

AGUSTIN J. ROS
Principal

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Dr. Agustin J. Ros is a Principal of the Brattle Group and has 25 years of consulting and agency experience in regulatory and public utilities economics in network industries, particularly energy and telecommunications. He specializes in TFP and performance-based ratemaking, cost of service, demand studies, competition analysis and disputes, damages, and econometric modelling. He has provided dozens of expert reports before Public Utility Commissions and Federal agencies in the United States, Canada and more than a dozen countries and before the International Chamber of Commerce Arbitration Panel. Dr. Ros is an Adjunct Professor at the International Business School at Brandeis University where he teaches a course on regulatory and antitrust economics. He previously taught a similar course at Northeastern University.

Dr. Ros has worked on dozens of TFP studies involving electricity, gas and telecommunications. He worked on the early TFP studies before the Federal Communications Commission and before state PUCs involving the incumbent local telephone companies. His work continued internationally, working on TFP studies in Peru, Canada and Mexico. Dr. Ros was an expert nominated by the Alberta Public Utilities Commission to conduct a TFP study for the electricity and natural gas distributors in Alberta and assisted in developing the TFP methodology and the model that was used and accepted by the Commission in that proceeding. He recently led a TFP, cost benchmarking and stretch factor study on behalf of Hydro-Québec TransÉnergie before the Régie de l'énergie.

Dr. Ros has extensive experience estimating econometric models in consulting projects as well as in his research in peer-reviewed academic and industry journals. He has econometrically estimated electricity demand models and examined the impact of competition in retail and wholesale electricity markets in the U.S. that *Energy Journal* published. He has published additional econometric research in *Journal of Regulatory Economics*, *Review of Industrial Organization*, *Review of Network Economics*, *Telecommunications Policy*, and *Info*. Moreover, he has co-authored econometric research with one of the world's leading econometricians, Professor Jerry A. Hausman that appeared in the *Journal of Regulatory Economics* and has peer-reviewed more than a dozen econometric articles submitted to academic journals.

EDUCATION

Ph.D. Economics, University of Illinois-Urbana Champaign	1994
M.S. Economics, University of Illinois-Urbana Champaign	1991
B.A. Economics, Rutgers University-Newark	1989

TEACHING POSITIONS

Brandeis University, International Business School, <i>Adjunct Professor</i>	2016-present
University of Anahuac, Mexico City, <i>Guest Lecturer</i>	2010
Northeastern University, <i>Adjunct Instructor</i>	2000

EXPERT REPORTS, TESTIMONIES AND AFFIDAVITS

Expert report before the Régie de l'énergie on behalf of Hydro-Québec TransÉnergie, Total Factor Productivity and the X-factor for Hydro-Québec TransÉnergie, with Walter Graf, Sai Shetty and Maria Castaner, February 19, 2021.

Expert report on behalf of North Carolina Municipal Power Agency Number 1, Piedmont Municipal Power Agency, and North Carolina Electric Membership Corporation on electricity cost allocation of nuclear fleet costs, November 13, 2020.

Expert report before the Canadian Radio and Telecommunications Commission, on behalf of Bragg Communications Inc. (c.o.b. Eastlink), Cogeco Communications Inc., Rogers Communications Canada Inc., Shaw Cablesystems G.P., and Videotron Ltd., Assessment of an Expert Report by the Brattle Group Regarding Telecom Order CRTC 2019-288, with Renée M. Duplantis, Dimitri Dimitropoulos and Ian Cass, March 13, 2020.

Testimony before the State of New Hampshire Public Utilities Commission, Docket No. DE 19-057, on behalf of the Staff of the New Hampshire Public Utility Commission on electricity marginal cost of service studies, December 20, 2019.

Rebuttal Testimony before the Virginia Corporation Commission, Case No. PUR-2019-00104, on behalf of the Virginia Power Company on cost allocation of utility scale solar projects, December 19, 2019.

Testimony before the State of New Hampshire Public Utilities Commission, Docket No. DE 19-064, on behalf of the Staff of the New Hampshire Public Utility Commission on electricity marginal cost of service studies, December 6, 2019.

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Expert report on behalf of the Newfoundland and Labrador Board of Commissioners of Public Utilities: Review of Existing and Proposed Network Additions Policies for Newfoundland and Labrador Hydro, with Philip Hanser and Peal Donohoo-Vallet, November 19, 2019.

