

Ralph Zarumba

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Ralph Zarumba is a regulatory economist with thirty-nine years of experience. He has worked in fifteen countries, assisting utilities, regulators, customer groups, developers, and other industry participants. He has appeared as an expert witness in regulatory and legal proceedings in twenty-four jurisdictions in North America.

REPRESENTATIVE PROJECT EXPERIENCE

Embedded Cost of Service Analysis

- Sponsored an embedded cost of service study and pricing design for CenterPoint Minnesota Natural Gas.
- Sponsored an embedded cost of service study and pricing design for Liberty Utilities New Brunswick natural gas.
- On behalf of Heritage Gas (Nova Scotia), prepared a cost allocation for a natural gas storage field presented before the Nova Scotia Utility and Review Board.
- Mr. Zarumba provided testimony in the proceedings reviewing the 2014 Nova Scotia Power Cost-of-Service study.
- Mr. Zarumba prepared and sponsored a cost-of-service filing supporting a Reliability Must-Run filing on the Cayuga Operating Company before the FERC and the NYPSC.
- Mr. Zarumba provided testimony in the proceedings reviewing the 2014 Nova Scotia Power Cost-of-Service study.

Pricing and Marginal Cost Studies

- On behalf of Enbridge Gas, New Brunswick appeared as an expert witness on marginal cost analysis and its application to pricing in the New Brunswick Power rate request.
- Mr. Zarumba is the principal author and expert witness of an Electric Marginal Cost of Service Study for Montana-Dakota Utilities for their Montana service area.
- On behalf of Bermuda Electric Power Company, prepared a marginal cost of service study, an allocated cost of service study, and a pricing design proposal implementing movement to access charges.
- On behalf of Puerto Rico Electric Power Authority, managed that company's first regulated rate request. It was the witness supporting pricing design, the marginal cost of service, an embedded cost

PROFESSIONAL HISTORY

- [Nexus Economics LLC July 2023-present](#)
Founder
- [Black & Veatch Global Advisory 2021-June 2023](#)
Practice Leader – Electricity & Natural Gas Regulatory
- [Concentric Energy Advisors, Inc. 2016 – 2020](#)
Vice President
- [Navigant Consulting 2008-2016](#)
Director
- [Science Applications International Corporation 2004-2008](#)
Director
- [Zarumba Consulting 2002-2004](#)
President
- [Sargent & Lundy Consulting Group 2000-2002](#)
Senior Principal Management Consultant
- [Analytical Support Network, Inc. 1997-2000](#)
President
- [Synergic Resources Corporation 1996-1997](#)
Manager, Pricing Practice
- [San Diego Gas & Electric Company 1994-1996](#)
Senior Analyst
- [Wisconsin Electric Power Company 1990-1994](#)
Senior Analyst
- [Eastern Utilities Associates 1988-1990](#)
Analyst 4
- [Eastern Utilities Associates 1988-1990](#)
Analyst 4
- [Illinois Power Company 1985-1988](#)
Analyst

EDUCATION

- MA, Economics, DePaul University, 1986
- BS, Economics, Illinois State University 1982

of service study, an electric rating period study, proposals for unbundling tariffs into functional components, and detailed testimony addressing compensation for Distributed Energy Resources.

- As an advisor to the Ontario Energy Board assisted in developing a proposal to change electric distribution pricing into a fully fixed tariff design and eliminate the volumetric (i.e., KWH. charge) component.
- Prepared a Pricing Strategy for the South Carolina Public Service Company (Santee Cooper).
- Prepared testimony proposing Retail Conjunctive Billing Pricing filed in Illinois and Wisconsin, filed before the Illinois Commerce Commission and the Wisconsin Public Service Commission.
- Negotiated complex service contracts with thermal energy customers, leading to a major Wisconsin Electric Steam System expansion.
- Prepared ancillary service pricing proposals based on market-based mechanisms for San Diego Gas and Electric Company.
- Prepared an analysis of pricing mechanisms for optional renewable energy products for a Midwestern public power association.

Regulatory Policy

- Prepared a white paper on rate mitigation mechanisms for the Ontario Energy Board.
- On behalf of the Ontario Energy Board, Mr. Zarumba co-authored a study that identified factors that could impede the combination of regulated distributors in that Province.
- On behalf of the Ontario Energy Board, prepared a white paper addressing the apportionment of regulatory commission costs to stakeholders.
- Developed electric regulatory rules for several Southeastern European countries.
- Mr. Zarumba led an effort for the Province of Alberta, which compared the cost of providing distribution services for Rural Electric Associations versus Investor-Owned Utilities.

