

**MARK B. LIVELY**  
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**Gaithersburg, Maryland 20879**  
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**CAREER SUMMARY**

A leading consultant in innovative rate design for independent power producers and the real-time pricing of electricity, with 30 years of experience in the electric and gas arenas. Extensive experience in traditional rate design and class cost of service analysis.

**PROFESSIONAL EXPERIENCE**

**1992 INDEPENDENT CONSULTANT, Gaithersburg, Md.**

to Services include investigating financial issues involving electric, gas, and steam utilities, and designing Current methods that appropriately address the relevant issues,

**Columbia Gas System - 1986 to 2002**

Assisted Columbia Gas of Virginia and its predecessors Commonwealth Gas Services and Lynchburg Gas Company in a series of rate cases. Services included

- Development of Synthetic Load Research, a concept that uses historic monthly meter readings to estimate daily consumption for each retail gas consumer as part of daily balancing requirements.
- Analysis of Performance Based Regulation under new state statute.
- Service survey of customers and employees to determine implications for rate design and terms and conditions of service when three subsidiaries were being consolidated.
- Prepared and defended cost of service and rate design testimony for Lynchburg Gas Company (prior to its purchase by Columbia.)

**IEEE Venezuela/University Simon Bolivar -- 2001**

Presented a three-day seminar on electricity deregulation and the creation of a competitive market for electricity, with emphasis on the issues identified in the California experience of 1999-2001.

**Midwest Independent System Operator – 2000 to 2001**

Created and analyzed methods to allocate transmission wheeling revenue among transmission owning members of an ISO, including ways to use inadvertent interchange as a means to create a more nearly competitive market for participants.

**Washington Gas Light - 1998 to 1999**

Developed compliance plan for filing with the Virginia State Corporation Commission to meet the requirement for daily balancing under the Company's retail choice plan. The plan was a modification of the plan previously accepted by the Virginia SCC as presented by another gas utility.

**Pennsylvania Office of Consumer Advocate - 1999**

Wrote comments for the agency, which was joined by the Ohio Office of Consumers Counsel, that advocated in RM98-10-000 and RM98-12-000 that the FERC investigate an auction of gas imbalances instead of an auction of available pipeline capacity.

**D.C. Office of People's Counsel - 1996 to 1999**

Analyzed and prepared comments on the Potomac Electric Power Company restructuring proposal in Formal Case 945. Testified before the D.C. Public Service Commission in Formal Case 951, the merger application between PEPCO and Baltimore Gas & Electric Company. The testimony dealt with the estimated savings that the applicants can achieve as a result of the merger. My adjustments to the savings were the only ones accepted by the Commission.

**Real Time Pricing of Electricity and Natural Gas - Continuing Research**

Invented the dynamic, market clearing pricing mechanism **WOLF (Wide Open Load Following)**. WOLF dynamically changes prices in response to the current imbalance between supply and demand as indicated by the calcula of system frequency. Arctic WOLF dynamically changes prices in response to the imbalances as indicated by conditions such pressure. (See list of papers in the Bibliography at the end of this document.)

**California Independent System Operator - 1998**

Developed a plan to unbundle the Grid Management Charge, the self-funding mechanism for this operator of the California electricity transmission grid.

**St. Lawrence Gas Company - 1992 to 1997**

Produced class cost of service studies and advised on rate design in regard to a series of rate case filings with the New York Public Service Commission. For the February 1997 filing, prepared and defended on cross examination testimony on the separation of costs between utility and non-utility operations and attacked the New York presumption that non-utility operations should be charged a royalty.

**Tampa Electric Company - 1992 to 1997**

Developed rate designs to be used in a retail rate filing, including new proposals for standby sales to cogenerators, for low load-factor commercial customers, and for handling the reactive component of sales to large customers.

- Interviewed representatives of the customer services department to identify issues they wanted to be addressed in the proposed rate case.
- Developed alternative approaches to selected issues.
- Designed tariffs, developed billing determinants, and drafted testimony.

Provided additional subsequent assistance in the investigation of bulk power contracts and standby rates.

**International Law Institute - 1996 to 2001**

Prepared and presented portions of courses on innovative electricity rates to a class of 12 Russians and to mixed classes from various countries overseas.