Expert report on behalf of Bragg Communications Inc. (c.o.b. Eastlink), Cogeco Communications Inc., Rogers Communications Canada Inc., Shaw Cablesystems G.P., and Videotron Ltd., Analysis of CRTC's Final Rates for Aggregated Wholesale High-Speed Access Services: Impact on Broadband Network Investment and Innovation, with Renée M. Duplantis, Dimitri Dimitropoulos and Ian Cass, November 13, 2019.

Testimony before the Virginia Corporation Commission, Case No. PUR-2019-00104, on behalf of the Virginia Electric Power Company on cost allocation of utility scale solar projects, July 1, 2019.

Expert report on behalf of the Newfoundland and Labrador Board of Commissioners of Public Utilities: Embedded and Marginal Cost of Service Review, with Philip Hanser, T. Bruce Tschusida, Pearl Donohoo-Vallet, and Lynn Zang, May 3, 2019.

Expert report on behalf of Shaw Communications before the Canadian Legislative Review Panel of the Broadcasting and Telecommunications: Analysis of BDU Contributions, ISP Taxes and Regulations in the Canadian Broadcasting and Telecommunications Industries: Economic Efficiency, Investment and Innovation, with Coleman Bazelon and Renée Duplantis, January 11, 2019.

Expert opinion on behalf of CFE International LLC before the U.S. Citizenship and Immigration Services and Department of Homeland Security: An Overview of the Mexican Energy Markets and Reforms, October 25, 2018.

Expert report on behalf of Shaw Communications before the Canadian Competition Bureau: An Analysis of Broadband Services in Canada, Competition, Regulation and Investment with Coleman Bazelon and Renée Duplantis, August 30, 2018.

Affidavit on behalf of CFE International LLC before the Federal Energy Regulatory Commission: market-based rate authority application on vertical and horizontal market power issues in U.S. electricity markets, with Judy Chang, June 13, 2018.

Expert report on behalf of the Australian Competition and Consumer Commission (ACCC), before the ACCC: International experiences in retail electricity markets, with Toby Brown, Neil Lessem, Serena Hesmondhalgh, James D. Reitzes and Haruna Fujita, June 2018

Expert report on behalf of Transportadora de Gas Natural de la Huasteca, S. de R.I. de C.V. before the Mexican Energy Regulatory Commission: expert opinion on issues related to the appropriate allowed rate of return for the TGNH pipeline, with Paul Carpenter and Bente Villadsen, May 23, 2018.

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Expert report on behalf of Infraestructura Marina del Golfo, before the Mexican Energy Regulatory Commission: expert opinion on issues related to the appropriate allowed rate of return for the IMG pipeline, with Paul Carpenter and Bente Villadsen, May 23, 2018.

Expert report on behalf of GCI Communications before the Federal Communications Commission: rate of return, cost of service and cross-subsidy analysis of GCI's Satellite-Based Services, with William Zarakas and Nicolas E. Powers, May 2018.

Expert report on behalf of GCI Communications before the Federal Communications Commission, In the Matter of Connect America Fund and Universal Service Reform, WC Docket No. 10-90 and WT Docket No. 10-208A: analysis of the FCC's Rural Health Care Program Funding and Recipients, with William Zarakas, David Kwok, and M. Elaine Cunha, September 2017.

Expert report on behalf of Teléfonos de Mexico before the Mexican Telecommunications Authority: measurement of total factor productivity for Teléfonos de Mexico, July, 2014.

Expert report on behalf of Citibank, before the Honduran Competition Commission: expert report on the competitive effects of the FICHOSA – Citibank merger, April, 2014.

Expert report on behalf of America Móvil before the Mexican Competition Commission: correcting the OECD's erroneous assessment of competition in the Mexican telecommunications sector, May 2013. With Professor Jerry A. Hausman.

Expert report on behalf of Leyde and LACTHOSA before the Honduran Competition Commission: expert report on the competitive effects of a joint venture between Leyde and LACTHOSA in the Honduran dairy sector, April 2013.

Expert report on behalf of Lowe's Mexico before the Mexican Competition Commission: economic analysis on market definition, market power and monopolistic practices in the market for home improvement products sold through superstores, October 2012.

