JILL S. TIETJEN

An electrical engineer experienced in electric utility and related planning processes and analyses, primarily in the areas of generation, transmission, and fuels. Experienced expert witness.

EMPLOYMENT CHRONOLOGY

1997-present	Technically Speaking, Inc. (and predecessor organizations), President and CEO
2001-present	University of Colorado at Boulder, Various Titles
2003-2005	Senior Management Consultant, R.W. Beck
2001-2008	Senior Engineer, McNeil Technologies
1997-2000	University of Colorado at Boulder Director, Women in Engineering Program and Independent Consultant
1995-1997	Stone & Webster Management Consultants, Inc. Assistant Vice President
1992-1995	Principal, Hagler Bailly Consulting (Previously RCG/Hagler Bailly)
1984-1992	Stone & Webster Management Consultants, Inc. Assistant Vice President
1981-1984	Mobil Oil Corporation, Planning Analyst, Mining and Coal Division
1976-1981	Duke Power Company, Planning Engineer

CONSULTING ASSIGNMENTS

Examined the process used by Big Rivers Electric Corporation to determine that a scrubber should be installed at Henderson Station Two. Expert witness before the Kentucky Public Service Commission.

Managed several projects relating to the efficiency of qualified facilities. One project involved preparation of an affidavit in a Federal Energy Regulatory Commission hearing. Managed an appraisal of an IPP in bankruptcy.

Evaluated fuel contracts - primarily coal and petroleum coke - associated with cogeneration projects in various states. Evaluated steam and power sales contracts as well as operational aspects, avoided cost projections, and transmission issues of projects. Prepared feasibility studies and financial viability analysis.

Managed competitive bidding solicitations for supply-side and/or renewable resources. Projects included RFP and PPA development and evaluations of bids. Clients: Northern States Power; The Empire District Electric Company; San Diego Gas & Electric; SaskPower; Southwestern Public Service; and Cheyenne Light, Fuel & Power. Independent Evaluator for Southern California Edison and Pacific Gas & Electric RFOs.

Investigated the competitive market price for the sale of power from coal-fired, geothermal, and hydroelectric power plants. Performed earnings value evaluations for appraisal evaluations.

Prepared testimony or affidavits for cases before the Federal Energy Regulatory Commission and before regulatory agencies in the states of Colorado, Illinois, Kansas, Kentucky, Maine, Missouri, Ohio, South Dakota, and Wyoming. Topics have included fuel procurement practices, policies, and procedures; integrated resource planning; nonutility generation markets; economic dispatch practices; avoided costs; fuel and purchased power expenses; and electric system reliability.

Project manager of integrated resource planning studies for Bangor Hydro-Electric, Black Hills Power, and the Empire District Electric Company. Efforts supported with testimony filed in multiple jurisdictions. Authored Integrated Resource Plans for Black Hills Corporation (2005, 2007, 2008) and The Empire District Electric Company (2006, 2007).

Managed fuel practices and policies audits of utilities. Participated in a management audit investigating issues of generation planning. Participated in evaluations of system dispatch practices and procedures.

EXHIBIT
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12

Served as advisor to the Iowa Utilities Board on a priori ratemaking principles for utility construction of electric power generation in Iowa.

Served as project manager for assessment of alternative wind technologies for a Midwestern utility. Examined the feasibility and economics of biomass generation for a sawmill in Wyoming, an electric utility in Arizona, a reservation in Minnesota, and a public utilities district in California.

Project manager and expert witness for a proceeding in Illinois with regard to a reliability rule proposed by the staff of the Illinois Commerce Commission.

AFFILIATIONS

Society of Women Engineers – 1991-92 National President, Fellow.
Georgia Transmission Corporation, Board of Directors, 1997 – present.
Merrick & Company, Board of Directors, 2010 – present.
National Women's Hall of Fame, Board of Directors, 2009 – present.
Colorado State Board of Registration for Professional Engineers and Professional Land Surveyors, 1996-2004, Chair, 2001-2003.
Institute of Electrical and Electronics Engineers, Power Engineering Society, Senior Member.
International Women's Forum (Colorado), Board of Directors, 1998 – 2000.
Rocky Mountain Electrical League Board of Directors, 1994-2002; President, 1999-2000.
Rocky Mountain Electrical League Foundation Board of Directors, 1999-2006, Chair, 2002-2005.
Girl Scouts – Mile Hi Council Board of Directors, 1999-2007, Chair, 2003-2007.
Board of Trustees, Arapahoe Library District, 1995-2000, President, 1997 – 1999.
Women in Engineering Programs & Advocates Network, Board of Directors, 1995 – 2001.
Leadership Denver 1996.

