

Douglas J Howe, Ph.D.

1100 Piedra Alto, Santa Fe, New Mexico 87501
+1-505-795-9193

dhowe@highrocknm.com

CAREER HIGHLIGHTS

Dr. Howe is a Director with the Western Grid Group and has 37 years of experience as an executive, consultant and advisor to the global utilities industry. He has served on the board and as chairman of a wholesale electricity market, has served as a state utility regulator, as a senior executive officer of a major U.S. utility company and as a college professor. His work has focused on utility regulation, energy market regulation and regulatory strategy and policy. He has performed work for a diverse set of US, European, Asian, Middle Eastern and African electric utility companies, energy marketing companies, NGOs, and government regulatory agencies.

Based on his career achievements and experience, Dr. Howe was appointed by the governor of New Mexico to serve as commissioner on that state's public utility regulation commission.

As a utility executive, he was responsible for regulatory policy in the US and UK, as well as customer services and information technology, leading an organization of over 1200 employees with an annual budget of over \$100 million.

Today, Dr. Howe resides in Santa Fe, New Mexico and provides consulting and expert witness testimony, principally in the area of environmental policy, retail rate structures, and wholesale electricity markets in utility regulatory cases.

CAREER EXPERIENCE

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| Member, Board of Directors, New Mexico Renewable Energy Transmission Authority. Appointed by the governor of NM to the board of NMRETA, which is a state entity charged with building electric transmission to facilitate the growth of renewable energy. | July 2020-present |
| Member, Western Energy Imbalance Market Governance Review Committee. One of 12 members of this committee charged by the CAISO Board of Governors to review and recommend changes to the governance model for the Western Energy Imbalance Market and Extended Day-Ahead Market. | November 2019-present |
| Director, Western Grid Group. The Western Grid Group is a project of the Center for Energy Efficiency and Renewable Technologies (CEERT). Small in number, the members of WGG collectively have over 150 years of experience in the electricity industry with wide, national and international, first-hand experience of how change happens in an industry that prefers status-quo. The Western Grid Group includes former state utility regulators, a former EIM governing body member, national laboratory personnel, a former utility executive, a former utility board member, and a former state energy official. | November 2018-present |
| Expert Witness – Utility Rate Cases. Providing expert witness testimony in numerous utility rate cases. List of cases included in this CV | 2013 to present |

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- Member and Chairman, Western Energy Imbalance Market Governing Body.** Elected to the first Governing Body of the Western EIM, the governance board of the realtime electricity market serving much of the electricity supply and load in the US Western Interconnection. Elected chair of the Governing Body on July 1, 2017. **July 2016- July 2018**
- Senior Consultant, Vanry+Associates, Inc., Vancouver, BC, Canada.** Consultation with major New York utility on the New York PSC 'Reforming the Energy Vision'. Consultation with largest utility union on developing strategies for the future of electricity industry. **2015-2017**
- Senior Energy Consultant, Western Resource Advocates, Santa Fe, NM & Boulder, CO.** Consultation on environmental and renewable energy issues. Expert witness testimony in utility filings, including the EPA Clean Power Plan, utility merger, rate, integrated resource planning, energy efficiency, renewable energy and power plant abandonment cases. Expert witness testimony before the New Mexico Public Regulation Commission and the Public Utility Commission of Nevada. **2014-2016**
- Principal, Douglas Howe & Associates.** City of New York, Office of Long-Term Planning and Sustainability: work includes technical assistance on the Mayor's Special Initiative for Rebuilding and Resiliency (Hurricane Sandy post-mortem) and the City's 80x50 plan to reduce the carbon footprint by 2050. **2013-2014**
- Commissioner, New Mexico Public Regulation Commission.** Appointed by Governor as a Commissioner. The Public Regulation Commission oversees electricity, gas, water, pipeline and transportation rates and services in the state. It oversees the implementation of the state's Public Utility Act, the Renewable Energy Act and the Energy Efficiency Act among other statutes. Worked with USAID and Jordanian Energy Regulatory Commission in assistance of newly enacted Jordanian energy efficiency laws. **2011-2012**
- Consultant, IHS CERA, Cambridge, MA and Paris, France.** Oversaw a team of 5 international consultants working primarily in the fields of fossil and renewable energy, corporate and regulatory strategy. Responsible for \$2-\$4 million annual revenues. Clients included: Con Ed (NYC), Direct Energy, Consumers Power, Detroit Edison, Dayton Power & Light, Eskom (South Africa), Exxon Mobil, Eneco (Netherlands), Allete, AES, US Dept. of Energy, US Nuclear Regulatory Commission, Companhia de Electricidade de Macau, CEZ (Czech Rep.), Dubai Executive Council, General Electricity Company of Libya, TAQA (Abu Dhabi investment fund), Energy Markets Authority of Singapore, State of Lagos-Nigeria, Tanzania National Development Corp. Management of major studies include: European Union 2020 Energy Efficiency Mandate; US Smart Grid Initiatives, US Electricity Deregulation Impacts. **2002-2011**

