



## Dr. John W. Caldwell

<b>Personal Data</b>	Place of birth: Waukegan, IL
<b>Education</b>	<p>University of Illinois – Chicago Ph.D., Economics – January 2001</p> <p>University of Iowa – Iowa City M.S. Mathematics – December 1990</p> <p>University of Illinois – Springfield M.B.A. – May 1989</p> <p>University of Illinois – Champaign-Urbana B.S. Electrical Engineering – August 1985</p>
<b>Professional Affiliations</b>	<p>Member, American Economic Association</p> <p>Member, National Association for Business Economics (former Chairman of the Energy Roundtable)</p> <p>Member, The National Economists Club</p>
<b>Professional Interests</b>	<p>Energy Economics</p> <p>Utility Rate Design</p> <p>Climate Policy</p> <p>Business Strategy</p> <p>World History</p>
<b>Professional Experience</b>	
<b>August 2023 - Present</b>	<p><b>New Mexico State University, Las Cruces, NM</b> <b>Associate Professor of Economics</b></p> <ul style="list-style-type: none"> <li>Teaching includes graduate-level public utility regulation and microeconomics</li> </ul>
<b>November 2019- Present</b>	<p><b>Pacific Energy Institute, Sausalito, CA</b> <b>Fellow</b></p> <ul style="list-style-type: none"> <li>Coauthored a paper on the dynamic factors impacting and shaping innovation in the electricity sector entitled <i>A Gambit for Grid 2035: A Systemic Look into the Disruptive Dynamics Underway</i></li> </ul>
<b>February 2007 – December 2018</b>	<p><b>Edison Electric Institute, Washington, D.C.</b> <b>Director of Economics</b></p> <ul style="list-style-type: none"> <li>As EEI's chief economist, represented the organization and its member companies (investor-owned electric utilities) in advocating legislative and regulatory policies that ensure a reliable and affordable electricity supply, and which equitably balance long-term national goals for clean energy and energy independence with the need to ensure that the means for achieving these goals are economically efficient and practicable.</li> <li>Conducted a variety of policy studies using econometric models, including estimation of commodity demand and supply curves, portfolio analysis, and projections of electricity industry infrastructure requirements. Principal areas of research were developing long-term projected potential impacts of increased natural gas-fired generation on energy commodity prices, finding and quantifying the economic causes of significant changes in electricity sales, developing cost/benefit models for smart grid investments, and exploring future business and regulatory models for electric utilities.</li> </ul>

	<ul style="list-style-type: none"> <li>• Provided written testimony and comments on critical industry filings in the areas of FERC, state regulatory, and legislative policy involving transmission, demand response, integration of renewable resources, and grid modernization.</li> <li>• Regularly spoke at industry conferences to explain industry trends and developments, to share the results of recent research, and to represent policy views advocated by EEI and its membership.</li> <li>• Managed the organization's Business Information Department.</li> </ul>
<b>December 2002 – February 2007</b>	<b>NiSource, Merrillville, IN</b> <b>Manager – Alternative Commodity Services</b> <ul style="list-style-type: none"> <li>• Managed and developed products among NiSource's utilities involving alternative rate designs, price risk management, and market-based pricing which produced several million dollars of incremental margin annually.</li> <li>• Developed commodity cost hedging and other risk management procedures to secure profitability of alternative commodity products and to ensure optimal compliance with Sarbanes-Oxley auditing requirements.</li> </ul>
<b>January 2001 – December 2002</b>	<b>NIPSCO, Merrillville, IN</b> <b>Principal – Alternative Pricing Strategies</b> <ul style="list-style-type: none"> <li>• Managed Company's gas supplier choice program.</li> <li>• Provided expert testimony to state regulatory commission explaining Company's weather normalization adjustment to earnings for electric rate case, and in support of Company's proposed fixed gas bill offering.</li> <li>• Developed forecast methodology to enable appropriate hedging of gas supply costs in Company's gas Price Protection Service.</li> </ul>
