuclear Power Plant. Potential impact of the aging of structures, components, and equipment on future plant operating costs and performance.
Public Utility Commission of Texas	12700	City of El Paso, Texas	June 1994	Whether El Paso Electric Company's share of Palo Verde Unit 3 capacity was needed to ensure adequate system reliability. Whether the Company's investment in Palo Verde Unit 3 could be expected to generate cost savings for ratepayers within a reasonable number of years.
Arizona Corporation Commission	U-1551-93-272	Staff of the Arizona Corporation Commission	May and June 1994	The prudence of Southwest Gas Corporation's plastic and steel pipe repair and replacement programs.
Connecticut Department of Public Utility Control	92-04-15	Connecticut Office of Consumer Counsel	March 1994	Northeast Utilities' management of the planning for the replacement of the steam generators at Millstone Unit No. 2 and the 1992/1993 replacement outage. The causes of the steam generator degradation experienced at Millstone Unit 2 during the 1980s. The reasonableness of the Company's selection of the main contractors for the engineering and installation of the replacement steam generators. The reasonableness of a settlement between Northeast Utilities' and the main contractor for the project concerning inadequate performance by the contractor during the early months of the steam generator replacement outage.

COURT OR COMMISSION	CASE OR DOCKET	CLIENT	DATE	ISSUE(S)
Connecticut Department of Public Utility Control	92-10-03	Connecticut Office of Consumer Counsel	August 1993	Whether the July - November 1991 outage of Millstone Unit 3 due to the corrosion of safety-related plant piping systems was the result of imprudent management. The information that was known by management prior to the outage concerning the potential for erosion corrosion/galvanic corrosion of the piping in the Unit's service water system.
Public Utility Commission of Texas	11735	Texas Office of Public Utility Counsel	April and July 1993	Whether any of the outages of Comanche Peak Unit 1 between August 13, 1990 and June 30, 1992 were caused or extended by imprudent management. Whether the equipment problems, personnel performance weaknesses, and program deficiencies which led to or extended plant outages could have been avoided or addressed prior to the outage. The reasonableness of Texas Utilities' maintenance practices and corrective action program at Comanche Peak. Quantification of the replacement power costs attributable to specific instances of imprudent management. The actual versus the expected net electrical output of Comanche Peak Unit 1.
Connecticut Department of Public Utility Control	91-12-07	Connecticut Office of Consumer Counsel	January 1993 August 1995	Whether the November 6, 1991 pipe rupture at Millstone Unit 2 and the related outages of the Connecticut Yankee and Millstone units were the result of imprudent management. NU's management of the pipe erosion/corrosion inspection programs at the Millstone Station. Impact of environmental requirements on plant design and operation.
Connecticut Department of Public Utility Control	92-06-05	Connecticut Office of Consumer Counsel	September 1992	The levels of off-system capacity sales that should be attributed to United Illuminating Company in rate proceeding.
Public Utilities Commission of Texas	10894	Texas Office of Public Utility Counsel	August 1992	Whether the outages of the River Bend Nuclear Station during the period October 1, 1988 through September 30, 1991 were caused or extended by imprudent management. Whether the equipment problems, personnel performance weaknesses, and program deficiencies which led to or extended plant outages could have been avoided or addressed prior to the outage. Gulf States Utilities' management of the corrective action program at River Bend. Mismanagement by outage contractors. Quantification of the replacement fuel and power costs attributable to each identified instance of imprudent management.
Connecticut Department of Public Utility Control	92-01-05	Connecticut Office of Consumer Counsel	August 1992	Whether the shutdown of Millstone Unit 3 on July 25, 1991 due to the fouling of important plant systems by blue mussels was the result of imprudent management. Design deficiencies which left 130 feet of the Millstone Unit 3 service water system unprotected against fouling by blue mussels. The reasonableness of management's response to this known design defect. The reasonableness of management's response to proposals by plant engineering and operations personnel during the years 1985 through 1988 that the plant be modified to provide protection against fouling for the entire service water system.