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Provided written expert witness testimony before the Michigan Public Service Commission.

Consultant, Energy Trading Company, Williams Company, Tulsa, OK. 2001-2002
Consulted with Williams Energy Marketing & Trading, a subsidiary of natural gas company, Williams Co. Worked with C-level staff to create and implement liaisons with U.S. state regulatory commissions and utilities.

Vice President, Regulatory Policy, GPU Inc., Morristown, NJ. 1999-2001
Large public utility holding company with electric utility operations in New York, New Jersey, Pennsylvania, the UK, Australia, and Argentina. Responsible for company positions with respect to FERC orders; worked with UK regulatory staff on RPI-X regulatory scheme.

Vice President, Customer Services and IT, GPU Inc., Reading, PA. 1994-1996
Responsible for marketing, customer services, information technology during this period. Responsible for 1,250 employees and an annual budget of \$100 million.

Director, Strategy, GPU Inc., Morristown, NJ. 1992-1996
Responsible for developing and implementing strategies for deregulation in NJ and PA. Worked closely with state regulators and legislators to guide deregulation initiatives in the electricity sector.

System Planning and IT Divisions, GPU Inc., Reading, PA. 1982-1992
Various positions with the company, including manager of IT performance and capacity planning, manager of cogeneration contracts.

Exide Company, Philadelphia, PA. 1981-1982
Advanced battery technology software development.

Sun Shipbuilding Company, Chester, PA and Malmo, Sweden. 1980-1981
Advanced numerical control hull design software.

Haverford College, Haverford, PA. 1979-1980
Assistant Professor of Mathematics

EDUCATION

Duke Advanced Management Program 1994
Duke University Fuqua School of Business

Ph.D. Mathematics 1977
University of Pennsylvania, Philadelphia, PA

M.S. Mathematics 1974

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University of Pennsylvania, Philadelphia, PA

B.S. Mathematics

1972

Kansas State University, Manhattan, KS (1970-1972)

University of Pittsburgh, Pittsburgh, PA (1968-1970)

HONORS AND AWARDS

Summa Cum Laude, Kansas State University 1972

Franklin Scholar, University of Pennsylvania 1976

Appointed Commissioner, New Mexico Public Regulation Commission 2012

EXPERT WITNESS TESTIMONY

1. Michigan Public Service Commission, Case No. U-15290, 2007

For Consumers Energy Company, using Markowitz Portfolio Theory analysis to demonstrate an optimal generating portfolio (with Dr. Christopher Hansen).

2. Public Utility Commission of Nevada, Case No. 13-02071, 2013

For Nevadans for Clean Affordable Reliable Energy, discussing net benefits in Berkshire Hathaway's proposed acquisition of Nevada Energy.

3. New Mexico Public Regulation Commission, Case No. 13-00390-UT, 2013.

For Western Resources Advocates, regarding a new renewable portfolio aspect in Public Service Company of New Mexico's (PNM) global settlement

4. New Mexico Public Regulation Commission, Case No. 15-00261-UT, 2015.

For Western Resources Advocates, regarding PNM's requests for recovery of certain capital addition to San Juan Generating Station and its proposal of a time-of-use rate.

5. Colorado Public Utilities Commission, Case No. 16AL-0048E, 2016

For Western Resources Advocates regarding Colorado Public Service Company's proposal for a time-of-use rate.

