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Education

Ph.D.: Applied Economics, University of Wisconsin-Madison
BA: Ibero-American Studies, University of Wisconsin-Madison
High School: Hawken School, Gates Mills, Ohio

Relevant Work Experience, Primary Positions

Present Position President, Pacific Economics Group Research LLC, Madison WI

Chief executive and sole proprietor of a consulting firm in the field of utility economics. Leads internationally recognized practice performance-based regulation and utility performance research. Other research specialties include: utility industry restructuring, codes of competitive conduct, markets for oil and gas, and commodity storage. Duties include project management and expert witness testimony.

October 1998-February 2009 Partner, Pacific Economics Group, Madison, WI

Managed PEG's Madison office. Developed internationally recognized practice in the field of statistical cost research for energy utility benchmarking and Altreg. Principal investigator and expert witness on numerous projects.

January 1993-October 1998 Vice President

January 1989-December 1992 Senior Economist, Christensen Associates, Madison, WI

Directed the company's Regulatory Strategy group. Participated in all Christensen Associates testimony on energy utility Altreg and benchmarking.

Aug. 1984-Dec. 1988 Assistant Professor, Department of Mineral Economics, The Pennsylvania State University, University Park, PA

Responsibilities included research and graduate and undergraduate teaching and advising. Courses taught: Min Ec 387 (Introduction to Mineral Economics); 390 (Mineral Market Modeling); 484 (Political Economy of Energy and the Environment) and 506 (Applied Econometrics). Research specialty: role of storage in commodity markets.

August 1983-July 1984 Instructor, Department of Mineral Economics, The Pennsylvania State University, University Park, PA

Taught courses in Mineral Economics (noted above) while completing Ph.D. thesis.

April 1982-August 1983 Research Assistant to Dr. Peter Helmberger, Department of Agricultural and Resource Economics, University of Wisconsin-Madison

Dissertation research on the role of speculative storage in markets for field crops. Work included the development of a quarterly econometric model of the U.S. soybean market.

March 1981-March 1982 Natural Gas Industry Analyst, Madison Consulting Group, Madison, Wisconsin

Research under Dr. Charles Cicchetti in two areas:

- Impact of the Natural Gas Policy Act on the production and average wellhead price of natural gas in the United States. An original model was developed for forecasting these variables through 1985.
- Research supporting litigation testimony in an antitrust suit involving natural gas producers and pipelines in the San Juan Basin of New Mexico.

Relevant Work Experience, Visiting Positions:

May-August 1985 Professeur Visiteur, Centre for International Business Studies, Ecole des Hautes Etudes Commerciales, Montreal, Quebec.

Research on the behavior of inventories in metal markets.

Major Consulting Projects

1. Research and Testimony on Productivity and PBR Plan Design for a Vertically-Integrated Electric Utility, Hawaiian Electric, ongoing.
2. Benchmarking of Granular Power Distributor Costs for a Canadian Regulator, Ontario Energy Board, ongoing.
3. Research and Testimony on Power Distributor Cost Benchmarking and PBR Plan Design, Ontario Energy Board, 2020.
4. Research and Testimony on Gas Distributor Productivity, Cost Benchmarking, and PBR Plan Design, Massachusetts Attorney General's Office, 2020.
5. White Paper and Webinar on PBR and its application to a vertically-integrated electric utility, British Columbia Utilities Commission, 2020.
6. Research and Testimony on Power Transmission Productivity and Cost Benchmarking, Association Québécoise des Consommateurs Industriels d'Electricité, ongoing.
7. Research and Testimony on Power Transmitter Productivity, Cost Benchmarking, and PBR Plan Design, Ontario Energy Board, 2018-2019.
8. Testimony on PBR for Power Transmission and Distribution Utilities, Association Québécoise des Consommateurs Industriels d'Electricité, 2017-2019.
9. Research and Testimony on Power Distributor Productivity, Massachusetts Attorney General's Office, 2019.
10. Research and Testimony on Power Distributor Cost Benchmarking and PBR Plan Design for a Canadian Regulator, Ontario Energy Board, 2018-2019.
11. Briefing on Trends in Alternative Regulation, Duke Energy, 2018.
12. Testimony on PBR for a Vertically-Integrated Electric Utility, Northern States Power (MN), 2017.
13. Research and Testimony on Gas Utility Productivity for a Canadian Regulator, Ontario Energy Board, 2017-2018.

14. Research and Testimony on Power Distributor Productivity, Cost Performance and PBR Plan Design for a Canadian Regulator, Ontario Energy Board, 2017-2018.
15. White Paper on Multiyear Rate Plans and U.S. Power Distributor Productivity Trends, Lawrence Berkeley National Laboratory, 2017.
16. Benchmarking Study and Altreg Consultation for a Northeastern Power Distributor, Green Mountain Power, 2017.
17. Statistical Benchmarking and Multiyear Rate Plan Research and Testimony for a Western Electric Utility, Public Service of Colorado, 2017-2018.
18. Presentation on PBR and Distribution System Planning for a U.S. Government Workshop, Lawrence Berkeley National Laboratory, 2017.
19. Transnational Benchmarking of Power Distribution Cost, Productivity and Rates for a Canadian Consumer Group, Alberta Utilities Consumer Advocate, 2017-2018.
20. Statistical Benchmarking and Multiyear Rate Plan Research and Testimony for a Western Gas Utility, Public Service of Colorado, 2017.
21. Consultation on Altreg Trends for a Vertically Electric Integrated Utility, Duke Energy, 2016.
22. Workshop on PBR for Regulators in Vermont, Lawrence Berkeley National Laboratory, 2016.
23. Research and Testimony on Hydroelectric Generation and Multiyear Rate Plan for a Canadian Regulator, Ontario Energy Board, 2016.
24. Development of a Revenue Decoupling Mechanism and Supporting Testimony for a Midwestern U.S. Environmental Advocate, Fresh Energy, 2016.
25. Research and Testimony on Multiyear Rate Plan Design and U.S. Power Distribution Productivity Trends, Consumers' Coalition of Alberta, 2016.
26. Testimony on Revenue Decoupling for Pennsylvania Energy Distributors, National Resources Defense Council, March 2016.
27. White Paper on Performance Metrics for the Utility of the Future, Edison Electric Institute and a consortium of U.S. electric utilities, 2016.
28. White Paper on PBR for Electric Utilities in a High Distributed Energy Resources Future, Lawrence Berkeley National Laboratory, January 2016.
29. White Paper on Multiyear Rate Plans for U.S. Electric Utilities, Edison Electric Institute and a consortium of U.S. electric utilities, 2015.
30. Survey of Gas and Electric Alternative Regulation Precedents, Edison Electric Institute, 2015.
31. Research and Development of Regulatory Frameworks for the Utility of the Future, Powering Tomorrow, 2015.
32. White Paper on PBR for a Vertically-Integrated Electric Utility, Xcel Energy, 2015.
33. Research and Testimony on Merger of Two Energy Utility Holding Companies, Great Lakes Utilities, 2014-2015.
34. Assessment of Statistical Benchmarking for Three Australian Power Distributors, Networks New South Wales, 2014-2015.
35. Research and Testimony on Statistical Benchmarking and O&M Cost Escalation for an Ontario Power Distributor, Oshawa PUC Networks, 2014-2015.
36. Transnational Benchmarking of Power Distributor O&M Expenses, Australian Energy Regulator, 2014.
37. Research and Testimony on Statistical Benchmarking and O&M Expense Escalation for a Western Electric Utility, PS Colorado, 2014.
38. Research and Testimony on Productivity Trends of Vertically Integrated Electric Utilities, Client Name Withheld, 2014.

39. Research and Testimony on Productivity Trends of Gas and Electric Power Distributors for a Canadian Consumer Group, Commercial Energy Consumers of BC, 2013-2014.
40. Research on the Design of Multiyear Rate Plans for a Southeast Electric Utility, (client name withheld). 2013-2014.
41. Research on the Design of Multiyear Rate Plans for a Midwest Electric & Gas Distributor, (client name withheld). 2013-2014.
42. Research on Drivers of O&M expenses for a Canadian Gas Utility, Gaz Metro. 2013.
43. Consultation on Regulatory Strategy for a California Electric and Gas Utility, San Diego Gas & Electric. 2013.
44. Research and Testimony on the Design of an Attrition Relief Mechanism for a Northeast U.S. Electric Utility, Fitchburg Gas & Electric. 2013.
45. Consultation on an Altreg Strategy for a Midwestern Electric Utility, Oklahoma Gas & Electric. 2013.
46. Consultation on an Altreg Strategy for a Southeast Electric Utility (client name withheld). 2013.
47. Research and Testimony on Issues in PBR Plan Implementation for a Canadian Consumer Group, Consumers' Coalition of Alberta. 2013.
48. Research and Testimony on the Design of an Attrition Relief Mechanism for a Northeast Electric Utility, Central Maine Power. 2013.
49. Survey of Gas and Electric Altreg Precedents. Edison Electric Institute. 2012-2013.
50. Testimony for US Coal Shippers on the Treatment of Cross Traffic in US Surface Transportation Board Stand Alone Cost Tests. 2012
51. Productivity and Plan Design Research and Testimony in Support of a PBR plan for Canadian Gas Distributor, Gaz Metro. 2012-2013.
52. Research and Testimony on Projected Attrition for a Western Electric Utility, Avista. 2011-2012.
53. Research and Testimony on Remedies for Regulatory Lag for 2 Northeastern Power Distributors, Atlantic City Electric & Delmarva Power & Light. 2011-2012.
54. Research and Testimony on the Design of a Attrition Relief Mechanisms for power and gas distributors on behalf of a Canadian Consumer Group, Consumers' Coalition of Alberta. 2011-2012.
55. Assistance with an Alternative Regulation Settlement Conference for a Northeastern Power Distributor, Delmarva Power & Light. 2011.
56. Research and Testimony on Approaches to Reduce Regulatory Lag for a Northeastern Power Distributor, Potomac Electric Power. 2011.
57. Benchmarking Research and Report on the Performance of a Midwestern Electric Utility, Oklahoma Gas & Electric, 2011.
58. White Paper on Alternative Regulation Precedents for Electric Utilities. Edison Electric Institute. 2010-2011.
59. Research and Report on the Design of an Incentivized Formula Rate for a Canadian Gas Distributor. Gaz Metro Task Force. 2010-2011.
60. Research and Testimony in Support of Revenue Decoupling for a Power Distributor. Commonwealth Edison, 2010-2011.
61. Research and Testimony in Support of a Forward Test Year Rate Filing by a Western Gas Distributor. Xcel Energy, 2010.
62. Statistical Cost Benchmarking for a Midwestern Electric Utility, Oklahoma Gas & Electric, 2010.
63. White Paper on Alternative Regulation Precedents for Electric Utilities. Client Name Withheld. 2010-2011.