Generation Market Analysis

- For a major public power generation, the owner prepared a strategy of internal coal versus natural gas generation dispatch protocols, including the treatment of liquidated damages.
- On behalf of Nalcor, I co-authored a report on the feasibility and economics of the proposed development of the Lower Churchill Hydroelectric project.
- Prepared several electric market price forecasts for many regions of the United States and Central America.
- Supported the electric pricing and infrastructure analysis for a Least-Cost Resource Plan for San Diego County.
- Prepared an analysis of coal-fired electric generation technology saturation in the Western Electric Coordinating Council.

- Developed a long-run electric generation expansion plan for the Railbelt System in Alaska used in a Department of Energy Study investigating the feasibility of a natural gas pipeline in Alaska.
- Managed a team that prepared a long-term capacity and energy forecast for a medium-sized municipal utility.
- On behalf of Manitowoc Public Utilities, prepared a resource plan evaluating various generation expansion options.

Large Power Procurement

- During the time period 2004 through 2008, Mr. Zarumba, on behalf of the Metropolitan Transit Authority and the Port Authority of New York and New Jersey, assisted the New York Power Authority (NYPA) in procuring electric generation capacity and energy in RFP 3, RFP 4 and RFP 5. Mr. Zarumba worked with representatives of the City of New York and NYPA, including Mr. Gil Quiniones, who was initially the President of the New York Economic Development Corporation and later the Chief Operating Officer of NYPA. These procurements resulted in contracting for a utility-scale combined-cycle combustion turbine in Queens, a High Voltage Direct Current (HVDC) transmission line between Manhattan and North New Jersey, and various renewables.
- From 1997 through 1999 Mr. Zarumba advised the Build Owners and Managers of Chicago (BOMA/Chicago) on procuring a preferred energy supplier to their membership. BOMA/Chicago estimated their building load (i.e., load excluding tenants) of approximately 700MW. Mr. Zarumba and the BOMA/Chicago team interviewed over one dozen bidders. As a result of the solicitation, a preferred supplier who served BOMA/Chicago for approximately ten years was chosen.
- The Metropolitan Transit Authority operates commuter rail lines that extend into Connecticut, requiring approximately 45MW of load. From 2004 through 2008, he developed a procurement process that provided significant savings for generation services.
- In 2006, Mr. Zarumba was jointly retained by the Chicago Transit Authority and Metra for their first retail power procurement. Mr. Zarumba developed Request for Proposal documents, reviewed legal agreements, and designed the proposal evaluation processes.

Electric Transmission

- Presented testimony before the Alberta Energy Regulator applying marginal cost theory developing a proposed electric transmission tariff.
- Assisted the Long Island Power Authority in purchasing distribution, transmission, and regulatory assets and prepared that utility's non-jurisdictional open-access transmission tariff.
- Prepared the pricing portion of a FERC open access tariff (Docket No. ER96-96-43.000) for San Diego Gas and Electric Company; testified on revenue requirements and pricing, including opportunity costs.
- Prepared a Reliability Must-Run for the Cuyahoga Generating Station, filed with the Federal Energy Regulatory Commission and the New York Public Service Commission.

Revenue Requirements

- On behalf of FirstEnergy, I prepared a Time Study that quantified the capitalization of Administrative and General Expenses. The study was prepared in response to a request from the Federal Energy Regulatory Commission.
- Prepared several Cash Working Capital studies for various distributors and transmitters in the Province of Ontario filed before the Ontario Energy Board.
- For a confidential client, prepared a benchmarking analysis of the costs of regulatory proceedings associated with introducing new electric generation.
- Managed a project for Commonwealth Edison Company in their Electric Rate Request (Illinois Commerce Commission Docket No. 10-467) in which a Cash Working Capital study was provided.
- Assisted Indianapolis Power & Light in preparing a cost recovery plan for Energy Efficiency and Demand Side Management Expenditures.
- On behalf of the Missouri River Electric Cooperative, I managed a project team that completed a Remaining Life Study for the Western Minnesota Municipal Power Agency.
- For Heritage Gas (Nova Scotia) prepared a cost allocation for a natural gas storage field presented before the Nova Scotia Utility and Review Board.
- On behalf of the Ontario Energy Board, prepared a white paper addressing the apportionment of regulatory commission costs to stakeholders.
- Prepared ancillary service pricing proposals based on market-based mechanisms for San Diego Gas and Electric Company.