Expert report on behalf of Comcel before the Regulatory Commission of Communications in Colombia: expert report on economic analysis of Resolution CRC 3139 2011 regarding on-net and off-net pricing and termination rates, November 9, 2011.

Expert report on behalf of ESSOSA and Puma before the El Salvador Competition Commission: expert report on the competition implications of assets sales in El Salvador, (with Ramsey Shehadeh) October 5, 2011.

Expert report on behalf of ESSOSA and Puma before the Honduran Commission for the Defense and Promotion of Competition: expert report on the competition implications of assets sales in Honduras, (with Ramsey Shehadeh) July 19, 2011.

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Testimony before the state of Illinois on behalf of Northern Illinois Gas Company, Docket No. 11-0046, surrebuttal testimony regarding market definition, market power and public interest considerations, filed April 22, 2011.

Testimony before the Alberta Public Utility Commission, Proceeding 566 Electricity Rate Regulation Initiative, update, reply and PBR review study, filed February 22, 2011.

Testimony before the Alberta Public Utility Commission, Proceeding 566 Electricity Rate Regulation Initiative, total factor productivity study, filed December 30, 2010.

Testimony before the state of Illinois on behalf of Northern Illinois Gas Company, Docket No. 09-0310, rebuttal testimony regarding market definition, market power and public interest considerations, filed August 6, 2010.

Expert report before the Commission for the Supervision of Business Competition of the Republic of Indonesia on behalf of Singapore Telecommunications Limited and Singapore Telecom Mobile, "Competitive Assessment of the Indonesian Mobile Sector," (with William E. Taylor, Nigel Attenborough and Christian Dippon), filed October 15, 2007, rebuttal report filed January 11, 2008.

Expert report before the Ministry of Economic Affairs and Development on behalf of Cable and Wireless Barbados, "An Economic Assessment of Mandating Indirect Access in Barbados," (with Michael Khyefets and Loren Adler), November 14, 2007.

Expert report before the Supervising Agency for Private Investment in Telecommunications in Peru (OSITPEL) on behalf of Telefonica de Peru, expert report on economic efficiency considerations with respect to termination rates and the impact of capacity-based charges, (with Jose Maria Rodriguez), filed October 17, 2007.

Expert report before the Canadian Radio and Telecommunications Commission (Telecom Public Notice CRTC 2006-14) on behalf of Bell Aliant Regional Communications, "Telecommunications Competition in the US: An Assessment of Wholesale Regulation Policy," (with William E. Taylor), filed March 15, 2007.

Expert report before the New York Public Service Commission (Case 06-C-0897) on behalf of Verizon New York, "Report on Competition for Retail Business Services," (with William E. Taylor and Harold Ware), filed report August 31, 2006. Supplemental Report filed October 2, 2006.

Expert report before the Telecommunications Authority of Trinidad and Tobago on behalf of Telecommunications Services of Trinidad and Tobago, response to Digicel's economic analysis of Interconnections costs and rates, filed May 12, 2006 (with Timothy Tardiff).

Expert report before the Telecommunications Authority of Trinidad and Tobago on behalf of Telecommunications Services of Trinidad and Tobago, expert report on interconnections costs in Trinidad and Tobago, filed May 4, 2006 (with Timothy Tardiff).

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Expert report before the Telecommunications Authority of Trinidad and Tobago on behalf of Telecommunications Services of Trinidad and Tobago, expert report on Benchmark Mobile Termination Rates, Evaluation of the .Econ Report, filed February 10, 2006 (with Timothy Tardiff).

Expert report before the Supervising Agency for Private Investment in Telecommunications in Peru (OSITPEL) on behalf of Telefonica de Peru, expert report on OSITPEL's imputation methodology, filed February 7, 2006 (with Jose Maria Rodriguez and Eduardo Prieto Kessler).

Expert report before the Comisión Federal de Telecomunicaciones de México, on behalf of Telcel, S.A., expert report measuring the cost Telcel incurs when providing interconnection services to operators, filed 22 June 2005.

Expert report before the Supervising Agency for Private Investment in Telecommunications in Peru (OSITPEL) on behalf of Telefonica de Peru, final report regarding the estimation of Telefonica de Peru's total factor productivity for application in the 2004-2007 price cap regime (with José María Rodríguez Ovejero and Juan Hernández García), 21 June 2004.