64. Research and Report on the Effectiveness of Decoupling for a Western Gas Distributor. Client Name Withheld, 2009-2010.
65. Research and Report on the Performance of a Western Electric Utility. Portland General Electric, 2009-2010.
66. Research and Report on Revenue Decoupling for Ontario Gas and Electric Utilities. Ontario Energy Board, 2009-2010.
67. Research and Report on PBR Designed to Incent Long Term Performance Gains. Client Name Withheld, 2009-2010.
68. Research and Testimony on Altreg for Western Gas and Electric Utilities Operating under Decoupling. San Diego Gas & Electric and Southern California Gas, 2009-2010.
69. Research and Report on the Importance of Forward Test Years for U.S. Electric Utilities. Edison Electric Institute, 2009-2010.
70. Research and Testimony in Support of a Forward Test Year Rate Filing by a Vertically Integrated Western Electric Utility. Xcel Energy, 2009.
71. Consultation and Testimony on Revenue Decoupling for a New England DSM Advisory Council. Rhode Island Energy Efficiency and Resource Management Council, 2009.
72. Benchmarking Research and Testimony for a Midwestern Electric Utility. Oklahoma Gas & Electric, 2009.
73. Research and Testimony on Revenue Decoupling for 3 US Electric Utilities. Hawaiian Electric, 2008-2009.
74. Statistical Cost Benchmarking of Canadian Power Distributors. Ontario Energy Board. 2007-2009.
75. White Paper: Use of Statistical Benchmarking in Regulation. Canadian Electricity Association. 2005-2009.
76. Research and Draft Testimony in Support of a Revenue Decoupling Mechanism for a Large Midwestern Gas Utility. NICOR Gas, 2008.
77. Consultation on Alternative Regulation for a Midwestern Electric Utility. Xcel Energy. 2008.
78. Research and Testimony in Support of a Revenue Adjustment Mechanism for Central Vermont Public Service. 2008.
79. Testimony on Tax Issues for a Canadian Regulator. Ontario Energy Board. 2008.
80. Gas Distribution Productivity Research and Testimony in Support of Decoupling and Other PBR Plans for a Canadian Regulator. Ontario Energy Board. 2007.
81. Consultation on Revenue Decoupling and Revenue Adjustment Mechanisms for a Consortium of Massachusetts Electric and Gas Utilities. National Grid. 2007.
82. Consultation on Alternative Regulation for a Western Electric & Gas Distributor Operating under Decoupling. Pacific Gas & Electric. 2007.
83. Report and Testimony on Role of Power Distribution Benchmarking in Regulation. Fortis Alberta, 2006.
84. Testimony on PBR Plan for Central Maine Power, 2007.
85. Consultation on a Canadian Trade Association's Benchmarking Program. Canadian Electricity Association. 2007.
86. Consultation on a PBR Strategy for Power Transmission. BC Transmission. 2006.
87. White Paper on Power Distribution Benchmarking for a Canadian Trade Association. Canadian Electricity Association. 2006.
88. Workshop on Alternative Regulation of Major Plant Additions. EEI. 2006.
89. Statistical Benchmarking of A&G Expenses. Michigan Public Service Commission. 2006.

90. Consultation on Price Cap Regulation for Provincial Power Distributors. Ontario Energy Board. 2006.
91. White Paper on Alternative Regulation for Major Plant Additions for a U.S. Trade Association. EEI. 2006.
92. Research and Testimony on the Cost Performance of a New England Power Distributor, Central Vermont Public Service, 2006.
93. Benchmarking and Productivity Research and Testimony for Western Gas and Electric Utilities Operating under Decoupling. San Diego Gas & Electric and Southern California Gas. 2006
94. Power Distribution Benchmarking Research and Testimony. Central Vermont Public Service. 2006.
95. Power Transmission PBR and Benchmarking Support and Testimony. Trans-Energie. 2005.
96. Explaining Recent Rate Requests of U.S. Electric Utilities: Results from Input Price and Productivity Research. Edison Electric Institute. 2005.
97. Statistical Benchmarking of a California Nuclear Plant. San Diego Gas & Electric. 2005.
98. Statistical Benchmarking for a Southeastern U.S. Bundled Power Service Utility. Progress Energy Florida. 2005.
99. Testimony on Statistical Benchmarking of Power Distribution. Hydro One Networks. 2005.
100. Statistical Benchmarking of O&M Expenses for an Australian Power Distributor. SPI Networks. 2004.
101. Research on the Cost Performance of Three English Power Distributors, EDF, 2004.
102. Power Transmission and Distribution PBR and Benchmarking Research for a Canadian Utility. Hydro One Networks, 2001-2003.
103. Indexation of O&M Expenses for an Australian Power Distributor. SPI Networks. 2004.
104. Benchmarking Testimony for Three Ontario Power Distributors. Hydro One, Toronto Hydro, and Enersource Hydro Mississauga. 2004.
105. Statistical Benchmarking Research for Three British Power Distributors. EDF Eastern, EDF London, and EDF Seaboard. 2004.
106. Statistical Benchmarking Research for a British Power Distributor. United Utilities. 2004.
107. White Paper on Unbundled Storage and the Chicago Gas Market for a Midwestern Gas Distributor. Nicor Gas. 2004.
108. Advice on Benchmarking Strategy for a Canadian Trade Association. Canadian Electricity Association. 2004.
109. Workshop on Service Quality Regulation for Regulators. Canadian Electricity Association. 2004.
110. Advice on Productivity for Two British Power Distributors. Northern Electric and Yorkshire Electricity Distribution. 2004.
111. Research and Testimony on Power and Natural Gas Distribution Productivity and Benchmarking for a U.S. Utility Operating under Decoupling. Sempra Energy. 2004.
112. Research and Advice on PBR for a Western Gas Distributor. Questar Gas. 2004.
113. Research, Testimony, and Settlement Support on the Cost Efficiency of O&M Expenses for a Canadian Gas Distributor. Enbridge Gas Distribution. 2004.
114. Testimony on Distributor Cost Benchmarking. Hydro One Networks. 2004.
115. Advice on Statistical Benchmarking for Two British Power Distributors. Northern Electric and Yorkshire Electricity Distribution, 2003.
116. Statistical Benchmarking, Productivity, and Incentive Power Research for a Combined Gas and Electric Company. Baltimore Gas and Electric, 2003.
117. Statistical Benchmarking of Power Transmission. Central Research Institute for the Electric Power Industry (Japan), 2003.

118. Statistical Benchmarking and PBR Plan for Four Bolivian Power Distributors. Superintendencia de Electricidad, 2003.
119. General consultation on PBR Initiative. Union Gas, 2003.
120. Workshop on PBR for Canadian Regulators. Canadian Electricity Association, 2003.
121. Advice on Performance Goals for a U.S. Transmission Company. American Transmission, 2003.
122. Research, Testimony, and Settlement Support on the Cost Efficiency of O&M Expenses. Enbridge Gas Distribution, 2003.
123. Workshop on PBR for Louisiana's Public Service Commission. Entergy Services, February 2003.
124. Workshop on Recent Trends in PBR. Entergy Services, 2003.
125. Research on the Incentive Power of Alternative Regulatory Systems. Hydro One Networks, 2002.
126. Future of T&D Regulation, Southern California Edison. October 2002.
127. Benchmarking and Productivity Research and Testimony for a Western Gas and Electric Power Distributor operating under Decoupling. Sempra Energy, 2002.
128. Research on Power Distribution Productivity and Inflation Trends. NSTAR, 2002.
129. Research and Testimony on Benchmarking for Bundled Power Service. AmerenUE, 2002.
130. Statistical Benchmarking for Electric Power Transmission. Transend, 2002.
131. Statistical Benchmarking for three Australian Gas Utilities. Client name confidential, 2001.
132. Research and Testimony on Productivity and PBR Plan Design for a Power Distributor. Bangor Hydro Electric, 2001.
133. Competition Policy in the Power Market of Western Australia, Western Power, 2001.
134. PBR Presentation to Governor Bush Energy 2000 Commission. Edison Electric Institute, 2001.
135. Productivity Research and PBR Plan Design. Hydro One Networks, 2001.
136. Statistical Benchmarking for Power Distribution, Queensland Competition Authority, 2001.
137. E-Forum on PBR for Power Procurement. Edison Electric Institute, 2001.
138. Research on TFP and Benchmarking for Gas and Electric Power Distribution. Sempra Energy, 2000.
139. PBR Plan Design for a Natural Gas Distributor Operating under Decoupling. BC Gas, 2000.
140. Research on the Cost Performance of a New England Power Distributor. Central Maine Power, 2000.
141. Power and Natural Gas Procurement PBR. Western Resources, 2000.
142. Service Quality PBR Plan Design and Testimony. Gas and electric power distributors of Massachusetts, 2000.
143. Research and Testimony on Economies of Scale in Local Power Delivery, Metering, and Billing. Electric distributors of Massachusetts, 2000.
144. Economies of Scale and Scope in an Isolated Electric System. Western Power, 2000.
145. Workshop on PBR for Gas and Electric Distribution. Public Service Electric and Gas, 2000.
146. Testimony on PBR for Power Distribution. TXU Electric, 2000.
147. Statistical Benchmarking for Power Transmission. Powerlink Queensland, 2000.
148. Critique of a Commission-Sponsored Benchmarking Study. CitiPower, Powercor, and United Energy, 2000.
149. Unit Cost of Power Distribution. AGL, 2000.
150. Statistical Benchmarking for Bundled Power Services. Niagara Mohawk Power, 1999.
151. Cost Benchmarking for Power Distribution. United Energy, 1999.
152. Cost Benchmarking for Power Distribution. Powercor, 1999.
153. Cost Benchmarking for Power Distribution. CitiPower, 1999.