COURT OR COMMISSION	CASE OR DOCKET	CLIENT	DATE	ISSUE(S)
California Public Utilities Commission	90-12-018	The Division of the Ratepayer Advocate of the California Public Utilities Commission Staff	November 1991 March 1992 June and July 1993	Whether any of outages of the three units at the Palo Verde Nuclear Generating Station during 1989 and 1990 were caused or extended by management imprudence. Whether the equipment problems, personnel performance weaknesses, and program deficiencies which led to or extended outages could have been avoided or addressed prior to the outage. Whether specific plant operating cost and capital expenditures were necessary and prudent.
Public Utilities Commission of Texas	9945	The City of El Paso, Texas	July 1991	The level of system reliability that was adequate for the interconnected El Paso Electric Company system. When the Company's share of Palo Verde Unit 3 capacity would be needed to ensure adequate system reliability. Whether the Company's investment in Palo Verde Unit 3 would produce a net economic benefit for ratepayers within a reasonable number of years. Quantification for a Commission finding that Palo Verde Unit 3 represented excess capacity. El Paso Electric Company's management of the planning and licensing of the Arizona Interconnection Project transmission line.
Arizona Corporation Commission	U-1345-90-007	Staff of the Arizona Corporation Commission	December 1990 and April 1991	The reasonableness of Arizona Public Service Company's management of the planning, construction, and operation of the Palo Verde Nuclear Generating Station. The reasonableness of management's responses to changing circumstances and to identified design and equipment issues. Quantification of identified instances of imprudent management.
New Jersey Board of Public Utilities	ER89110912J	New Jersey Rate Counsel	July and October 1990	The economic costs and benefits of the early retirement of the Oyster Creek Nuclear Plant versus continued operation through the unit's scheduled retirement in the year 2009. The potential impact of the unit's early retirement on system reliability. The cost and schedule of siting, designing and constructing a replacement natural-gas fired generating facility. Opportunities for the utility to make off-system purchases of replacement capacity if Oyster Creek were retired. The potential impact of the aging of plant structures, components, and equipment on the future operating costs and performance of the Oyster Creek unit.
Public Utilities Commission of Texas	9300	Texas Office of Public Utility Counsel	June and July 1990	Whether Texas Utilities prudently managed the design and construction of the Comanche Peak Nuclear Plant. The impact of regulatory issues on construction costs and schedule. Flaws and biases in the Company's cost and schedule variance analyses. The impact of imprudence by equipment vendors. Whether Texas Utilities was prudent in repurchasing minority owners' shares of Comanche Peak without examining the economic costs and benefits of the repurchase on its ratepayers. Whether Texas Utilities repurchase of the minority owners' shares of Comanche Peak was reasonable in light of other more economic alternatives available to the Company.
Federal Energy Regulatory Commission	EL-88-5-000	Municipal utilities in Massachusetts	November 1989	The prudence of Boston Edison's corporate management of the Pilgrim Nuclear Station.
Connecticut Department of Public Utility Control	89-08-11	Connecticut Office of Consumer Counsel	November 1989	The levels of off-system capacity sales that should be attributed to United Illuminating Company in a rate proceeding.