**United States Agency for International Development (U.S. Aid) - 1996**

As a subcontractor to Hagler Bailly Consulting, Inc., developed a dynamic pricing proposal for a market clearing power pool for the Republic of Kazakstan (formerly the Kazak Soviet Socialist Republic.) The project included five weeks in Almaty and a review of the extensive interties between Kazakstan and the other former Soviet republics. The extent of inadvertent interchange and parallel path flow led to the dynamic pricing proposal.

**Port of Seattle (Operator of Seattle/Tacoma Airport) - 1994 to 1996**

Developed procedures to lower the Port's cost of electricity. In a Puget Sound Power & Light case before the Federal Energy Regulatory Commission, invented alternative cost allocation procedures for use in settlement offers. Settlement amount for the Port of Seattle was an increase of approximately 60% of the increase allocated to other wholesale customers, and was supported by FERC Staff. Created analytic framework for evaluating competitive bids to replace Puget Sound as the principal supplier of electricity.

**Air Liquide America Corporation -1995 to 1996**

Translated complex electric utility tariffs into linear input for optimization model that will dispatch several air separation units that are interconnected by industrial gas pipelines in Texas and Louisiana. Conventional electric tariffs with time of use pricing, demand charges, blocked energy rates, and nominated amounts needed to be changed into the one-dimensional structure of the dispatch model.

**C.C. Pace Resources -1994 to 1995**

Provided insights into the growing market for electric power for clients seeking to expand gas sales to existing Independent Power Producers, for foreign governments seeking to increase the competitive forces within their countries, for IPPs seeking to sell excess generation to non-conventional markets, and for industrial consumers seeking lower cost power.

**Houston Lighting & Power Company - 1993**

Prepared and defended rebuttal testimony relative to the allegations of Destec Energy, Inc., in HL&P's Avoided Cost proceeding. HL&P had proposed updating the data being used in the Committed Unit Basis. (See Texas Study Group on Cogeneration, *infra*.) Destec Energy, Inc. was concerned about the implications for prices relevant to a possible renewal of Dow cogeneration contract. (See Dow Chemical Company, also *infra*.) Mr. Lively successfully rebutted the Destec proposals, including those that were submitted by the co-developers of the Committed Unit Basis.

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**The McGraw-Hill Companies - 1995 to 1996**

Analyzed materials filed in Postal Rate Commission Docket No. MC95-1 in which the U.S. Postal Service sought to change the relative prices paid by its various classes of customers. This work was in support of the law firm of Squire, Sanders, & Dempsey.

**United States Department of Energy - 1992 to 1993**

Created discussion materials on issues affecting the economic viability of the next generation of nuclear power plants in the U.S. Issues included how changing financial, accounting, regulatory, and tax policies could influence the decision to build nuclear power plants versus coal or gas fired power plants. Developed the evaluation concept of determining the effect of an issue on the breakeven load factor of alternative generating technologies.

**United States Agency for International Development (U.S. Aid) - 1992**

As a subcontractor to RCG/Hagler, Bailly, Inc. (now Hagler Bailly Consulting, Inc.), participated in its *Electric Power Contracting and Pricing Program* of 9/10 December 1992 in Riga, Latvia. Prepared three papers including "Dynamic Pricing for Wholesale Power Transactions in the Baltic Countries," which described how to establish a market driven energy oasis in the former Soviet Union.

**Maryland Public Service Commission - 1993**

Participated in the review of the gas purchasing practices of Delmarva Power & Light on behalf of its electric generation operations. Suggested reformations of the methods used to project gas volumes that should be purchased under the various options available to Delmarva. Investigated the implications of natural gas pipeline ratable take provisions for a gas peaking turbine.

**The World Bank - 1992**

Participated in energy sector mission to Ashkhabad, Turkmenistan to gather information on the electricity sector and Turkmenistan's ability to generate sufficient revenue domestically and internationally to finance construction projects.

**Arcadian Fertilizer, L.P. - 1985 to 1995**

Assisted in the review of Southern Natural Gas Company rate cases for this large producer of ammonia-based fertilizer (including its predecessor Columbia Nitrogen Corporation). Developed theories that supported unbundling the costs of storage and transportation and compression by others. Prepared data necessary to implement the theories in the design of costing programs and rates.

**Algonquin Customer Group 1993**

Assisted in the review of the volume projects of Algonquin Gas Transmission Company. Work included data development, testimony preparation and response to interrogatories. This work was in support of the law firm of Schiff Hardin & Waite.