154. Cost Benchmarking for Power Transmission and Distribution. Southern California Edison, 1999.
155. Research and Testimony on Benchmarking and PBR Plan Design for Bundled Power Service. Oklahoma Gas & Electric, 1999.
156. Advice on PBR and Affiliate Relations. Western Resources, 1999.
157. Advice on Code of Conduct Issues for a Western Electric Utility. Public Service of Colorado, 1999.
158. Workshop on PBR for Energy Utilities. World Bank, 1998
159. Design of a Stranded Benefit Passthrough Mechanism for a Restructuring Electric Utility. Niagara Mohawk Power, 1998.
160. Testimony on Functional Separation of Power Generation and Delivery in Illinois. Edison Electric Institute, 1998.
161. Statistical Benchmarking for Power Distribution. Victorian distribution business, 1998-9.
162. PBR Plan Design, Statistical Benchmarking, and Supporting Testimony. Kentucky Utilities & Louisville Gas & Electric, 1998-99.
163. Research and Testimony on Productivity and PBR Plan Design for Bundled Power Service. Hawaiian Electric and Hawaiian Electric Light & Maui Electric, 1998-99.
164. Research and Testimony on Economies of Scale in Power Supply. Hawaiian Electric Company, 1998.
165. Testimony on Brand Names. Edison Electric Institute, 1998.
166. Cross-Subsidization Measures for Restructuring Electric Utilities. Edison Electric Institute, 1998.
167. Cost Structure of Power Distribution. Edison Electric Institute, 1998.
168. Research and Testimony on Gas and Electric Power Distribution TFP. San Diego Gas & Electric, 1997-98.
169. White Paper and Public Appearances on PBR Options for Power Distributors in Australia. Distribution companies of Victoria, 1997-98.
170. White Paper on Price Cap Regulation (including Service Quality) for Power Distribution. Edison Electric Institute, 1997-99.
171. PBR Plan Design, Statistical Benchmarking, and Testimony for a Gas Distributor. Atlanta Gas Light, 1997.
172. Inflation and Productivity Trends of U.S. Power Distributors. Niagara Mohawk Power, 1997.
173. Statistical Benchmarking and Stranded Cost Recovery. Edison Electric Institute, 1997.
174. Review of a Power Purchase Contract Dispute. City of St. Cloud, MN, 1997.
175. Statistical Benchmarking for Bundled Power Service and Testimony. Pacific Gas & Electric, 1997.
176. Generation and Power Transmission PBR for a Restructuring Canadian Electric Utility, EPCOR, 1997.
177. White Paper on Utility Brand Name Policy. Edison Electric Institute, 1997.
178. Price Cap Plan Design for Power Distribution Services. Comisión de Regulación de Energía y Gas (Colombia), 1997.
179. Productivity Research and PBR Plan Design (including Service Quality) and Testimony for a Gas Distributor under Decoupling. BC Gas, 1997.
180. Presentation on Performance-Based Regulation for a Natural Gas Distributor, Northwestern Utilities, 1996.
181. Statistical Benchmarking for Bundled Power Service. Pennsylvania Power & Light, 1996.
182. Design of Geographic Zones for Privatized Natural Gas Distributors. Comision Reguladora de Energia (Mexico), 1996.
183. PBR Plan Design for Bundled Power Services. Hawaiian Electric, 1996
184. Testimony on PBR for Power Distribution. Commonwealth Energy System, 1996.

185. Power Distribution Benchmarking for a PJM Utility. Delmarva Power, 1996.
186. Consultation on the Design and Implementation of Price Cap Plans for Natural Gas Production, Transmission, and Distribution. Comision Reguladora de Energia (Mexico), 1996.
187. Productivity and Benchmarking Research and Testimony for a Natural Gas Distributor. Boston Gas, 1996.
188. Stranded Cost Recovery and Power Distribution PBR for a Restructuring U.S. Electric Utility. Delmarva Power, 1996.
189. Development of a Price Cap Plan for a Midwest Gas Distributor. Illinois Power, 1996.
190. Speech on PBR for Electric Utilities. Hawaiian Electric, 1995.
191. Productivity Research and Testimony for a Natural Gas Distributor. NMGas, 1995.
192. Productivity and PBR Plan Design Research and Testimony for a Natural Gas Distributor Operating under Decoupling. Southern California Gas, 1995.
193. Regulatory Strategy for a Restructuring Northeast Electric Utility. Niagara Mohawk Power, 1995.
194. Incentive Regulation Support for a Japanese Electric Utility. Tokyo Electric Power, 1995.
195. Regulatory Strategy for a Restructuring Canadian Electric Utility. Alberta Power, 1995.
196. Productivity Research and PBR Plan Design for Bundled Power Service and Gas Distribution. Public Service Electric & Gas, 1995.
197. White Paper on Performance-Based Regulation. Electric Power Research Institute, 1995.
198. Statistical Benchmarking for Bundled Power Services and Testimony. Southern California Edison, 1994.
199. White Paper on Price Cap Regulation For Electric Utilities. Edison Electric Institute, 1994.
200. Productivity Research for a Natural Gas Distributor, Southern California Gas, 1994.
201. Productivity Research and Testimony in Support of a Price Cap Plan. Central Maine Power, 1994.
202. Review of the Southwest Gas Transportation Market. Arizona Electric Power Cooperative, 1993.
203. Development of PBR Options. Southern California Edison, 1993.
204. Productivity Research, PBR Plan Design, and Testimony. Niagara Mohawk Power, 1993-94.
205. Design and Negotiation of a Comprehensive Benchmark Incentive Plans for Gas Distribution and Bundled Power Service. Niagara Mohawk Power, 1992.
206. Gas Transportation Strategy for an Arizona Electric Utility. AEPCO, 1992.
207. Gas Supply Cost Indexes for Incentive Regulation. Pacific Gas & Electric, 1992.
208. Benchmarking Gas Supply Services and Testimony. Niagara Mohawk Power, 1992.
209. Efficient Rate Design for Interstate Gas Transporters. AEPCO, 1991.
210. Cost Performance Indexes for Gas and Electric Utilities for Use in PBR. Niagara Mohawk Power, 1991.
211. Productivity Growth Estimates for U.S. Gas Distributors and Their Use in PBR. Southern California Gas, 1991.
212. Sales Promotion Policies of Gas Distributors. Northern States Power-Wisconsin, 1991.
213. Economics of Electric Revenue Adjustment Mechanisms. Niagara Mohawk Power, 1991.
214. Workshop on PBR for Electric Utilities. Southern Company Services, 1991.
215. Comprehensive Performance Indexes for Electric and Gas Distribution Utilities. Niagara Mohawk Power, 1990-1991.
216. Measurement of Productivity Trends for the U.S. Electric Power Industry. Niagara Mohawk Power, 1990-91.
217. Measuring Productivity Trends in the Local Gas Distribution Industry. Niagara Mohawk Power, 1990.

218. Measuring the Productivity Growth of Gas Transmission Companies. Interstate Natural Gas Association of America, 1990.
219. Incentive Regulation: Can it Pay for Interstate Gas Companies? Southern Natural Gas, 1989.
220. Design of Time-of-Use Rates for Residential Customers. Iowa Power, 1989.
221. Measuring Load Relief from Interruptible Services. New England Electric Power Service, 1989.
222. Customer Response to Interruptible Service Programs. Southern California Edison, 1989.
223. Modeling Customer Response to Curtailable Service Programs. Electric Power Research Institute, 1989.
224. Impact of the Natural Gas Policy Act on U.S. Production and Wellhead Prices. New England Fuel Institute, 1981
225. Competition in the Natural Gas Market of the San Juan Basin. Public Service of New Mexico, 1981.