HONORS

1990 Certificate of Honor, Colorado Engineering Council. 1991 John E. Daly Award for Consulting Excellence, Stone & Webster Management Consultants. Soroptomist International Women of Distinction Award, 1995. Woman of Distinction, Mile Hi Girl Scouts Council, 1997. IEEE *Spectrum* Advisor of the Year, 2000. Presidential Citation Award, Professional Land Surveyors of Colorado, 2000, Woman in Technology Award from the Women's Foundation of Colorado, Subaru, and News4, 2001. Distinguished Service Award, Society of Women Engineers, 2002. Horizon Award, Outstanding Professional, The Partnership to Advance Science, Engineering, and Technology, 2003. Colorado Women's Leadership Coalition, 2004 Woman Leader of Excellence. Virginia Engineering Foundation, 2004, Distinguished Alumni Award. Tau Beta Pi, 2004 Distinguished Alumna Award. One of 50 2004 Trendsetters, *Public Works* Magazine. University of Colorado at Boulder, Distinguished Engineering Alumni Award, 2005. University of Virginia, Distinguished Alumna, 2007. Athena Award Finalist, Colorado Women's Chamber of Commerce, 2009, 2010. Colorado Women's Hall of Fame, 2010.

EDUCATION AND OTHER

University of Virginia, B.S., Applied Mathematics with a minor in Electrical Engineering, 1976. (Tau Beta Pi, Virginia Alpha).
University of North Carolina at Charlotte, M.B.A., 1979.
Registered Professional Engineer, Colorado.

JILL S. TIETJEN

Testimony and Deposition

Known as Jill S. Baylor May 1976-August 1996

1. Public Utilities Commission of Ohio. "Economic Dispatch Practices, Toledo Edison." 1985.

2. Public Utilities Commission of Ohio. "Fuel Procurement Practices, Policies and Procedures, Toledo Edison." 1987.

3. Maine Department of Environmental Protection. (On behalf of Bangor Hydro-Electric Company.) "Net Benefit Analysis for the Veazie Development and the Basin Mills Development: Integrated Resource Planning." 1992.

4. Wyoming Public Service Commission, Docket No. 20002-EA-92-27. (On behalf of Black Hills Power & Light Company.) "Integrated Resource Planning." 1993.

5. South Dakota Public Utilities Commission, Dockets Nos. EL92-026 and EL92-027. (On behalf of Black Hills Power & Light Company.) "Avoided Costs, Integrated Resource Planning, and Evaluation of Non-Utility Generation Markets." 1993.

6. Missouri Public Service Commission, Case ER-93-41. (On behalf of St. Joseph Light and Power Company.) "Rebuttal Testimony on Production Cost Model, Fuel, and Interchange." 1993.

7. Federal Energy Regulatory Commission, Docket Nos. EL93-45-000 and QF83-248-002. (On behalf of Energy Systems Division of Thermo Electron Corp., et al.) 1993.

8. Illinois Commerce Commission, Docket No. 92-0168. (On behalf of Commonwealth Edison and Central Illinois Public Service Company.) "Reliability Regulation and Measurement." 1993.

9. Kentucky Public Service Commission, Big Rivers Electric Corporation PSC Case No. 94-032. (On behalf of the Kentucky Industrial Utility Customers.) "Coal Price Forecasting and Markets." 1994.

10. General Services Administration Contract Board of Appeals, Contracting Dispute, 1994.

11. Wyoming Public Service Commission, Docket No. 20002-ER-95-48. (On behalf of Black Hills Power & Light Company.) "Integrated Resource Planning." 1995.

12. South Dakota Public Utilities Commission, Docket No. 95-003. (On behalf of Black Hills Power and Light Company.) "Integrated Resource Planning." 1995.