6. Arizona Corporation Commission, Case No. E-01345A-16-0036, 2018

For Western Resources Advocates regarding Arizona Public Service Company's proposed depreciation schedule on environmental upgrades at Four Corners Power Plant.

7. New Mexico Public Regulation Commission, Case No. 18-00261-UT, 2018

For Western Resources Advocates regarding PNM's application for an accounting order relating to its intention to join the Western Energy Imbalance Market.

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8. New Mexico Public Regulation Commission, Case No. 18-00099-UT, 2018

For Western Resources Advocates regarding El Paso Electric Company's request to develop a community solar project.

9. New Mexico Public Regulation Commission, Case No. 19-00018-UT, 2019

For Western Resources Advocates regarding Public Service of New Mexico's application for abandonment of the San Juan Generating Station and request for approval of a financing order in the securitization of net book value and other costs required by the Energy Transition Act.

10. Colorado Public Utility Commission, Case No. 19AL-0687E, 2020.

For Western Resources Advocates regarding Public Service of Colorado's application for a time-of-use rate.

PUBLICATIONS and SELECTED SPEECHES

Governance models of public utility commissions in the United States, September 2019, Journal of Competition and Regulation in Network Industries, Vol. 20, Issue 3.

Utility M&A: Cyclical increase is not the long-awaited 'Tidal wave', August 2011, CERA report

Smart Grid: Closing the Gap Between Perception and Reality, August 2010, co-author of CERA multi-client study

The Fuel of Choice for Generation, speech at King & Spaulding seminar on the Future Energy Source for Electric Generation, Houston, May 2010

Strategies for Leaner Europe: Meeting the Challenge of Energy Efficiency, lead-author of CERA multi-client study, March 2009

Data Disclosure in Wholesale Electricity Markets: A White Paper, Singapore Energy Markets Authority, April 2010

Nuclear Generation Options for Dubai: A White Paper, Dubai Executive Council, July 2008

US and UK Regulation: Capital Attraction vs. Operating Efficiency, invited presentation to RCI Russian Regulatory Conference, London, April 2008.

Some Sail, Some Fail: Life after the Public Utility Holding Company Act, CERA Decision Brief, November 2006 (with M. Fagan)

CERA North American Power Survey: The Reality of Perceptions, CERA Special Report, September 2006 (with D. Borska, S. Carraher, C. Hansen).

Public Utility Holding Company Act Repeal: One Big Obstacle Down – Many Remain, CERA Decision Brief, September 2005 (with S. Carraher, M. Fagan).

Beyond The Crossroads: The Future Direction of Power Industry Restructuring, CERA Special Report, June 2005 (with L. Makovich, et al).

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Broadband over Powerline: More Information, Questions Remain, CERA Insight, September 2004 (with D. Perras)

Managing the Growth Dilemma: Utility M&A, CERA Global Power Forum, October 2004

UK Regulatory Experience, T&D World Annual Conference, September 2004.

Private Equity in Utilities: The Return of the LBO, CERA Insight, March 2004.

Will Mergers and Acquisitions Fuel the Utility Growth Engine?, CERA Private Report, February 2004 (with D. Borska)

Electricity Distribution in the UK: Will the 'Pure Wires Model be an Experiment or a Paradigm?, CERA Private Report, May 2003

Eye of the Hurricane: Power Distribution in Uncertain Times, CERA Multi-Client Study, June 2003.

Retail Power Market Structures in the U.S., U.S./Russia Joint Conference on Energy Markets (DOE), March 2003

The New Ontario Energy Crisis: California Redux?, CERA Decision Brief, December 2002 (with D. Perras, W. Dailey).

Power and Risk Management for Regulators in a Post-Enron World, Western States Conference of Public Service Commissioners, June 2002, Phoenix, Arizona.

The Pure Disco: The Evolution of the UK Electricity Distribution Company, Center for Advancement of Energy Markets (CAEM), Washington DC, May 2001.

An SAP Chronicle: Life at the Edge of Chaos, Software Magazine, June 2000.

Electricity Deregulation: IT's New Bonanza, Information Management Systems Journal, May 2000 (with J. Cuccaro)