1976 **ERNST & YOUNG UTILITIES CONSULTING**, Washington, DC  
to Multi-office practice specializing in electric, gas, and telecommunications consulting. Successor to Ernst  
1991 & Ernst Washington Utilities Group and Ernst & Whinney Utilities Group.

**Texas Study Group on Cogeneration - 1984**

Participated in the development of the Committed Unit Basis for pricing long-term contracts between independent power producers and electric utilities. Was responsible for achieving recognition of the effects of inflation in the design of annual carrying charge rates.

- CUB adopted by name in the rules of the Public Utilities Commission of Texas.
- CUB formula used in tariffs of Florida Power & Light Company
- CUB used for contracts covering over \$3 Billion worth of electricity.

**Arkla, Inc. - 1983 to 1986**

Assisted in rate design studies and application for both pipeline and distribution activities. Investigated alternatives available to the pipeline in the area of unbundled services, including the market position that could be achieved by strategic bundling of services. Options presented to management included zonal boundaries and dynamic pricing of gas imbalances based on the concurrent operation of Arkla's storage facilities. Prepared class cost of service testimony for presentation in Kansas, in a case that settled during the hearing process.

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**Dow Chemical Company - 1984 to 1985**

Devised concept that won a 10-year cogeneration contract worth \$140 million annually against competitors seeking to supply the same power.

- Monetized Dow's intangible benefits to the purchasing utility at approximately \$12 million per year with no additional expense to Dow.
- Developed real-time mechanism for pricing supplemental power Dow could provide during utility emergencies.

**Procter & Gamble Paper Products Company - 1987 to 1989**

Negotiated the first cogeneration sales contract in the State of Wisconsin with Wisconsin Public Service Company. Procter & Gamble subsequently decided not to fund the project.

- Introduced Staff of the Public Service Commission of Wisconsin to CUB and won its conceptual acceptance.
- Led team that analyzed gas transportation proposals to WPS for new line to project.

**Arkla ratepayer group - 1989 to 1990**

Designed, prepared, maintained and analyzed a data base of gas supply contracts to determine the propriety of Arkla's gas contracting practices. Successfully showed specific contracts were unreasonably discriminatory.

**Texas-New Mexico Power Company - 1986 to 1987**

Developed economic analysis that resulted in TNP winning the first Certificate of Convenience and Necessity issued by the PUCT to any utility in the State of Texas.

- Projected the wholesale rates of supplying utilities and stood for cross examination.
- Rebutted effectively the economic analysis prepared and presented by Houston Lighting & Power.
- Defused the issue of competing cogeneration by effective interaction with the PUCT hearing examiner.

**Reynolds Metals Company - 1977 to 1982**

Analyzed annual rate filings of Arkansas Power & Light Company for cost allocation issues affecting Reynolds. Negotiated with AP&L for adjustments to Reynolds' rates to reflect corrections or filed testimony and stood for cross examination.

- Identified an allocation error in 1977 that AP&L accepted and adopted in its compliance filing, reducing Reynolds' annual bill by \$4 million.
- Discovered a tax error in 1979, prepared pre-filed testimony, and stood for cross examination. Prior to a commission decision, AP&L filed next rate case using my method and saving Reynolds \$5 million a year.

1971 **AMERICAN ELECTRIC POWER SERVICE CORPORATION, New York City**  
to Engineering and management arm for seven electric utilities operating in the U.S. Midwest, from Lake  
1976 Michigan to Virginia.

**Rate Department - 1973 to 1976**

**Controllers Staff - 1971 to 1973**

**OTHER EXPERIENCE**

<b>Boston Financial Technology Group</b> , Boston, Massachusetts	1971
<b>Louisville &amp; Nashville Railway</b> , Louisville, Kentucky	1970
<b>Kentucky Power Company</b> , Ashland, Kentucky	1969
<b>Ashland Oil &amp; Refining</b> , Ashland, Kentucky	1966

**EDUCATION**

M.S., Industrial Management, Massachusetts Institute of Technology, 1971.

B.S., Electrical Engineering, Massachusetts Institute of Technology, 1969.

**PROFESSIONAL ORGANIZATIONS**

Institute of Electrical and Electronics Engineers.  
· Member-Energy Policy Committee, 1983-

Sigma Xi, The Scientific Research Society, 1969-

MIT Club of Washington, D.C., Inc.  
· Treasurer, 1988-1995, 1999-2000  
· Second Vice President, 1995-1998  
· First Vice President, 1998-1999

**PUBLISHED ARTICLES AND/OR SPEECHES**

"Tie Riding Freeloaders--The True Impediment to Transmission Access," *Public Utilities Fortnightly*, 1989 December 21.