Publications

1. "State Performance-Based Regulation Using Multiyear Rate Plans for U.S. Electric Utilities," (With Jeff Deason), Lawrence Berkeley National Laboratory, July 2017.
2. "Performance-Based Regulation in a High Distributed Energy Resources Future," (With Tim Woolf), Lawrence Berkeley National Laboratory, January 2016.
3. "Alternative Regulation for Emerging Utility Challenges: 2015 Update" (With Matthew Makos and Gretchen Waschbusch), Edison Electric Institute, November 2015.
4. "Alternative Regulation for Evolving Utility Challenges: An Updated Survey" (With Matthew Makos and Gretchen Waschbusch), Edison Electric Institute, 2013.
5. "Innovative Regulation: A Survey of Remedies for Regulatory Lag" (With Matt Makos and Gentry Johnson), Edison Electric Institute, April 2011.
6. Edison Electric Institute, August 2010.
7. "Econometric TFP Targets, Incentive Regulation and the Ontario Gas Distribution Industry" (With Lullit Getachew), Review of Network Economics, December 2009
8. "The Economics and Regulation of Power Transmission and Distribution: The Developed World Case" (with Lullit Getachew), in Lester C. Hunt and Joanne Evans, eds., International Handbook on the Economics of Energy, 2009.
9. "Alternative Regulation, Benchmarking, and Efficient Diversification", USAEE Dialogue, August 2009.
10. "Statistical Benchmarking in Utility Regulation: Role, Standards and Methods," (with Lullit Getachew), Energy Policy, 2009.
11. "Price Control Regulation in North America: Role of Indexing and Benchmarking," Electricity Journal, January 2009.
12. "AltReg Rate Designs Address Declining Average Gas Use" (with Lullit Getachew, David Hovde, and Steve Fenrick), Natural Gas and Electricity, 2008.
13. "Alternative Regulation for Infrastructure Cost Recovery", Edison Electric Institute, January 2007.
14. "Regulation of Gas Distributors with Declining Use Per Customer" USAEE Dialogue August 2006.
15. "Alternative Regulation for North American Electric Utilities" (With Lawrence Kaufmann), Electricity Journal, July 2006.
16. "Assessing Rate Trends of U.S. Electric Utilities", Edison Electric Institute, January 2006.

17. "Econometric Cost Benchmarking of Power Distribution Cost" (with Lullit Getachew and David Hovde), *Energy Journal*, July 2005.
18. "Alternative Regulation, Benchmarking, and Efficient Diversification" (with Lullit Getachew), PEG Working Paper, November 2004.
19. "Performance-Based Regulation Developments for Gas Utilities (with Lawrence Kaufmann), *Natural Gas and Electricity*, April 2004.
20. "Performance-Based Regulation and Energy Utility Business Strategy (With Lawrence Kaufmann), in *Natural Gas and Electric Power Industries Analysis 2003*, Houston: Financial Communications, Forthcoming.
21. "Performance-Based Regulation and Business Strategy" (with Lawrence Kaufmann), *Natural Gas and Electricity*, February 2003
22. "Performance-Based Regulation for Energy Utilities (with Lawrence Kaufmann)," *Energy Law Journal*, Fall 2002.
23. Price Caps for Distribution Service: Do They Make Sense? (with Eric Ackerman and Lawrence Kaufmann), *Edison Times*, 1999.
24. The Cost Structure of Power Distribution with Implications for Public Policy (with Lawrence Kaufmann), Washington: Edison Electric Institute 1999.
25. Controlling for Cross-Subsidization in Electric Utility Regulation (with Lawrence Kaufmann), Washington: Edison Electric Institute, 1998.
26. Price Cap Regulation for Power Distribution (with Larry Kaufmann), Washington: Edison Electric Institute, 1998.
27. Branding Electric Utility Products: Analysis and Experience in Regulated Industries (with Lawrence Kaufmann), Washington: Edison Electric Institute, 1997.
28. Forecasting the Productivity Growth of Natural Gas Distributors (with Lawrence Kaufmann). *AGA Forecasting Review*, Vol. 5, March 1996.
29. Performance-Based Regulation of U.S. Electric Utilities: The State of the Art and Directions for Further Research (with Lawrence Kaufmann). Palo Alto: Electric Power Research Institute, December 1995.
30. The Treatment of Z Factors in Price Cap Plans (with Lawrence Kaufmann), *Applied Economics Letters* 2 1995.
31. A Price Cap Designers Handbook (with Lawrence Kaufmann). (Washington: Edison Electric Institute, 1995.)
32. TFP Trends of U.S. Electric Utilities, 1975-92 (with Herb Thompson). Proceedings of the Ninth NARUC Biennial Regulatory Information Conference, (Columbus: National Regulatory Research Institute, 1994).
33. Gas Supply Cost Incentive Plans for Local Distribution Companies. Proceedings of the Eight NARUC Biennial Regulatory Information Conference (Columbus: National Regulatory Research Institute, 1993).
34. Indexed Price Caps for U.S. Electric Utilities. *The Electricity Journal*, September-October 1991.
35. Futures Prices and Hidden Stocks of Refined Oil Products. In O. Guvanen, W.C. Labys, and J.B. Lesourd, editors, *International Commodity Market Models: Advances in Methodology and Applications* (London: Chapman and Hall, 1991).
36. Evaluating Alternative Measures of Credited Load Relief: Results From a Recent Study For New England Electric. In *Demand Side Management: Partnerships in Planning for the Next Decade* (Palo Alto: Electric Power Research Institute, 1991).
37. Competitive Speculative Storage and the Cost of Petroleum Supply. *The Energy Journal* 10 (1) 1989.

38. Theory of Pricing and Storage of Field Crops With an Application to Soybeans [with Joseph Glauber (senior author), Mario Miranda, and Peter Helmlinger]. University of Wisconsin Madison College of Agricultural and Life Sciences Research Report no. R3421, 1988.
39. Speculative Stocks and Working Stocks. *Economic Letters* 28 1988.
40. Modeling the Convenience Yield from Precautionary Storage: The Case of Distillate Fuel Oil. *Energy Economics* 10 (4) 1988.
41. A Competitive Model of Primary Sector Storage of Refined Oil Products. July 1987, *Resources and Energy* 10 (2) 1988.
42. Review of Oil Prices, Market Response, and Contingency Planning, by George Horwich and David Leo Weimer, (Washington, American Enterprise Institute, 1984), *Energy Journal* 8 (3) 1988.
43. Monopoly Power, Rigid Prices, and the Management of Inventories by Metals Producers. *Materials and Society* 12 (1) 1988.
44. Storage, Monopoly Power, and Sticky Prices. *les Cahiers du CETAI* no. 87 03 March 1987.
45. Pricing and Storage of Field Crops: A Quarterly Model Applied to Soybeans (with junior authors Joseph Glauber, Mario Miranda, and Peter Helmlinger). *American Journal of Agricultural Economics* 69 (4), November 1987.
46. Modeling the Convenience Yield from Precautionary Storage of Refined Oil Products (with junior author Bok Jae Lee) in John Rowse, ed. *World Energy Markets: Coping with Instability* (Calgary, AL: Friesen Printers, 1987).
47. Assessing Metals Demand in Less Developed Countries: Another Look at the Leapfrog Effect. *Materials and Society* 10 (3), 1986.
48. The Changing Role of the United States in World Mineral Trade in W.R. Bush, editor, *The Economics of Internationally Traded Minerals*. (Littleton, CO: Society of Mining Engineers, 1986).
49. Review of Energy, Foresight, and Strategy, Thomas Sargent, ed. (Baltimore: Resources for the Future, 1985). *Energy Journal* 6 (4), 1986.
50. Public vs. Private Management of Mineral Inventories: A Statement of the Issues. *Earth and Mineral Sciences* 53, (3) Spring 1984.

Conference Presentations

1. Wisconsin Public Utilities Institute, Madison WI, October 2020
2. Wisconsin Public Utilities Institute, Madison WI, October 2019
3. Edison Electric Institute, Madison WI, July 2019
4. Pennsylvania Public Utility Law Conference, Harrisburg, PA, May 2019
5. Carilec CEOs & Leadership Conference, St. Lucia, May 2019
6. Hawaii Public Utilities Commission, Honolulu, HI, November 2018
7. Wisconsin Public Utilities Institute, Madison WI, October 2018
8. Financial Research Institute, Columbia MO, September 2018
9. Hawaii Public Utilities Commission, Honolulu, HI, July 2018
10. NARUC, St Paul MN, January 2018
11. University of Wisconsin Department of Applied Economics, October 2017
12. Wisconsin Public Utilities Institute, Madison WI, October 2017
13. New England Conference of Public Utilities Commissioners, Hallowell ME, September 2017

14. Lawrence Berkeley National Laboratory, Webinar, August 2017
15. Edison Electric Institute, Madison WI, July 2017
16. National Conference of Regulatory Attorneys, Portland OR, May 2017
17. National Regulatory Research Institute, Webinar, May 2017
18. Washington State House of Representatives, Technology and Economic Development Committee, January 2017
19. Lawrence Berkeley National Laboratory, Webinar, November 2016
20. Edison Electric Institute, Madison WI, July 2016
21. Society of Utility Regulatory Financial Analysts (SURFA), Indianapolis IN, April 2016
22. Wisconsin Public Service Commission, Madison WI, March 2016
23. Great Plains Institute, Minneapolis MN, February 2016
24. Lawrence Berkeley National Laboratory, Vermont Future of Electric Utility Regulation Workshop, January 2016
25. Edison Electric Institute, Madison WI, July 2015
26. Law Seminars, Las Vegas NV, March 2015
27. Great Plains Institute, St. Paul MN, September 2014
28. Financial Research Institute, Columbia MO, September 2014
29. Edison Electric Institute, Madison WI, July 2014
30. EUCI, Chicago IL April 2014 [Conference chair]
31. National Regulatory Research Institute, Teleseminar, August 2013
32. Edison Electric Institute, Madison WI, July 2013
33. Edison Electric Institute, Washington DC, May 2013
34. Edison Electric Institute Washington DC, April 2013
35. Law Seminars, Las Vegas NV, March 2013
36. EUCI, Chicago IL, November 2012 [Conference chair]
37. Edison Electric Institute, Madison WI, July 2012
38. SURFA, Washington DC, April 2012
39. EUCI, Philadelphia PA, November 2011 [Conference chair]
40. Edison Electric Institute, Madison WI, July 2011
41. EUCI, Toronto, November 2010 [Conference chair]
42. Edison Electric Institute, Madison WI, July 2010
43. EUCI, Cambridge MA, March 2010 [Conference chair]
44. Edison Electric Institute, Madison WI, July 2009
45. Edison Electric Institute, national eforum, May 2009
46. EUCI, Cambridge MA, March 2009 [Conference chair]
47. Edison Electric Institute, Madison WI, August 2008
48. EUCI, Toronto, March 2008 [Conference chair]
49. EUCI, Chicago, July 2008 [Conference chair]
50. EUCI, Denver, 2008 [Conference chair]
51. Institute of Public Utilities, Lansing MI, 2007
52. Edison Electric Institute, Madison WI, July-August 2007.
53. Massachusetts Energy Distribution Companies, Waltham MA, July 2007.