COURT OR COMMISSION	CASE OR DOCKET	CLIENT	DATE	ISSUE(S)
Kansas State Corporation Commission	164,211-U	Staff of the Kansas Corporation Commission	April 1989	The causes of the 1987 and 1988 extended outages of the Wolf Creek generating facility. Whether any of the 127 days of outage time were the result of the mismanagement of outage activities. The impact of unscheduled outage work.
Public Utilities Commission of Texas	8425	Texas Office of Public Utility Counsel	March 1989	Whether the capacity from Houston Lighting & Power Company's new Limestone Unit 2 generating facility was required to provide adequate system reliability. Whether the Company's investment in Limestone Unit 2 would produce a net economic benefit for ratepayers. The prudence of the Company's planning for the addition of Limestone Unit 2 to its system. Whether the Company reevaluated its commitment to build Limestone Unit 2 in light of changed circumstances.
Illinois Commerce Commission	83-0537 84-0555 (On Remand)	Illinois Governor's Office of Consumer Services	January 1989	The prudence of Commonwealth Edison Company's management of quality assurance and quality control activities and the activities of project contractors during the construction of the Byron Nuclear Station. The cost and schedule consequences of specific instances of imprudent management.
New Mexico Public Service Commission	2146 Part II	Attorney General of the State of New Mexico	October 1988	The economic consequences for ratepayers of retaining the use of the Company's share of Palo Verde Units 1 and 2.
United States District Court for the Eastern District of New York	87-646-JBW	Counties of Nassau and Suffolk, New York	October 1988	Whether the Long Island Lighting Company disclosed the existence of agreements with another utility and other information in internal Company documents to the New York State Public Service Commission, the New York State Board on Electric Generating Siting and the Environment, and the U.S. Nuclear Regulatory Commission.
Public Utility Commission of Texas	6668	Texas Office of Public Utility Counsel	August 1988 June 1989	Houston Lighting & Power Company's management of the design and construction of the South Texas Nuclear Project. The reasonableness of HL&P's selection of the primary project contractors. Inconsistencies between Company positions in this proceeding and arguments HL&P had made in earlier litigation against a project contractor. The impact of safety-related and environmental statutes and regulatory requirements on plant construction costs and schedule. Quantification of the impact of identified imprudent management on construction schedule.
Federal Energy Regulatory Commission	ER88-202-000	Public Advocate of the State of Maine	June 1988	Whether the duration of the 1987 outage of the Maine Yankee Nuclear Plant was extended and/or the cost of the outage was increased by imprudent management. The causes of the turbine generator vibration problems experienced at the end of the outage. Whether work by contractors during the outage was prudently managed and performed.
Illinois Commerce Commission	87-0695	Illinois Governor's Office of Consumer Services	April 1988	The reasonableness of Illinois Power Company's planning for the Clinton Nuclear Station. The information that was available to management during 1983 and 1985 that showed that completion of the Clinton facility was not in the economic interests of the Company's ratepayers. The need for adoption of a performance standard for the Clinton plant.

COURT OR COMMISSION	CASE OR DOCKET	CLIENT	DATE	ISSUE(S)
North Carolina Utilities Commission	E-2, Sub 537	Attorney General of the State of North Carolina	February 1988	Carolina Power & Light Company's management of the design and construction of the Harris Nuclear Project. Company management of quality assurance and quality control activities and the work performed by project contractors during construction. The reasonableness of the responses by Company management to changing regulatory requirements. The impact of safety-related and environmental statutes and regulatory requirements on construction costs and schedule. The cost and schedule consequences of identified instances of imprudent management.
Ohio Public Utilities Commission	87-689-EL-AIR	Cities and Consumer Organizations	October 1987	Whether any of the Company's share of capacity from the Perry Unit 2 generating facility was needed to ensure adequate system reliability. Whether the Company's investment in Perry Unit 1 would produce a net economic benefit for ratepayers.
North Carolina Utilities Commission	E-2, Sub 526	Attorney General of the State of North Carolina	June 1987	Fuel factor calculations for the Carolina Power & Light Company.
New York State Public Service Commission	29484	New York State Consumer Protection Board and the counties of Nassau and Suffolk, New York	May 1987	The planned startup/power ascension testing program and schedule for the Nine Mile Point Unit 2 generating facility.
Illinois Commerce Commission	86-0043 86-0096	City of Chicago, IL	April 1987	The reasonableness of terms in proposed Power Supply Agreement.
Illinois Commerce Commission	86-0405	Illinois Governor's Office of Consumer Services	March 1987	The appropriate in-service criteria to be used to determine when a new generating facility was capable of providing safe, adequate, reliable, and efficient service.
Indiana Public Service Commission	38045	Indiana Office of Consumer Counsel	December 1986	The prudence of Northern Indiana Public Service Company's planning for the Schaefer Unit 18 generating facility. Whether the Company reevaluated its commitment to construct Schaefer Unit 18 in light of changed circumstances. Whether the capacity from Unit 18 was required to ensure adequate system reliability. The rate consequences of excess capacity on the Company's system. Flaws and biases in the Company's economic and system reliability analyses.
Superior Court in Rockingham County, New Hampshire	86E328	Elected Officials	July 1986	The radiation effects of low power testing on structures, equipment and components in a new nuclear power plant.
New York State Public Service Commission	28124	New York State Consumer Protection Board and Suffolk County, New York	April 1986 May 1987	The reasonableness of terms and provisions in contract with equipment supplier. Prudence of utility's planning for addition of new generating facility. Reasonableness of expenditures on canceled generating facility.
Arizona Corporation Commission	U-1345-85	Consumer Organization	February 1986	Comparison of the construction schedule for the Palo Verde Unit 1 generating facility and the construction schedules for comparable nuclear power plants. Regulatory and engineering factors that would likely affect future plant operating costs.
New York State Public Service Commission	29124	New York State Consumer Protection Board	January 1986	The prudence of Niagara Mohawk Power Corporation's management of construction of the Nine Mile Point Unit No. 2 nuclear power plant.