13. Missouri Public Service Commission, Case No. EC-95-28. (On behalf of The Empire District Electric Company.) "Avoided Costs." 1995.

14. Kansas Corporation Commission, Docket No. 191, 205-U. (On behalf of The Empire District Electric Company.) "Avoided Costs." 1995.

15. Missouri Public Service Commission, Case No. ER-2002-424. (On behalf of The Empire District Electric Company.) "Purchased Power Pricing and Availability." 2002.

16. Wyoming Senate Revenue Committee, Regarding House Bill HB0188, "Renewable Energy Equipment-Sales Tax Exemption, February 21, 2003.

17. Missouri Public Service Commission, Case No. ER-2004-0570. (On behalf of The Empire District Electric Company.) "Fuel and Purchased Power Expenses; Natural Gas Pricing and Risks; Fuel Adjustment Clause." 2004.

18. Missouri Public Service Commission, Case No. EO-2005-0263. (On behalf of The Empire District Electric Company.) "Resource Planning Development." 2005.

19. Wyoming Public Service Commission, Docket No. 2003-EA-05-82 (Record No. 9902). (On behalf of Cheyenne Light, Fuel and Power Company.) "Integrated Resource Planning." 2005.

20. Wyoming Public Service Commission, Docket No. 20003-90-ER-07 and 30005-112-GR-07. (On behalf of Cheyenne Light, Fuel and Power Company.) "Resource Planning evaluation." 2007.

21. Wyoming Public Service Commission, Docket No. 20002-69-EA-07, Record #11549, (On behalf of Black Hills Power, Inc.). "Integrated Resource Planning." 2008.

22. Colorado Public Utilities Commission, Docket No. 08A-346E, (On behalf of Black Hills/Colorado Electric Utility Company, LP). "Integrated Resource Planning." 2008-2009.

23. Wyoming Public Service Commission, Docket No. 20002-75-ER-09. (On behalf of Black Hills Power, Inc.). "Integrated Resource Planning." 2009-2010.

24. South Dakota Public Utilities Commission, Docket No. EL09-018. (On Behalf of Black Hills Power, Inc.). "Integrated Resource Planning." 2009-2010.

JILL S. TIETJEN

Books/Reports/Articles/Speeches

Known as Karen Jill Stein 1954-1976

Known as Jill S. Baylor May 1976-August 1996

Books

1. Quoted in *Members of the Club: The Coming of Age of Executive Women*. 1993. Dawn-Marie Driscoll and Carol R. Goldberg. New York: The Free Press, A Division of Macmillan, Inc.
2. *She Does Math! Real-Life Problems from Women on the Job* (contributing author). 1995. M. Parker, ed. Washington, DC: The Mathematical Association of America.
3. *Keys to Engineering Success*. 2001. Jill S. Tietjen, Kristy A. Schloss, et. al. Upper Saddle River, New Jersey: Prentice Hall. [Brief review in *SWE: Magazine of the Society of Women Engineers*, March/April 2001, p. 4.]
4. *Setting the Record Straight: An Introduction to the History and Evolution of Women's Professional Achievement*. 2001. Betty Reynolds, Ph.D. and Jill S. Tietjen, P.E. Denver, Colorado: White Apple Press.
5. *Setting the Record Straight: The History and Evolution of Women's Professional Achievement in Engineering*. 2001. Betty Reynolds, Ph.D. and Jill S. Tietjen, P.E. Denver, Colorado: White Apple Press.
6. *Setting the Record Straight: The History and Evolution of Women's Professional Achievement in Accounting*. 2005. Betty Reynolds, Ph.D. and Jill S. Tietjen, P.E. Denver, Colorado: White Apple Press.
7. Profiled and Pictured in *Changing Our World: True Stories of Women Engineers*. 2006. Sybil E. Hatch. Reston, Virginia: ASCE Press.
8. Technical Consultant, *Hedy Lamarr and a Secret Communication System*. 2007. Trina Robbins. Mankato, Minnesota. Capstone Press.
9. *Her Story: A Timeline of the Women Who Changed America*. 2008. Charlotte S. Waisman, Ph.D. and Jill S. Tietjen, P.E. New York, New York. HarperCollins.
10. *Keys to Engineering Success* (Chinese language version). 2008. Jill S. Tietjen, Kristy A. Schloss, et.al. Pearson Education, Prentice Hall.
11. Paper (written with Betty Reynolds) titled "Women Engineers Bridging the Gap" reprinted in an anthology titled *Women in Engineering: Pioneers and Trailblazers*. 2009. Margaret E. Layne, PE, editor. Reston, Virginia. American Society of Civil Engineers Press.