54. EUCI, Seattle WA, 2007 [Conference chair]
55. Edison Electric Institute, national eforum, 2007
56. Edison Electric Institute, Madison WI, August 2007
57. Law Seminars, Las Vegas, February 2007
58. EUCI, Arlington VA September 2006
59. EUCI, Arlington VA, September 2006 [Conference chair]
60. Edison Electric Institute, Madison WI, August 2006
61. Ontario Energy Board, Toronto ON, June 2006
62. EUCI, Seattle, May 2006 [Conference chair]
63. Edison Electric Institute, eforum, March 2005
64. CAMPUT, Halifax NS, May 2004
65. Eurelectric, Brussels, Belgium, October 2003
66. Elforsk, Stockholm, Sweden, June 2003
67. CAMPUT, Banff, ALTA, May 2003
68. Louisiana Public Service Commission, Baton Rouge LA, February 2003
69. Canadian Gas Association, Toronto ON, February 2003
70. Ontario Energy Association, Toronto ON, November 2002
71. Canadian Electricity Association, Montreal PQ, September 2002
72. Canadian Electricity Association, Whistler BC, May 2002
73. Canadian Gas Association, Toronto ON, March 2002
74. Infocast, Washington DC, December 2001 [Conference chair]
75. Florida 2000 Commission, Tampa FL, August 2001
76. Infocast, Boston MA, March 2001 [Conference chair]
77. Wisconsin Public Utility Institute, Madison WI, November 2000
78. Infocast, Washington DC, October 2000
79. IOU-EDA, Brewster MA, July 2000
80. Edison Electric Institute, July 2000
81. Infocast, Chicago IL, July 2000 [Conference chair]
82. Edison Electric Institute, San Antonio TX, April 2000
83. Center for Business Intelligence, Miami, FL, March 2000
84. IBC Conferences, Washington, DC, February 2000
85. Edison Electric Institute, Indianapolis, IN, August 1999
86. University of Southern California, Los Angeles CA, April 1999
87. Edison Electric Institute, Newport RI, September 1998
88. University of Indiana, Indianapolis IN, August 1998
89. Electric Utility Consultants, Denver CO, April 1998
90. Edison Electric Institute, Arlington VA, March 1998
91. Infocast, Miami Beach FL, Oct. 1997
92. American Gas Association, Washington DC [national telecast], September 1997
93. American Gas Association, Edison Electric Institute, Advanced Public Utility Accounting School, Irving TX, Sept. 1997
94. Michigan State University Public Utilities Institute, Edmonton AL, July 1997

95. IBC Conferences, Houston TX, January 1997
96. Michigan State University Public Utilities Institute, Williamsburg VA, December 1996
97. Center for Regulatory Studies, Springfield IL, December 1996
98. IBC Conferences, Washington DC, October 1996
99. American Gas Association, Arlington VA, July 1996
100. IBC Conferences, San Antonio TX, June 1996
101. AIC Conferences, Orlando FL, April 1996
102. IBC Conferences, San Francisco CA, April 1996
103. Edison Electric Institute, Washington DC, December 1995
104. Michigan State University Public Utilities Institute, Williamsburg VA, December 1996
105. Illinois Commerce Commission, St. Charles IL, June 1995
106. National Association of Regulatory Utility Commissioners, Orlando FL, March 1995
107. Edison Electric Institute, Washington DC, March 1995
108. National Association of Regulatory Utility Commissioners, Kalispell MT, May 1994
109. National Association of Regulatory Utility Commissioners, Williamsburg VA, January 1994
110. Midwest Gas Association, Aspen, CO, October 1993
111. National Association of Regulatory Utility Commissioners, Columbus OH, September 1992
112. New York State Energy Office, Saratoga Springs NY, October 1990
113. Electric Power Research Institute, Milwaukee WI, May 1990
114. Electric Council of New England, Boston MA, November 1989
115. Association d'Econometrie Appliqué, Washington DC, October 1988
116. American Agricultural Economics Association, Knoxville TN, August 1988
117. International Association of Energy Economists, Calgary AL, July 1987
118. American Institute of Mining Engineering, New Orleans LA, March 1986

Journal Referee

Agribusiness

American Journal of Agricultural Economics

Energy Journal

Journal of Economic Dynamics and Control

Materials and Society

Association Memberships (active)

International Association for Energy Economics

Wisconsin Public Utilities Institute

DAVID A HOVDE

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Education:

MS: Economics, University of Wisconsin --Madison, May 1990

BA: Majors in Economics, Political Science, and International Relations,
University of Wisconsin-Madison, August 1988

High School: Waukesha North High School, Waukesha, WI, 1984

Relevant Work Experience, Primary Positions:

March 2009 – Present Vice President, Pacific Economics Group Research, LLC

December 2005 – March 2009 Vice President, Pacific Economics Group, LLC

November 1998 - December 2005 Senior Economist, Pacific Economics Group, LLC

Responsible for database services in support of PEG research. Other responsibilities include the training and supervision of staff and the preparation of studies, analyses and other research for clients in the electric power, natural gas, and other industries.

April 1998-October 1998 Senior Economist

April 1990-April 1998 Economist, Christensen Associates, Madison, WI

Member of the regulatory strategy group. Responsibilities included the preparation and analysis of electric and gas utility productivity and cost performance studies.

Teaching Experience:

Madison College (2007-2012): Instructor of Economics

Duties include teaching introductory economics and obtaining advanced training as required.

Experience includes teaching accelerated and distance learning versions of the class.

Carroll University (2009): Adjunct Faculty Member

Duties include teaching an undergraduate course in Microeconomics.

University of Wisconsin – Madison (1989-1990): Teaching assistant

Duties included holding weekly discussion sections to reinforce material delivered via lecture.

Pro Bono Work:

Woodside Farms Neighborhood Association (2/2009-2/2012): Board Member and Board Secretary. The board is responsible for the maintenance and improvement of common areas. Members are responsible for drafting a budget and assessing an appropriate levy on lot owners. Secretarial responsibilities include

neighborhood communications such as meeting notifications, minutes, and other communications as required.

West Madison Senior Coalition (6/2005-6/2007): Board Member, Chair of Personnel Committee

The WMSC serves older adults in Madison by providing resources, programs, and advocacy that allow seniors to live more active and creative lives. As a board member, I advised the board on strategic planning, budgeting, personnel, fundraising feasibility, and led a search committee that successfully hired a new executive director.

Publications:

1. AltReg Rate Designs Address Declining Average Gas Use (with Mark Lowry, Lullit Getachew, and Steve Fenrick), Natural Gas & Electricity, April 2008.
2. Econometric Benchmarking of Cost Performance: The Case of U.S. Power Distributors (with Mark Lowry and Lullit Getachew), The Energy Journal, Volume 26. No. 3, 2005.
3. Branding Electric Utility Products: Analysis and Experience in Regulated Industries (with Lawrence Kaufmann), Washington: Edison Electric Institute, 1997.
4. Economies of Scale and Vertical Integration in the Investor-Owned Electric Utility Industry (with Herb Thompson). The National Regulatory Research Institute, January 1996.
5. TFP Trends of U.S. Electric Utilities, 1975-92 (with Herb Thompson and Mark Lowry). Proceedings of the Ninth NARUC Biennial Regulatory Information Conference, (Columbus: National Regulatory Research Institute, 1994).
6. Gas Supply Cost Incentive Plans for Local Distribution Companies (with Mark Lowry). Proceedings of the Eight NARUC Biennial Regulatory Information Conference (Columbus: National Regulatory Research Institute, 1993).

Major Research Projects:

1. Benchmarking research in support of updated stretch factors, Ontario Energy Board.
2. Critique of natural gas distributor productivity and benchmarking evidence and presentation of alternative evidence. Office of the Massachusetts Attorney 2020.
3. Develop program of activity-level performance benchmarking metrics, Ontario Energy Board, ongoing.
4. Review and critique productivity and benchmarking evidence provided by a large Ontario power transmitter, Ontario Energy Board.
5. PBR Strategy for a Vertically-Integrated Electric Utility, Hawaiian Electric.
6. Benchmarking research in support of updated stretch factors, Ontario Energy Board, 2019.
7. Review and critique productivity evidence provided by National Grid, State of Massachusetts Attorney General, 2019.
8. Review evidence of the cost performance of a large Ontario power distributor, Ontario Energy Board, 2018-2019.
9. Benchmarking research in support of updated stretch factors, Ontario Energy Board, 2018.
10. Review evidence of the productivity of power transmission operations, Ontario Energy Board, 2018-2019.

