

Scott J. Rubin

Attorney + Consultant

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Current Position

Public Utility Attorney and Consultant. 1994 to present. I provide legal, consulting, and expert witness services to various organizations interested in the regulation of public utilities.

Previous Positions

Lecturer in Computer Science, Susquehanna University, Selinsgrove, PA. 1993 to 2000.

Senior Assistant Consumer Advocate, Office of Consumer Advocate, Harrisburg, PA. 1990 to 1994.

I supervised the administrative and technical staff and shared with one other senior attorney the supervision of a legal staff of 14 attorneys.

Assistant Consumer Advocate, Office of Consumer Advocate, Harrisburg, PA. 1983 to 1990.

Associate, Laws and Staruch, Harrisburg, PA. 1981 to 1983.

Law Clerk, U.S. Environmental Protection Agency, Washington, DC. 1980 to 1981.

Research Assistant, Rockville Consulting Group, Washington, DC. 1979.

Current Professional Activities

Member, American Bar Association, Infrastructure and Regulated Industries Section.

Member, American Water Works Association.

Admitted to practice law before the Supreme Court of Pennsylvania, the New York State Court of Appeals, the United States District Court for the Middle District of Pennsylvania, the United States Court of Appeals for the Third Circuit, and the Supreme Court of the United States.

Previous Professional Activities

Member, American Water Works Association, Rates and Charges Subcommittee, 1998-2001.

Member, Federal Advisory Committee on Disinfectants and Disinfection By-Products in Drinking Water, U.S. Environmental Protection Agency, Washington, DC. 1992 to 1994.

Chair, Water Committee, National Association of State Utility Consumer Advocates, Washington, DC. 1990 to 1994; member of committee from 1988 to 1990.

Member, Board of Directors, Pennsylvania Energy Development Authority, Harrisburg, PA. 1990 to 1994.

Member, Small Water Systems Advisory Committee, Pennsylvania Department of Environmental Resources, Harrisburg, PA. 1990 to 1992.

Member, Ad Hoc Committee on Emissions Control and Acid Rain Compliance, National Association of State Utility Consumer Advocates, 1991.

Member, Nitrogen Oxides Subcommittee of the Acid Rain Advisory Committee, U.S. Environmental Protection Agency, Washington DC. 1991.

Education

J.D. with Honors, George Washington University, Washington, DC. 1981.

B.A. with Distinction in Political Science, Pennsylvania State University, University Park, PA. 1978.

Publications and Presentations (* denotes peer-reviewed publications)

1. "Quality of Service Issues," a speech to the Pennsylvania Public Utility Commission Consumer Conference, State College, PA. 1988.
2. K.L. Pape and S.J. Rubin, "Current Developments in Water Utility Law," in *Pennsylvania Public Utility Law* (Pennsylvania Bar Institute). 1990.
3. Presentation on Water Utility Holding Companies to the Annual Meeting of the National Association of State Utility Consumer Advocates, Orlando, FL. 1990.
4. "How the OCA Approaches Quality of Service Issues," a speech to the Pennsylvania Chapter of the National Association of Water Companies. 1991.
5. Presentation on the Safe Drinking Water Act to the Mid-Year Meeting of the National Association of State Utility Consumer Advocates, Seattle, WA. 1991.
6. "A Consumer Advocate's View of Federal Pre-emption in Electric Utility Cases," a speech to the Pennsylvania Public Utility Commission Electricity Conference. 1991.
7. Workshop on Safe Drinking Water Act Compliance Issues at the Mid-Year Meeting of the National Association of State Utility Consumer Advocates, Washington, DC. 1992.
8. Formal Discussant, Regional Acid Rain Workshop, U.S. Environmental Protection Agency and National Regulatory Research Institute, Charlotte, NC. 1992.
9. S.J. Rubin and S.P. O'Neal, "A Quantitative Assessment of the Viability of Small Water Systems in Pennsylvania," *Proceedings of the Eighth NARUC Biennial Regulatory Information Conference*, National Regulatory Research Institute (Columbus, OH 1992), IV:79-97.
10. "The OCA's Concerns About Drinking Water," a speech to the Pennsylvania Public Utility Commission Water Conference. 1992.
11. Member, Technical Horizons Panel, Annual Meeting of the National Association of Water Companies, Hilton Head, SC. 1992.
12. M.D. Klein and S.J. Rubin, "Water and Sewer -- Update on Clean Streams, Safe Drinking Water, Waste Disposal and Pennvest," *Pennsylvania Public Utility Law Conference* (Pennsylvania Bar Institute). 1992.
13. Presentation on Small Water System Viability to the Technical Assistance Center for Small Water Companies, Pa. Department of Environmental Resources, Harrisburg, PA. 1993

14. "The Results Through a Public Service Commission Lens," speaker and participant in panel discussion at Symposium: "Impact of EPA's Allowance Auction," Washington, DC, sponsored by AER*X. 1993.
15. "The Hottest Legislative Issue of Today -- Reauthorization of the Safe Drinking Water Act," speaker and participant in panel discussion at the Annual Conference of the American Water Works Association, San Antonio, TX. 1993.
16. "Water Service in the Year 2000," a speech to the Conference: "Utilities and Public Policy III: The Challenges of Change," sponsored by the Pennsylvania Public Utility Commission and the Pennsylvania State University, University Park, PA. 1993.
17. "Government Regulation of the Drinking Water Supply: Is it Properly Focused?," speaker and participant in panel discussion at the National Consumers League's Forum on Drinking Water Safety and Quality, Washington, DC. 1993. Reprinted in *Rural Water*, Vol. 15 No. 1 (Spring 1994), pages 13-16.
18. "Telephone Penetration Rates for Renters in Pennsylvania," a study prepared for the Pennsylvania Office of Consumer Advocate. 1993.
19. "Zealous Advocacy, Ethical Limitations and Considerations," participant in panel discussion at "Continuing Legal Education in Ethics for Pennsylvania Lawyers," sponsored by the Office of General Counsel, Commonwealth of Pennsylvania, State College, PA. 1993.
20. "Serving the Customer," participant in panel discussion at the Annual Conference of the National Association of Water Companies, Williamsburg, VA. 1993.
21. "A Simple, Inexpensive, Quantitative Method to Assess the Viability of Small Water Systems," a speech to the Water Supply Symposium, New York Section of the American Water Works Association, Syracuse, NY. 1993.
22. * S.J. Rubin, "Are Water Rates Becoming Unaffordable?," *Journal American Water Works Association*, Vol. 86, No. 2 (February 1994), pages 79-86.
23. "Why Water Rates Will Double (If We're Lucky): Federal Drinking Water Policy and Its Effect on New England," a briefing for the New England Conference of Public Utilities Commissioners, Andover, MA. 1994.
24. "Are Water Rates Becoming Unaffordable?," a speech to the Legislative and Regulatory Conference, Association of Metropolitan Water Agencies, Washington, DC. 1994.
25. "Relationships: Drinking Water, Health, Risk and Affordability," speaker and participant in panel discussion at the Annual Meeting of the Southeastern Association of Regulatory Commissioners, Charleston, SC. 1994.
26. "Small System Viability: Assessment Methods and Implementation Issues," speaker and participant in panel discussion at the Annual Conference of the American Water Works Association, New York, NY. 1994.
27. S.J. Rubin, "How much should we spend to save a life?," *Seattle Journal of Commerce*, August 18, 1994 (Protecting the Environment Supplement), pages B-4 to B-5.

28. S. Rubin, S. Bernow, M. Fulmer, J. Goldstein, and I. Peters, *An Evaluation of Kentucky-American Water Company's Long-Range Planning*, prepared for the Utility and Rate Intervention Division, Kentucky Office of the Attorney General (Tellus Institute 1994).
29. S.J. Rubin, "Small System Monitoring: What Does It Mean?," *Impacts of Monitoring for Phase II/V Drinking Water Regulations on Rural and Small Communities* (National Rural Water Association 1994), pages 6-12.
30. "Surviving the Safe Drinking Water Act," speaker at the Annual Meeting of the National Association of State Utility Consumer Advocates, Reno, NV. 1994.
31. "Safe Drinking Water Act Compliance -- Ratemaking Implications," speaker at the National Conference of Regulatory Attorneys, Scottsdale, AZ. 1995. Reprinted in *Water*, Vol. 36, No. 2 (Summer 1995), pages 28-29.
32. S.J. Rubin, "Water: Why Isn't it Free? The Case of Small Utilities in Pennsylvania," *Utilities, Consumers & Public Policy: Issues of Quality, Affordability, and Competition, Proceedings of the Fourth Utilities, Consumers and Public Policy Conference* (Pennsylvania State University 1995), pages 177-183.
33. S.J. Rubin, "Water Rates: An Affordable Housing Issue?," *Home Energy*, Vol. 12 No. 4 (July/August 1995), page 37.
34. Speaker and participant in the Water Policy Forum, sponsored by the National Association of Water Companies, Naples, FL. 1995.
35. Participant in panel discussion on "The Efficient and Effective Maintenance and Delivery of Potable Water at Affordable Rates to the People of New Jersey," at The New Advocacy: Protecting Consumers in the Emerging Era of Utility Competition, a conference sponsored by the New Jersey Division of the Ratepayer Advocate, Newark, NJ. 1995.
36. J.E. Cromwell III, and S.J. Rubin, *Development of Benchmark Measures for Viability Assessment* (Pa. Department of Environmental Protection 1995).
37. S. Rubin, "A Nationwide Practice from a Small Town in Pa.," *Lawyers & the Internet – a Supplement to the Legal Intelligencer and Pa. Law Weekly* (February 12, 1996), page S6.
38. "Changing Customers' Expectations in the Water Industry," speaker at the Mid-America Regulatory Commissioners Conference, Chicago, IL. 1996, reprinted in *Water* Vol. 37 No. 3 (Winter 1997), pages 12-14.
39. "Recent Federal Legislation Affecting Drinking Water Utilities," speaker at Pennsylvania Public Utility Law Conference, Pennsylvania Bar Institute, Hershey, PA. 1996.
40. "Clean Water at Affordable Rates: A Ratepayers Conference," moderator at symposium sponsored by the New Jersey Division of Ratepayer Advocate, Trenton, NJ. 1996.

41. “Water Workshop: How New Laws Will Affect the Economic Regulation of the Water Industry,” speaker at the Annual Meeting of the National Association of State Utility Consumer Advocates, San Francisco, CA. 1996.
42. * E.T. Castillo, S.J. Rubin, S.K. Keefe, and R.S. Raucher, “Restructuring Small Systems,” *Journal American Water Works Association*, Vol. 89, No. 1 (January 1997), pages 65-74.
43. * J.E. Cromwell III, S.J. Rubin, F.C. Marrocco, and M.E. Leevan, “Business Planning for Small System Capacity Development,” *Journal American Water Works Association*, Vol. 89, No. 1 (January 1997), pages 47-57.
44. “Capacity Development – More than Viability Under a New Name,” speaker at National Association of Regulatory Utility Commissioners Winter Meetings, Washington, DC. 1997.
45. * E. Castillo, S.K. Keefe, R.S. Raucher, and S.J. Rubin, *Small System Restructuring to Facilitate SDWA Compliance: An Analysis of Potential Feasibility* (AWWA Research Foundation, 1997).
46. H. Himmelberger, *et al.*, *Capacity Development Strategy Report for the Texas Natural Resource Conservation Commission* (Aug. 1997).
47. Briefing on Issues Affecting the Water Utility Industry, Annual Meeting of the National Association of State Utility Consumer Advocates, Boston, MA. 1997.
48. “Capacity Development in the Water Industry,” speaker at the Annual Meeting of the National Association of Regulatory Utility Commissioners, Boston, MA. 1997.
49. “The Ticking Bomb: Competitive Electric Metering, Billing, and Collection,” speaker at the Annual Meeting of the National Association of State Utility Consumer Advocates, Boston, MA. 1997.
50. Scott J. Rubin, “A Nationwide Look at the Affordability of Water Service,” *Proceedings of the 1998 Annual Conference of the American Water Works Association*, Water Research, Vol. C, No. 3, pages 113-129 (American Water Works Association, 1998).
51. Scott J. Rubin, “30 Technology Tips in 30 Minutes,” *Pennsylvania Public Utility Law Conference*, Vol. I, pages 101-110 (Pa. Bar Institute, 1998).
52. Scott J. Rubin, “Effects of Electric and Gas Deregulation on the Water Industry,” *Pennsylvania Public Utility Law Conference*, Vol. I, pages 139-146 (Pa. Bar Institute, 1998).
53. Scott J. Rubin, *The Challenges and Changing Mission of Utility Consumer Advocates* (American Association of Retired Persons, 1999).
54. “Consumer Advocacy for the Future,” speaker at the Age of Awareness Conference, Changes and Choices: Utilities in the New Millennium, Carlisle, PA. 1999.
55. Keynote Address, \$1 Energy Fund, Inc., Annual Membership Meeting, Monroeville, PA. 1999.
56. Scott J. Rubin, “Assessing the Effect of the Proposed Radon Rule on the Affordability of Water Service,” prepared for the American Water Works Association. 1999.

57. Scott J. Rubin and Janice A. Beecher, The Impacts of Electric Restructuring on the Water and Wastewater Industry, *Proceedings of the Small Drinking Water and Wastewater Systems International Symposium and Technology Expo* (Phoenix, AZ 2000), pp. 66-75.
58. American Water Works Association, *Principles of Water Rates, Fees, and Charges, Manual M1 – Fifth Edition* (AWWA 2000), Member, Editorial Committee.
59. Janice A. Beecher and Scott J. Rubin, presentation on “Special Topics in Rate Design: Affordability” at the Annual Conference and Exhibition of the American Water Works Association, Denver, CO. 2000.
60. Scott J. Rubin, “The Future of Drinking Water Regulation,” a speech at the Annual Conference and Exhibition of the American Water Works Association, Denver, CO. 2000.
61. Janice A. Beecher and Scott J. Rubin, “Deregulation Impacts and Opportunities,” a presentation at the Annual Conference and Exhibition of the American Water Works Association, Denver, CO. 2000.
62. Scott J. Rubin, “Estimating the Effect of Different Arsenic Maximum Contaminant Levels on the Affordability of Water Service,” prepared for the American Water Works Association. 2000.
63. * Janice A. Beecher and Scott J. Rubin, *Deregulation! Impacts on the Water Industry*, American Water Works Association Research Foundation, Denver, CO. 2000.
64. Scott J. Rubin, Methods for Assessing, Evaluating, and Assisting Small Water Systems, NARUC Annual Regulatory Studies Program, East Lansing, MI. 2000.
65. Scott J. Rubin, Consumer Issues in the Water Industry, NARUC Annual Regulatory Studies Program, East Lansing, MI. 2000.
66. “Be Utility Wise in a Restructured Utility Industry,” Keynote Address at Be UtilityWise Conference, Pittsburgh, PA. 2000.
67. Scott J. Rubin, Jason D. Sharp, and Todd S. Stewart, “The Wired Administrative Lawyer,” *5th Annual Administrative Law Symposium*, Pennsylvania Bar Institute, Harrisburg, PA. 2000.
68. Scott J. Rubin, “Current Developments in the Water Industry,” *Pennsylvania Public Utility Law Conference*, Pennsylvania Bar Institute, Harrisburg, PA. 2000.
69. Scott J. Rubin, “Viewpoint: Change Sickening Attitudes,” *Engineering News-Record*, Dec. 18, 2000.
70. Janice A. Beecher and Scott J. Rubin, “Ten Practices of Highly Effective Water Utilities,” *Opflow*, April 2001, pp. 1, 6-7, 16; reprinted in *Water and Wastes Digest*, December 2004, pp. 22-25.
71. Scott J. Rubin, “Pennsylvania Utilities: How Are Consumers, Workers, and Corporations Faring in the Deregulated Electricity, Gas, and Telephone Industries?” Keystone Research Center. 2001.
72. Scott J. Rubin, “Guest Perspective: A First Look at the Impact of Electric Deregulation on Pennsylvania,” *LEAP Letter*, May-June 2001, pp. 2-3.