Expert report before the Bahamas Public Utilities Commission, on behalf of the Bahamas Telecommunications Company, "Public Consultation on the Universal Service Obligation in The Bahamas," Comments filed 24 March 2004; Reply Comments filed 10 June 2004.

Expert report before the Canadian Radio-television and Telecommunications Commission on behalf of Aliant Telecom Inc., Bell Canada, MTS Communications Inc., Saskatchewan Telecommunications and Télébec, société en commandite, Public Notice 2003-10, "A Review of Rules and Regulations Governing Bundled Telecommunications Services." filed 12 March 2004, updated report filed 26 March 2004.

Expert report before the Bahamas Public Utilities Commission, on behalf of the Bahamas Telecommunications Company, "Public Consultation on Price Control of Bahamas Telecommunications Company," 19 September 2003.

Expert report before the Comisión Federal de Telecomunicaciones de México, on behalf of the Commission, "Telmex's 2003-2006 Price Cap Tariff Proposal," expert report in arbitration regarding the renewal of the price cap plan for Telmex (with William Taylor, Georgina Martinez, and Aniruddha Banerjee), 13 December 2002.

Expert report before the Honorable Arbitration Tribunal of Fairness in Guatemala, Case No. CENAC-A-01-2002, final report in arbitration regarding call termination costs in fixed and wireless networks (with José María Rodríguez Ovejero, Laurent Bensacon, and Juan Hernández García), September 2002.

Expert report before the Federal Communications Commission on behalf of BellSouth Corporation Docket Nos. 01-338, 96-98, 98-47 Reply Declaration (with William Taylor, Aniruddha Banerjee, and Charles Zarkadas) regarding unbundling obligations of local exchange carriers. Filed 17 July 2002.

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Expert report before the Federal Communications Commission on behalf of Verizon Communications, Docket Nos. 01-339, 01-337, 02-33, Statement of 43 Economists on the Proper Regulatory Treatment of Broadband Internet Access Service, 3 May 2002.

Expert report before the New Zealand Commerce Commission on behalf of Telecom New Zealand, “Review of CostQuests’ Associates Benchmarking Survey” (with William Taylor, Greg Houston, Tom Hird, Jaime D’Almeida, and Carol Osborne), May 2002.

Testimony before the State of Illinois on behalf of Verizon North Inc. and Verizon South Inc., Docket No. 98-0195, surrebuttal testimony regarding investigation into certain payphone issues as directed in Docket 97-0225, 16 July 2001.

Expert report before the Supervising Agency for Private Investment in Telecommunications in Peru (OSIPTEL) on behalf of Telefonica de Peru, final report regarding the estimation of Telefonica de Peru’s total factor productivity for application in the 2001-2003 price cap regime (with Timothy Tardiff, José María Rodríguez Ovejero, and Juan Hernández García), 22 June 2001.

Testimony before the State of Illinois on behalf of Verizon North Inc. and Verizon South Inc., Docket No. 98-0195, rebuttal testimony regarding investigation into certain payphone issues as directed in Docket 97-0225, 20 April 2001.

Expert report before the New Zealand Commerce Commission, on behalf of Telecom New Zealand, “Costs of Telecommunications Competition Policies,” final report exploring the indirect economic costs of changing competition policy to a more regulatory approach (with Harold Ware, Timothy Tardiff, and Nigel Attenborough), May 2000.

Testimony before the State of Illinois on behalf of GTE North Incorporated and GTE South Incorporated, Docket No. 98-0195, direct testimony regarding investigation into certain payphone issues as directed in Docket No. 97-0225, 21 December 1999.

Expert report before the Federal Communications Commission on behalf of US West, An Economic and Policy Analysis of Efficient Inter-Carrier Compensation Mechanisms for ISP-Bound Traffic, 12 November 1999.

Expert report before the Pennsylvania Public Utility Commission on behalf of Bell Atlantic Pennsylvania, Promised Fulfilled: Bell Atlantic-Pennsylvania’s Infrastructure Development (with William Taylor, Charles Zarkadas, and Jaime D’Almeida), 15 January 1999.

Testimony before the State of Illinois on behalf of Illinois Gas Transmission Company, Docket No 98-0510, rebuttal testimony regarding certification of Illinois Gas Transmission Company as a Common Carrier by Pipeline and approval of rates and accounting, and for cancellation of the Certificate of Illini Carrier, LP, 11 January 1999.