11. Review evidence of the productivity of natural gas distributors, Ontario Energy Board.
12. Cost and productivity research for a Canadian provincial government, 2017.
13. Review a study of Ontario Power Distribution TFP growth, Ontario Energy Board.
14. Research on the power distribution O&M productivity and cost performance of Public Service of Colorado.
15. Total cost benchmarking of Ontario power distributors, Ontario Energy Board, 2017.
16. Testimony on the gas distribution cost performance of Public Service of Colorado.
17. Research in support of the productivity performance of US power distributors between rate cases, 2016-2017.
18. Testimony on the Total Factor Productivity of Hydroelectric operations, Ontario Energy Board, 2016-2017
19. Testimony on the Total Factor Productivity of U.S. Power Distributors for an Alberta consumer advocate, 2016
20. Total cost benchmarking of Ontario power distributors, Ontario Energy Board, 2016.
21. Develop a cost performance forecast model for Ontario power distributors, Ontario Energy Board, 2016.
22. Total Factor Productivity of U.S. Power Transmission operators for a Quebec consumer advocate, 2016
23. Training Ontario LDC personnel on the calculation of benchmarking performance, 2016
24. Research in support of an incentive ratemaking proposal, Oshawa PUC, 2015
25. Total cost benchmarking of Ontario power distributors, Ontario Energy Board, 2015.
26. Development of a spreadsheet model for the calculation and forecasting of power distribution cost performance, Ontario Energy Board, 2015.
27. Evaluation of an alternative regulation proposal by Toronto Hydro, Ontario Energy Board, 2014-2015.
28. Total cost benchmarking research for an Ontario, Canada power distributor, Oshawa PUC Networks, 2014-2015.
29. Evaluation of company sponsored cost and reliability benchmarking evidence, Ontario Energy Board, 2014.
30. Benchmarking research and report in support of updated stretch factors, Ontario Energy Board, 2014.
31. Assemble a power distribution benchmarking database, Australian Energy Regulator, 2014.
32. Total cost benchmarking research for Public Service of Colorado, 2014.
33. Total cost benchmarking research for a multi-state utility holding company, 2014.
34. Total Factor Productivity research for New Zealand power distribution industry, New Zealand Electricity Networks Association (ENA), 2014.
35. Productivity research of vertically integrated U.S. electric utilities, electric utility client name withheld, 2013-2014.
36. Productivity research of U.S. Gas and Electric distributors, Commercial Energy Consumers Association of British Columbia, 2013.
37. Evaluation of company sponsored productivity evidence, Commercial Energy Consumers Association of British Columbia, 2013.
38. Research Measuring the O&M Productivity of Northeast U.S. Power Distributors for Central Maine Power, 2013-14.

39. Power Distribution Productivity and Cost Benchmarking Research for the Ontario Energy Board, 2012-2013.
40. Productivity and Plan Design Research and Testimony in Support of a PBR Plan for a Canadian Gas Distributor, 2012-2013.
41. Natural Gas Productivity Research and Evaluation of Productivity Research of Other Parties on Behalf of the Consumers Coalition of Alberta, 2012-2013.
42. Research on Projected Attrition for Avista Energy, 2011-2012.
43. Research on Remedies for Regulatory Lag for two Northeastern Power Distributors, 2011-2012.
44. Assistance with an Alternative Regulation Settlement Conference for a Northeastern Power Distributor, 2011.
45. Research on Approaches to Reduce Regulatory Lag for a Northeastern Power Distributor, 2011.
46. Benchmarking Research on the Performance of a Midwestern Electric Utility, 2011.
47. Productivity Trends for New Zealand Gas Distributors for a New Zealand Gas Distributor, 2011.
48. Research and Report on the Design of an Incentivized Formula Rate for a Canadian Gas Distributor, 2010-2011.
49. Research and Testimony in Support of Revenue Decoupling for a Midwestern Power Distributor, 2010-2011.
50. Productivity Trends of Victoria, Australia's Power Distribution Companies for an Australian Regulator, 2010.
51. Partial Factor Productivity Measurement for a Northeastern Gas Distributor, 2010.
52. Research and Testimony in Support of a Forward Test Year Rate Filing by a Western Gas Distributor, 2010.
53. Statistical Cost Benchmarking for a Midwestern Electric Utility, 2010.
54. Research and Report on the Effectiveness of Decoupling for a Western Gas Distributor, 2009-2010.
55. Research and Report on the Performance of a Western Electric Utility, 2009-2010.
56. Research and Report on Revenue Decoupling for Ontario's Gas and Electric Utilities for a Canadian Regulator, 2009-2010.
57. Research and Testimony on Altreg for Western Gas and Electric Utilities Operating under Decoupling, 2009-2010.
58. Research and Report on the Importance of Forward Test Years for U.S. Electric Utilities for a U.S. Trade Association, 2009-2010.
59. Simulation of Productivity within a Building Block Model for an Australian Regulator, 2009.
60. Research and Testimony in Support of a Forward Test Year Rate Filing by a Vertically Integrated Western Electric Utility, 2009.
61. TFP Research for New Zealand Power Distributors for a New Zealand Trade Association, 2009.
62. Productivity and O&M Benchmarking for a Northeastern Natural Gas Distributor, 2009.
63. Benchmarking the Base Rate Cost of a Midwestern Vertically Integrated Electric Utility, 2009.
64. Input Price and Productivity Research in Support of a Decoupling Mechanism for an Island Electric Utility, 2009.
65. Power Distribution Productivity Research for an Island Electric Utility, 2008.
66. Unit Cost Research for a large Midwestern Natural Gas Distributor, 2008.
67. Natural Gas Distribution Productivity of Victoria, Australia for an Australian Regulator, 2008.
68. Power Distribution Productivity Research of Victoria, Australia for an Australian Regulator, 2007-2008.

69. Power Distribution Productivity Research for a Canadian Regulator, 2007-2008.
70. Gas Distribution Productivity Research for a Canadian Regulator, 2007-2008.
71. Generation Benchmarking for a Southwestern Power Company, 2007.
72. Litigation Support for a Northwestern U.S. Power Company, 2007.
73. Research on Productivity Trends for Natural Gas Distribution for a Canadian Regulator, 2006 – 2007.
74. Measurement of Gas Distribution TFP of Australia, 2006-2007.
75. Statistical Benchmarking for a Northeastern Gas Distributor, 2006-2007.
76. Research on Productivity Trends for the U.S. Natural Gas Distribution Industry for two Western Gas Distributors, 2006-2007.
77. Research on Productivity Trends for the Power Distribution Industry of Victoria, Australia for an Australian Regulator, 2005-2007.
78. Statistical Benchmarking for a Northeastern Gas Distributor, 2006.
79. Statistical Benchmarking for a Northeastern Power Distributor, 2005-2006.
80. Research on Abnormal Bidding Patterns for a Western Power Generation Utility, 2005.
81. Calculation of Adjusted Refund Liability as a Result of the Western Power Crisis for two Western Vertically Integrated Electric Utilities, 2005-2006.
82. Research on Productivity Trends for the U.S. Power Distribution Industry for a Northeastern Power Distributor, 2005.
83. Statistical Benchmarking of the Nuclear Operations of Regulated Utilities for a Western Electric Utility, 2005.
84. Statistical Benchmarking for Total Electric Utility Operations for a Southeastern Vertically Integrated Electric Utility, 2005.
85. Statistical Benchmarking for a Canadian Power Distributor, 2005.
86. Statistical Benchmarking for a Northeastern U.S. Natural Gas Distributor, 2004-2005.
87. Research on Productivity Trends for the Power Distribution Industry of Victoria, Australia for an Australian Regulator, 2004.
88. Research on Productivity Trends for the National Power Distribution and Natural Gas Industries for two Gas Distributors and one Power Distributor, 2004.
89. Benchmarking Gas Distribution Operations for three New Zealand Gas Distributors, 2004.
90. Assemble a U.S. Gas Transmission Database for a Mexican Regulator, 2004.
91. Benchmark Comprehensive Power and Water Utility Operations for an Island Electric & Water Utility, 2004.
92. Statistical Benchmarking, Productivity, and Incentive Power Research for a Northeastern Combined Gas and Electric Company, 2003.
93. Benchmarking Power Distribution Performance for Australian Power Distributors, 2004.
94. Research on Productivity and Benchmarking for a Canadian Gas Distributor, 2004.
95. Benchmarking and Total Factor Productivity for an Island Electric Utility, 2003-2004.
96. Benchmarking of Power Distribution Performance of New Zealand, 2003.
97. Assemble a Power Transmission Database for a Japanese Regulator, 2003.
98. Cost Analysis Research and Benchmarking for a South American Power Regulator, 2003.
99. Research on Productivity and Benchmarking for a Canadian Power Transmission Company, 2002.
100. Research on Productivity and Benchmarking for a Canadian Natural Gas Distributor, 2002-2003.
101. Research on Productivity for a Power Distributor, 2002-2003.