73. Scott J. Rubin, Consumer Protection in the Water Industry, NARUC Annual Regulatory Studies Program, East Lansing, MI. 2001.
74. Scott J. Rubin, Impacts of Deregulation on the Water Industry, NARUC Annual Regulatory Studies Program, East Lansing, MI. 2001.
75. Scott J. Rubin, "Economic Characteristics of Small Systems," *Critical Issues in Setting Regulatory Standards*, National Rural Water Association, 2001, pp. 7-22.
76. Scott J. Rubin, "Affordability of Water Service," *Critical Issues in Setting Regulatory Standards*, National Rural Water Association, 2001, pp. 23-42.
77. Scott J. Rubin, "Criteria to Assess the Affordability of Water Service," White Paper, National Rural Water Association, 2001.
78. Scott J. Rubin, Providing Affordable Water Service to Low-Income Families, presentation to Portland Water Bureau, Portland, OR. 2001.
79. Scott J. Rubin, Issues Relating to the Affordability and Sustainability of Rates for Water Service, presentation to the Water Utility Council of the American Water Works Association, New Orleans, LA. 2002.
80. Scott J. Rubin, The Utility Industries Compared – Water, NARUC Annual Regulatory Studies Program, East Lansing, MI. 2002.
81. Scott J. Rubin, Legal Perspective on Water Regulation, NARUC Annual Regulatory Studies Program, East Lansing, MI. 2002.
82. Scott J. Rubin, Regulatory Options for Water Utilities, NARUC Annual Regulatory Studies Program, East Lansing, MI. 2002.
83. Scott J. Rubin, Overview of Small Water System Consolidation, presentation to National Drinking Water Advisory Council Small Systems Affordability Working Group, Washington, DC. 2002.
84. Scott J. Rubin, Defining Affordability and Low-Income Household Tradeoffs, presentation to National Drinking Water Advisory Council Small Systems Affordability Working Group, Washington, DC. 2002.
85. Scott J. Rubin, "Thinking Outside the Hearing Room," *Pennsylvania Public Utility Law Conference*, Pennsylvania Bar Institute, Harrisburg, PA. 2002.
86. Scott J. Rubin, "Update of Affordability Database," White Paper, National Rural Water Association. 2003.
87. Scott J. Rubin, *Understanding Telephone Penetration in Pennsylvania*, Council on Utility Choice, Harrisburg, PA. 2003.
88. Scott J. Rubin, *The Cost of Water and Wastewater Service in the United States*, National Rural Water Association, 2003.

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89. Scott J. Rubin, What Price Safer Water? Presentation at Annual Conference of National Association of Regulatory Utility Commissioners, Atlanta, GA. 2003.
 90. George M. Aman, III, Jeffrey P. Garton, Eric Petersen, and Scott J. Rubin, Challenges and Opportunities for Improving Water Supply Institutional Arrangements, *Water Law Conference*, Pennsylvania Bar Institute, Mechanicsburg, PA. 2004.
 91. Scott J. Rubin, Serving Low-Income Water Customers. Presentation at American Water Works Association Annual Conference, Orlando, FL. 2004.
 92. Scott J. Rubin, Thinking Outside the Bill: Serving Low-Income Water Customers. Presentation at National League of Cities Annual Congress of Cities, Indianapolis, IN. 2004.
 93. Scott J. Rubin, Buying and Selling a Water System – Ratemaking Implications, *Pennsylvania Public Utility Law Conference*, Pennsylvania Bar Institute, Harrisburg, PA. 2005.
 94. *Thinking Outside the Bill: A Utility Manager's Guide to Assisting Low-Income Water Customers*, American Water Works Association. 2005; Second Edition published in 2014
 95. * Scott J. Rubin, "Census Data Shed Light on US Water and Wastewater Costs," *Journal American Water Works Association*, Vol. 97, No. 4 (April 2005), pages 99-110, reprinted in Maxwell, *The Business of Water: A Concise Overview of Challenges and Opportunities in the Water Market.*, American Water Works Association, Denver, CO. 2008.
 96. Scott J. Rubin, Review of U.S. Environmental Protection Agency Notice Concerning Revision of National-Level Affordability Methodology, National Rural Water Association. 2006.
 97. * Robert S. Raucher, et al., *Regional Solutions to Water Supply Provision*, American Water Works Association Research Foundation, Denver, CO. 2007; 2nd edition published in 2008.
 98. Scott J. Rubin, Robert Raucher, and Megan Harrod, The Relationship Between Household Financial Distress and Health: Implications for Drinking Water Regulation, National Rural Water Association. 2007.
 99. * John Cromwell and Scott Rubin, *Estimating Benefits of Regional Solutions for Water and Wastewater Service*, American Water Works Association Research Foundation, Denver, CO. 2008.
 100. Scott J. Rubin, "Current State of the Water Industry and Stimulus Bill Overview," in *Pennsylvania Public Utility Law* (Pennsylvania Bar Institute). 2009.
 101. Scott J. Rubin, Best Practice in Customer Payment Assistance Programs, webcast presentation sponsored by Water Research Foundation. 2009.
 102. * Scott J. Rubin, How Should We Regulate Small Water Utilities?, National Regulatory Research Institute. 2009.
 103. * John Cromwell III, et al., *Best Practices in Customer Payment Assistance Programs*, Water Research Foundation, Denver, CO. 2010.

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- 104.* Scott J. Rubin, What Does Water Really Cost? Rate Design Principles for an Era of Supply Shortages, Infrastructure Upgrades, and Enhanced Water Conservation, , National Regulatory Research Institute. 2010.
105. Scott J. Rubin and Christopher P.N. Woodcock, Teleseminar: Water Rate Design, National Regulatory Research Institute. 2010.
106. David Monie and Scott J. Rubin, Cost of Service Studies and Water Rate Design: A Debate on the Utility and Regulatory Perspectives, Meeting of New England Chapter of National Association of Water Companies, Newport, RI. 2010.
107. * Scott J. Rubin, A Call for Water Utility Reliability Standards: Regulating Water Utilities' Infrastructure Programs to Achieve a Balance of Safety, Risk, and Cost, National Regulatory Research Institute. 2010.
- 108.* Raucher, Robert S.; Rubin, Scott J.; Crawford-Brown, Douglas; and Lawson, Megan M. "Benefit-Cost Analysis for Drinking Water Standards: Efficiency, Equity, and Affordability Considerations in Small Communities," *Journal of Benefit-Cost Analysis*: Vol. 2: Issue 1, Article 4. 2011.
- 109.Scott J. Rubin, A Call for Reliability Standards, *Journal American Water Works Association*, Vol. 103, No. 1 (Jan. 2011), pp. 22-24.
- 110.Scott J. Rubin, Current Topics in Water: Rate Design and Reliability. Presentation to the Water Committee of the National Association of Regulatory Utility Commissioners, Washington, DC. 2011.
- 111.Scott J. Rubin, Water Reliability and Resilience Standards, *Pennsylvania Public Utility Law Conference* (Pennsylvania Bar Institute). 2011.
- 112.Member of Expert Panel, Leadership Forum: Business Management for the Future, Annual Conference and Exposition of the American Water Works Association, Washington, DC. 2011.
- 113.Scott J. Rubin, Evaluating Community Affordability in Storm Water Control Plans, *Flowing into the Future: Evolving Water Issues* (Pennsylvania Bar Institute). 2011.
- 114.Invited Participant, Summit on Declining Water Demand and Revenues, sponsored by The Alliance for Water Efficiency, Racine, WI. 2012.
- 115.*Scott J. Rubin, Evaluating Violations of Drinking Water Regulations, *Journal American Water Works Association*, Vol. 105, No. 3 (Mar. 2013), pp. 51-52 (Expanded Summary) and E137-E147. Winner of the AWWA Small Systems Division Best Paper Award.
- 116.*Scott J. Rubin, Structural Changes in the Water Utility Industry During the 2000s, *Journal American Water Works Association*, Vol. 105, No. 3 (Mar. 2013), pp. 53-54 (Expanded Summary) and E148-E156.
- 117.* Scott J. Rubin, Moving Toward Demand-Based Residential Rates, *The Electricity Journal*, Vol. 28, No. 9 (Nov. 2015), pp. 63-71, <http://dx.doi.org/10.1016/j.tej.2015.09.021>.
- 118.Scott J. Rubin, Moving Toward Demand-Based Residential Rates. Presentation at the Annual Meeting of the National Association of State Utility Consumer Advocates, Austin, TX. 2015.

Testimony as an Expert Witness

1. *Pa. Public Utility Commission v. Pennsylvania Gas and Water Co. - Water Division*, Pa. Public Utility Commission, Docket R-00922404. 1992. Concerning rate design, on behalf of the Pa. Office of Consumer Advocate.
2. *Pa. Public Utility Commission v. Shenango Valley Water Co.*, Pa. Public Utility Commission, Docket R-00922420. 1992. Concerning cost allocation, on behalf of the Pa. Office of Consumer Advocate
3. *Pa. Public Utility Commission v. Pennsylvania Gas and Water Co. - Water Division*, Pa. Public Utility Commission, Docket R-00922482. 1993. Concerning rate design, on behalf of the Pa. Office of Consumer Advocate
4. *Pa. Public Utility Commission v. Colony Water Co.*, Pa. Public Utility Commission, Docket R-00922375. 1993. Concerning rate design, on behalf of the Pa. Office of Consumer Advocate
5. *Pa. Public Utility Commission v. Dauphin Consolidated Water Supply Co. and General Waterworks of Pennsylvania, Inc.*, Pa. Public Utility Commission, Docket R-00932604. 1993. Concerning rate design and cost of service, on behalf of the Pa. Office of Consumer Advocate
6. *West Penn Power Co. v. State Tax Department of West Virginia*, Circuit Court of Kanawha County, West Virginia, Civil Action No. 89-C-3056. 1993. Concerning regulatory policy and the effects of a taxation statute on out-of-state utility ratepayers, on behalf of the Pa. Office of Consumer Advocate
7. *Pa. Public Utility Commission v. Pennsylvania Gas and Water Co. - Water Division*, Pa. Public Utility Commission, Docket R-00932667. 1993. Concerning rate design and affordability of service, on behalf of the Pa. Office of Consumer Advocate
8. *Pa. Public Utility Commission v. National Utilities, Inc.*, Pa. Public Utility Commission, Docket R-00932828. 1994. Concerning rate design, on behalf of the Pa. Office of Consumer Advocate
9. *An Investigation of the Sources of Supply and Future Demand of Kentucky-American Water Company*, Ky. Public Service Commission, Case No. 93-434. 1994. Concerning supply and demand planning, on behalf of the Kentucky Office of Attorney General, Utility and Rate Intervention Division.
10. *The Petition on Behalf of Gordon's Corner Water Company for an Increase in Rates*, New Jersey Board of Public Utilities, Docket No. WR94020037. 1994. Concerning revenue requirements and rate design, on behalf of the New Jersey Division of Ratepayer Advocate.
11. *Re Consumers Maine Water Company Request for Approval of Contracts with Consumers Water Company and with Ohio Water Service Company*, Me. Public Utilities Commission, Docket No. 94-352. 1994. Concerning affiliated interest agreements, on behalf of the Maine Public Advocate.
12. *In the Matter of the Application of Potomac Electric Power Company for Approval of its Third Least-Cost Plan*, D.C. Public Service Commission, Formal Case No. 917, Phase II. 1995. Concerning Clean Air Act implementation and environmental externalities, on behalf of the District of Columbia Office of the People's Counsel.
13. *In the Matter of the Regulation of the Electric Fuel Component Contained within the Rate Schedules of the Dayton Power and Light Company and Related Matters*, Ohio Public Utilities Commission, Case No. 94-

- 105-EL-EFC. 1995. Concerning Clean Air Act implementation (case settled before testimony was filed), on behalf of the Office of the Ohio Consumers' Counsel.
14. *Kennebec Water District Proposed Increase in Rates*, Maine Public Utilities Commission, Docket No. 95-091. 1995. Concerning the reasonableness of planning decisions and the relationship between a publicly owned water district and a very large industrial customer, on behalf of the Maine Public Advocate.
 15. *Winter Harbor Water Company, Proposed Schedule Revisions to Introduce a Readiness-to-Serve Charge*, Maine Public Utilities Commission, Docket No. 95-271. 1995 and 1996. Concerning standards for, and the reasonableness of, imposing a readiness to serve charge and/or exit fee on the customers of a small investor-owned water utility, on behalf of the Maine Public Advocate.
 16. *In the Matter of the 1995 Long-Term Electric Forecast Report of the Cincinnati Gas & Electric Company*, Public Utilities Commission of Ohio, Case No. 95-203-EL-FOR, and *In the Matter of the Two-Year Review of the Cincinnati Gas & Electric Company's Environmental Compliance Plan Pursuant to Section 4913.05, Revised Cost*, Case No. 95-747-EL-ECP. 1996. Concerning the reasonableness of the utility's long-range supply and demand-management plans, the reasonableness of its plan for complying with the Clean Air Act Amendments of 1990, and discussing methods to ensure the provision of utility service to low-income customers, on behalf of the Office of the Ohio Consumers' Counsel.
 17. *In the Matter of Notice of the Adjustment of the Rates of Kentucky-American Water Company*, Kentucky Public Service Commission, Case No. 95-554. 1996. Concerning rate design, cost of service, and sales forecast issues, on behalf of the Kentucky Office of Attorney General.
 18. *In the Matter of the Application of Citizens Utilities Company for a Hearing to Determine the Fair Value of its Properties for Ratemaking Purposes, to Fix a Just and Reasonable Rate of Return Thereon, and to Approve Rate Schedules Designed to Provide such Rate of Return*, Arizona Corporation Commission, Docket Nos. E-1032-95-417, *et al.* 1996. Concerning rate design, cost of service, and the price elasticity of water demand, on behalf of the Arizona Residential Utility Consumer Office.
 19. *Cochrane v. Bangor Hydro-Electric Company*, Maine Public Utilities Commission, Docket No. 96-053. 1996. Concerning regulatory requirements for an electric utility to engage in unregulated business enterprises, on behalf of the Maine Public Advocate.
 20. *In the Matter of the Regulation of the Electric Fuel Component Contained within the Rate Schedules of Monongahela Power Company and Related Matters*, Public Utilities Commission of Ohio, Case No. 96-106-EL-EFC. 1996. Concerning the costs and procedures associated with the implementation of the Clean Air Act Amendments of 1990, on behalf of the Ohio Consumers' Counsel.
 21. *In the Matter of the Regulation of the Electric Fuel Component Contained within the Rate Schedules of Cleveland Electric Illuminating Company and Toledo Edison Company and Related Matters*, Public Utilities Commission of Ohio, Case Nos. 96-107-EL-EFC and 96-108-EL-EFC. 1996. Concerning the costs and procedures associated with the implementation of the Clean Air Act Amendments of 1990, on behalf of the Ohio Consumers' Counsel.
 22. *In the Matter of the Regulation of the Electric Fuel Component Contained within the Rate Schedules of Ohio Power Company and Columbus Southern Power Company and Related Matters*, Public Utilities Commission of Ohio, Case Nos. 96-101-EL-EFC and 96-102-EL-EFC. 1997. Concerning the costs and

procedures associated with the implementation of the Clean Air Act Amendments of 1990, on behalf of the Ohio Consumers' Counsel.