"Parallel Path Flow Profiteering -- Is It Justification for Ending the Free Lunch on Unscheduled Power Flows?" *Mid-Continent Area Power Pool Fall Operating Committee Meeting*, Brainerd, Minnesota, 1990 August 29-31; and, *Southeastern Electric Reliability Council Fall Operating Conference*, Asheville, North Carolina, 1990 October 10-11.

"Parallel Flows -- The Contract Not Signed," *Transmission and Wheeling Conference*, Denver, Colorado, 1990 November 8-9.

"The 'WOLF' Howls at Competition," *Public Utilities Fortnightly*, 1991 March 1.

"Paying for Private Power -- Some Alternatives to Public Funding," *International Power Generation Conference*, San Diego, California, 1991 October 6-10.

"Real-Time Pricing of Electricity," *Southeastern Electric Exchange Rate Section Meeting*, Orlando, Florida, 1991 October 23-25.

"The Next Generation of Nuclear Plants: Can Rate Structure Changes Enhance Community Acceptance?" *The American Nuclear Society's Winter Meeting*, San Francisco, California, 1991 November 10-14.

"Inadvertent Interchanges -- A New Way to Price Unscheduled Electricity," *Electrical World*, December 1991.

"Competition for Electric Supply: A True Natural Monopoly or Unfair Competition?" *The Rudden Resource*, Spring 1992.

"Unfair and Incomplete Competition," *The Rudden Resource*, Fall 1992.

"Dynamic Pricing for Wholesale Power Transactions in the Baltic Countries," "Potential Benefits/Methods for Implementing Time of Use Rates for Wholesale Power Transactions in the Baltic Countries," and "Determining the Appropriate Charge for Transmission Services in the Baltic Countries," *Electric Power Contracting and Pricing Program*, RCG/Hagler, Bailly, Inc. & U.S. Agency for International Development, Riga, Latvia, 1992 December 9-10.

"Comments of Mark B. Lively, Utility Economic Engineer," *Inquiry Concerning the Commission's Pricing Policy for Transmission Services Provided by Public Utilities Under the Federal Power Act*, FERC Docket No. RM93-19-000, 1993 November 8.

"Response Comments of Mark B. Lively, Utility Economic Engineer," *Inquiry Concerning the Commission's Pricing Policy for Transmission Services Provided by Public Utilities Under the Federal Power Act*, FERC Docket No. RM93-19-000, 1994 January 24.

"WOLF Pricing," *Public Utilities Fortnightly*, 1994 October 1.

"Electric Transmission Pricing: Are Long-term Contracts Really Futures Contracts?" *Public Utilities Fortnightly*, 1994 October 15.

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"Response Comments of Mark B. Lively, Utility Economic Engineer," *Alternative Power Pooling Institutions Under the Federal Power Act*, FERC Docket No. RM94-20-000, 1995 March 31.

"Initial Comments of Mark B. Lively, Utility Economic Engineer," *Alternatives to Traditional Cost-of-Service Ratemaking for Natural Gas Pipelines*, FERC Docket RM95-6-000, 1995 April 26.

"Real-time Pricing, Not Restructuring," *Public Utilities Fortnightly*, 1995 May 15.

"The FERC's Formula for Transmission Contacts: Using a Good Concept for the Wrong Service," *The National Regulatory Research Institute Quarterly Bulletin*, Winter 1995. This article originally appeared as comments titled "FERC's Formula for Transmission Contacts -- Using a Good Concept for the Wrong Service," *Promoting Wholesale Competition Through Open Access Non-discriminatory Transmission Services by Public Utilities*, FERC Docket RM95-8-000, 1995 June 23.

"Pricing Schedule Variances That Kept the Lights On," *Promoting Wholesale Competition Through Open Access Non-discriminatory Transmission Services by Public Utilities*, FERC Docket RM95-8-000, 1995 October 6.

"Thirty-One Flavors or Two Flavors Packaged Thirty-One Ways: Unbundling Electricity Service" *The National Regulatory Research Institute Quarterly Bulletin*, Summer 1996. This article originally appeared as comments titled "31 Flavors or Two Flavors Packaged 31 Ways," *Promoting Wholesale Competition Through Open Access Non-discriminatory Transmission Services by Public Utilities*, FERC Docket RM95-8-000, 1995 November 2.

"Competition Versus the Good Old Boys' Club," Forum, *IEEE Computer Applications In Power*, January 1997.

"State Regulation of the Coming Competitive Market," *The National Regulatory Research Institute Quarterly Bulletin*, Fall 1997. This paper was developed to summarize remarks made at the Virginia State Corporation Commission restructuring workshop Group on Cost Benefit meeting of 1997 June 17.

"Electric Customer Participation in the Competitive Market: Reliability, Futures Contracts, and Arbitraging," *The National Regulatory Research Institute Quarterly Bulletin*, Winter 1997. This paper was developed under contract to the Regulatory Flexibility Committee of the Indiana Legislature for its meeting of 1997 September 9-10. The paper was also presented as prepared remarks to the Task Force To Study Retail Electric Competition And The Restructuring Of The Electric Utility Industry of the Maryland General Assembly for its meeting of 1997 November 11.

"Metrics for Operating Reserves," *The National Regulatory Research Institute Quarterly Bulletin*, Spring 1998. This paper was the prepared remarks at the Secretary of Energy Advisory Board Task Force on Electric System Reliability meeting of 1998 January 13.

"Real-Time Reliability Based Electricity Pricing," *1998 Proceedings*, Annual Reliability and Maintainability Symposium, Anaheim, California, 1998 January 19-22.

"Comments of Utility Economic Engineers: A Reliability Paradigm for Transmission Pricing," FERC Docket No. PL98-3, *Processes for Assuring Nondiscriminatory Transmission Services As New Reliability Rules Are Developed For Using The Transmission System*, 1998 February 26.

"Competitive Electricity Prices by Changing Tariffs, Not By Changing Providers," *The Washington, D.C. Customer Choice and Utility Competition Report*, prepared for the District of Columbia Office of the People's Counsel Conference *Utility Competition: What Is It And Why Should I Care?* 1998 May 5.

"Pricing Distributed Resources: When Your Customer Can Be Your Supplier," *EnergyCentral*, 1998 June 9.

"Electricity Is Too Chunky: The Midwest power prices were neither too high nor too low. They were too imprecise," *Public Utilities Fortnightly*, 1998 September 1.

"Higher Fees Can Ease Web Congestion," *The Washington Post Business Feedback Letter*, 1998 September 28.

"Capacity Missing From The Futures Market," *The Electricity Journal*, November 1998.

"FERC's Mandatory Gas Auctions: Are We Bidding the Right Product? -- Auctioning gas imbalances offers advantages over bidding on available pipeline capacity," *Public Utilities Fortnightly*, 1999 January 1.

"FERC's Dialogue on CBM: Reliability Gets Reappraised," *Public Utilities Fortnightly*, 1999 July 1.

"Daily Cashouts of Gas Imbalances Using A Formulary Auction," *National Regulatory Research Institute Quarterly Bulletin*, Fall/Winter 1999.

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“Distributed Generation: Setting a Fair Price in the Distribution Tariff,” *Public Utilities Fortnightly*, 2000 October 15

“The Need For A True Spot Market,” the *Blue Ribbon Panel of the California Power Exchange*, delivered 2000 November 21, presented and defended 2000 November 28.

“Good Market Segmentation or Bad: An Analysis of the California Electricity Market, *The National Regulatory Research Institute Quarterly Bulletin*, Autumn 2000.

“Profit-Enhancing Seam Management: A White Paper on Pricing The Unscheduled Flows of Electricity Across the Seams Between Utilities Using A Geographically Differentiated Auction of Inadvertent Interchange”, released 2001 March 25.

“Fungible Distribution Tariffs: Supporting Distributed Generation Without Bankrupting the Utility,” *The National Regulatory Research Institute Quarterly Bulletin*, Winter 2000.

“Saving California With Distributed Generation: A crash program to use small, standby diesel generators to keep the lights on,” *Public Utilities Fortnightly*, 2001 June 15.

“Distributed Generation As A Way To Hedge Against The Electricity Energy Market,” *World Energy Engineering Congress 2001*, Atlanta, Georgia, 2001 October 23-26.

“California’s Electricity Experiment: The Rotating Blackouts Could Have Been Avoided With Existing Equipment But Better Pricing,” *Business Energy Solutions Expo*, Orlando, Florida, 2001 November 28-29.