<b>January 1999 – December 2000</b>	<b>NIPSCO, Merrillville, IN</b> <b>Principal – Regulatory Development and Pricing</b> <ul style="list-style-type: none"> <li>• Introduced pricing methodologies for new, market-based negotiated rates.</li> <li>• Provided expert testimony to state regulatory commission on the relationship between weather and electricity earnings.</li> </ul>
<b>March 1995 – December 1998</b>	<b>NIPSCO, Merrillville, IN</b> <b>Senior Rate Specialist</b> <ul style="list-style-type: none"> <li>• Developed demand curve models to predict consumer response to changes in product price.</li> <li>• Managed a cost-of-service study that produced estimates of both the average and marginal costs of service associated with each of NIPSCO's natural gas products.</li> </ul>
<b>May 1991 – March 1995</b>	<b>NIPSCO, Merrillville, IN</b> <b>Forecast Analyst / Strategic Planner</b> <ul style="list-style-type: none"> <li>• Co-authored an economic study that evaluated the potential impact of casinos upon the northern Indiana economy.</li> <li>• Developed econometric models to forecast sales and peak demand.</li> <li>• Invented a new method for estimating actual and weather-normalized energy sales to enable accounting of sales by calendar month.</li> <li>• Participated in merger and acquisition studies at the corporate level.</li> <li>• Worked with consultant to develop a business plan, including income statement and balance sheet projections, for a subsidiary that was eventually formed by the company.</li> </ul>
<b>August 1985 – August 1989</b>	<b>Illinois Power Company, Decatur, IL</b> <b>Planning Engineer</b> <ul style="list-style-type: none"> <li>• Applied economic and technical analyses to find the most environmentally sound and economic means of power plant coal ash disposal.</li> <li>• Acted as consultant in statistical methods to the Internal Auditing Dept.</li> </ul>
<b>Publications</b>	<p>“Grid Evolution and the Business Ecosystem”, <i>Climate and Energy</i>, November 2020, Vol. 37, No. 4, pp. 1-10</p> <p>“Price Elasticity and Electricity Rate Design”, <i>Natural Gas and Electricity</i>, May</p>

	<p>2020, Vol. 36, No. 10, pp. 12-18</p> <p>“Reunification: The Case for Concerted Regulatory Reform in the U.S. Electricity Industry”, <i>The Electricity Journal</i>, May 2020, Vol. 33, Issue 4.</p> <p>Feature articles in EEI’s <i>Electric Perspectives</i> magazine:</p> <ul style="list-style-type: none"> <li>• “Your Move” (coauthored with David Owens, on the future of the electricity distribution system), Sept./Oct. 2012</li> <li>• “The New and You” (recommended business strategies for the modernized electricity grid), July/Aug. 2012</li> <li>• “A Matter of Balance” (coauthored with Eric Ackerman, on alternative regulatory strategies for recovery of “smart grid” infrastructure costs), May/June 2011</li> <li>• “Recovery in the Long Term” (outlook on electricity sales growth in the wake of the Great Recession), March/April 2010</li> <li>• “The Dash for Gas” (projections of the impact on natural gas prices as a result of increased reliance on natural gas in the electricity sector), Nov./Dec. 2008</li> </ul> <p>A regular column in EEI’s <i>Electric Perspectives</i> magazine entitled “The Energy Economist” in 2011-2013</p> <p>Caldwell, John W., “The Business Case for Smart Metering: Don’t Oversell It!” U.S. Association for Energy Economics <i>Dialogue</i>, Volume 20, Number 1, 2012</p> <p>National Petroleum Council, <i>Prudent Development: Realizing the Potential of North America’s Abundant Natural Gas and Oil Resources</i>, (contributing author), September 2011</p>