COURT OR COMMISSION	CASE OR DOCKET	CLIENT	DATE	ISSUE(S)
New York State Public Service Commission	28252	New York State Consumer Protection Board	October 1985	Performance standard for the Shoreham nuclear power plant.
New York State Public Service Commission	29069	New York State Consumer Protection Board	August 1985	Performance standard for the Nine Mile Point Unit No. 2 nuclear power plant.
Illinois Commerce Commission	83-0537 84-0555	Illinois Governor's Office of Consumer Services	July 1985	The prudence of Commonwealth Edison Company's management of quality assurance and quality control activities and the activities of project contractors during the construction of the Byron Nuclear Station. The cost and schedule consequences of specific instances of imprudent management.
Missouri Public Service Commission	ER-85-128 EO-85-185	Missouri Office of Public Counsel	July 1985	The impact of safety-related regulatory requirements on power plant operating costs and performance. The potential impact of the aging of power plant structures, components and equipment on operating costs and performance. Regulatory factors and plant-specific engineering design features that will likely affect the future operating costs and performance of the Wolf Creek Nuclear Plant.
Massachusetts Department of Public Utilities	84-152	Attorney General of the Commonwealth of Massachusetts	January 1985	The impact of safety-related and environmental statutes and regulatory requirements on power plant operating costs and performance. The potential impact of the aging of power plant structures, components and equipment on operating costs and performance. Regulatory factors and plant-specific engineering design features that will likely affect the future operating costs and performance of the Seabrook Nuclear Plant.
Maine Public Utilities Commission	84-113	Staff of the Maine Public Utilities Commission	September 1984	The impact of safety-related and environmental statutes and regulatory requirements on power plant operating costs and performance. The potential impact of the aging of power plant structures, components and equipment on operating costs and performance. Regulatory factors and plant-specific engineering design features that will likely affect the future operating costs and performance of the Seabrook Nuclear Plant.
South Carolina Public Service Commission	84-122-E	South Carolina Consumer Advocate	August 1984	The reasonableness of the repair/replacement strategy adopted by management in response to pipe cracking at the Brunswick Nuclear Station in light of what management knew or should have known about the potential for pipe cracking in safety-related systems. Quantification of replacement power costs attributable to identified instances of imprudent management.
Vermont Public Service Board	4865	Vermont Public Interest Research Group	May 1984	The reasonableness of the repair/replacement strategy adopted by management in response to pipe cracking at the Vermont Yankee Nuclear Plant. Whether that strategy was economically justified in light of what management knew or should have known about the potential for pipe cracking in safety-related systems.
New York State Public Service Commission	28347	New York State Consumer Protection Board	January 1984	The information that was available to Niagara Mohawk Power Corporation management prior to 1982 concerning the potential for cracking in safety-related piping components at the Nine Mile Point Unit No. 1 generating facility.