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Expert report before the Spanish Regulatory Commission on behalf of Telefónica, final report “Assessment of the methodology used by Telefónica in the calculation of the prices included in the interconnection reference offer and comparison with BT’s interconnection prices” (with Nigel Attenborough, David Robinson, Yogesh Sharma, and José María Rodríguez Ovejero), October 1998.

Expert report before the Italian Regulatory Commission on behalf of Telecom Italia, final report “Volume Discounts: A Report for Telecom Italia” (with Nigel Attenborough, Andrea Coscelli, and Andrea Lofaro), October 1998.

Expert report before the Federal Communications Commission on behalf of Bell Atlantic, Docket Nos. 96-262, 94-1, 91-213, 96-263, “An Analysis of the Effects of Exchange Access Reform on Demand Stimulation” (with Charles Zarkadas), 27 April 1997.

RECENT CONSULTING ENGAGEMENTS

Consulting work on behalf of a large Mid-western electricity provider in the U.S.: Analysis of the costs to serve residential and commercial distributed generation customers and standby customers, 2019.

Consulting work on behalf of a municipal electricity provider in the U.S.: Rate Design Principles and Rate Review for electricity and water services, 2019.

Consulting report on behalf of large South American oil and gas company: Evaluation of proposal in relation to the regulation of wholesale petroleum prices, (Evaluación de las propuestas en relación con la regulación de los precios de reconocimiento), with Pedro Marin, November 13, 2019,

Consulting work on behalf of a major electricity distribution company in the U.S.: cost study and competitive pricing principles of advanced metering services, 2018-2019.

Consulting work on behalf of a Canadian electricity provider: benchmarking analysis of generation utilities in transmission and regulatory practices with respect to generation procurement practices, distributed energy resources and customer-specific pricing practices, 2018.

Consulting work on behalf of a U.S. generation and transmission electricity cooperative: embedded and marginal cost of service studies to support rate reform initiative, 2018.

Consulting work on behalf of a major electricity distribution provider in the U.S.: develop a locational distribution marginal cost-based cost of service study to support the value of distributed energy resource proceedings, 2017 - 2018.

Consulting report on behalf of major foreign electricity and gas distribution company: Rules and regulations applicable to the competitive U.S. retail electricity providers in the U.S. and Canada: A regulatory assessment, November 2017.

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Consulting report on behalf of major foreign electricity and gas distribution company: Rules and regulations applicable to the competitive U.S. retail natural gas providers in the U.S. and Canada: A regulatory assessment, November 2017.

Consulting work on behalf of the Cities of Garland, Mesquite, Plano, and Richardson appealing the decision by North Texas Municipal Water District affecting wholesale water rates, Texas PUC Docket No. 46662 and SOAH Docket No. 473-17-4964.WS: economic analysis of whether wholesale water rate charged by the District adversely affects the public interest and rate design issues., 2017 – 2018.

Consulting work on behalf of a major electricity distribution company in the U.S.: cost study and competitive pricing principles of advanced metering services, 2015 - 2016.

Consulting report for the Mexican National Center for the Control of Natural Gas: Electricity demand forecast for the National Mexican Electricity System for the period 2017-2030. December 2016. With Veronica Irastorza and Elvira Creel.

Consulting report for the Mexican Secretariat of Communications and Transport: “Econometric demand study of fixed and mobile broadband and telephony services and Pay-TV services using discrete choice analysis.” January 2016. With Kenneth Train and Douglas Umaña.

Consulting report for the Mexican Secretariat of Energy, CFE horizontal generation split analysis: recommended number of CFE gencos. September 2015. With Hamish Fraser and Willis Geffert.

Consulting report for the Mexican Secretariat of Energy, CFE horizontal generation split analysis: Recommended optimal portfolio mix for the CFE gencos. September 2015. With Hamish Fraser and Willis Geffert.

Consulting report for the Mexican Secretariat of Energy, CFE horizontal generation split analysis: Identification of relevant markets within the Mexican wholesale electricity markets. August 2015. With Hamish Fraser and Willis Geffert.

Consulting report for the Mexican Secretariat of Energy: Vesting contract criteria and methodology report. July 2015. With Hamish Fraser, Gene Meehan and Kurt Strunk.