Valuations and Estimation of Damages

- On behalf of the Government of the Province of Newfoundland, prepared a valuation of certain hydroelectric generating units expropriated by the Province after the closure of the Abitibi Pulp and Paper Mill.
- Mr. Zarumba has prepared several studies preparing valuations of specific generating assets facing market-based pricing in North America.
- As a contractor to NERA Economics assisted in preparing a study quantifying the damages associated with an accident at the Hawthorne Generating Station.

Management Audit and Affiliate Code of Conduct

- Led the regulatory and financial review for a management audit of Jersey Central Power & Light on behalf of the New Jersey Board of Public Utilities.
- On behalf of a coalition of marketers and energy service companies, Mr. Zarumba presented testimony before the Illinois Commerce Commission addressing affiliate rules and code of conduct.

- Mr. Zarumba presented testimony before the Wisconsin Public Service Commission addressing affiliate rules and code of conduct on behalf of a coalition of marketers and energy service companies.

Demand Response

- Assisted the Building Owners and Managers of Chicago (BOMA/Chicago) in developing a program where they can bid demand response based ancillary services into the PJM market.
- Prepared a presentation for the Public Utilities Commission of Ohio on Commercial and Industrial Dynamic Pricing and Demand Response in an unregulated regulatory environment.

Merger, Acquisition, and Divestiture

- On behalf of the Minnesota Public Service Commission. Mr. Zarumba co-authored an analysis of the merger savings associated with the proposed Primergy Merger (the proposed combination of Northern States Power and Wisconsin Energy). The analysis included a detailed review of cost savings emanating from the merger and regulatory commitments made by the companies to regulatory authorities in Minnesota.
- For Manitowoc Public Utilities, an analysis evaluating the divestiture of its transmission assets to the American Transmission Company.

International

- Assisted the Israel Public Utility Authority with electric tariff reviews for the Israel Electric Company and the Jerusalem District Electric Company.
- During the time period 2007 through 2017, assisted the Albanian Electric Regulator in several rate requests, trained staff, and conducted negotiations involving the privatization of the electric distribution system.
- Mr. Zarumba assisted the electric regulator in the Republic of Macedonia with various regulatory issues, including pricing design, revenue requirements, and privatization issues. Included in the assistance was the development of market designs for the electricity sector.
- I completed a tariff implementation plan proposal for privatizing the Bulgarian Electric Utility's distribution companies.
- Led a team to implement regulatory procedures and methodology for the electric power industry in Bosnia and Herzegovina.
- Conducted a of the electric power market in El Salvador, including a quantification of the level of generation market power using the Lerner Index.

EXPERT WITNESS TESTIMONY

SPONSOR	DATE	CASE/APPLICANT	DOCKET/CASE NO.	SUBJECT
Alberta Utilities Commission				
ATCO Electric Ltd.	3/2022	ATCO Electric Ltd.	26911	Transmission Pricing
Federal Energy Regulatory Commission				
Cayuga Generating Company	11/2012	Cayuga Generating Company	ER-13-405-000	Reliability Must-Run Tariff Cost of Service Support
San Diego Gas and Electric Company	09/1995	San Diego Gas and Electric Company	ER96-43	Open-Access Transmission Tariff Filing – Calculation of Transmission Charges
Bermuda Regulatory Authority				
Bermuda Electric Light Company	4/2019	Bermuda Electric Light Company	Not Applicable	Request for a rate increase and multi-year rate plan
Bermuda Electric Light Company	8/2019	Bermuda Electric Light Company	Not Applicable	Marginal Cost of Service Study

British Columbia Utility Commission				
Fortis British Columbia	4/2024	Fortis British Columbia	2027 Rate Setting Framework	Incentive Ratemaking
State of Florida Pilotage Rate Review Committee				
Tampa Bay Pilots Association	7/2024	Tampa Bay	23-3937	Comparison of Tariffs Charged and Compensation Paid in Ports Comparable to Tampa Bay
Illinois Commerce Commission				
Commonwealth Edison Company	5/2022	Commonwealth Edison Company	22-0067	Cost Benefit Analysis
The Building Owners and Managers Association of Chicago	2/2008	Commonwealth Edison Company	07-0566	Commonwealth Edison Company General Rate Case
The Building Owners and Managers Association of Chicago	11/2007	Commonwealth Edison Company	07-0540	Evaluation of an Energy Efficiency Plan for Commonwealth Edison Company
The National Association of Energy Service Companies and Blackhawk Energy Services	02/1999	Commonwealth Edison Company, et al.	98-0147 & 98-0148	Functional Separation of Electric Utility Functions
The Building Owners and Managers Association of Chicago	11/1998	Commonwealth Edison Company, et al.	98-0650	Customer Selection Proceeding – Lottery Rules