23. *An Investigation of the Sources of Supply and Future Demand of Kentucky-American Water Company (Phase II)*, Kentucky Public Service Commission, Docket No. 93-434. 1997. Concerning supply and demand planning, on behalf of the Kentucky Office of Attorney General, Public Service Litigation Branch.
24. *In the Matter of the Regulation of the Electric Fuel Component Contained within the Rate Schedules of Cincinnati Gas and Electric Co. and Related Matters*, Public Utilities Commission of Ohio, Case No. 96-103-EL-EFC. 1997. Concerning the costs and procedures associated with the implementation of the Clean Air Act Amendments of 1990, on behalf of the Ohio Consumers' Counsel.
25. *Bangor Hydro-Electric Company Petition for Temporary Rate Increase*, Maine Public Utilities Commission, Docket No. 97-201. 1997. Concerning the reasonableness of granting an electric utility's request for emergency rate relief, and related issues, on behalf of the Maine Public Advocate.
26. *Testimony concerning H.B. 1068 Relating to Restructuring of the Natural Gas Utility Industry*, Consumer Affairs Committee, Pennsylvania House of Representatives. 1997. Concerning the provisions of proposed legislation to restructure the natural gas utility industry in Pennsylvania, on behalf of the Pennsylvania AFL-CIO Gas Utility Caucus.
27. *In the Matter of the Regulation of the Electric Fuel Component Contained within the Rate Schedules of Cleveland Electric Illuminating Company and Toledo Edison Company and Related Matters*, Public Utilities Commission of Ohio, Case Nos. 97-107-EL-EFC and 97-108-EL-EFC. 1997. Concerning the costs and procedures associated with the implementation of the Clean Air Act Amendments of 1990, on behalf of the Ohio Consumers' Counsel.
28. *In the Matter of the Petition of Valley Road Sewerage Company for a Revision in Rates and Charges for Water Service*, New Jersey Board of Public Utilities, Docket No. WR92080846J. 1997. Concerning the revenue requirements and rate design for a wastewater treatment utility, on behalf of the New Jersey Division of Ratepayer Advocate.
29. *Bangor Gas Company, L.L.C., Petition for Approval to Furnish Gas Service in the State of Maine*, Maine Public Utilities Commission, Docket No. 97-795. 1998. Concerning the standards and public policy concerns involved in issuing a certificate of public convenience and necessity for a new natural gas utility, and related ratemaking issues, on behalf of the Maine Public Advocate.
30. *In the Matter of the Investigation on Motion of the Commission into the Adequacy of the Public Utility Water Service Provided by Tidewater Utilities, Inc., in Areas in Southern New Castle County, Delaware*, Delaware Public Service Commission, Docket No. 309-97. 1998. Concerning the standards for the provision of efficient, sufficient, and adequate water service, and the application of those standards to a water utility, on behalf of the Delaware Division of the Public Advocate.
31. *In the Matter of the Regulation of the Electric Fuel Component Contained within the Rate Schedules of Cincinnati Gas and Electric Co. and Related Matters*, Public Utilities Commission of Ohio, Case No. 97-103-EL-EFC. 1998. Concerning fuel-related transactions with affiliated companies and the appropriate ratemaking treatment and regulatory safeguards involving such transactions, on behalf of the Ohio Consumers' Counsel.

32. *Olde Port Mariner Fleet, Inc. Complaint Regarding Casco Bay Island Transit District's Tour and Charter Service*, Maine Public Utilities Commission, Docket No. 98-161. 1998. Concerning the standards and requirements for allocating costs and separating operations between regulated and unregulated operations of a transportation utility, on behalf of the Maine Public Advocate and Olde Port Mariner Fleet, Inc.
33. *Central Maine Power Company Investigation of Stranded Costs, Transmission and Distribution Utility Revenue Requirements, and Rate Design*, Maine Public Utilities Commission, Docket No. 97-580. 1998. Concerning the treatment of existing rate discounts when designing rates for a transmission and distribution electric utility, on behalf of the Maine Public Advocate.
34. *Pa. Public Utility Commission v. Manufacturers Water Company*, Pennsylvania Public Utility Commission, Docket No. R-00984275. 1998. Concerning rate design on behalf of the Manufacturers Water Industrial Users.
35. *In the Matter of Petition of Pennsgrove Water Supply Company for an Increase in Rates for Water Service*, New Jersey Board of Public Utilities, Docket No. WR98030147. 1998. Concerning the revenue requirements, level of affiliated charges, and rate design for a water utility, on behalf of the New Jersey Division of Ratepayer Advocate.
36. *In the Matter of Petition of Seaview Water Company for an Increase in Rates for Water Service*, New Jersey Board of Public Utilities, Docket No. WR98040193. 1999. Concerning the revenue requirements and rate design for a water utility, on behalf of the New Jersey Division of Ratepayer Advocate.
37. *In the Matter of the Regulation of the Electric Fuel Component Contained within the Rate Schedules of Ohio Power Company and Columbus Southern Power Company and Related Matters*, Public Utilities Commission of Ohio, Case Nos. 98-101-EL-EFC and 98-102-EL-EFC. 1999. Concerning the costs and procedures associated with the implementation of the Clean Air Act Amendments of 1990, on behalf of the Ohio Consumers' Counsel.
38. *In the Matter of the Regulation of the Electric Fuel Component Contained within the Rate Schedules of Dayton Power and Light Company and Related Matters*, Public Utilities Commission of Ohio, Case No. 98-105-EL-EFC. 1999. Concerning the costs and procedures associated with the implementation of the Clean Air Act Amendments of 1990, on behalf of the Ohio Consumers' Counsel.
39. *In the Matter of the Regulation of the Electric Fuel Component Contained within the Rate Schedules of Monongahela Power Company and Related Matters*, Public Utilities Commission of Ohio, Case No. 99-106-EL-EFC. 1999. Concerning the costs and procedures associated with the implementation of the Clean Air Act Amendments of 1990, on behalf of the Ohio Consumers' Counsel.
40. *County of Suffolk, et al. v. Long Island Lighting Company, et al.*, U.S. District Court for the Eastern District of New York, Case No. 87-CV-0646. 2000. Submitted two affidavits concerning the calculation and collection of court-ordered refunds to utility customers, on behalf of counsel for the plaintiffs.
41. *Northern Utilities, Inc., Petition for Waivers from Chapter 820*, Maine Public Utilities Commission, Docket No. 99-254. 2000. Concerning the standards and requirements for defining and separating a natural gas utility's core and non-core business functions, on behalf of the Maine Public Advocate.

42. *Notice of Adjustment of the Rates of Kentucky-American Water Company*, Kentucky Public Service Commission, Case No. 2000-120. 2000. Concerning the appropriate methods for allocating costs and designing rates, on behalf of the Kentucky Office of Attorney General.
43. *In the Matter of the Petition of Gordon's Corner Water Company for an Increase in Rates and Charges for Water Service*, New Jersey Board of Public Utilities, Docket No. WR00050304. 2000. Concerning the revenue requirements and rate design for a water utility, on behalf of the New Jersey Division of Ratepayer Advocate.
44. *Testimony concerning Arsenic in Drinking Water: An Update on the Science, Benefits, and Costs*, Committee on Science, United States House of Representatives. 2001. Concerning the effects on low-income households and small communities from a more stringent regulation of arsenic in drinking water.
45. *In the Matter of the Application of The Cincinnati Gas & Electric Company for an Increase in Gas Rates in its Service Territory*, Public Utilities Commission of Ohio, Case No. 01-1228-GA-AIR, *et al.* 2002. Concerning the need for and structure of a special rider and alternative form of regulation for an accelerated main replacement program, on behalf of the Ohio Consumers' Counsel.
46. *Pennsylvania State Treasurer's Hearing on Enron and Corporate Governance Issues*. 2002. Concerning Enron's role in Pennsylvania's electricity market and related issues, on behalf of the Pennsylvania AFL-CIO.
47. *An Investigation into the Feasibility and Advisability of Kentucky-American Water Company's Proposed Solution to its Water Supply Deficit*, Kentucky Public Service Commission, Case No. 2001-00117. 2002. Concerning water supply planning, regulatory oversight, and related issue, on behalf of the Kentucky Office of Attorney General.
48. *Joint Application of Pennsylvania-American Water Company and Thames Water Aqua Holdings GmbH*, Pennsylvania Public Utility Commission, Docket Nos. A-212285F0096 and A-230073F0004. 2002. Concerning the risks and benefits associated with the proposed acquisition of a water utility, on behalf of the Pennsylvania Office of Consumer Advocate.
49. *Application for Approval of the Transfer of Control of Kentucky-American Water Company to RWE AG and Thames Water Aqua Holdings GmbH*, Kentucky Public Service Commission, Case No. 2002-00018. 2002. Concerning the risks and benefits associated with the proposed acquisition of a water utility, on behalf of the Kentucky Office of Attorney General.
50. *Joint Petition for the Consent and Approval of the Acquisition of the Outstanding Common Stock of American Water Works Company, Inc., the Parent Company and Controlling Shareholder of West Virginia-American Water Company*, West Virginia Public Service Commission, Case No. 01-1691-W-PC. 2002. Concerning the risks and benefits associated with the proposed acquisition of a water utility, on behalf of the Consumer Advocate Division of the West Virginia Public Service Commission.
51. *Joint Petition of New Jersey-American Water Company, Inc. and Thames Water Aqua Holdings GmbH for Approval of Change in Control of New Jersey-American Water Company, Inc.*, New Jersey Board of Public Utilities, Docket No. WM01120833. 2002. Concerning the risks and benefits associated with the proposed acquisition of a water utility, on behalf of the New Jersey Division of Ratepayer Advocate.

52. *Illinois-American Water Company, Proposed General Increase in Water Rates*, Illinois Commerce Commission, Docket No. 02-0690. 2003. Concerning rate design and cost of service issues, on behalf of the Illinois Office of the Attorney General.
53. *Pennsylvania Public Utility Commission v. Pennsylvania-American Water Company*, Pennsylvania Public Utility Commission, Docket No. R-00038304. 2003. Concerning rate design and cost of service issues, on behalf of the Pennsylvania Office of Consumer Advocate.
54. *West Virginia-American Water Company*, West Virginia Public Service Commission, Case No. 03-0353-W-42T. 2003. Concerning affordability, rate design, and cost of service issues, on behalf of the West Virginia Consumer Advocate Division.
55. *Petition of Seabrook Water Corp. for an Increase in Rates and Charges for Water Service*, New Jersey Board of Public Utilities, Docket No. WR3010054. 2003. Concerning revenue requirements, rate design, prudence, and regulatory policy, on behalf of the New Jersey Division of Ratepayer Advocate.
56. *Chesapeake Ranch Water Co. v. Board of Commissioners of Calvert County*, U.S. District Court for Southern District of Maryland, Civil Action No. 8:03-cv-02527-AW. 2004. Submitted expert report concerning the expected level of rates under various options for serving new commercial development, on behalf of the plaintiff.
57. *Testimony concerning Lead in Drinking Water*, Committee on Government Reform, United States House of Representatives. 2004. Concerning the trade-offs faced by low-income households when drinking water costs increase, including an analysis of H.R. 4268.
58. *West Virginia-American Water Company*, West Virginia Public Service Commission, Case No. 04-0373-W-42T. 2004. Concerning affordability and rate comparisons, on behalf of the West Virginia Consumer Advocate Division.
59. *West Virginia-American Water Company*, West Virginia Public Service Commission, Case No. 04-0358-W-PC. 2004. Concerning costs, benefits, and risks associated with a wholesale water sales contract, on behalf of the West Virginia Consumer Advocate Division.
60. *Kentucky-American Water Company*, Kentucky Public Service Commission, Case No. 2004-00103. 2004. Concerning rate design and tariff issues, on behalf of the Kentucky Office of Attorney General.
61. *New Landing Utility, Inc.*, Illinois Commerce Commission, Docket No. 04-0610. 2005. Concerning the adequacy of service provided by, and standards of performance for, a water and wastewater utility, on behalf of the Illinois Office of Attorney General.
62. *People of the State of Illinois v. New Landing Utility, Inc.*, Circuit Court of the 15th Judicial District, Ogle County, Illinois, No. 00-CH-97. 2005. Concerning the standards of performance for a water and wastewater utility, including whether a receiver should be appointed to manage the utility's operations, on behalf of the Illinois Office of Attorney General.
63. *Hope Gas, Inc. d/b/a Dominion Hope*, West Virginia Public Service Commission, Case No. 05-0304-G-42T. 2005. Concerning the utility's relationships with affiliated companies, including an appropriate level of revenues and expenses associated with services provided to and received from affiliates, on behalf of the West Virginia Consumer Advocate Division.