Technical Reports

1. *RDI's Outlook for Power in the U.S.* (contributing author), Resource Data International, 1998.
2. *Outlook for Power in North America, 1999 Annual Edition* (contributing author), Resource Data International, 2000.
3. *Electric Transmission: Pathway To Power*, Financial Times *Energy*, 2000.
4. Quoted and pictured in the Executive Summary, *Women In Technology Report*, Status of Women and Girls in Colorado, Women's Foundation of Colorado, 2001.
5. *Fuel From the Sky: Solar Power's Potential for Western Energy Supply* (technical writer), National Renewable Energy Laboratory, NREL/BK-550-32160, July 2002.
6. *Using the Fundamentals of Engineering (FE) Examination to Assess Academic Programs*, (with Walter LeFevre, John Steadman, Kenneth White and David Whitman), National Council of Examiners for Engineering and Surveying, 2005.

Articles (Technical)

1. "Transmission Loss Evaluation for Electric Systems" (with Martin W. Gustafson). IEEE 87 SM 467-4, *IEEE Transactions on Power Systems*, 3(3):1026-1032.
2. "Considerations in the Formation of Power Pooling Arrangements" (with Leslie A. Buttorff). 1987. *Public Utilities Fortnightly*, November 26.
3. "The Equivalent Hours Loss Factor Revisited" (with Martin W. Gustafson and Steven S. Mulnix). IEEE 88 WM 166-1, *IEEE Transactions on Power Systems*, 3(4):1502-1507.
4. "Operational Losses Savings Attributable to Load Management" (with Martin W. Gustafson). IEEE 88 SM 659-5, *IEEE Transactions on Power Systems*, 4(1):229-235.
5. "Approximating the System Losses Equation" (with Martin W. Gustafson). 1989. IEEE 89 WM 146-2 — PWRS, *IEEE Transactions on Power Systems*, 4(3):850-855.
6. "Power-System Loss Calculations Are Updated" (with Martin W. Gustafson). 1989. *Transmission and Distribution*, November.
7. "Acid Rain Impacts on Utility Plans for Plant Life Extension." 1990. *Public Utilities Fortnightly*, March.
8. "Making New Rules" (with Michael T. Burr, et al.). 1991. *Independent Energy*, July/August.
9. "The Fair Access Debate." 1991. *Independent Energy*. September.
10. "Direct Water Heater Load Control — Estimating Program Effectiveness Using an Engineering Model" (with Martin W. Gustafson and Gary Epstein). February 1993. IEEE 92 WM 130-5 — PWRS, *IEEE Transactions on Power Systems,* 8(1):137-143.
11. Discussion for "Bulk Transmission System Loss Analysis." Nadira, Wu, Maratukulam, Weber, and Thomas (with Martin W. Gustafson). May 1993. IEEE 92 WM 097-6 — PWRS, *IEEE Transactions on Power Systems,* 8(2):414.
12. "Estimating Air Conditioning Load Control Effectiveness Using an Engineering Model" (with Martin W. Gustafson and Gary Epstein). August 1993. IEEE 92 SM 420-0 PWRS, *IEEE Transactions on Power Systems*, 8(3):972-978.
13. "Communicating the Value of Dispatchability for Nonutility Generation Projects" (with D. Cotcher, K.D. Krauss, and D. Logan). January 1995. IEEE 95 WM 123-0 — PWRS, *IEEE Transactions on Power Systems*.
14. "The perils of power lines: aging infrastructure, aging workforce," *Licensure Exchange*, National Council of Examiner for Engineering and Surveying, April 2006, pp. 7-8.
15. "Pumped Storage Hydro," *The Encyclopedia of Energy Engineering*, Capehart, Barney, Editor, Taylor & Francis Group, LLC, 2007.
16. "Coal Supply," *The Encyclopedia of Energy Engineering*, Capehart, Barney, Editor, Taylor & Francis Group, LLC, 2007.
17. "Generation," *The Encyclopedia of Energy Engineering*, Capehart, Barney, Editor, Taylor & Francis Group, LLC, 2007.
18. "Is There Power in Your Future?" *U.Va. Engineer*, Spring 2007, University of Virginia, p. 17.
19. ""Coal Supply in the U.S. – Surface Mining, *The Encyclopedia of Energy Engineering*, Capehart, Barney, Editor, Taylor & Francis Group, LLC, 2011.
20. "The Interaction of Pumped Storage Hydro and Renewable Energy Resources, *The Encyclopedia of Environmental Management*, Sven Erik Jorgenson, Editor, Taylor & Francis Group, LLC, in press, 2011.