The Building Owners and Managers of Chicago, Johnson Controls, Inc., and Blackhawk Energy Services	07/1998	Commonwealth Edison Company	98-0362	Application of Commonwealth Edison to Approve Rate HEP – a Real Time Pricing Tariff
The Building Owners and Managers Association of Chicago	02/1997	Commonwealth Edison Company	96-0485	Complaint against Commonwealth Edison Company's Conjunctive Billing Tariff
Indiana Utility Regulatory Commission				
CenterPoint Indiana	5/2022	CenterPoint Indiana	45722	Securitization
AES Indiana	10/2022	A.E.S. Indiana	38703	Prudency
Kansas Corporation Commission				
Tyson's Fresh Meats	04/2014	Tyson's Fresh Meats	14-WHLW-218-RTS	Abrogation of a Long-term Service Agreement by a Utility
McHenry County, IL				
Indeck Pleasant Valley, LLC.	09/2002	Indeck Pleasant Valley, LLC		Deposition
Lake County, IL				
Indeck Pleasant Valley, LLC.	09/2002	Indeck Pleasant Valley, LLC.		Deposition
Libertyville, IL Zoning Board				

Indeck Libertyville, LLC	01/2000	Indeck Libertyville, LLC		Need for a combustion turbine facility.
Louisiana Pilotage Fee Commission				
Crescent River Port Pilots' Association	7/2020	Crescent River Port Pilots' Association	P20-001	Benchmarking analysis of pilotage fees

Massachusetts Department of Public Utilities				
Eastern Edison Company	04/1990	Eastern Edison Company		Purchased Power Cost Adjustment Calculation
Eastern Edison Company	02/1990	Eastern Edison Company	90-9A	Oil Conservation Adjustment Calculation
Eastern Edison Company	02/1990	Eastern Edison Company	90-4A	Fuel Cost Adjustment Calculation
Eastern Edison Company	12/1989	Eastern Edison Company	89-240	Purchased Power Cost Adjustment Calculation
Eastern Edison Company	11/1989	Eastern Edison Company	89-4D	Fuel Cost Adjustment Calculation
Eastern Edison Company	05/1989	Eastern Edison Company	89-9D	Oil Conservation Adjustment Calculation
Eastern Edison Company	08/1989	Eastern Edison Company	89-9B	Fuel Cost Adjustment Calculation
Eastern Edison Company	08/1989	Eastern Edison Company	89-9C	Oil Conservation Adjustment Calculation
Eastern Edison Company	05/1989	Eastern Edison Company	89-4B	Fuel Cost Adjustment Calculation
Eastern Edison Company	11/1989	Eastern Edison Company	89-9B	Oil Conservation Adjustment Calculation
Eastern Edison Company	05/1989	Eastern Edison Company		Conservation Surcharge Adjustment
Eastern Edison Company	02/1989	Eastern Edison Company	89-4A	Fuel Cost Adjustment Calculation
Eastern Edison Company	02/1989	Eastern Edison Company	89-9A	Oil Conservation Adjustment Calculation
Eastern Edison Company	11/1988	Eastern Edison Company	88-4D	Fuel Cost Adjustment Calculation

Eastern Edison Company	11/1988	Eastern Edison Company	89-4D	Oil Conservation Adjustment Calculation
Eastern Edison Company	05/1988	Eastern Edison Company		Conservation Service Charge
McHenry Country, IL Zoning Board of Appeals				
Indeck Pleasant Valley, LLC	03/1999	Indeck Pleasant Valley, LLC	99-04	Need for a combustion turbine facility
Minnesota Public Utilities Commission				
CenterPoint Energy Minnesota Gas	11/2021	CenterPoint Energy Minnesota Gas	G-008/GR-21- 436	Class Cost of Service and Rate Design
Montana Public Service Commission				
Montana Dakota Utilities	9/28/2018	Montana Dakota Utilities	D2018.9.60	Marginal Cost of Service Study
New Brunswick Energy and Utility Board				
Enbridge Gas New Brunswick	12/2016	NB Power Company	Matter 357	Marginal Cost Pricing
Liberty Utility New Brunswick	12/2019	NB Power	Matter 458	Marginal Cost Pricing
Liberty Utilities New Brunswick	11/2021	Liberty Utilities New Brunswick	Matter 494	Natural Gas Allocated Cost of Service and Pricing Design