COURT OR COMMISSION	CASE OR DOCKET	CLIENT	DATE	ISSUE(S)
New York State Public Service Commission	28166	New York State Consumer Protection Board	February 1983 February 1984	Whether the January 25, 1982 steam generator tube rupture at the Ginna Nuclear Plant was caused by imprudent management. The information available prior to January 1982 that should have led management to conduct a visual inspection of the unit's steam generator to search for the presence of a foreign object. The plant output that was lost as a result of the January 25, 1982 tube rupture and subsequent repair outage.
U.S. Nuclear Regulatory Commission	50-247SP	Members of New York City Council	May 1983	The economic consequences of the early retirement of the Indian Point nuclear plants.

ATTACHMENT 2

OTHER SIGNIFICANT STUDIES, INVESTIGATIONS, AND LITIGATION SUPPORT WORK (Non-Confidential) 1981 - Present

DATE	CLIENT	PROJECT
1997	Connecticut Office of Consumer Counsel	Investigated whether the current outages of the three Millstone Nuclear Units were caused or extended by imprudent management. Examined whether the equipment problems, personnel performance weaknesses, and program deficiencies which led to or extended these outages could have been avoided or addressed prior to the outage.
1997	Attorney General of the Commonwealth of Massachusetts	Investigated whether the current outages of the three Millstone Nuclear Units were caused or extended by imprudent management. Examined whether the equipment problems, personnel performance weaknesses, and program deficiencies which led to or extended these outages could have been avoided or addressed prior to the outage.
1997	New Jersey Division of Ratepayer Advocate	Reviewed the U.S. Nuclear Regulatory Commission's Draft Policy Statement on Electric Industry Economic Deregulation.
1996	New Jersey Division of Ratepayer Advocate	Investigated whether the current outages of the two units at the Salem Nuclear Station were caused or extended by imprudent management. Examined whether the equipment problems, personnel performance weaknesses, and program deficiencies which led to or extended these outages could have been avoided or addressed prior to the outage.
1996	Municipal Electric Utility Association of New York State	Evaluated a recent utility estimate of the expected cost of decommissioning the Fitzpatrick nuclear plant.
1996	Attorney General of the Commonwealth of Massachusetts	Investigated whether the outages of the Pilgrim, Millstone, Connecticut Yankee, Vermont Yankee, and Maine Yankee nuclear plants during the years 1995 and 1996 were caused or extended by imprudent management.
1996	Associated Industries of Massachusetts	Assisted client in quantifying the stranded costs associated with utility generating facilities in the New England states.
1996	Staff of the Arizona Corporation Commission	Assessed whether U.S. West Corporation's repair and replacement programs for telephone cable in Arizona were reasonable. Explored the impact of performance-based regulation on these utility programs.
1995-1996	City Public Service Board of San Antonio, Texas	Confidential
1995	Attorney General of the State of Michigan	Investigated whether the December 25, 1993 turbine generator failure and fire at the Fermi 2 generating plant was caused by Detroit's imprudent management of fabrication, operation or maintenance.
1995	Environmental Law and Policy Center of the Midwest	Investigated the potential safety consequences of steam generator tube cracking at the Byron and Braidwood nuclear stations.
1995	None	Analyzed the potential impact on nuclear power plant safety of increased competition in the electric industry.