Conference Papers (Technical)

1. "Power by Wire — Expectations and Realities," Proceedings of the Sixth Annual Coal Market Strategies Conference — Dynamics of Utility Coal Use, 2:1-21, Denver, CO, November 1-3, 1988. (Awarded one of 10 best papers for 1988 for Stone & Webster employees.)
2. "Wheeling — Issues and Challenges," Proceedings of the 1989 Electric Utility Business Environment Conference and Exhibition, 101-115, Denver, CO, sponsored by Electric Utilities Consultants, Inc. and RCG/Hagler Bailly, Inc., March 28-30, 1989.
3. "Air Quality Concerns: Impacts on Utility Plans for Life Extension of Coal-Fired Power Plants," Proceedings of the Seventh Annual Coal Market Strategies Conference — Utility Coal Use, Acid Rain, and Other Uncertainties, 3:1-16, Denver, CO, sponsored by Edison Electric Institute Western Coal Council, October 26, 1989. (Awarded one of 10 best papers for 1989 for Stone & Webster employees.)
4. "Transmission Pricing Policies and Access," Proceedings of the 1990 Electric Utility Business Environment Conference and Exhibition, 49-55, Denver, CO, sponsored by Electric Utilities Consultants, Inc. and RCG/Hagler Bailly, Inc., March 7-9, 1990.
5. "Analyzing Utility System Losses." Presented at the T&D World Expo '90, March 1990.
6. "Future Electric Generation: Clean Air At What Cost?" Proceedings of the Fifteenth Annual Conference — Issues in Gas, Electricity, and Telecommunications, 5, July 18-20, 1990. (Awarded one of 10 best papers for 1990 for Stone & Webster employees.)
7. "Transmission Access: Who Pays and How?" Proceedings of the Transmission & Wheeling Conference, 61-70, Denver, CO, sponsored by Electric Utilities Consultants, Inc. and Stone & Webster Management Consultants, Inc., November 8-9, 1990.
8. "Open Access." 1990. Power-Gen '90. November.
9. "Plant Life Management Option Selection Decision Methodology" (with David S. Galpin and Roger L. Johnson). 1990. Power-Gen '90. December.
10. "Why Inter-Area Electric Transmission?" (with Fred E. Depenbrock), Proceedings of the American Power Conference, Volume 53-I, 588-591, Chicago, IL, sponsored by the Illinois Institute of Technology, April 1991.
11. "Decision Methodology for Plant Life Management Option Selection" (with David S. Galpin and Roger L. Johnson), Proceedings of the American Power Conference, Volume 53-I, 485-491, Chicago, IL, sponsored by the Illinois Institute of Technology, April 1991. (Awarded one of 10 best papers for 1991 for Stone & Webster employees.)
12. "Transmission Access: Technical and Political Implications" (with Glenn A. Davidson), Proceedings of the 2nd Annual Transmission & Wheeling Conference, 127-134, Denver, CO, sponsored by Electric Utilities Consultants, Inc. and Stone & Webster Management Consultants, Inc., November 21-22, 1991.
13. "New Transmission Lines: Do We Really Need Them?" (with Glenn A. Davidson). Presented at the Strategic Utility Planning Conference, June 25-26, 1992. (Awarded one of 10 best papers for 1992 for Stone & Webster employees.)
14. "Licensing a Coal-Fired Power Plant in the 1990s — A Utility's Success Story" (with Tom Ohlmacher, Douglas M. Logan, Ludwig Funke, and Scott Carpenter). 1993. Power-Gen '93.
15. "Uncertainty Analysis Without Tears" (with Douglas M. Logan). Proceedings of EPRI's Ninth Electric Utility Forecasting Symposium, September 8-10, 1993.
16. "Modeling Renewable Energy Resources in Utility Planning Models" (with Douglas M. Logan, Alan Taylor, and Peter Lilienthal), Proceedings of the National Regulatory Conference on Renewable Energy, 315-329, Savannah, GA, sponsored by the National Association of Regulatory Utility Commissioners, October 3-6, 1993.
17. "Load Forecasting: Ensuring a Solid Foundation for Integrated Resource Planning" (with Douglas M. Logan and Chris Neil), Proceedings of the Electric Systems Planning and Operations Conference, 1-10, Denver, CO, sponsored by Electric Utilities Consultants, Inc., November 11-13, 1993.