102. Research on Productivity and Benchmarking for a Northeastern Natural Gas Distributor, 2002-2003.
103. Research on Benchmarking for a Western Bundled Power Service Utility, 2002.
104. Statistical Benchmarking for an Australian Electric Power Transmission Utility, 2002.
105. Research on Productivity and Benchmarking for two Western Natural Gas Distributors, 2002.
106. Research on Productivity and Benchmarking for a Western Power Distributor, 2002.
107. Statistical Benchmarking for three Australian Gas Utilities, 2001.
108. Power Distribution TFP Trends for a Northeastern Power Distributor, 2001.
109. Power Distribution TFP Trends and Benchmarking for a Western Power Utility, 2001.
110. Gas Distribution TFP Trends and Benchmarking for two Western Gas Distributors, 2001.
111. Service Quality Benchmarking and Construction of Appropriate Deadbands for a Group of Northeastern Electric Utilities, 2001.
112. Estimate Scale Economies in Power Generation, Scope Economies Between Power Transmission and Power Generation, and Implications for Public Policy in Western Australia, 2000.
113. Economies of Scale and Scope in Power Delivery and Metering Services for a Group of Northeastern Electric Utilities, 2000.
114. Benchmarking Evaluation of Power Distribution Costs, 2000.
115. Cost Benchmarking for Power Transmission and Distribution for a Northeastern Electric Utility, 2000.
116. Transmission Benchmarking for an Australian Power Transmission Utility, 2000.
117. Litigation Support on Benchmarking Issues to an Australia Gas Distributor, 2000.
118. Prepare Evidence for Rebuttal of a Benchmarking Study on Behalf of Multiple Australian Power Distributors, 2000.
119. Transmission and Distribution Benchmarking for a Northeast Utility, 1999-2000.
120. Comprehensive National TFP Trends for an Island Electric Utility, 1999.
121. Distribution Benchmarking for Multiple Australian Power Distributors, 1999.
122. Cost Benchmarking of Power Transmission and Distribution, 1999.
123. Comprehensive Benchmarking for a Midwestern Electric Utility, 1999.
124. Litigation Support in a Price Fixing Case Involving Agricultural Products, 1998.
125. Economies of Scale for an Island Electric Utility, 1998.
126. Benchmarking Study of T&D Capital Input for a Western Electric Utility, 1998.
127. Design of an Incentive Fuel Clause for two Midwestern Electric Utilities, 1998.
128. Statistical Benchmarking for two Midwestern Electric Utilities, 1998-1999.
129. Productivity Research for two Midwestern Electric Utilities, 1998.
130. Research into the Vintage of Electric Utility Plant in the United States for a Western Electric Utility, 1998.
131. PBR Research and Testimony for a Western Energy Utility, 1997-1998.
132. Statistical Benchmarking and Productivity Trends for a Southeast Gas LDC, 1997-1998.
133. Inflation and Productivity Trends of U.S. Power Distributors for a Northeastern Electric Utility, 1997.
134. Statistical Benchmarking and Stranded Cost Recovery for a Trade Association, 1997.
135. Analysis of a Purchased Power Agreement for a Midwestern Municipality, 1997.
136. Statistical Benchmarking for a Western Electric Utility, 1997-1998.
137. Generation and Power Transmission PBR for a Restructuring Canadian Electric Utility, 1997.
138. White Paper on Utility Brand Name Policy for a Trade Association, 1997.

139. Comprehensive Benchmarking for a Tropical Island Electric Utility, 1996.
140. Comprehensive Benchmarking for a Northeast Electric Utility, 1996.
141. Power Distribution Benchmarking for a Northeast Electric Utility, 1996.
142. Stranded Cost Recovery and Power Distribution Regulation for a Restructuring U.S. Electric Utility, 1996.
143. Productivity Research for a Price Cap Filing for a Northeastern Gas Distributor, 1996.
144. Development of Price Cap Plans for a Northeastern Combined Gas & Electric Utility, 1995.
145. Statistical Benchmarking for Bundled Power Services of a Western Electric Utility, 1994.
146. Productivity Research in Support of a Price Cap Plan for a Western Gas Distributor, 1994.
147. Productivity Research in Support of a Price Cap Plan for a Northeastern Electric Utility, 1994.
148. Development of and Regulatory Support for a Price Cap Plan for a Northeastern Electric Utility, 1993.
149. TFP Measurement for a Western Electric Utility, 1993-1996.
150. Design of a Comprehensive Benchmark Incentive Plan for a Northeastern Gas Distributor, 1992.
151. Design of a Comprehensive Benchmark Incentive Plan for a Northeastern Electric Utility, 1992.
152. Gas Transportation Strategy for a Western Electric Utility, 1992.
153. Efficient Rate Design for Interstate Gas Transporters for a Western Vertically Integrated Electric Utility, 1991.
154. Development of Cost Performance Indexes for a Northeastern Combined Electric and Gas Utility, 1991.
155. Productivity Growth Estimates for U.S. Gas Distributors and Their Use in Incentive Regulation for a Western Gas Distributor, 1991.
156. Measurement of Productivity Trends for the U.S. Electric Power Industry for a Northeastern Vertically Integrated Electric Utility, 1990-1991.
157. Measuring Productivity Trends in the Local Gas Distribution Industry for a Northeastern Gas Distributor, 1990.
158. Development of Comprehensive Performance Indexes for a Northeastern Combined Electric and Gas Utility, 1990-1991.

MATTHEW MAKOS

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mmakos@pacificeconomicsgroup.com

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(608) 257-1522 ext. 21

Education:

BBA: Management and Human Resources & International Business,
University of Wisconsin-Madison, May 2006

High School: Viroqua High School, 2002

Years of Experience: 14 (2006-present)

Relevant Work Experience:

January 2013 – Present Consultant/Consultant II
Pacific Economics Group Research LLC, Madison, WI

March 2009 – December 2012 Consultant/Office Manager
Pacific Economics Group Research LLC, Madison, WI

April 2007 – February 2009 Office Manager/Economist
Pacific Economics Group LLC, Madison, WI

Responsibilities include the administration of projects, review of current events in the utility industry, analysis of historical precedents, and the refinement of data used in the preparation of studies, analyses and other research for clients in the electric power and gas distribution industries.

October 2006 – March 2007 Intern
Pacific Economics Group LLC, Madison, WI

Major Research Projects:

1. Research and support for testimony appraising the cost performance, productivity trend, and proposed PBR plan design of an Ontario power distributor, Ontario Energy Board, 2020.
2. Research in support of PBR plan design for a Northeast gas distributor, Massachusetts Attorney General, 2020.
3. Assisted with research, development and regulatory support of a PBR proposal for 3 island-based vertically integrated electric utilities, Hawaiian Electric companies, 2018-2020.
4. Co-author a white paper on the applicability of PBR to a vertically integrated electric utility that is a crown corporation, British Columbia Utilities Commission, 2019-present.
5. Research in support of benchmarking and productivity evidence in response to a PBR proposal by an Ontario power transmitter, Ontario Energy Board, 2019.

6. Research in support of benchmarking evidence in response to a PBR proposal by an Ontario power distributor, Ontario Energy Board, 2018-2019.
7. Research in support of PBR plan design for a Northeast power distributor, Massachusetts Attorney General, 2019.
8. Research in support of benchmarking and productivity evidence in response to a PBR proposal by an Ontario transmitter, Ontario Energy Board, 2018-2019.
9. Research and Report in support of an activity-level benchmarking proposal to apply to Ontario power distributors, Ontario Energy Board, ongoing.
10. Background Research and database management in support of testimony on industry productivity trends and proposed PBR plan design of an Ontario gas distributor, Ontario Energy Board, 2018.
11. Research and support for testimony appraising the cost and productivity performance and proposed PBR plan design of an Ontario power distributor, Ontario Energy Board, 2018.
12. Research on the cost performance of a Northeastern electric utility, Green Mountain Power, 2017.
13. Background and empirical research on the performance of a Western vertically integrated electric utility, Public Service Company of Colorado, 2017–2018.
14. Background research on the performance of a Western gas distributor’s multiyear rate plan filing, Public Service Company of Colorado, 2017.
15. Empirical research on the cost and rate performance of Alberta power distributors, Utility Consumer Advocate of Alberta, 2017-2018.
16. Plan design and empirical research in the development of a multiyear rate plan for a Northeastern electric utility, Green Mountain Power, 2017.
17. Background research and precedent review in support of a white paper on PBR for a U.S. government agency, Lawrence Berkeley National Laboratory, 2016.
18. Background research and database management in support of a PBR proposal assessment for a Canadian regulator, Ontario Energy Board, 2016-2017.
19. Background research on alternative regulation precedents and rationales for a vertically integrated electric utility, Client wishes to remain confidential at this time, 2016-2017.
20. Background research in support of a revenue decoupling proposal for an environmental advocate, Fresh Energy, 2016.
21. Background research in support of PBR proposal for Canadian consumer advocates, Consumers’ Coalition of Alberta and a client that wishes to remain confidential at this time, 2016.
22. Background research in support of PBR proposals for power distributors and transmitters for a Canadian industrial intervenor, Association québécoise des consommateurs industriels d’électricité et le Conseil de l’industrie forestière du Québec, 2015-2019.
23. Review of the use of metrics and award/penalty mechanisms in utility regulation, Edison Electric Institute, 2014-2016.
24. Review of Alternative Regulation Precedents, Edison Electric Institute, 2015.
25. Review of Multiyear Rate Plan Precedents, Xcel Energy, 2015.
26. Review of the use of benchmarking in utility regulation, Networks New South Wales, 2014-2015.
27. Background research in support of testimony on the proposed acquisition of Integrys Energy by We Energies, Great Lakes Utilities, 2014-2015.