DATE	CLIENT	PROJECT
1995	Attorney General of the Commonwealth of Massachusetts	Investigated whether the outages of the Millstone nuclear units during the years 1993 and 1994 were caused or extended by imprudent management.
1994-1995	Texas Office of Public Utility Counsel	Investigated whether the outages of the two units at the South Texas Nuclear Generating Station during the years 1990 through 1994 were caused or extended by imprudent management. Examined whether the equipment problems, personnel performance weaknesses, and program deficiencies which led to or extended these outages could have been avoided or addressed prior to the outage.
1994	Investment Firms	Examined the technical risks associated with investment in the Great Bay Power Company.
1994	Attorney General of the Commonwealth of Massachusetts	Investigated whether the outages of the Millstone and Maine Yankee nuclear plants during 1992 were caused or extended by imprudent management.
1993-1994	Public Advocate of the State of Maine	Evaluated the 1994 Decommissioning Cost Estimate for the Maine Yankee Nuclear Plant.
1993	Attorney General of the Commonwealth of Massachusetts	Investigated whether the outages of the Millstone nuclear units during 1991 were caused or extended by imprudent management.
1992-1993	Consumer Advocate Division of the West Virginia Public Service Commission	Analyzed whether proposed transmission line was needed to ensure adequate system reliability.
1992	Oregon Public Policy Coalition	Examined the potential impacts of the aging of power plant structures, components and equipment on the likely future operating costs and performance of the Trojan Nuclear Plant. Evaluated the reasonableness of the assumptions used in the utility's analysis of the economics of continued operation of the Trojan unit versus early retirement.
1992	New Jersey Rate Counsel	Examined whether a proposed natural-gas fired generating facility was needed to ensure adequate system reliability. Reviewed the planned licensing and construction schedules for the unit. Examined the potential impact of environmental requirements on the unit's expected construction cost and schedule.
1992	New York State Consumer Protection Board	Evaluated whether the utility's strategy for the repair and replacement of the steam generators at the Indian Point 2 nuclear plant was reasonable.
1990-1991	Shareholders of Public Service Company of New Mexico	Examined if Company management had known or should have known that the New Mexico Public Service Commission was considering whether to exclude the Company's investment in Palo Verde Units 2 and 3 from rate base. Examined whether management had adequately disclosed to potential investors its inability to market the resulting excess capacity.
1989	Connecticut Office of Consumer Counsel and the Attorney General of the State of Connecticut	Investigated whether the Seabrook Nuclear Plant was prudently engineered and constructed.
1988-1989	North Carolina Electric Municipal Power Agency	Investigated whether Carolina Power & Light Company had prudently managed the design and construction of the Harris nuclear plant. Examined the impact of safety-related and environmental statutes and regulatory requirements on power plant construction costs.
1988	Arkansas Public Service Commission	Investigated whether the Grand Gulf nuclear plant had been prudently designed and constructed.

DATE	CLIENT	PROJECT
1988	City of Fayetteville, North Carolina	Investigated whether Carolina Power & Light Company had prudently managed the design and construction of the Harris nuclear plant. Examined the impact of safety-related and environmental statutes and regulatory requirements on power plant construction costs.
1987	New York State Consumer Protection Board	Reviewed financial incentives proposed by Public Service Commission to improve nuclear power plant safety.
1986-1987	New Jersey Rate Counsel	Assisted client in a prudence review of the construction cost and schedule of the Hope Creek Nuclear Generating Station.
1985	Colorado Office of Consumer Counsel	Prepared an engineering review of the performance of the Fort St. Vrain Nuclear Plant.
1982-1983	New York State Consumer Protection Board	Represented the Consumer Protection Board in a Public Service Commission proceeding investigating whether the Nine Mile Point Unit No. 2 nuclear plant should be completed and in court appeals arising from that proceeding.
1981-1982	New York State Consumer Protection Board	Prepared an economic and engineering critique of the National Reliability Study published by the U.S. Department of Energy in 1981.

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Expertise

Geotechnical Engineering
Earthquake Engineering
Transportation Engineering
Hazardous Waste Management
Applied Statistics
Project Management

Education

Ph.D., Civil Engineering (geotechnical), Brigham Young University, 1992.

B.S., Geology, Brigham Young University, 1983.

Professional History

Utah Dept. of Transportation, Research Project Manager, Research Division, 1998 - present.

Woodward-Clyde Consultants, Project Engineer, 1996-1998.

Westinghouse Savannah River Company, Senior Engineer, 1991-1995.

Brigham Young University, Research Assistant, 1988-1991.

Utah Department of Transportation, Preconstruction Materials Engineer, 1987-1988.

Utah Department of Transportation, Construction Technician, 1984-1987.

Geokinetics In-Situ Oil Shale Development, Retort Engineer, 1984.