64. *Monongahela Power Co. and The Potomac Edison Co.*, West Virginia Public Service Commission, Case Nos. 05-0402-E-CN and 05-0750-E-PC. 2005. Concerning review of a plan to finance the construction of pollution control facilities and related issues, on behalf of the West Virginia Consumer Advocate Division.
65. *Joint Application of Duke Energy Corp., et al., for Approval of a Transfer and Acquisition of Control*, Case Kentucky Public Service Commission, No. 2005-00228. 2005. Concerning the risks and benefits associated with the proposed acquisition of an energy utility, on behalf of the Kentucky Office of the Attorney General.
66. *Commonwealth Edison Company proposed general revision of rates, restructuring and price unbundling of bundled service rates, and revision of other terms and conditions of service*, Illinois Commerce Commission, Docket No. 05-0597. 2005. Concerning rate design and cost of service, on behalf of the Illinois Office of Attorney General.
67. *Pennsylvania Public Utility Commission v. Aqua Pennsylvania, Inc.*, Pennsylvania Public Utility Commission, Docket No. R-00051030. 2006. Concerning rate design and cost of service, on behalf of the Pennsylvania Office of Consumer Advocate.
68. *Central Illinois Light Company d/b/a AmerenCILCO, Central Illinois Public Service Company d/b/a AmerenCIPS, and Illinois Power Company d/b/a AmerenIP, proposed general increases in rates for delivery service*, Illinois Commerce Commission, Docket Nos. 06-0070, et al. 2006. Concerning rate design and cost of service, on behalf of the Illinois Office of Attorney General.
69. *Grens, et al., v. Illinois-American Water Co.*, Illinois Commerce Commission, Docket Nos. 5-0681, et al. 2006. Concerning utility billing, metering, meter reading, and customer service practices, on behalf of the Illinois Office of Attorney General and the Village of Homer Glen, Illinois.
70. *Commonwealth Edison Company Petition for Approval of Tariffs Implementing ComEd's Proposed Residential Rate Stabilization Program*, Illinois Commerce Commission, Docket No. 06-0411. 2006. Concerning a utility's proposed purchased power phase-in proposal, in behalf of the Illinois Office of Attorney General.
71. *Illinois-American Water Company, Application for Approval of its Annual Reconciliation of Purchased Water and Purchased Sewage Treatment Surcharges Pursuant to 83 Ill. Adm. Code 655*, Illinois Commerce Commission, Docket No. 06-0196. 2006. Concerning the reconciliation of purchased water and sewer charges, on behalf of the Illinois Office of Attorney General and the Village of Homer Glen, Illinois.
72. *Illinois-American Water Company, et al.*, Illinois Commerce Commission, Docket No. 06-0336. 2006. Concerning the risks and benefits associated with the proposed divestiture of a water utility, on behalf of the Illinois Office of Attorney General.
73. *Joint Petition of Kentucky-American Water Company, et al.*, Kentucky Public Service Commission, Docket No. 2006-00197. 2006. Concerning the risks and benefits associated with the proposed divestiture of a water utility, on behalf of the Kentucky Office of Attorney General.
74. *Aqua Illinois, Inc. Proposed Increase in Water Rates for the Kankakee Division*, Illinois Commerce Commission, Docket No. 06-0285. 2006. Concerning various revenue requirement, rate design, and tariff issues, on behalf of the County of Kankakee.

75. *Housing Authority for the City of Pottsville v. Schuylkill County Municipal Authority*, Court of Common Pleas of Schuylkill County, Pennsylvania, No. S-789-2000. 2006. Concerning the reasonableness and uniformity of rates charged by a municipal water authority, on behalf of the Pottsville Housing Authority.
76. *Application of Pennsylvania-American Water Company for Approval of a Change in Control*, Pennsylvania Public Utility Commission, Docket No. A-212285F0136. 2006. Concerning the risks and benefits associated with the proposed divestiture of a water utility, on behalf of the Pennsylvania Office of Consumer Advocate.
77. *Application of Artesian Water Company, Inc., for an Increase in Water Rates*, Delaware Public Service Commission, Docket No. 06-158. 2006. Concerning rate design and cost of service, on behalf of the Staff of the Delaware Public Service Commission.
78. *Central Illinois Light Company, Central Illinois Public Service Company, and Illinois Power Company: Petition Requesting Approval of Deferral and Securitization of Power Costs*, Illinois Commerce Commission, Docket No. 06-0448. 2006. Concerning a utility's proposed purchased power phase-in proposal, in behalf of the Illinois Office of Attorney General.
79. *Petition of Pennsylvania-American Water Company for Approval to Implement a Tariff Supplement Revising the Distribution System Improvement Charge*, Pennsylvania Public Utility Commission, Docket No. P-00062241. 2007. Concerning the reasonableness of a water utility's proposal to increase the cap on a statutorily authorized distribution system surcharge, on behalf of the Pennsylvania Office of Consumer Advocate.
80. *Adjustment of the Rates of Kentucky-American Water Company*, Kentucky Public Service Commission, Case No. 2007-00143. 2007. Concerning rate design and cost of service, on behalf of the Kentucky Office of Attorney General.
81. *Application of Kentucky-American Water Company for a Certificate of Convenience and Necessity Authorizing the Construction of Kentucky River Station II, Associated Facilities and Transmission Main*, Kentucky Public Service Commission, Case No. 2007-00134. 2007. Concerning the life-cycle costs of a planned water supply source and the imposition of conditions on the construction of that project, on behalf of the Kentucky Office of Attorney General.
82. *Pa. Public Utility Commission v. Pennsylvania-American Water Company*, Pennsylvania Public Utility Commission, Docket No. R-00072229. 2007. Concerning rate design and cost of service, on behalf of the Pennsylvania Office of Consumer Advocate.
83. *Illinois-American Water Company Application for Approval of its Annual Reconciliation of Purchased Water and Purchased Sewage Treatment Surcharges*, Illinois Commerce Commission, Docket No. 07-0195. 2007. Concerning the reconciliation of purchased water and sewer charges, on behalf of the Illinois Office of Attorney General.
84. *In the Matter of the Application of Aqua Ohio, Inc. to Increase Its Rates for Water Service Provided In the Lake Erie Division*, Public Utilities Commission of Ohio, Case No. 07-0564-WW-AIR. 2007. Concerning rate design and cost of service, on behalf of the Office of the Ohio Consumers' Counsel.

85. *Pa. Public Utility Commission v. Aqua Pennsylvania Inc.*, Pennsylvania Public Utility Commission, Docket No. R-00072711. 2008. Concerning rate design, on behalf of the Masthope Property Owners Council.
86. *Illinois-American Water Company Proposed increase in water and sewer rates*, Illinois Commerce Commission, Docket No. 07-0507. 2008. Concerning rate design and demand studies, on behalf of the Illinois Office of Attorney General.
87. *Central Illinois Light Company, d/b/a AmerenCILCO; Central Illinois Public Service Company, d/b/a AmerenCIPS; Illinois Power Company, d/b/a AmerenIP: Proposed general increase in rates for electric delivery service*, Illinois Commerce Commission Docket Nos. 07-0585, 07-0586, 07-0587. 2008. Concerning rate design and cost of service studies, on behalf of the Illinois Office of Attorney General.
88. *Commonwealth Edison Company: Proposed general increase in electric rates*, Illinois Commerce Commission Docket No. 07-0566. 2008. Concerning rate design and cost of service studies, on behalf of the Illinois Office of Attorney General.
89. *In the Matter of Application of Ohio American Water Co. to Increase Its Rates*, Public Utilities Commission of Ohio, Case No. 07-1112-WS-AIR. 2008. Concerning rate design and cost of service, on behalf of the Office of the Ohio Consumers' Counsel.
90. *In the Matter of the Application of The East Ohio Gas Company d/b/a Dominion East Ohio for Authority to Increase Rates for its Gas Service*, Public Utilities Commission of Ohio, Case Nos. 07-829-GA-AIR, et al. 2008. Concerning the need for, and structure of, an accelerated infrastructure replacement program and rate surcharge, on behalf of the Office of the Ohio Consumers' Counsel.
91. *Pa. Public Utility Commission v. Pennsylvania American Water Company*, Pennsylvania Public Utility Commission, Docket No. R-2008-2032689. 2008. Concerning rate design, cost of service study, and other tariff issues, on behalf of the Pennsylvania Office of Consumer Advocate.
92. *Pa. Public Utility Commission v. York Water Company*, Pennsylvania Public Utility Commission, Docket No. R-2008-2023067. 2008. Concerning rate design, cost of service study, and other tariff issues, on behalf of the Pennsylvania Office of Consumer Advocate.
93. *Northern Illinois Gas Company d/b/a Nicor Gas Company*, Illinois Commerce Commission, Docket No. 08-0363. 2008. Concerning rate design, cost of service, and automatic rate adjustments, on behalf of the Illinois Office of Attorney General.
94. *West Virginia American Water Company*, West Virginia Public Service Commission, Case No. 08-0900-W-42T. 2008. Concerning affiliated interest charges and relationships, on behalf of the Consumer Advocate Division of the Public Service Commission of West Virginia.
95. *Illinois-American Water Company Application for Approval of its Annual Reconciliation of Purchased Water and Purchased Sewage Treatment Surcharges*, Illinois Commerce Commission, Docket No. 08-0218. 2008. Concerning the reconciliation of purchased water and sewer charges, on behalf of the Illinois Office of Attorney General.

96. *In the Matter of Application of Duke Energy Ohio, Inc. for an Increase in Electric Rates*, Public Utilities Commission of Ohio, Case No. 08-0709-EL-AIR. 2009. Concerning rate design and cost of service, on behalf of the Office of the Ohio Consumers' Counsel.
97. *The Peoples Gas Light and Coke Company and North Shore Gas Company Proposed General Increase in Rates for Gas Service*, Illinois Commerce Commission, Docket Nos. 09-0166 and 09-0167. 2009. Concerning rate design and automatic rate adjustments on behalf of the Illinois Office of Attorney General, Citizens Utility Board, and City of Chicago.
98. *Illinois-American Water Company Proposed Increase in Water and Sewer Rates*, Illinois Commerce Commission, Docket No. 09-0319. 2009. Concerning rate design and cost of service on behalf of the Illinois Office of Attorney General and Citizens Utility Board.
99. *Pa. Public Utility Commission v. Aqua Pennsylvania Inc.*, Pennsylvania Public Utility Commission, Docket No. R-2009-2132019. 2010. Concerning rate design, cost of service, and automatic adjustment tariffs, on behalf of the Pennsylvania Office of Consumer Advocate.
100. *Apple Canyon Utility Company and Lake Wildwood Utilities Corporation Proposed General Increases in Water Rates*, Illinois Commerce Commission, Docket Nos. 09-0548 and 09-0549. 2010. Concerning parent-company charges, quality of service, and other matters, on behalf of Apple Canyon Lake Property Owners' Association and Lake Wildwood Association, Inc.
101. *Application of Aquarion Water Company of Connecticut to Amend its Rate Schedules*, Connecticut Department of Public Utility Control, Docket No. 10-02-13. 2010. Concerning rate design, proof of revenues, and other tariff issues, on behalf of the Connecticut Office of Consumer Counsel.
102. *Illinois-American Water Company Annual Reconciliation Of Purchased Water and Sewage Treatment Surcharges*, Illinois Commerce Commission, Docket No. 09-0151. 2010. Concerning the reconciliation of purchased water and sewer charges, on behalf of the Illinois Office of Attorney General.
103. *Pa. Public Utility Commission v. Pennsylvania-American Water Co.*, Pennsylvania Public Utility Commission, Docket Nos. R-2010-2166212, et al. 2010. Concerning rate design and cost of service study for four wastewater utility districts, on behalf of the Pennsylvania Office of Consumer Advocate.
104. *Central Illinois Light Company d/b/a AmerenCILCO, Central Illinois Public Service Company d/b/a AmerenCIPS, Illinois Power Company d/b/a AmerenIP Petition for accounting order*, Illinois Commerce Commission, Docket No. 10-0517. 2010. Concerning ratemaking procedures for a multi-district electric and natural gas utility, on behalf of the Illinois Office of Attorney General.
105. *Commonwealth Edison Company Petition for General Increase in Delivery Service Rates*, Illinois Commerce Commission Docket No. 10-0467. 2010. Concerning rate design and cost of service study, on behalf of the Illinois Office of Attorney General.
106. *Pa. Public Utility Commission v. City of Lancaster Bureau of Water*, Pennsylvania Public Utility Commission, Docket No. R-2010-2179103. 2010. Concerning rate design, cost of service, and cost allocation, on behalf of the Pennsylvania Office of Consumer Advocate.
107. *Application of Yankee Gas Services Company for Amended Rate Schedules*, Connecticut Department of Public Utility Control, Docket No. 10-12-02. 2011. Concerning rate design and cost of service for a natural

gas utility, on behalf of the Connecticut Office of Consumers' Counsel.

108. *California-American Water Company*, California Public Utilities Commission, Application 10-07-007. 2011. Concerning rate design and cost of service for multiple water-utility service areas, on behalf of The Utility Reform Network.
109. *Little Washington Wastewater Company, Inc., Masthope Wastewater Division*, Pennsylvania Public Utility Commission Docket No. R-2010-2207833. 2011. Concerning rate design and various revenue requirements issues, on behalf of the Masthope Property Owners Council.
110. *In the matter of Pittsfield Aqueduct Company, Inc.*, New Hampshire Public Utilities Commission Case No. DW 10-090. 2011. Concerning rate design and cost of service on behalf of the New Hampshire Office of the Consumer Advocate.
111. *In the matters of Pennichuck Water Works, Inc. Permanent Rate Case and Petition for Approval of Special Contract with Anheuser-Busch, Inc.*, New Hampshire Public Utilities Commission Case Nos. DW 10-091 and DW 11-014. 2011. Concerning rate design, cost of service, and contract interpretation on behalf of the New Hampshire Office of the Consumer Advocate.
112. *Artesian Water Co., Inc. v. Chester Water Authority*, U.S. District Court for the Eastern District of Pennsylvania Case No. 10-CV-07453-JP. 2011. Concerning cost of service, ratemaking methods, and contract interpretation on behalf of Chester Water Authority.
113. *North Shore Gas Company and The Peoples Gas Light and Coke Company Proposed General Increases in Rates for Gas Service*, Illinois Commerce Commission, Docket Nos. 11-0280 and 11-0281. 2011. Concerning rate design and cost of service on behalf of the Illinois Office of Attorney General, the Citizens Utility Board, and the City of Chicago.
114. *Ameren Illinois Company: Proposed general increase in electric delivery service rates and gas delivery service rates*, Illinois Commerce Commission, Docket Nos. 11-0279 and 11-0282. 2011. Concerning rate design and cost of service for natural gas and electric distribution service, on behalf of the Illinois Office of Attorney General and the Citizens Utility Board.
115. *Pa. Public Utility Commission v. Pennsylvania-American Water Co.*, Pennsylvania Public Utility Commission, Docket No. R-2011-2232243. 2011. Concerning rate design, cost of service, sales forecast, and automatic rate adjustments on behalf of the Pennsylvania Office of Consumer Advocate.
116. *Aqua Illinois, Inc. Proposed General Increase in Water and Sewer Rates*, Illinois Commerce Commission, Docket No. 11-0436. 2011. Concerning rate design and cost of service on behalf of the Illinois Office of Attorney General.
117. *City of Nashua Acquisition of Pennichuck Corporation*, New Hampshire Public Utilities Commission, Docket No. DW 11-026. 2011. Concerning the proposed acquisition of an investor-owned utility holding company by a municipality, including appropriate ratemaking methodologies, on behalf of the New Hampshire Office of Consumer Advocate.
118. *An Application by Heritage Gas Limited for the Approval of a Schedule of Rates, Tolls and Charges*, Nova Scotia Utility and Review Board, Case NSUARB-NG-HG-R-11. 2011. Concerning rate design and

cost of service, on behalf of the Nova Scotia Consumer Advocate.