28. Database management in support of cost and reliability benchmarking of an Ontario power distributor, Ontario Energy Board, 2014-2015.
29. Database management in support of econometric benchmarking of O&M cost of US and Australian power distributors for an Australian regulator, Australian Energy Regulator, 2014.
30. Empirical research on the Cost Performance of a Vertically Integrated Electric Utility, Xcel Energy, 2014.
31. Power & Gas distribution and vertically integrated productivity research in support of an Alternative Regulation proposal, Client wishes to remain confidential at this time, 2014.
32. Power and gas distribution productivity research in support of an Alternative Regulation proposal, Commercial Energy Consumers of British Columbia, 2013-2014.
33. Review of Alternative Regulation Precedents, Client wishes to remain confidential at this time, 2013.
34. Customer-specific reliability metric precedent review, Ontario Energy Board, 2013.
35. Background and precedent research in support of an Alternative Regulation proposal, Fitchburg Gas & Electric, 2013-2014.
36. Empirical and precedent research in support of a revenue cap plan, Central Maine Power, 2013-2014.
37. Review of Capital Expenditure Trackers, Consumers' Coalition of Alberta, 2012-2013.
38. Updated review of Alternative Regulation Precedents, Edison Electric Institute, 2012-2013.
39. Review of Attrition Allowance Precedents, Avista Utilities, 2012.
40. Empirical and precedent research in support of a revenue cap plan, Gaz Metro, 2012-2013.
41. Review of Capital Expenditure Trackers, Pepco Holdings, 2011-2012.
42. Empirical research on the Cost Performance of a Vertically Integrated Electric Utility, Oklahoma Gas & Electric, 2011.
43. Review of Alternative Regulation Precedents, Edison Electric Institute, 2010-2011.
44. Review of the Effects of Test Years on a Utility's Operating Efficiency, Public Service Company of Colorado, 2010-2011.
45. Review of Revenue Decoupling for a Midwestern Power Distributor, Commonwealth Edison, 2010-2011.
46. Review of Test Year Methodologies, Client Name Withheld, 2010.
47. Review of Revenue Decoupling Precedents, Client Name Withheld, 2010.
48. Review of Alternative Regulation Precedents of North American Energy Utilities, Client Name Withheld, 2010.
49. Review of Service Quality Standards for Electricity Distributors, Ontario Energy Board, 2010.
50. Financial Simulation of the Impact of Revenue Decoupling, Client Name Withheld, 2010.
51. Review of Forward Test Year Precedents, Edison Electric Institute, 2009-2010.
52. Review of Alternative Regulation Precedents that Incentivize Long Term Performance Gains, Client Name Withheld, 2009-2010.
53. Review of Revenue Decoupling Precedents for the Ontario Energy Board, 2009-2010.
54. Review of Methods to Measure Demand Side Management for the Ontario Energy Board, 2009-2010.

55. Precedent research and statistical support for Public Service of Colorado's Forward Test Year Proposal, 2009.
56. Review of Decoupling Precedents for Hawaiian Electric Company, 2008-2009.
57. Empirical research measuring the O&M Cost Performance of a Vertically Integrated Electric Utility. Oklahoma Gas & Electric Company, 2009.
58. Design of a multi-year price cap mechanism used to regulate multiple power distributors for the Ontario Energy Board, 2007-2008.
59. Research on Revenue Adjustment Mechanisms for Central Vermont Public Service, 2008.
60. Benchmarking the O&M performance of Ontario power distributors, 2006-2008.
61. Empirical and precedent research for the development of multi-year price and revenue cap plans of gas distributors for the Ontario Energy Board, 2006-2008.
62. Empirical and precedent research in support of Central Maine Power's proposed price cap plan, 2007.
63. Precedent research on Regulatory Lag mitigation mechanisms for a Western Vertically Integrated Electric Utility, 2007.
64. Research on approved service quality plans for Detroit Edison, 2007.

Publications:

1. White Paper on Utility Experience and Lessons Learned from Performance-Based Regulation Plans, Lawrence Berkeley National Laboratory (With Mark Newton Lowry and Jeff Deason), 2017.
2. "Alternative Regulation for Emerging Utility Challenges: An Updated Survey" (With Mark Newton Lowry and Gretchen Waschbusch), Edison Electric Institute, 2015.
3. "Alternative Regulation for Evolving Utility Challenges: An Updated Survey" (With Mark Newton Lowry and Gretchen Waschbusch), Edison Electric Institute, 2013.
4. "Innovative Regulation: A Survey of Remedies for Regulatory Lag" (With Mark Newton Lowry and Gentry Johnson), Edison Electric Institute, April 2011.
5. "Forward Test Years for US Electric Utilities" (With Mark Newton Lowry, David Hovde, and Lullit Getachew), Edison Electric Institute, August 2010.

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Education:

MS, Agricultural and Applied Economics - Resource and Energy Demand Analysis, University of Wisconsin-Madison, expected December 2020

BS, Economics with Mathematical Emphasis, University of Wisconsin-Madison, May 2019

Awards and Honors: Dean's List Fall 2015-16, Phi Kappa Phi

Relevant Work Experience:

May 2019 to Present *Economist I*

September 2018 to May 2019 *Intern*
Pacific Economics Group Research LLC

Electric power and gas industry productivity research, econometric benchmarking, and the refinement and collection of data used in the preparation of studies, analyses and other research for clients in the electric power and gas distribution industries.

Other Work Experience:

July 2010 to July 2019 *Operations Assistant*
Search Optimizers | Madison, Wisconsin

Responsibilities included determining and executing a weekly, custom strategy on the back end of client websites to manage and update their search engine results page (SERP) presentation. Collaborate and innovate with team members on new strategies for improving client rankings and online visibility. Create data-driven proposals for the company's sales division.

January 2002 to December 2007 *Personal Banker, Head Teller, Commercial Loan Filing Clerk,*
Sterling State Bank | Rochester, Minnesota

Responsibilities included performing daily internal audits of all new accounts and account changes to ensure federal and state compliance standards for 11 branches; customer service, opening accounts, legal account and loan paperwork, general ledger posting and bills payable processing for branch, new employee training. Verification of loan portfolio adherence to federal compliance standards.

Pro Bono Work:

July 2020 to Present *Energy Tracking Volunteer*
Dane County Office of Energy & Climate Change | Wisconsin

Support Dane County's efforts to cut county-wide emissions in half by 2030 and enroll the county buildings in the DOE's Better Buildings Challenge by accessing and processing energy usage data for county buildings in EnergyCAP energy management software.

Skills: HTML, PHP, FTP, CMS, Excel, Word, Access, Stata, R, EnergyCAP

Involvement in Major Projects at PEG Research:

1. Research and support for testimony appraising the cost performance, productivity trends, and proposed PBR plan design of an Ontario power distributor, Ontario Energy Board, 2020.
2. Performance benchmarking and research in support of PBR plan design for a Northeast gas distributor, Massachusetts Attorney General, 2020.
3. Econometric and Productivity Research in support of a PBR proposal for 3 vertically integrated electric utilities, Hawaiian Electric companies, 2020.
4. Statistical benchmarking of granular activities and programs and research in support of the design and calculation of utility performance metrics, Ontario Energy Board, ongoing.
5. Research in support of benchmarking and productivity evidence in response to a PBR proposal by an Ontario power transmitter, Ontario Energy Board, 2019.
6. Research in support of benchmarking evidence in response to a PBR proposal by an Ontario power distributor, Ontario Energy Board, 2018-2019.

Other Research Projects:

1. "Forecasting Peak Demand: Improving Forecasting with Weather & Lag Variables & Residual Bootstrapping" Master's Practicum (2020).
2. "Community Choice Aggregators and Other Non-Investor Owned Utility Models: Do They Make a Difference? Non-IOU Effects on Revenue" Senior Research Project (2019)

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Education:

MBA: Edgewood College, Madison, WI

BBA: Marketing and Management, University of Wisconsin, Madison, WI

High School: West Bend West, West Bend, WI

Years of Experience: 8

Relevant Work Experience:

November 2011 – present Office Manager
Pacific Economics Group Research LLC, Madison, WI

Responsibilities include the invoicing of projects and assisting with the collection of historical precedents and data used in the preparation of studies, analyses and other research for clients in the electric power and gas distribution industries.

Other Work Experience:

September 1999 – January 2009 Treasury Sales Associate
JPMorgan Chase Bank, Madison, WI

Responsibilities included preparation of Treasury Service presentations and proposals, recommendations for treasury services based on account analysis and profitability.

Involvement in Major Projects at PEG Research:

1. Assisted with research and responses to information requests, l'Association Québécoise des Consommateurs Industriels d'Electricité, 2015-present.
2. Assisted with research, development and regulatory support of a PBR proposal for island-based vertically integrated electric utilities, Hawaiian Electric Companies, 2018–2020.
3. Assisted in updating review of Alternative Regulation Precedents, Edison Electric Institute, 2015.
4. Collect U.S. data in support of transnational benchmarking of power distributors, Australian Energy Regulator, 2014.
5. Assisted in empirical and precedent research and the preparation of testimony and data request responses in support of an Alternative Regulation proposal, Commercial Energy Consumers of British Columbia, 2013-2014.
6. Assisted in research and preparation of testimony and data requests responses in support of a revenue cap plan, Central Maine Power, 2013-2014.

7. Data management and precedent research in support of a PBR proposal for an Alternative Regulation proposal, Fitchburg Gas & Electric, 2013-2014.
8. Research on Issues in PBR Plan Implementation for a Canadian Consumer Group, Consumers' Coalition of Alberta. 2013.
9. Data management and assistance in the preparation of testimony and reports in support of a Gaz Metro's PBR proposal, 2012-2013.
10. Assisted in updating review of Alternative Regulation Precedents, Edison Electric Institute, 2012-2013.
11. Precedent review and assistance in the preparation of testimony and data request responses in support of the Consumers' Coalition of Alberta's position on PBR, 2011-2012.
12. Assist in the preparation of testimony and data request responses in support of capital expenditure trackers for Pepco Holdings, 2011-2012.