Registrations

Professional Engineer: Utah

Affiliations

American Society of Civil Engineers

Experience

Past projects and research include: geotechnical and geological investigations, foundation, embankment, and pavement design, seismic hazard assessments, earthquake engineering, RCRA and CERCLA hazardous waste investigations, construction material specification, contract administration, proposal preparation, and report writing. A summary of pertinent experience follows:

- **UDOT Research on the I-15 Corridor** - Principal investigator of long-term monitoring studies to determine the field performance of innovative foundation treatments on the I-15 alignment which include: PV drains, geofoam embankments, light-weight aggregate, lime cement columns, and high-strength geotextile. Also co-principal investigator with Utah State University to determine the construction and post-construction behavior of mechanically stabilized earth (MSE) walls. Project manager for research involving carbon fiber application for seismic bridge retrofitting, non-destructive testing for bridge damage assessment, and response of pile and geopier foundation systems to lateral and uplift loads.
- **I-15 Design-Build Team** - Lead design engineer for Woodward-Clyde Consultants responsible for geotechnical design from 800 South to 2100 South on I-15 in Salt Lake City, Utah. Project included settlement calculations, staged embankment construction, liquefaction and earthquake deformation analyses, MSE wall construction and ground modification and treatment.
- **Kennecott Utah Copper Tailing Impoundment Modernization Project** - Performed steady state and transient seepage analyses for design of a tailings dewatering system for the seismic upgrade of the tailings impoundment, Magna, Utah.
- **Wasatch County Water Efficient Project** - Performed geological and geotechnical assessments of canal stability and pump station locations, Heber Valley, Utah.

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Affiliations (cont.)

Utah Seismic Safety Commission Lifelines Subcommittee

Awards and Recognitions

BYU Presidential Scholar

Alvin Barrett Scholar (Geology Department)

BYU Sigma-Chi Recipient, Outstanding Ph.D. Dissertation, 1992.

Finalist for outstanding paper, ASCE Journal Geotechnical Engineering, 1995.

Publications/Reports

Bartlett, S. F., 1999, "Seismic Risk Assessment for the I-80 Corridor," Utah Department of Transportation, Research Division, in press.

Simon, D.B., Shlemon, R.J., and Bartlett, S.F., "Holocene Ground Failure in Downtown Salt Lake City, Utah," Geological Society of America, in press.

WSRC, 1995, "In-Tank Precipitation Facility (ITP) and H-Tank Farm (HTF) Geotechnical Report," Report No. WSRC-TR-95-0057, Rev. 0, Westinghouse Savannah River Company, Aiken, S.C.

Bartlett, S.F., 1995, "Probabilistic Liquefaction Settlement Evaluation for the In-Tank Precipitation Facility (ITP)," Report No. C-CLC-H-00815, Westinghouse Savannah River Company, Aiken, S.C.

Bartlett, S. F., 1995, "Geotechnical Seismic Assessment Report for the Defense Waste Processing Facility (DWPF)," Report No. SRC-TR-95-0072, Westinghouse Savannah River Company, Aiken, S.C.

Bartlett, S. F. and Youd, T. L., April 1995, "Empirical Prediction of Liquefaction-Induced Lateral Spread," Journal of Geotechnical Engineering, ASCE.

Rouhani, S., Lin, Y.P., and Bartlett, S.F., 1995, "H-Area/ITP Geostatistical Assessment of In-Situ and Engineering Properties," Final Technical Report, ERDA Project No. 93044, Site Geotechnical Services, Westinghouse Savannah River Company, Aiken, S.C.

Experience (cont.)