18. "Where and Why Coal Will Remain the Big Player," Proceedings of the Natural Gas and Electric Power Industries Conference, Washington, D.C., sponsored by The Institute of Gas Technology, November 11-13, 1996.
19. "The Chicken or the Egg: Renewables and Transmission," The Fourth Annual Comprehensive Conference on Electric Energy Markets, Regulation and Investment, Law Seminars International, Washington, DC, March 4, 2008.

Technical Presentations

1. "The Mechanical Performance of Polyglycolic Acid Sutures." Presented to the Virginia Academy of Science, May 1975.
2. "Mechanical Performance of Surgical Sutures." Presented at the American Society of Mechanical Engineers Regional Student Conference, March 1976. (Awarded second place.)
3. "How to Evaluate Utility Staff Resource Plans" (with Martin W. Gustafson). Presented to the California Municipal Utilities Association, February 1987.
4. "Geothermal Project Development and Management Market Analysis," (with Leslie A. Buttorff), presented to the Geothermal Resources Council as part of a short course, Sparks, NV, October 9-10, 1987.
5. "Transmission Access and Wheeling." Presented at the Rocky Mountain Electrical League Spring Conference, May 1990.
6. "Engineering and Rate Making Fundamentals," Power Transmission: Access, Pricing and Regulation, San Francisco, CA, presented to Infocast, Inc., September 23, 1991.
7. "Coal Issues and Electric Fuel Management." Stone & Webster Management Consultants' annual Utility Management Development Program, Annual lecture, 1986-1992.
8. "Natural Gas and Coal: Competition or Cooperation?" Presented at Denver Coal Club. February 11, 1993.
9. "Where are We and How Did We Get There?" 32nd Annual Paul D. Scholz Symposium on Technology and Its Role in Society, University of Iowa, Iowa City, Iowa, April 5, 2001.
10. "What is Happening in California?" Englewood (Colorado) Lions Club, Englewood, CO, June 19, 2001.
11. Transmission 101: Understanding the Grid," Coal Market Strategies 2001 – Fueling the Nation's Energy Needs: Bridging the Barriers to Future Coal-fired Power," San Antonio, Texas, October 15-17,. 2001.
12. "Powering Our Future," Boulder Rotary Club, Boulder, CO, January 4, 2002.
13. "Electrical Power in 2004 and Beyond, Sharkey, Howes & Javer, Inc., Denver, CO, May 12, 2004.
14. "Blackouts, Wind Turbines and Coal: Where is the Power in Your Future?" IEEE and SWE, Clemson University, Clemson, SC, October 6, 2004.
15. "Integrated Resource Planning in the 21st Century" (with Jacqueline C. Sargent), Rocky Mountain Electrical League 2005 Spring Conference, Albuquerque, NM, May 16, 2005.
16. "Small is Profitable: Distributed Generation and the Aging Electric Infrastructure in the U.S.," (with Kitty Wang), Society of Women Engineers National Conference, Anaheim, California, November 4, 2005.
17. Panel Member, Environment and Sustainability, University of Virginia Women in Leadership Conference, Charlottesville, Virginia, September 26, 2008.
18. "Fitting Wind into Utility Resource Portfolios," Women of Wind Energy, Denver, Colorado, June 9, 2010.