New Jersey Board of Public Utilities				
Public Service Electric & Gas Company	11/2021	Public Service Electric & Gas	EO21111211 / GO21111212	Cost-Benefit Analysis for Infrastructure Investments
New Mexico Public Regulation Commission				
El Paso Electric Company	07/2015	El Paso Electric Company	15-000127-UT	Cash Working Capital Study
New York Public Service Commission				
Cayuga Generating Company	11/2012	Cayuga Generating Company	12-E-0400	Reliability Must-Run Tariff Cost of Service Support
Nova Scotia Utility and Review Board				
Heritage Gas	12/2014	Heritage Gas	M06582	Allocated Cost of Service Analysis
Port Hawkesbury Paper	10/2013	Port Hawkesbury Paper	P-892/M05473	Allocated Cost-of-Service

Ontario Energy Board				
Hydro One Networks Inc. (transmission)	05/2016	Hydro One Networks Inc. (transmission)	EB-2016-0160	Cash Working Capital Studies
Entegrus Powerlines Inc.	12/2015	Entegrus Powerlines Inc.	EB-2015-0061	Cash Working Capital Study
Hydro Ottawa	10/2015	Hydro Ottawa	EB-2015-0004	Cash Working Capital Study
Kingston Hydro	09/2015	Kingston Hydro	EB-2015-0083	Cash Working Capital Study
North Bay Hydro	07/2015	North Bay Hydro	EB-2014-0099	Cash Working Capital Study
Toronto Hydroelectric System Limited	06/2014	Toronto Hydroelectric System Limited	EB-2014-0116	Cash Working Capital Study
Horizon Utilities	03/2014	Horizon Utilities	EB-2014-0002	Cash Working Capital Study
APPrO	02/2013	APPrO	EB-2012-0337	Recovery of Energy Efficiency Costs from Electric Generators
Great Lakes Power Transmission	07/2012	Great Lakes Power Transmission	EB-2012-0300	Corporate Shared Services Study
London Hydro	07/2012	London Hydro	EB-2012-146	Determination of Working Capital Requirements
London Hydro	07/2012	London Hydro	EB-2012-146	Cost Allocation of Revenue Cycle Services
Hydro One	08/2012	Hydro One	EB-2012-0031	Cash Working Capital Studies
Hydro One Networks Inc. (distribution)	12/2013	Hydro One Networks Inc. (distribution)	EB-2013-0416	Cash Working Capital Study
Ontario Energy Board	01/2012	Ontario Energy Board	EB-2012-0018	Review of the Ontario Energy Board

				Cost Assessment Model
Ontario Energy Board	11/2011	Ontario Energy Board	EB-2010-0378	Principal Author of Rate Mitigation White Paper
Public Hearings Held on Long Island				
Long Island Power Authority	05/1998	Long Island Power Authority		Non-Jurisdictional Open-Access Transmission Tariff
Puerto Rico Energy Commission				
Puerto Rico Electric Power Authority	05/16	Puerto Rico Electric Power Authority	CEPR-AP-2015-0001	PREPA General Rate Case: Pricing Design; Embedded Cost of Service; Marginal Cost of Service; and Provisional (Temporary) Rate
Puerto Rico Electric Power Authority	04/16	Puerto Rico Electric Power Authority	CEPR-AP-2016-0001	Pricing Design and Cost Recovery Mechanism for Transition Charges

Rhode Island Public Utilities Commission				
Blackstone Valley Electric Company	02/1989 06/1989 02/1990	Blackstone Valley Electric Company	1541	Fuel Adjustment Clause Calculation
Blackstone Valley Electric Company	02/1989 06/1989 02/1990	Blackstone Valley Electric Company	1856	Purchased Power Cost Adjustment Calculation
Blackstone Valley Electric Company	02/1989 06/1989 02/1990	Blackstone Valley Electric Company	1694	Oil Conservation Adjustment Calculation
Texas Public Utilities Commission				
El Paso Electric Company	08/2015	El Paso Electric Company	15-00127-UT	Cash Working Capital Study
Wisconsin Public Service Commission				
Johnson Controls, Inc., Harley-Davidson, and WICOR Energy	01/1998	Johnson Controls, Inc., Harley-Davidson, and WICOR Energy	6630-UR-110	Application of Wisconsin Electric Power Company for a Rate Increase for Electric, Gas, and Steam Service
National Association of Energy Service Companies	1/1999	Wisconsin Public Service Commission	05-BU-101	Affiliates Relations Rules