- **Cainville Dam Investigation** - Project Engineer responsible for preliminary geological and geotechnical assessments of foundation conditions at the proposed dam site. Performed coring of abutment areas, pump testing, and seepage assessments, Wayne County, Utah.
- **DMAD and Gunnison Bend Dam Investigations** - Performed geotechnical investigations and assessments to determine piping potential and seismic stability these embankment dams for Utah's Dam Safety Program, Millard County, Utah
- **Seismic Retrofit of Salt Lake City Waste Water Treatment Plant** - Design and field oversight engineer responsible for jet grouting operations to stabilize potentially liquefiable soils under a pump station, North Salt Lake City, Utah.
- **Hurricane Bridge Foundation Investigation** - Performed geological and bridge foundation investigations and analyses for UDOT at the Hurricane Bridge Crossing, Hurricane, Utah.
- **ITP/H-Area Tank Farm Geotechnical Investigation and Seismic Qualification** - Principal geotechnical investigator on a multi-disciplinary team overseeing the seismic qualification of the H-Area high-level radioactive waste storage tank farm. This project included extensive subsurface investigations, strong ground motion response modeling, liquefaction hazard evaluations, dynamic settlement calculations, dynamic slope stability analyses and a probabilistic liquefaction hazard assessment for the Department of Energy at the Savannah River Site, Aiken, South Carolina.
- **Review of Foundation Investigations and Geotechnical Seismic Design of the Defense Waste Processing Facility** - Principal geotechnical investigator reviewing the Safety Analysis Report (SAR) documentation for the seismic qualification and start-up of the high-level radioactive waste vitrification and storage facilities at the Savannah River Site, Aiken, South Carolina.

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Publication/Reports (cont.)

Bartlett, S. F., 1994, "Determination of Soft Zones and Consolidation Properties for the Santee Formation," Report No. K-CLC-H-00058, Westinghouse Savannah River Company, Aiken, S.C.

Bartlett, S. F. and Youd, T. L., 1993, "Prediction of Liquefaction-Induced Ground Displacement Near Bridges," Proceedings from the U.S. National Earthquake Conference, Memphis, Tenn., May, 1993.

Bartlett, S. F., 1993, "RCRA Facility Investigation / CERCLA Remedial Investigation for the Burma Road Rubble Pit," Environmental Restoration Department, Westinghouse Savannah River Company, Aiken, S.C.

Bartlett, S. F., McMullin, S. R., and Serrato, M., 1993, "State of the Art Design: A Closure System for the Largest Hazardous Waste Landfill at the Savannah River Site," Proceedings of Waste Management '93 Symposium.

Bartlett, S. F. and Youd, T. L., 1992, "Empirical Prediction of Lateral Spread Displacement," Proceedings of 4th Japan-U.S. Workshop on Earthquake Resistant Design of Lifeline Facilities and Countermeasures Against Soil Liquefaction, May, 1992.

Bartlett, S. F., 1992, "Empirical Analysis of Horizontal Ground Displacement Generated by Liquefaction-Induced Lateral Spreads," Ph.D. dissertation and report published by National Earthquake Engineering Research Center, NCEER Report #92-0021.

Bartlett, S. F. and Youd, T. L., 1992, "Case Histories of Lateral Spreads from the 1964 Alaska Earthquake," NCEER Report #92-0002.

Bartlett, S. F. and Youd, T. L., 1990, "Evaluation of Ground Failure Displacement Associated with Soil Liquefaction: Compilation of Case Histories," Miscellaneous Paper S-73-1, U.S. Army Corps of Engineers.

Experience (cont.)

- **SRS Hazardous Waste Landfill Closure** -Project manager for RCRA Facility Investigation and closure of a 51-acre hazardous waste landfill at the Savannah River Site. Also, oversaw the preparation of CERCLA feasibility study for the same closure.
- **UDOT Preconstruction Materials Engineer** - Performed material testing and pavement design for highway alignment changes and urban interchanges in West Valley City and for the I-215 interchange at California Avenue. Evaluated compaction and quality of subgrade for east-side belt route (I-215) between 2700 South and 4500 South. Conducted geological investigations on new and existing highway alignments in Salt Lake and Heber Counties, located fill and roadbase gravel sources for construction. Tested, instrumented and monitored I-215 fill slopes for settlement and slope stability.
- **Construction Technician** - Programmed and implemented a state-wide project accounting program for the Utah Dept. of Transportation to track monthly contractual payments and construction progress. Performed field assessments of slope stability and landsliding in Provo and Spanish Fork Canyon. Also performed construction inspection and surveying for highway widening projects in Orem, Utah and Provo Canyon.