<b>Professional Papers and Presentations</b>	<p>Rutgers University – Center for Research in Regulated Industries</p> <ul style="list-style-type: none"> <li>• “Ten Years After: Looking Back at a Look Ahead on the Future of the Electricity Grid”, May 31, 2023, Eastern Conference, Newark, NJ, presentation and paper</li> <li>• “Toward a New Regulatory Compact for Electric IOUs” (coauthored with Eric Ackerman), June 2, 2022, Eastern Conference, Atlantic City, NJ, presentation and paper</li> <li>• “The Problem of Elasticity in Pricing and Forecasting,” June 7, 2018, Eastern Conference, Ellicott City, MD, presentation and paper</li> <li>• “The Transactive Energy Grid: An Appraisal,” May 12, 2016, Eastern Conference, Annapolis, MD, presentation and paper</li> <li>• “From Channel to Network: Will New Delivery Systems Overturn Existing Economic/Regulatory Models for Utilities?” May 15, 2015, Eastern Conference, Shawnee, PA, presentation and paper</li> <li>• “The Value of Electricity: Controversies and Calculations,” May 15, 2014, Eastern Conference, Shawnee, PA, presentation only</li> <li>• “New Strategies for the Changing Electricity Distribution Business,” May 16, 2013, Eastern Conference, Shawnee, PA, presentation and paper</li> <li>• “A Regulatory Enchiridion for a Post-Modern Grid,” November 16, 2012, <i>Regulation, Smart Grid and Reliability</i> Workshop, Newark, NJ, presentation only</li> <li>• “The Smart Grid Business Case: Revisited” (coauthored with David Roth), May 17, 2012, Eastern Conference, Shawnee, PA, presentation and paper</li> <li>• “Applying Portfolio Theory to Long-Term Electricity Generation Planning: The Future of Coal, Natural Gas, and Renewable Resources,” May 20, 2011, Eastern Conference, Skytop, PA, presentation and paper</li> <li>• “Economics of the Smart Grid,” May 20, 2010, Eastern Conference, Skytop, PA, presentation and paper</li> <li>• “Price vs. Program: Sorting out the Impacts of Elasticity and Energy Efficiency on Demand,” May 15, 2009, Eastern Conference, Skytop, PA, presentation and paper</li> <li>• “The Projected Impact of a Surge in Gas-Fired Electricity Generation upon Natural Gas Prices”, May 2008, Eastern Conference, Skytop, PA, presentation and paper</li> </ul> <p>“The Microgrid Business Case”, East Coast Conference on Microgrids, April 12, 2018, Active Communications International, Inc., Charlotte, NC, presentation only</p>

	<p>“From Channel to Network: Electricity Grid Evolution and the Emergence of New Business Models for Utilities,” The Changing Business Model for Utilities, June 6, 2016, The Stanford School of Business, Stanford University, Stanford, CA, presentation only</p> <p>“Transactive Energy Models,” NIST Transactive Energy Conference, May 19, 2016, World Trade Center, Portland, OR, presentation and paper (coauthored with Ed Cazalet, Paul De Martini, Jeffrey Price, and Eric Woychik)</p> <p>“Impacts of Environmental Policy on the Future of the Electricity Industry,” French American Climate Talks Series , October 22, 2015, The Baker Institute, Rice University, Houston, TX, presentation only</p> <p>“The Evolving Distribution Grid: Future Utility Business Models,” Kleinman Center for Energy Policy, Examining Future Utility Models: A Pennsylvania Perspective Stakeholder Meeting #2: Regulators and Consumer Advocates, August 5, 2015, Kleinman Center for Energy Policy, University of Pennsylvania, Philadelphia, PA, presentation only</p> <p>“The 21st Century Electricity System, Challenges and Opportunities,” New Jersey Public Utility Law Section of the Bar Spring Conference, April 10, 2015, New Jersey Law Center, New Brunswick, NJ, presentation only</p> <p>“Emerging Economies and Global Compliance – Their Effect on U.S. Manufacturing”, Conflict Minerals Conference, February 19, 2014, Warrensville Heights, OH, presentation only</p> <p>“Electric Regulation – The National Perspective,” Michigan Energy Providers Conference, August 1, 2013, Mackinac Island, MI, presentation only</p> <p>“New Strategies for the Changing Electricity Business”, Marcus Evans Electric Utility Ratemaking Conference, July 18, 2013, Atlanta, GA, presentation only</p> <p>“A New Age for Electricity: Challenges and Opportunities in a Post-Recession Era”, RMEL Fall Executive Leadership and Management Convention, September 10, 2012, Summerlin, NV, presentation only</p> <p>“The U.S. Economy: Consumer Confidence, Industry Confidence &amp; 2012 Growth”, AREVA, 2012 Customer Conference, June 25, 2012, Key Biscayne, FL, presentation only</p> <p>“Financial State of the Utility Industry: Challenges and Opportunities in the Post-Recession Economy”, Midwest Energy Association, Electric Operations Technical and Leadership Summit – 2012, May 8, 2012, Springfield, IL, presentation only</p> <p>“The Smart Grid and Cost Recovery: Issues and Approaches,” Mid-Atlantic Distributed Resources Initiative, Working Group Meeting #23, April 20, 2012, Philadelphia, PA, presentation only</p> <p>“The Smart Grid Business Case”, 30<sup>th</sup> USAEE/IAEE Annual Conference, <i>Redefining the Energy Economy: Changing Roles of Industry, Government and Research</i>, October 10, 2011, Washington, DC, presentation and paper</p> <p>“Is There Life After the Recession? Keeping the Lights on in a Budget-Constrained Environment”, 10<sup>th</sup> Annual Outage Response &amp; Restoration Management</p>
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	<p>Conference, <i>Overcoming Obstacles to Enable Productive Outage Management</i>, November 5, 2010, New Orleans, LA, presentation only</p> <p>“U.S. Electricity Supply and Demand: The Long View”, The Atlantic Council of the United States, <i>Perspectives on a Realistic United States Electric Generation Portfolio: 2010-2050</i>, October 26, 2009, Washington, D.C., presentation only</p> <p>“Bubbles, Crashes, and Rebounds: The Utility Industry in a Post-Recession Economy,” National Association for Business Economics 51<sup>st</sup> annual meeting, <i>The New Global Financial and Economic Architecture: Gateway to Recovery</i>, October 12, 2009, St. Louis, MO, presentation only</p>
<b>Professional Presentations - Media</b>	<p><i>Larger than Life</i>, Public Radio Station WVLP, Valparaiso, IN, 2004, 16-part half-hour documentary series on world history. Authored, narrated, and produced.</p>
<b>Organizational Presentations</b>	<p><b>Outlooks</b></p> <ul style="list-style-type: none"> <li>• At EEI (2007-2018), provided periodic outlooks at membership committee meetings, company-sponsored conferences, and webinars on: <ul style="list-style-type: none"> <li>○ The state of the economy</li> <li>○ The impact of the economy on sales and demand</li> <li>○ The future of the electricity system</li> <li>○ The changing regulatory environment</li> </ul> </li> <li>• At NiSource (1999 – 2006), provided periodic outlooks at membership committee meetings, local civic organizations, company-sponsored conferences, and the company’s website on: <ul style="list-style-type: none"> <li>○ The future of deregulation and its impact on the natural gas and electricity industries</li> <li>○ Projected trends in energy prices</li> </ul> </li> </ul> <p><b>Trainer/Educator</b></p> <ul style="list-style-type: none"> <li>• University of Illinois at Springfield <ul style="list-style-type: none"> <li>○ Adjunct Instructor: ACC 501 – Advanced Utilities Regulation (2020)</li> <li>○ AGA Rates School: Lecturer on Regulatory Accounting (2019-2022)</li> </ul> </li> <li>• University of Notre Dame graduate course, “The Business of Energy”, guest lecturer on electricity industry issues (2012-2022)</li> <li>• EEI Electric Rate Advanced Course (hosted by Wisconsin Public Utility Institute), lecturer on Regulatory Accounting (2011-2022)</li> <li>• University of Idaho Utility Executive Course (trainer) (2017-2018)</li> <li>• At EEI (2007 – 2018), provided training to energy industry employees, legislators, and government personnel via webinars, conferences, and classroom seminars on the following subjects: <ul style="list-style-type: none"> <li>○ Electricity 101</li> <li>○ General Regulatory Theory</li> <li>○ Utility Rate Design</li> <li>○ The Economics of Climate Change</li> <li>○ The Impact of the Economy on the Energy Industry</li> <li>○ Theory of Risk Management</li> <li>○ Econometric Analysis Techniques</li> </ul> </li> <li>• At NiSource (1995 – 2006), provided training to utility employees and customers on the following subjects: <ul style="list-style-type: none"> <li>○ The Future of Deregulation and Its Impact on the Industry</li> <li>○ General Regulatory Theory and Utility Rate Design</li> <li>○ Contract Policy</li> <li>○ New Employee Orientation on the Gas and Electric Industry</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>• Calumet College of St. Joseph, Hammond, IN <ul style="list-style-type: none"> <li>○ Instructor: Introduction to Economics (1996)</li> <li>○ Instructor: Introduction to Microeconomics (1995)</li> </ul> </li> <li>• Mount Mercy College, Cedar Rapids, IA, Instructor: Business Statistics (1989)</li> </ul>
<b>References</b>	References available upon request.