119. *An Application of Halifax Regional Water Commission for Approval of a Cost of Service and Rate Design Methodology*, Nova Scotia Utility and Review Board, Case NSUARB-W-HRWC-R-11. 2011. Concerning rate design and cost of service, on behalf of the Nova Scotia Consumer Advocate.
120. *National Grid USA and Liberty Energy Utilities Corp.*, New Hampshire Public Utilities Commission, Docket No. DG 11-040. 2011. Concerning the costs and benefits of a proposed merger and related conditions, on behalf of the New Hampshire Office of Consumer Advocate.
121. *Great Northern Utilities, Inc., et al.*, Illinois Commerce Commission, Docket Nos. 11-0059, et al. 2012. Concerning options for mitigating rate impacts and consolidating small water and wastewater utilities for ratemaking purposes, on behalf of the Illinois Office of Attorney General.
122. *Pa. Public Utility Commission v. Aqua Pennsylvania, Inc.*, Pennsylvania Public Utility Commission, Docket No. R-2011-2267958. 2012. Concerning rate design, cost of service, and automatic rate adjustment mechanisms, on behalf of the Pennsylvania Office of Consumer Advocate.
123. *Golden State Water Company*, California Public Utilities Commission, Application 11-07-017. 2012. Concerning rate design and quality of service, on behalf of The Utility Reform Network.
124. *Golden Heart Utilities, Inc. and College Utilities Corporation*, Regulatory Commission of Alaska, Case Nos. U-11-77 and U-11-78. 2012. Concerning rate design and cost of service, on behalf of the Alaska Office of the Attorney General.
125. *Illinois-American Water Company*, Illinois Commerce Commission, Docket No. 11-0767. 2012. Concerning rate design, cost of service, and automatic rate adjustment mechanisms, on behalf of the Illinois Office of Attorney General.
126. *Application of Tidewater Utilities, Inc., for a General Rate Increase in Water Base Rates and Tariff Revisions*, Delaware Public Service Commission, Docket No. 11-397. 2012. Concerning rate design and cost of service study, on behalf of the Staff of the Delaware Public Service Commission.
127. *In the Matter of the Philadelphia Water Department's Proposed Increase in Rates for Water and Wastewater Utility Services*, Philadelphia Water Commissioner, FY 2013-2016. 2012. Concerning rate design and related issues for storm water service, on behalf of Citizens for Pennsylvania's Future.
128. *Corix Utilities (Illinois) LLC, Hydro Star LLC, and Utilities Inc. Joint Application for Approval of a Proposed Reorganization*, Illinois Commerce Commission, Docket No. 12-0279. 2012. Concerning merger-related synergy savings and appropriate ratemaking treatment of the same, on behalf of the Illinois Office of Attorney General.
129. *North Shore Gas Company and The Peoples Gas Light and Coke Company*, Illinois Commerce Commission, Docket Nos. 12-0511 and 12-0512. 2012. Concerning rate design, cost of service study, and automatic rate adjustment tariff on behalf of the Illinois Office of Attorney General.
130. *Pa. Public Utility Commission v. City of Lancaster Sewer Fund*, Pennsylvania Public Utility Commission, Docket No. R-2012-2310366. 2012. Concerning rate design, cost of service, and cost

allocation, on behalf of the Pennsylvania Office of Consumer Advocate.

131. *Aquarion Water Company of New Hampshire*, New Hampshire Public Utilities Commission, Docket No. DW 12-085. 2013. Concerning tariff issues, including an automatic adjustment clause for infrastructure improvement, on behalf of the New Hampshire Office of Consumer Advocate.
132. *In the Matter of the Application of Duke Energy Ohio, Inc., for an Increase in Electric Distribution Rates*, Public Utilities Commission of Ohio, Case No. 12-1682-EL-AIR, et al. 2013. Concerning rate design and tariff issues, on behalf of the Office of the Ohio Consumers' Counsel.
133. *In the Matter of the Application of Duke Energy Ohio, Inc., for an Increase in Natural Gas Distribution Rates*, Public Utilities Commission of Ohio, Case No. 12-1685-GA-AIR, et al. 2013. Concerning cost-of-service study, rate design, and tariff issues, on behalf of the Office of the Ohio Consumers' Counsel.
134. *In the Matter of the Application of The Dayton Power and Light Company to Establish a Standard Service Offer in the Form of an Electric Security Plan*, Public Utilities Commission of Ohio, Case No. 12-426-EL-SSO, et al. 2013. Concerning rate design, on behalf of the Office of the Ohio Consumers' Counsel.
135. *Application of the Halifax Regional Water Commission, for Approval of Amendments to its Schedule of Rates and Charges and Schedule of Rules and Regulations for the delivery of water, public and private fire protection, wastewater and stormwater services*, Nova Scotia Utility and Review Board, Matter No. M05463, 2013. Concerning rate design, cost-of-service study, and miscellaneous tariff provisions, on behalf of the Consumer Advocate of Nova Scotia.
136. *California Water Service Co. General Rate Case Application*, California Public Utilities Commission, Docket No. A.12-07-007. 2013. Concerning rate design, phase-in plans, low-income programs, and other tariff issues, on behalf of The Utility Reform Network.
137. *Application of The United Illuminating Company to Amend its Rate Schedules*, Connecticut Public Utility Regulatory Authority, Docket No. 13-01-19. 2013. Concerning sales forecast, rate design, and other tariff issues, on behalf of the Connecticut Office of Consumer Counsel.
138. *Application of Aquarion Water Company of Connecticut to Amend its Rate Schedules*, Connecticut Public Utility Regulatory Authority, Docket No. 13-02-20. 2013. Concerning sales forecast and rate design on behalf of the Connecticut Office of Consumer Counsel.
139. *Ameren Illinois Company, Proposed General Increase in Natural Gas Delivery Service Rates*, Illinois Commerce Commission, Docket No. 13-0192. 2013. Concerning rate design and revenue allocation, on behalf of the Illinois Office of Attorney General and Citizens Utility Board.
140. *Commonwealth Edison Company, Tariff filing to present the Illinois Commerce Commission with an opportunity to consider revenue neutral tariff changes related to rate design*, Docket No. 13-0387. 2013. Concerning rate design and cost of service study issues, on behalf of the Illinois Office of Attorney General.
141. *In the Matter of the Potomac Electric Power Company for Authority to Increase Existing Retail Rates and Charges for Electric Distribution Service*, District of Columbia Public Service Commission, Formal Case No. 1103. 2013. Concerning rate design, revenue allocation, and cost-of-service study issues, on

behalf of the District of Columbia Office of Peoples' Counsel.

142. *Pa. Public Utility Commission v. Pennsylvania-American Water Co.*, Pennsylvania Public Utility Commission, Docket No. R-2013-2355276. 2013. Concerning rate design, revenue allocation, and regulatory policy, on behalf of the Pennsylvania Office of Consumer Advocate.
143. *In the Matter of the Revenue Requirement and Transmission Tariff Designated as TA364-8 filed by Chugach Electric Association, Inc.*, Regulatory Commission of Alaska, U-13-007. 2013. Concerning rate design and cost-of-service study issues, on behalf of the Alaska Office of the Attorney General.
144. *Ameren Illinois Company: Tariff filing to present the Illinois Commerce Commission with an opportunity to consider revenue neutral tariff changes related to rate design*, Docket No. 13-0476. 2013. Concerning rate design and cost of service study issues, on behalf of the Illinois Office of Attorney General.
145. *Pa. Public Utility Commission v. City of Bethlehem Bureau of Water*, Pennsylvania Public Utility Commission, Docket No. R-2013-2390244. 2014. Concerning rate design, cost of service study, and revenue allocation on behalf of the Pennsylvania Office of Consumer Advocate.
146. *In the Matter of the Tariff Revision Designated as TA332-121 filed by the Municipality of Anchorage d/b/a Municipal Light and Power Department*, Regulatory Commission of Alaska, U-13-184. 2014. Concerning rate design and cost-of-service study issues, on behalf of the Alaska Office of the Attorney General.
147. *Pa. Public Utility Commission v. Pike County Light and Power Co. - Gas*, Pennsylvania Public Utility Commission, Docket No. R-2013-2397353. 2014. Concerning rate design and revenue allocation on behalf of the Pennsylvania Office of Consumer Advocate.
148. *Pa. Public Utility Commission v. Pike County Light and Power Co. - Electric*, Pennsylvania Public Utility Commission, Docket No. R-2013-2397237. 2014. Concerning rate design, cost of service study, and revenue allocation on behalf of the Pennsylvania Office of Consumer Advocate.
149. *The Peoples Gas Light and Coke Company North Shore Gas Company Proposed General Increase In Rates for Gas Service*, Illinois Commerce Commission, Docket Nos. 14-0224 and 14-0225. 2014. Concerning rate design on behalf of the Illinois Office of the Attorney General and the Environmental Law and Policy Center.
150. *Apple Valley Ranchos Water Company*, California Public Utilities Commission, Docket No. A.14-01-002. 2014. Concerning rate design and automatic rate adjustment mechanisms on behalf of the Town of Apple Valley.
151. *Application by Heritage Gas Limited for Approval to Amend its Franchise Area*, Nova Scotia Utility and Review Board, Matter No. M06271. 2014. Concerning criteria, terms, and conditions for expanding a utility's service area and using transported compressed natural gas to serve small retail customers, on behalf of the Nova Scotia Consumer Advocate.
152. *Notice of Intent of Entergy Mississippi, Inc. to Modernize Rates to Support Economic Development, Power Procurement, and Continued Investment*, Mississippi Public Service Commission Docket No. 2014-UN-132. 2014. Concerning rate design and tariff issues, on behalf of the Mississippi Public

Utilities Staff.

153. *Pa. Public Utility Commission v. City of Lancaster Bureau of Water*, Pennsylvania Public Utility Commission, Docket No. R-2014-2418872. 2014. Concerning rate design, cost of service study, and revenue allocation on behalf of the Pennsylvania Office of Consumer Advocate.
154. *Pa. Public Utility Commission v. Borough of Hanover Municipal Water Works*, Pennsylvania Public Utility Commission, Docket No. R-2014-2428304. 2014. Concerning rate design, cost of service study, and revenue allocation on behalf of the Pennsylvania Office of Consumer Advocate.
155. *Investigation of Commonwealth Edison Company's Cost of Service for Low-Use Customers In Each Residential Class*, Illinois Commerce Commission, Docket No. 14-0384. 2014. Concerning rate design on behalf of the Illinois Office of Attorney General.
156. *Application of the Halifax Regional Water Commission, for Approval of its Schedule of Rates and Charges and Schedule of Rules and Regulations for the Provision of Water, Public and Private Fire Protection, Wastewater and Stormwater Services*, Nova Scotia Utility and Review Board, Matter No. M06540. 2015. Concerning rate design, cost of service study, and tariff issues on behalf of the Nova Scotia Consumer Advocate.
157. *Testimony concerning organization and regulation of Philadelphia Gas Works*, Philadelphia City Council's Special Committee on Energy Opportunities. 2015.
158. *Testimony concerning proposed telecommunications legislation*, Maine Joint Standing Committee on Energy, Utilities, and Technology. 2015.
159. *Pa. Public Utility Commission v. United Water Pennsylvania, Inc.*, Pennsylvania Public Utility Commission, Docket No. R-2015-2462723. 2015. Concerning rate design, cost of service study, and revenue allocation on behalf of the Pennsylvania Office of Consumer Advocate.
160. *Ameren Illinois Company Proposed General Increase in Gas Delivery Service Rates*, Illinois Commerce Commission, Docket No. 15-0142. 2015. Concerning rate design on behalf of the Illinois Office of Attorney General.
161. *Maine Natural Gas Company Request for Multi-Year Rate Plan*, Maine Public Utilities Commission, Docket No. 2015-00005. 2015. Concerning rate design and automatic rate adjustment tariffs on behalf of the Maine Office of the Public Advocate.
162. *Application of Ohio Edison Company, The Cleveland Electric Illuminating Company and The Toledo Edison Company for Authority to Provide for a Standard Service Offer*, Public Utilities Commission of Ohio, Case No. 14-1297-EL-SSO. 2015. Concerning rate design and proposed rate discounts on behalf of the Office of the Ohio Consumers' Counsel.
163. *An Application of the Halifax Regional Water Commission, for approval of revisions to its Cost of Service Manual and Rate Design for Stormwater Service*, Nova Scotia Utility and Review Board, Matter No. M07147. 2016. Concerning stormwater rate design and cost of service, on behalf of the Nova Scotia Consumer Advocate.

164. *In The Matter Of An Application By Heritage Gas Limited For Enhancement To Its Existing Residential Retro-Fit Assistance Fund*, Nova Scotia Utility and Review Board, Matter No. M07146. 2016. Concerning costs and benefits associated with utility system expansion, on behalf of the Nova Scotia Consumer Advocate.
165. *In the Matter of the Application of UNS Electric, Inc. for the Establishment of Just and Reasonable Rates and Charges*, Arizona Corporation Commission, Docket No. E-04204A-15-0142. 2016. Concerning rate design and residential demand charges on behalf of Arizona Utility Ratepayer Alliance.
166. *In the Matter of Application of Water Service Corporation of Kentucky for a General Adjustment in Existing Rates*, Kentucky Public Service Commission, Case No. 2015-00382. 2016. Concerning rate design and service area consolidation on behalf of the Kentucky Office of the Attorney General.
167. *Massachusetts Electric Company And Nantucket Electric Company*, Massachusetts Department of Public Utilities, Docket No. DPU 15-155. 2016. Concerning rate design and cost-of-service studies on behalf of the Massachusetts Office of Attorney General.
168. *In the Matter of Abenaki Water Company*, New Hampshire Public Utilities Commission, Docket No. DW 15-199. 2016. Concerning rate design on behalf of the New Hampshire Office of the Consumer Advocate.
169. *In the Matter of an Application by Heritage Gas Limited for Approval of its Customer Retention Program*, Nova Scotia Utility and Review Board Matter No. M07346. 2016. Concerning a regulatory response to competition and potential business failure on behalf of the Nova Scotia Consumer Advocate.
170. *Joint Application of Pennsylvania-American Water Company and the Sewer Authority of the City of Scranton*, Pennsylvania Public Utility Commission Docket No. A-2016-2537209. 2016. Concerning the lawfulness, costs and benefits, and ratemaking treatment of a proposed acquisition of a combined wastewater and storm water utility on behalf of the Pennsylvania Office of Consumer Advocate.
171. *Application of The United Illuminating Company to Amend its Rate Schedules*, Connecticut Public Utility Regulatory Authority Docket No. 16-06-04. 2016. Concerning rate design, cost-of-service study, and other tariff issues on behalf of the Connecticut Office of Consumer Counsel.
172. *Ameren Illinois Company Tariff filing to present the Illinois Commerce Commission with an opportunity to consider revenue neutral tariff changes related to rate design*, Illinois Commerce Commission Docket No. 16-0387. 2016. Concerning rate design and cost-of-service study on behalf of the Illinois Office of the Attorney General.