RECENT PRESENTATIONS

Presentation before the National Association of Regulatory Utility Commissioners (NARUC): Cost of Service Allocation in a New Era, February 9, 2020.

Presentation before Rutgers University’s Center for Research in Regulated Industries, Advanced Workshop: “Empirical Assessment of the Demand for Residential Solar Distributed Generation and the Impact of Electricity Rate Design Reform, January 17, 2020.

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Presentation before the Harvard Electricity Policy Group: Rate Design and Low Income Consumers June 12, 2019.

Presentation before Rutgers University Center for Research in Regulated Industries Eastern Conference: “Does Electricity Competition Work for Residential Customers?” May 30, 2019.

Presentation before Rutgers University’s Center for Research in Regulated Industries, Advanced Workshop: “Residential Electricity Competition at a Crossroads,” February 15, 2019.

Presentation before the EEI Electric Rates Advanced Course, “Introduction to Embedded Cost of Service,” with Phil Q Hanser, July 2018.

Presentation before the EEI Electric Rates Advanced Course, “Introduction to Marginal Cost of Service,” with Phil Q Hanser, July 2018.

Presentation before the Public Collaborative for the Puerto Rico Electricity System, “Introduction to Utility Regulation,” with Karl McDermott, July 19, 2018.

Presentations before the Public Collaborative for the Puerto Rico Electricity System, “Introduction to Electricity System Planning,” with Karl McDermott, July 19, 2018.

Presentation before the Public Collaborative for the Puerto Rico Electricity System, “Ownership Structure, Contracting Process and Wholesale Markets,” with Karl McDermott, July 19, 2018.

Presentation before Rutgers University Center for Research in Regulated Industries Eastern Conference: “Marginal cost of service: electricity distribution locational marginal costs, with Phillip Q Hanser and T. Bruce Tsuchida, June 8, 2018.

Presentation before the World Forum on Energy Regulation, Cancun Mexico: “Rate design helping facilitate change in electricity markets,” March 2018.

Presentation before Rutgers University’s Center for Research in Regulated Industries, Advanced Workshop: “Utility of the future and cost of service: challenges and opportunities,” January 2018.

Presentation before Rutgers University’s Center for Research in Regulated Industries, 36th Annual Eastern Conference: “The evolving electricity distribution network – technological, competitive and regulatory implications.” May 2017.

Presentation before Rutgers University’s Center for Research in Regulated Industries, Advanced Workshop: “Costing and pricing of electricity smart grid service offerings and competitive implications.” January 2017.

Presentation before Rutgers University's Center for Research in Regulated Industries, 35th Annual Eastern Conference: "Determinants of total factor productivity in the U.S. electricity sector and the effects of performance-based regulation." May 2016.

Presentation before Rutgers University's Center for Research in Regulated Industries, Advanced Workshop: "merger theory and practice in the U.S. electricity sector." January 2016.

PUBLICATIONS

"Does electricity competition work for residential consumers? Evidence from demand models for default and competitive electricity services." *The Journal of Regulatory Economics* 58:1-32 (2020).

"Economic framework for compensating distributed energy resources: Theory and practice." (with Romkaew Broehm and Philip Hanser), *The Electricity Journal* 31(8): 14-22 (2018).

"The future of the electric grid and its regulation: Some considerations," *The Electricity Journal* 31(2): 18-25 (2018).

"An Econometric Assessment of Electricity Demand in the United States using Utility-Specific Panel Data and the Impact of Retail Competition on Prices." *The Energy Journal* 38(4): 73-99 (2017).

"An Econometric Assessment of Telecommunications Prices and Consumer Surplus in Mexico using Panel Data." (with Jerry A. Hausman), *Journal of Regulatory Economics*, vol. 43:284-304 (2013).

"Corrección de la Evaluación Errónea de la OCDE Acerca de la Competencia en el Sector de las telecomunicaciones en México." (con Jerry Hausman), *El Trimestre Económico* (2013).

"The Impact of Asymmetric Mobile Regulation in Colombia." (with Douglas Umana), *Info*, vol. 15 No. 3:54-65 (2013).

"Correcting the OECD's Erroneous Assessment of Telecommunications Competition in Mexico." (with Jerry A. