

Summary of Experience

- Over forty years evaluating the global, technological, business, and regulatory issues governing energy, with a special focus on the entire electricity production and delivery value chain including energy sources, electricity production, transmission, distribution, customer side energy services, and energy storage. Recognized worldwide as a thought leader in energy storage; clean coal utilization technologies; environmental management and emissions control processes; diagnostics, automation and information technologies and knowledge management; power plant asset optimization, gas turbine and combined cycle technologies, and sustainable development and industrial ecology. Launched and managed two DC-based policy & advocacy organizations, the Energy Storage Council and the Coalition to Advance Renewable Energy through Bulk Storage.
- Consult on technology evaluations and due diligence, market and strategic planning, business development and growth, executive/management development and succession planning, and business partnerships and liquidity event planning for electricity industry companies.
- Developed long-term client relationships with companies as diverse as the largest global energy conglomerates, federal and state government offices and garage-based entrepreneurs. Recent clients (some not listed because of confidentiality) include Hitachi Ltd, AES Corp., INOVx Corp, Ameren Corp, Automated Engineering Services, SFA Pacific, Durag GmbH, Nomura Research Institute, Peabody Corp, INOVx, Ballard Power, ABB, Honeywell/UOP, Hurst Technologies, Smart Signal Corp (now part of GE), HF Controls/Doosan, PAS Corp, US Trade & Development Agency, Link Resources, DOE National Energy Technology Laboratory (NETL), National Renewable Energy Laboratory (NREL), National Rural Telecommunications Cooperative (NRTC), Ohio Development Services Agency, Intertek/Aptech Engineering Services, Alzeta, The Taylor Companies/Regent Group, Powerspan, Renewable Energy Development, FC Business Intelligence, and Innoventor Engineering.
- Interviewed for and quoted in *The New York Times*, *Newsweek*, *CFO* magazine, *Power Engineering*, *FT Energy* and published articles, major reports, and special sections in *Business Week*, *EnergyBiz*, *Power*, *Electrical World*, *Global Energy Business*, *Energy Markets*, *Energy IT*, *IEEE Spectrum*, and *Combined Cycle Journal* and was also featured in the History Channel's "Modern Marvels" series on Power Plants.
- Appeared on CNBC, TheStreet.com, and the Financial News Network and have been interviewed on NPR and other syndicated radio and internet programs. Sought after speaker for conference key note addresses, seminars and presentations to energy-industry, financial and community-based organizations around the country.
- Authored *Lights Out: The Electricity Crisis, the Global Economy and What it Means to You* (2007, John Wiley & Sons). *Lights Out* offers a comprehensive view of the current electricity industry and provides a provocative plan for maintaining continued access to reliable and affordable electricity while also addressing economic, environmental, political and national security issues. The book was reviewed in the *Wall Street Journal*, the *Boston Globe*, the *Philadelphia Inquirer*, and the *St. Louis Post Dispatch* to name just a few. Featured speaker to a collective audience of several thousand during subsequent book tour and speaking engagements.
- Authored *An Investor's Guide to the Electricity Economy* (2002, John Wiley & Sons), which examined trends and offered insights on the companies and technologies transforming the industry.

- Founded or co-founded three companies in addition to establishing the Energy Storage Council, a non-profit industry organization designed to serve the government affairs and public policy needs of the energy storage community, whether large-scale for bulk or wholesale production and transmission, or small scale for distribution and distributed power applications. *Note: The Energy Storage Council was resurrected as the Coalition to Advance Renewable Energy through Bulk Storage (CAREBS – www.carebs.org), a DC-based policy & advocacy organization between 2009- 2012.*
- Co-launched with money management professionals, and served as Director of Research for, Pearl Street Capital, a hedge fund focused on the electricity sector (2006-2008)
- Principle investigator for groundbreaking technology reports such as Energy Storage Cost and Performance Report (FC Business Intelligence, 2012) *Gas Turbines: Prospects for a Financial Meltdown* (DRI-WEFA, 2001), *Information Technology for Electricity Generation* (McIlvaine Co, 2002), *Energy Storage: The Sixth Dimension of the Electricity Value Chain*, 2002-2003); *The Worldwide Electric Power Industry: An Executive Briefing Book* 1993, 1996), and others.
- Toured and evaluated dozens of electric generation facilities worldwide and, for 15 years, selected the recipients of coveted annual awards for technological innovation and best practices, including six facilities that were part of DOE’s Clean Coal Technology Demonstration program. Regularly review technology and project proposals, and final reports, for the Ohio Air Quality Development Authority.
- Appointed by former DOE Secretary Abraham to the National Coal Council’s Industry Advisory Board. Active member in industry organizations and invited speaker at many industry events including Power-Gen, Coal-Gen, NREL Renewables Conference, National Rural Electric Cooperative Association, Electric Power Conference & Exposition, International Society for Automation (ISA) Power Industry Symposium, DOE’s Office of Coal Executive Forum (December 2000), National Academy of Engineering’s forum on Industrial Ecology, Utility Coal Conference, EPRI Plant Maintenance Workshop; Black & Veatch Client Forum; IBM/Xcel Energy Utilities Conference; GasMart/Power; Gas Turbine Retrofit and Repair; EproComm; AGA/EEI/Platts Energy Energy IT; Power-Gen, NETL Conference, Gulf Coast Power Association, North Carolina Coal Institute Fall Education Conference, and many others.
- Chairman of the program committee for the Electric Power series of conferences and exhibitions between 1998-2003 and served as moderator for several keynote sessions, plenary sessions, and workshops; tours of professional service in many industry organizations, including Institute of Clean Air Companies, American Society of Mechanical Engineers Environmental Control Division, Council of Industrial Boiler Owners, and ISA Power Industry Division’s Executive Committee.

Grid Energy Storage: Special Expertise & Engagements

- Appointed Industry Consultant and led week-long reverse trade “mission” on grid-scale storage sponsored by the US Trade And Development Agency, including high level executive delegates from Turkey, India, Brazil, Vietnam, Philippines, Colombia, and other countries 2016
- Principal Investigator, Executive Report, Energy Storage Cost and Performance Report: Analysis of Life-cycle Costs of Energy Storage Technologies, FC Business Intelligence 2015
- Review of U.S. Electricity Grid Storage technologies and markets – private labeled report for process engineering consulting firm 2013
- Numerous energy storage articles in industry publications and presentations at industry events 2001-2013

- Executive Director- Coalition to Advance Renewable Energy through Bulk Storage (CAREBS) 2008-2012 (www.carebs.org)
- Principal investigator – A White Paper: “Getting Bulk Storage Projects Built: Monetizing the Balancing Function for Electricity Grid Operations” 2012
- Assess competitive position, technology, and market potential in electricity grid applications – fuel cell battery technology firm 2011
- Assess grid scale energy storage market for Fortune 500 firm making go/no-go decision for storage system RD&D investment 2007 and 2010
- Assess frequency regulation, ancillary services, and other applications for Japanese lithium ion battery firm seeking entry to U.S. market 2010
- Advisor of record for ultra-capacitor storage technology firm in \$5-million venture capital raise 2009
- Program chairman and Keynote speaker for Platt’s Power Storage Conference 2008-2009
- Principal investigator – Energy Storage: The Sixth Dimension of the Electricity Value Chain, Executive Report, 2002
- Executive Director – Energy Storage Council 2001-2005 (www.energystoragecouncil.com)

Employment

President, Pearl Street, Inc.

December 2000 - Present

Founder and president of Pearl Street, Inc., a technology deployment services firm, which lists clients as diverse as Global Fortune 50 companies to local garage-based inventors and from private placement investment firms to government R&D organizations.

Executive Director, Coalition to Advance Renewable Energy through Bulk Storage (CAREBS)

2010 – Present

Executive Director of organization dedicated to promoting technologies such as compressed air energy storage (CAES), pumped hydroelectric, and large-scale battery and flywheel installations and to providing a policy voice for the energy storage community.

Principal, Pearl Street Liquidity Advisors, LLC

December 2006 - 2010

Co-founder and principal of Pearl Street Liquidity Advisors, a consulting practice dedicated to helping energy-industry companies raise venture capital and private equity, create partnerships and alliances, arrange acquisitions and fuel organic organizational growth.

Founder and Director of Research, Pearl Street Capital

December 2006 - 2008

Co-founder of Pearl Street Capital, an investment vehicle focused on the electricity production and delivery value chain.

Director, Power Industry

MyPlant.com/Honeywell, Inc.

December 1999 - December 2000

MyPlant.com was an Internet portal for power station managers providing industry-specific news and information, engineering tools, and access to engineering and plant management on-line applications and resources.

Editor-in-Chief, *Power Magazine*

McGraw-Hill, Inc., October 1994 - December 1999
Other editorial positions at McGraw-Hill (1981-1994)

- Editor-in-Chief, *Electric Power International*
- Executive Editor, *Power*
- Contributing Editor, *Global Energy Business* and *Electrical World*
- Senior Technical Editor, *Power*; Senior Editor, *Power*; Associate Editor, *Power*

Process Engineer

Heywood Robinson
1979-1981

Chemical Engineer

Tennessee Valley Authority
1977 - 1979

Education

Graduate Coursework in Sociology

University of Missouri, Columbia, MO, 2010-2011

Graduate Coursework in Strategic Management of Technology

Washington University, Saint Louis, MO, 2000

Bachelor of Science in Chemical Engineering

Columbia University, New York, NY, 1978

References

Robert Schwieger

President, PSI Media and Publisher, *Combined Cycle Journal*
702-869-473, bob@psimedia.info

Lee Kosla

President, Kosla Group

415-320-4382, lee@koslagroup.com

Greg Long

Sr. Manager-Asset Management & Director-Global Business Transformation, AES Corporation 703-839-5109, greg.long@aes.com

John Rackers

Senior Portfolio Manager, Missouri Valley Partners
314-889-1056, john.rackers@fbol.com

Timothy Hurst

President, Hurst Technologies Corp
979-248-7268, timccmd@aol.com