Range of Increases in Annual Bill for Distribution Service for Residential Customers Under Company Proposed Rates

Figure 1: Year-Round, Not Low Income

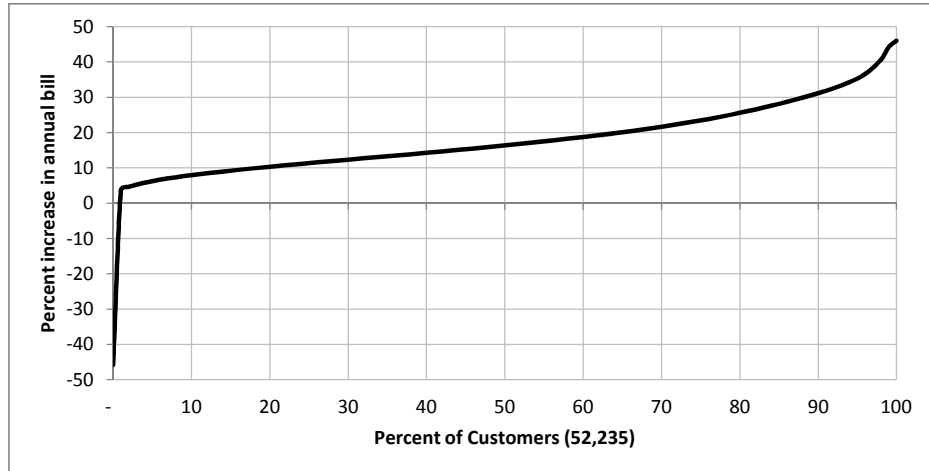


Figure 2: Year-Round, Low Income

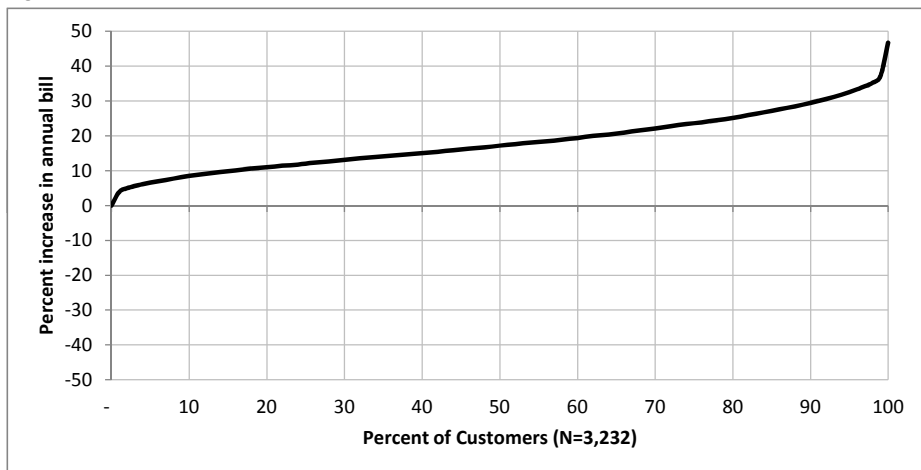
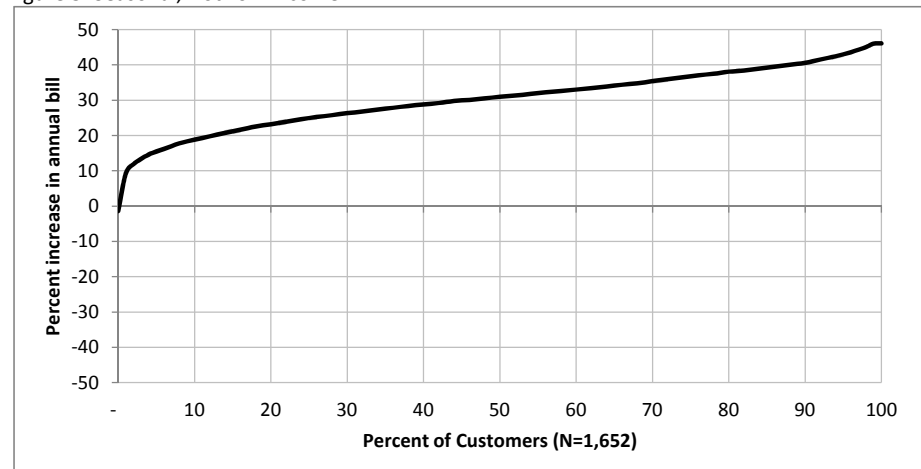


Figure 3: Seasonal, Not Low Income



Comparison of Domestic Rate Designs and Proof of Revenues

	Units	Present		Company Proposed			OCA Proposed		
		Rate	Revenue	Rate	Revenue	% Change	Rate	Revenue	% Change
Jun-Sep Bills	270,783	10.27	2,780,941	15.00	4,061,745	46.1%	15.00	4,061,745	46.1%
Oct-May Bills	514,523	10.27	5,284,151	15.00	7,717,845	46.1%	11.97	6,158,840	16.6%
1st 250 kWh	177,320,752	0.03404	6,035,998	0.03786	6,713,364	11.2%	0.04099	7,268,378	20.4%
Over 250 kWh	320,555,076	0.03904	12,514,470	0.03786	12,136,215	-3.0%	0.04099	13,139,553	5.0%
			26,615,561		30,629,169	15.1%		30,628,515	15.1%

Source for billing units and rates: Unitil Sch. HEO-6

Source of seasonal bills: calculated from Unitil billing database (OCA 1-69) using ratio of days billed to total bills

**Range of Increases in Annual Bill for Distribution Service for Residential
Customers Under Company Proposed Rates (Solid Line) and OCA Proposal (Dashed Line)**

Figure 1: Year-Round, Not Low Income

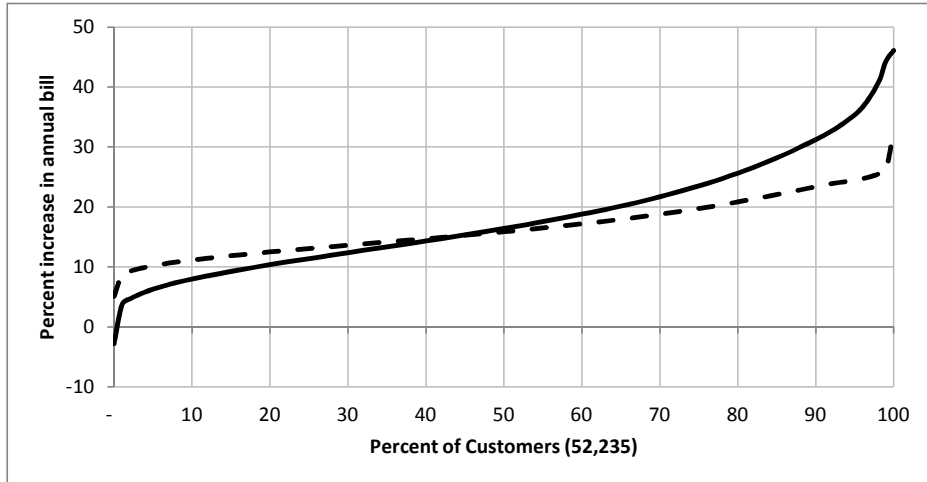


Figure 2: Year-Round, Low Income

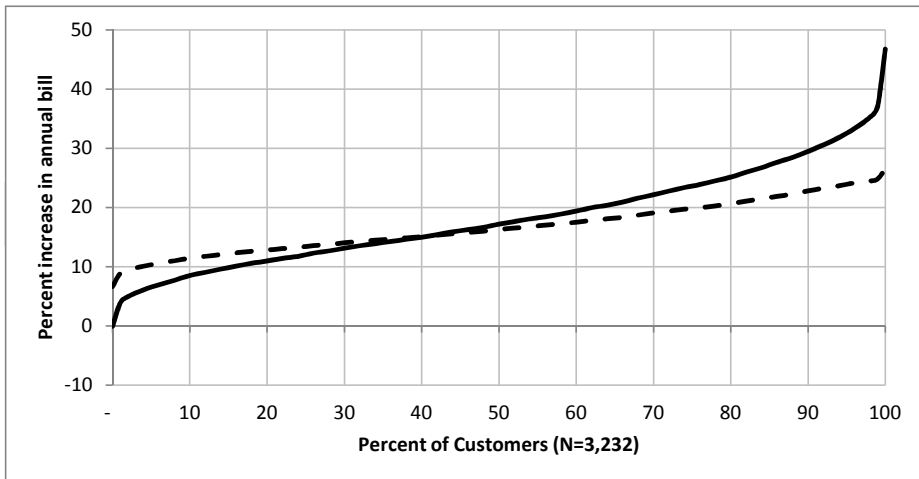
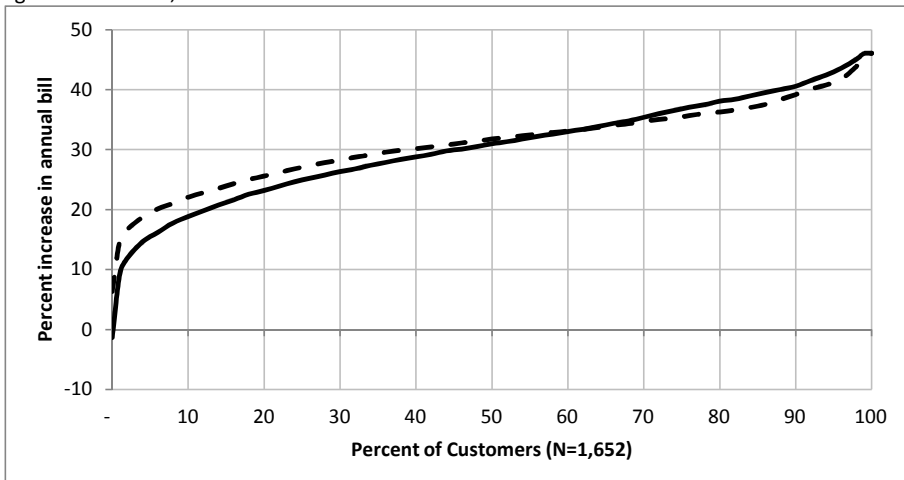


Figure 3: Seasonal, Not Low Income



Unitil Energy Systems, Inc.
Docket No. DE 16-384
Petition for Rate Increase (Permanent Rates)
OCA Data Requests – Set 1

Received: June 30, 2016
Request No. OCA 1-65

Date of Response: July 20, 2016
Witness: David Chong

Request:

Reference: Proposed tariff (redlined), First Revised Page 27. The tariff states that the Returned Check Fee is "\$5.00 or the administrative cost of recovery whichever is greater" citing NHPUC 1203.08. Concerning this:

- a. What is the Company's administrative cost of recovery for a returned check and/or rejected electronic payment? Please provide all workpapers, copies of bank fees, and related documents to support the cost calculation.
- b. The cited Commission regulation states that a Returned Check Fee "shall be the greater of \$ 5 or the actual administrative cost of recovery as specified in the utility's tariff." (emphasis added). Is it the Company's intention to state in the tariff a Returned Check Fee of \$5.00; or is it the Company's intention to state a fee that is some greater amount equal to its administrative cost of recovery? If the latter, what is the specific fee the Company intends to charge a customer for a returned check or electronic payment?

Response:

- a. Please see OCA 1-65 Attachment 1 for the administrative cost of recovery for a returned check and/or rejected electronic payment. A copy of the Citizens Bank Statement showing the two fees is also included.
- b. It is the Company's intention to charge customers the greater of \$5 or the actual administrative cost of recovery of returned checks or electric payments which is \$15.00.

Unitil Energy Systems, Inc.
Returned Checks

Bank Service Fee

Paper Check Returns	Electronic Check Returns
\$ 7.00	\$ 4.00

Fees for Administrative Costs related to Returned Checks

1
2
3
4
5
6
7
8

Cost of Receiving, Processing, and Documenting Returned Checks
Cost of Labor per Hour for Billing and Remittance Support
Estimated Time Required to Process Data Request
Cost of Labor
Labor-Related Overheads (118%)
Cost per Returned Check

Notes:

1	\$	18.73	\$	18.73
		0.233		0.233
2	\$	4.37	\$	4.37
	\$	5.16	\$	5.16
	\$	9.53	\$	9.53
Total Administrative Costs				
	\$	16.53	\$	13.53
Total Cost				

- 1 Hourly wages for positions effective 2016
2 The average USC Overhead rate for 2015 was 118%



COPY

CONTACT GRIFFIN, MICHAEL

0030

 UNITIL CORP
 ATTN: MIKE MCKINNEY
 6 LIBERTY LANE
 HAMPTON NH 03842

 FROM 01-01-2016
 TO 01-31-2016

PAGE 1

CITIZENS BANK, N.A.

ACCOUNT NO. 0030

COMMERCIAL CHECKING ACCOUNT

 AVERAGE LEDGER BALANCE
 LESS AVERAGE FLOAT

 AVERAGE COLLECTED BALANCE
 LESS RESERVE REQUIREMENT

RATE

 AVERAGE AVAILABLE BALANCE
 LESS BALANCE REQUIRED

 EARNINGS CREDIT ALLOWANCE
 TOTAL CHARGE FOR SERVICES

RATE

NET CHARGE FOR SERVICES

***SERVICE CHARGE AMOUNT

SERVICES ANALYZED

SERVICE	NUMBER UNITS	UNIT PRICE	CHARGE FOR SERVICE	BALANCE REQUIRED
IMAGE DEPOSIT SERVICES				
EZ DEPOSIT VIA MM MTHLY MAINT	1	50.0000	50.00	
EZ DEPOSIT PER IRD DEP ITEM	28			
EZ DEPOSIT PER DEPOSIT				
CHECKING SERVICES				
MONTHLY MAINTENANCE	1	1.0000	1.00	
DEPOSITS	1	1.0000	1.00	
ITEMS DEPOSITED	1	1.0000	1.00	
DEPOSITED CK RETURN FEE	1	7.0000	7.00	
RETURN DEP ITEM SPEC HANDLING	1	1.0000	1.00	
MULTIPLE MAKER FEE	1	1.0000	1.00	
INSURANCE RECOVERY CHARGE	1	1.0000	1.00	
RDI - MAKER	1	1.0000	1.00	

CONTACT GRIFFIN, MICHAEL

0030 UNITIL CORP
ATTN: MIKE MCKINNEY
6 LIBERTY LANE
HAMPTON NH 03842

FROM 01-01-2016
TO 01-31-2016

PAGE 2

ACCOUNT NO. 0030 [REDACTED] CONTINUED

SERVICES ANALYZED

SERVICE	NUMBER UNITS	UNIT PRICE	CHARGE FOR SERVICE	BALANCE REQUIRED
REDEPOSITED ITEMS				
IMAGE EXCHANGE MAINTENANCE				
WIRE TRANSFER SVS				
OUTGOING WIRE REPETITIVE				
ACH ELECTRONIC SVS				
ACH FILE TRANSMISSIONS				
ACH PER DEBIT ORIGINATED				
ACH RECEIVED CREDITS				
ACH RECEIVED DEBITS				
ACH MONTHLY FIXED CHGE				
ACHIEVE ACCESS MONTHLY MAINT				
EPA - PER EPA ON FILE				
ACH NOC VIA AUTOMATED RPT				
ACH RETURN VIA AUTOMATED RPT		4.0000		
ACCESSMONEY MANAGER				
SAME DAY REPORTING MODULE				
PREV DAY REPORTING MODULE				
INTRADAY FEDI				
INTRADAY FEDI				
RDI				
RDI				
ESTATEMENT - PER ACCOUNT				
HARD TOKEN-A LA CARTE				
IMAGE MODULE				
IMAGES - RDI				
EMAIL				
EMAIL-ACH RETURN/NOC REPORT				
ACCOUNT ANALYSIS SVS				
ANALYSIS MAINTENANCE FEE				
TOTAL CHARGE FOR SERVICES				

Unitil Energy Systems, Inc.
Docket No. DE 16-384
Petition for Rate Increase
OCA Data Requests – Set 4

Attachment SJR-6
Page 1 of 3

Received: September 19, 2016
Request No. OCA 4-3

Date of Response: October 3, 2016
Witness: David Chong

Request:

Reference: Response to OCA 1-65, Attachment 1.

- a. Please provide workpapers supporting the average overhead rate of 118%, showing the specific categories for each item included therein.
- b. Please provide any support (such as a work flow study) for the "estimated time required to process" a returned check of 0.233 hours.
- c. For calendar year 2015, please provide a workpaper showing separately the number of returned checks and the number of ACH (electronic) returns.

Response:

- a. Please see OCA 4-3 Attachment 1.
- b. A formal work flow study was not conducted to estimate the time required to process a returned check. Discussions were held with members from the credit and cash remittance team, who are responsible for processing and notifying customers concerning returned check, in order to determine the estimated time required to process a returned check.
- c. The table below lists the number of returned checks for the calendar year 2015:

Unitil Energy Systems, Inc.
Docket No. DE 16-384
Petition for Rate Increase
OCA Data Requests – Set 4

Attachment SJR-6
Page 2 of 3

Received: September 19, 2016
Request No. OCA 4-3

Date of Response: October 3, 2016
Witness: David Chong

	Returned Checks	Returned ACH's	Total
January	12	129	141
February	15	104	119
March	11	142	153
April	9	138	147
May	10	143	153
June	20	144	164
July	15	143	158
August	8	121	129
September	10	119	129
October	8	126	134
November	8	104	112
December	8	133	141
Total	134	1,546	1,680

USC Billing Overhead Analysis
Jan-Dec 2015
(000's)

Attachment SJR-6

Page 3 of 3

Docket DE 16-384

OCA 4-3 Attachment 1

Page 1 of 1

Calculation of Unitil Service Corp. Overhead Rate

O&M	Jan Actual	Feb Actual	Mar Actual	Apr Actual	May Actual	June Actual	Jul Actual	Aug Actual	Sep Actual	Oct Actual	Nov Actual	Dec Actual	2015 Total
Payroll (w/o IC)	1,964	1,879	1,863	1,920	1,869	1,878	1,958	1,894	1,883	1,924	1,867	1,865	22,764
A&G Expenses													
Health Insurance Expense	228	228	267	228	228	194	228	228	219	228	228	396	2,900
Health Insurance - Employee Contribution	(42)	(42)	(41)	(44)	(42)	(41)	(43)	(43)	(43)	(45)	(43)	(45)	(514)
Compensation Expense - Incentive	223	223	223	363	381	372	372	372	372	372	372	92	3,737
Compensation Expense - Restricted Stock	36	47	1,200	47	47	47	46	47	47	47	47	176	1,834
Pension Expense	262	269	259	259	269	259	269	259	259	260	259	274	3,157
401k	105	168	104	106	103	101	106	101	101	101	102	107	1,305
Life Insurance	0	9	7	15	0	15	8	8	0	15	8	8	93
Education	39	13	9	24	16	2	57	18	9	8	9	38	242
SERP	64	64	64	64	64	64	64	64	64	95	95	95	861
FAS 106 PBOP	194	194	194	194	194	194	194	194	194	194	194	194	2,328
Other H/R Services	45	64	61	62	55	52	66	48	49	91	97	20	710
Other Benefits	20	18	34	24	7	35	45	11	13	29	28	86	350
Rent	203	163	190	161	191	180	16	176	160	178	142	161	1,921
Equipment & Maintenance	131	129	101	111	103	126	129	90	118	78	104	136	1,356
Telephone Expense	30	23	33	31	35	28	27	34	27	28	12	43	351
Office & Drafting Supplies	5	1	0	2	5	3	4	2	2	5	1	7	37
Travel & Meals Expense	16	18	25	30	29	40	23	28	29	36	37	48	359
Training & Seminars	10	8	10	6	11	12	4	3	42	18	10	6	140
PC Software & Supplies	5	5	5	2	6	5	5	3	9	5	4	5	59
Injuries & Damages	21	22	21	21	21	21	21	22	19	21	21	21	252
Dues & Subscriptions	7	15	9	14	30	11	11	5	6	14	5	10	137
Legal Fees	23	22	26	22	22	10	22	22	(35)	22	22	(11)	167
Annual Reporting	56	56	73	38	27	(4)	8	8	9	8	8	6	293
Directors Fees & Expenses	106	110	88	106	110	88	106	110	146	106	111	66	1,253
Other	9	90	67	98	112	96	146	100	89	136	89	227	1,259
Total A&G Expenses	1,796	1,917	3,029	1,984	2,024	1,910	1,934	1,910	1,905	2,050	1,962	2,166	24,587
Direct Billing	(131)	(122)	(134)	(125)	(125)	(111)	(127)	(116)	(138)	(135)	(118)	(136)	(1,518)
O&M - sub-total	1,665	1,795	2,895	1,859	1,899	1,799	1,807	1,794	1,767	1,915	1,844	2,030	23,069
Other Expenses													
Payroll & Other Taxes	172	338	118	132	128	124	133	122	117	116	111	144	1,755
Depreciation & Amortization	59	59	65	65	55	55	54	62	55	53	55	57	694
Income Taxes	3	1	2	4	1	2	1	1	1	2	3	2	23
Interest Expense	7	11	8	10	12	7	13	15	11	13	22	18	147
Other Expenses	5	2	0	4	4	3	2	1	4	1	1	22	49
	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0
	246	411	193	215	200	191	203	201	188	185	192	243	2,668
(Over) Under Collected (P&L Change)	10	71	(6)	140	(116)	(73)	(123)	(65)	(19)	149	(162)	335	141
OVERHEAD POOL	1,901	2,135	3,094	1,934	2,215	2,063	2,133	2,060	1,974	1,951	2,198	1,938	25,596
Absorption Rate	97%	114%	166%	101%	119%	110%	109%	109%	105%	101%	118%	104%	112%
Over (Under) Collected = 0	97%	117%	166%	108%	112%	106%	103%	105%	104%	109%	109%	122%	113%
Rate Used/Chosen	100%	118%	175%	105%	125%	115%	115%	115%	110%	105%	125%	110%	
	1418%												Annual Total
	118%												YTD Average

Calculation of Returned Check Fee Under Unitil's Assumptions

	<u>Paper</u>	<u>Electronic</u>	<u>Total</u>
Bank fee	\$ 7.00	\$ 4.00	
Cost of labor per hour	18.73	18.73	
Estimated time required to process	<u>0.233</u>	<u>0.233</u>	
Cost of labor	4.37	4.37	
Labor-related overheads (118%)	<u>5.16</u>	<u>5.16</u>	
Total cost per return	\$ 16.53	\$ 13.53	
Number of returns	134	1,546	1,680
Total cost	2,215.17	20,919.17	23,134
Average cost of returns			\$ 13.77

Sources:

Costs from OCA 1-65

Number of returns from OCA 4-3

Information Request AG 17-2

Request:

Reference: Company response to AG 12-16 and Workpaper NG-RRP-3f. Please provide the basis for, and complete explanation of, the “Company estimate” of base labor costs (\$1,620) for returned checks and other payments shown on line 16. The explanation should include how the Company determined that it could process more than 28,000 returned checks using only \$1,620 of direct labor (less than 6 cents per transaction). If the Company finds any errors in its calculation, please provide a corrected workpaper.

Response:

The \$1,620 of internal labor cost shown on line (16) of Workpaper NG-RRP-3f inadvertently misstates the estimate of labor costs associated with the processing of returned payments. This amount is mistakenly based upon a weekly labor cost, not a monthly labor cost. Therefore, the Company is correcting for this understatement and revising its proposed Returned Check Fee in Attachment AG-17-2. The correct annual labor cost is \$6,480, and the revised Return Check Fee is \$5.60, as shown on line (16) and line (23), respectively, of Attachment AG-17-2. This change will decrease the reduction in revenue for this fee as reflected in the known and measurable adjustment to other operating revenue in Exhibit NG-RRP-2 at 3 by \$8,516, as the decrease in the current Returned Check Fee isn’t as much as initially filed. The Company will reflect this change in the known and measurable adjustment to other operating revenue when it submits its updated cost of service in this proceeding.

Labor costs of processing returned payments identified in Workpaper NG-RRP-3f are significantly lower since the last time the Company proposed a change to its Returned Check Fee. First, National Grid has implemented an automated return process with its various payment vendors in which electronic files of returned payments are initiated by the vendors and sent to National Grid for processing. The process involves a reverse payment file from the payment vendor which automates the return process. While not all returned payments can be addressed through an automated process, the majority of the Company’s returned items are under an automated process. In addition, in recent years, National Grid has been able to automate the back-office work of balancing activity with the Company’s general ledger, which was a manual process in the past. Through these process changes, National Grid has been able to implement greater efficiency into the process regarding returned payments and as a result the Company’s labor costs have significantly decreased, which is reflected in Workpaper NG-RRP-3f, as revised by Attachment AG-17-2.

Massachusetts Electric Company
Nantucket Electric Company
Processing Cost for Returned Checks

Test Year External Costs

		Service Charges		
Service Description		Mass. Electric	Nantucket Electric	Total
<u>JPCM Charges</u>				
(1)	Return Item	\$7,898	\$52	\$7,950
(2)	Return Alternate Address	\$0	\$0	\$0
(3)	Return Image	\$11,965	\$74	\$12,039
(4)	Return Detail Reporting	\$3,590	\$24	\$3,614
(5)	Return Item Redeposit	\$6,701	\$39	\$6,740
(6)	Return Item Redeposit	\$50,547	\$112	\$50,659
(7)	eLockbox Return - Electronic	\$588	\$15	\$603
(8)	Return Notification - Email	\$24,731	\$230	\$24,960
(9)	Return Notification - Transmission	\$38,543	\$329	\$38,872
(10)	Foreign Check Return (CAD)	\$0	\$0	<u>\$0</u>
(11)	Total			\$145,436
<u>TransCentra Charges</u>				
(12)	Return Corr. Various Types	\$1,728	\$30	\$1,758
(13)	Data Capture - Return / NSF Item	\$2,354	\$18	<u>\$2,372</u>
(14)	Total			<u>\$4,129</u>
(15)	Total External Costs			\$149,565

Test Year Internal Costs

Internal Labor		Wages		Total
		Mass. Electric	Nantucket Electric	
(16)	Base Labor	\$6,240	\$240	\$6,480
(17)	Labor Overheads			\$4,479
(18)	Total			\$10,959

Proposed Returned Check Fee

(19)	Total External Costs		\$149,565
(20)	Total Internal Costs		\$10,959
(21)	Total Costs		\$160,524
(22)	Test Year Returned Items		28,387
(23)	Proposed Returned Check Fee		\$5.60

Incremental Revenue

(24)	Proposed Returned Check Fee		\$5.60
(25)	Current Returned Check Fee		\$15.00
(26)	Proposed Decrease in Returned Check Fee		(\$9.40)
(27)	Test Year Returned Items		28,387
(28)	Decrease in Returned Check Fee Revenue		(\$266,838)

Line Notes

10	Per JPCM Invoices	19	Line 15
11	Total JPCM Charges	20	Line 17
13	Per TransCentra Invoices	21	Line 18 + Line 19
14	Total TransCentra Costs	22	Per JPCM Invoices
15	Total External Processing Charges	23	Line 20 / Line 21
16	Per Company estimate	24	Line 23
17	Based upon actual average overhead accrual rates for the year ended June 30, 2015	25	Terms & Conditions for Distribution Service, M.D.P.U. No. 1192, App A
18	Total Internal Processing Charges	26	Line 24 - Line 25
		27	Line 22
		28	Line 26 x Line 27

Calculation of Returned Payment Fee Under OCA's Assumptions

	<u>Paper</u>	<u>Electronic</u>	<u>Total</u>
Bank fee	\$ 7.00	\$ 4.00	
Cost of labor per hour	18.73	18.73	
Estimated time required to process	<u>0.167</u>	<u>0.167</u>	
Cost of labor	3.13	3.13	
Labor-related overheads (118%)	<u>3.69</u>	<u>3.69</u>	
Total cost per return	\$ 13.82	\$ 10.82	
Number of returns	134	1,546	1,680
Total cost	1,852.24	16,731.85	18,584
Average cost of returns			\$ 11.06

Sources:

Costs from OCA 1-65

Number of returns from OCA 4-3

Estimated time: see testimony

Unitil Energy Systems, Inc.
Docket No. DE 16-384
Petition for Rate Increase (Permanent Rates)
OCA Data Requests – Set 1

Received: June 30, 2016
Request No. OCA 1-67

Date of Response: July 20, 2016
Witness: David Chong and Doug Debski

Request:

Reference: Proposed tariff (redlined), First Revised Pages 44-46. Please provide workpapers supporting the calculation of the optional charges shown in paragraphs I.B, I.C, and II.C. The calculation of the monthly charges should show explicitly the rate of return, depreciation rate, and other carrying charges used to calculate the monthly fee from the lump sum fee.

Response:

Please see OCA 1-67 Attachment 1.

Unitil Energy Systems, Inc.
Residential Enhanced Metering Options
One Time Fee

1	<u>Option One - Residential:</u>		
2			
3	Hourly Reporting Equipment - UES Owned Equipment		
4	Incremental Cost of Residential Meter with Remote Metering Capability:		
5			
6		Amount	Notes:
7	Remote Meter (2s Kv2c/R-Switch/Modem)	\$ 582.50	1
8	Cost of Labor (One Meter Mechanic 1.5 Hours @ \$35.32/hr)	\$ 52.98	2
9	Labor - Related Overheads	\$ 55.63	3
10	Transportation	\$ 16.00	4
11	Estimated Material (Telephone line surge suppressor, misc. wire, tape, etc.)	<u>\$ 35.00</u>	
12			
13	One Time Fee for Residential Option One	\$ 742.11	
14			
15			
16			
17			
18			
19	<u>Option Two - Residential:</u>		
20			
21	Hourly Reporting Equipment - Customer Owned Equipment		
22	Incremental Cost of Pulse Interface Box Installed:		
23			
24		Amount	Notes:
25	KYZ Module	\$ 76.50	1
26	Pulse Interface	\$ 47.50	1
27	3 Line 8 divided by twelve	\$ 52.98	2
28	Labor - Related Overheads	\$ 55.63	3
29	Transportation	\$ 16.00	4
30	Estimated Material (Misc. wire, tape, etc.)	<u>\$ 10.00</u>	
31			
32	One Time Fee for Residential Option Two	\$ 258.61	

- 1 Material estimates provided by metering department based equipment currently used.
- 2 Labor cost based hourly wage of First Class Meter Mechanic effective June 1, 2015 per union labor agreement.
- 3 Based upon September, 2015 labor overhead rate of 105%.
- 4 Based upon \$0.80/mile transportation rate for vehicle during 2015 and estimated trip of 20 miles.

Unitil Energy Systems, Inc.
General Service Enhanced Metering Options
One Time Fee

1	<u>Option One - General Service:</u>		
2			
3	Hourly Reporting Equipment - UES Owned Equipment		
4	Incremental Cost of Commercial Meter with Remote Metering Capability:		
5			
6		Amount	Notes:
7	Remote Meter (9s+KYZ module + pulse interface + Modem)	\$ 769.00	1
8	Cost of Labor (One Meter Mechanic 1.5 Hours @ \$35.32/hr)	\$ 52.98	2
9	Labor - Related Overheads	\$ 55.63	3
10	Transportation	\$ 16.00	4
11	Estimated Material (Telephone line surge suppressor, misc. wire, tape, etc.)	<u>\$ 35.00</u>	
12			
13	One Time Fee for General Service Option One	\$ 928.61	
14			
15			
16			
17			
18			
19	<u>Option Two - General Service:</u>		
20			
21	Hourly Reporting Equipment - Customer Owned Equipment	Without existing	
22	Incremental Cost of Pulse Interface Box Installed:	interval	
23		metering	
24		Amount	Notes:
25	KYZ Module	\$ 76.50	1
26	Pulse Interface	\$ 47.50	1
27	Cost of Labor (One Meter Mechanic 1.5 Hours @ \$35.32/hr)	\$ 52.98	2
28	Labor - Related Overheads	\$ 55.63	3
29	Transportation	\$ 16.00	4
30	Estimated Material (Misc. wire, tape, etc.)	<u>\$ 10.00</u>	
31			
32	One Time Fee for General Service Option Two	\$ 258.61	
33			
34			

1 Material estimates provided by metering department based equipment currently used.

2 Labor cost based hourly wage of First Class Meter Mechanic effective June 1, 2015 per union labor agreeme

3 Based upon September, 2015 labor overhead rate of 105%.

4 Based upon \$0.80/mile transportation rate for vehicle during 2015 and estimated trip of 20 miles.

Unitil Energy Systems, Inc.
Calculation of Monthly Charge for Enhanced Metering
Residential Service

1	<u>Residential - Option 1:</u>		
2		<u>Amount:</u>	Notes:
3	Total Installation Cost of Enhanced Metering Equipment		
4	for this Option per Page 1	\$ 742.11	1
5			
6	Annual Carrying Charge	<u>52.13%</u>	2
7			
8	Annual Enhanced Metering Charge	\$ 386.87	3
9			
10	Monthly Enhanced Metering Charge	\$ 32.24	4
11			
12			
13	<u>Residential - Option 2:</u>		
14			
15	Total Installation Cost of Enhanced Metering Equipment		
16	for this Option per Page 1	\$ 258.61	5
17			
18	Annual Carrying Charge	<u>52.13%</u>	2
19			
20	Annual Enhanced Metering Charge	\$ 134.82	6
21			
22	Monthly Enhanced Metering Charge	\$ 11.23	7

- 1 Residential Option One one-time cost
- 2 Page 5
- 2 Line 4 times Line 6
- 4 Line 8 divided by twelve
- 5 Residential Option Two one-time cost
- 6 Line 16 times Line 18
- 7 Line 20 divided by twelve

Unitil Energy Systems, Inc.
Calculation of Monthly Charge for Enhanced Metering
General Service

	Without existing interval metering Amount	Notes:
<u>General Service - Option 1:</u>		
Total Installation Cost of Enhanced Metering Equipment for this Option per Page 2	\$ 928.61	1
Annual Carrying Charge	<u>52.13%</u>	2
Annual Enhanced Metering Charge	\$ 484.10	3
Monthly Enhanced Metering Charge	\$ 40.34	4
<u>General Service - Option 2:</u>		
Total Installation Cost of Enhanced Metering Equipment for this Option per Page 2	\$ 258.61	5
Annual Carrying Charge	<u>52.13%</u>	2
Annual Enhanced Metering Charge	\$ 134.82	6
Monthly Enhanced Metering Charge	\$ 11.23	7

- 1 General Service Option One one-time cost
- 2 Page 5
- 3 Line 4 times Line 6
- 4 Line 8 divided by twelve
- 5 General Service Option Two one-time cost
- 6 Line 16 times Line 18

Attachment SJR-10
Page 6 of 7

Attachment A
Page 5 of 5

Unitil Energy Systems, Inc.
Annual Carrying Charge
Enhanced Metering

			<u>Carrying Charge</u>	<u>Notes</u>
1 Total Cost of Capital			8.75%	1
2				
3 <u>Income Taxes:</u>	<u>Rate</u>			
4				
5 Federal (FIT)	34%		2.71%	1
6				
7 State (SIT)	8.5%		0.74%	1
8				
9 Depreciation Expense			33.33%	2
10				
11		Average		
12		Depreciable		
13	<u>Expense</u>	<u>Plant in Svc.</u>		
14				
15 Property Taxes	\$ 5,397,120	\$ 267,342,518	2.02%	3
16				
17 Pensions & Benefits	\$ 2,465,949	\$ 267,342,518	0.92%	3
18				
19 Employment Taxes	\$ 138,533	\$ 267,342,518	0.05%	3
20				
21		Average		
22		Depreciable		
23		<u>Dist. Plant in Svc.</u>		
24				
25 Dist. O&M Expense	\$ 9,010,331	\$ 249,648,372	3.61%	3
26				
27 Total Carrying Charge			<u>52.13%</u>	
1 Recommended Cost of Capital				
2 Three year recovery schedule				
3 From 2015 UES FERC Form 1.				

UNITIL ENERGY SYSTEMS, INC.
WEIGHTED AVERAGE COST OF LONG-TERM DEBT (1)
DECEMBER 31, 2015 PRO FORMA

		<u>Cost</u>	<u>Weight</u>	<u>Weighted Cost</u>	<u>Fed Tax Calc</u>	<u>Tax affected Wted cost</u>	<u>State Tax Calc</u>	<u>Tax affected Wted cost</u>
LT Debt (w/ Proforma adj.)	\$ 74,000,000	7.15%	48.80%	3.49%	1.00	3.49%	1.00	3.49%
Preferred Stock	\$ 189,800	6.00%	0.13%	0.01%	1.52	0.01%	1.09	0.01%
Common Equity	\$ 77,284,950	10.30%	50.97%	5.25%	1.52	7.95%	1.09	8.69%
Short Term Debt	\$ 161,783	1.54%	0.11%	0.00%	1.00	0.00%	1.00	0.00%
	\$ 151,636,533		100%	8.75%	2.71%	11.46%	0.74%	12.20%

(1) Schedule RevReq-5

**Unitil Energy Systems, Inc.
Optional Interval Data Service**

1	<u>Fees for Managing Single Request or Annual Subscription</u>		
2			Notes:
3	<u>Cost of Receiving Request, Preparing Bill & Cash Collections</u>		
4	Cost of Labor per Hour for Associate Billing Analyst	\$ 21.58	1
5	Estimated Time Required to Process Data Request	0.03	
6	Cost of Labor	\$ 0.71	
7	Labor-Related Overheads (118%)	\$ 0.84	2
8	Cost per Subscription	\$ 1.55	
9			
10	<u>Cost of Processing Subscriptions</u>		
11	Cost of Labor per Hour for Supplier Service Representative	\$ 32.72	1
12	Estimated Time Required to Process Transaction per Customer	0.25	
13	Cost of Labor	\$ 8.18	
14	Labor-Related Overheads (118%)	\$ 9.65	2
15	Cost per Subscription	\$ 17.83	
16			
17	<u>Cost of Preparing Quarterly Billings</u>		
18	Cost of Labor per Hour for Credit Representative	\$ 32.72	1
19	Estimated Time Required to Process Transaction per Customer	2.50	
20	Cost of Labor	\$ 81.80	
21	Labor-Related Overheads (118%)	\$ 96.52	2
22	Cost	\$ 178.32	
23	Number of Subscriptions	330	
24	Cost per Subscription	\$ 0.54	
25			
26	Cost of Labor per Hour for Remittance Processor	\$ 22.20	1
27	Estimated Time Required to Process Transaction per Customer	0.02	
28	Cost of Labor	\$ 0.36	
29	Labor-Related Overheads (118%)	\$ 0.42	2
30	Cost per Subscription	\$ 0.77	
31			
32	Total Cost per Subscription	\$ 20.70	
33			
34	<u>Cost of Performing Customer Data Analysis:</u>		
35	Cost of Labor per Hour for First Class Meter Mechanic	\$ 35.32	3
36	Estimated Time Required to Process	\$ 0.50	
37	Cost of Labor	\$ 17.66	
38	Labor-Related Overheads (105%)	\$ 18.54	4
39	Total Cost	\$ 36.20	
	Total Fee for Performing Single Request per Meter	\$ 56.90	5
	Total Fee for Annual Subscription per Meter	\$ 455.14	6

1 Hourly wages for positions effective 2016

2 The average USC Overhead rate for 2015 was 118%

3 First Class Meter Mechanic hourly wage per union contract effective 6/1/15

Unitil Energy Systems, Inc.
Docket No. DE 16-384
Petition for Rate Increase
NHPUC Technical Session Information Requests

Received: September 14, 2016

Date of Response: September 26, 2016

Request No. September 8,9 Technical Session 1-15

Witness: David L. Chong

Request :

- (a) Reference OCA 1-67 Attachment 1, page 6, line 17 through Line 24. Please make any corrections as necessary.
- (b) Reference OCA 1-67 Attachment 1, page 5, line 9: Please provide the basis for depreciating this asset over three (3) years?
- (c) Why are there two separate overhead rates?
- (d) Transportation rate of \$0.80/mile: where does that come from?

Response:

(a) September 8, 9 Technical Session 1-15 Attachment 1 provides corrections to lines 18 and 19 of page 6 of OCA 1-67 Attachment 1. On line 18, "Credit Representative" is replaced with "Supplier Services Representative". The description on Line 19 has been clarified to reflect that the 2.5 hours indicated is the time estimated to complete the work for all customers, not "per customer".

(b) The Company chose a depreciation rate of 3 years in order to recover the asset quickly since it is an optional service.

(c) There are two overhead rates because they pertain to different companies. The overhead rate of 105% pertains to Unitil Energy Systems, Inc. while the overhead rate of 118% pertains to Unitil Service Corp.

(d) The \$0.80/mile is based on the average cost for 2015. The costs included in the calculation are all costs associated with the mileage vehicles; fuel, insurance, maintenance, tires, etc. divided by the number of miles driven annually by the mileage fleet.

**Unitil Energy Systems, Inc.
Optional Interval Data Service**

1	<u>Fees for Managing Single Request or Annual Subscription</u>		
2			Notes:
3	<u>Cost of Receiving Request, Preparing Bill & Cash Collections</u>		
4	Cost of Labor per Hour for Associate Billing Analyst	\$ 21.58	1
5	Estimated Time Required to Process Data Request	0.03	
6	Cost of Labor	\$ 0.71	
7	Labor-Related Overheads (118%)	\$ 0.84	2
8	Cost per Subscription	\$ 1.55	
9			
10	<u>Cost of Processing Subscriptions</u>		
11	Cost of Labor per Hour for Supplier Service Representative	\$ 32.72	1
12	Estimated Time Required to Process Transaction per Customer	0.25	
13	Cost of Labor	\$ 8.18	
14	Labor-Related Overheads (118%)	\$ 9.65	2
15	Cost per Subscription	\$ 17.83	
16			
17	<u>Cost of Preparing Quarterly Billings</u>		
18	Cost of Labor per Hour for Supplier Service Representative	\$ 32.72	1
19	Estimated Time Required to Prepare Bills for all Customers	2.50	
20	Cost of Labor	\$ 81.80	
21	Labor-Related Overheads (118%)	\$ 96.52	2
22	Cost	\$ 178.32	
23	Number of Subscriptions	330	
24	Cost per Subscription	\$ 0.54	
25			
26	Cost of Labor per Hour for Remittance Processor	\$ 22.20	1
27	Estimated Time Required to Process Transaction per Customer	0.02	
28	Cost of Labor	\$ 0.36	
29	Labor-Related Overheads (118%)	\$ 0.42	2
30	Cost per Subscription	\$ 0.77	
31			
32	Total Cost per Subscription	\$ 20.70	
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34	<u>Cost of Performing Customer Data Analysis:</u>		
35	Cost of Labor per Hour for First Class Meter Mechanic	\$ 35.32	3
36	Estimated Time Required to Process	\$ 0.50	
37	Cost of Labor	\$ 17.66	
38	Labor-Related Overheads (105%)	\$ 18.54	4
39	Total Cost	\$ 36.20	
	Total Fee for Performing Single Request per Meter	\$ 56.90	5
	Total Fee for Annual Subscription per Meter	\$ 455.14	6

1 Hourly wages for positions effective 2016

2 The average USC Overhead rate for 2015 was 118%

3 First Class Meter Mechanic hourly wage per union contract effective 6/1/15

Calculation of Monthly Enhanced Metering Fees

Calculation of Annual Carrying Charge

(OCA 1-67, Attach. 1, p. 5, except depreciation rate)

Total cost of capital	8.75%
Federal income tax	2.71%
State income tax	0.74%
Depreciation expense	10.00%
Property taxes	2.02%
Pensions & benefits	0.92%
Employment taxes	0.05%
Distribution O&M expense	<u>3.61%</u>
Total carrying charge	28.80%

Calculation of Rates

Residential Option 1

Cost of equipment	\$ 742.11
Carrying charge	28.80%
Annual charge	\$ 213.73
Monthly charge	\$ 17.81

Residential Option 2

Cost of equipment	\$ 258.61
Carrying charge	28.80%
Annual charge	\$ 74.48
Monthly charge	\$ 6.21

General Service Option 1

Cost of equipment	\$ 928.61
Carrying charge	28.80%
Annual charge	\$ 267.44
Monthly charge	\$ 22.29

General Service Option 2

Cost of equipment	\$ 258.61
Carrying charge	28.80%
Annual charge	\$ 74.48
Monthly charge	\$ 6.21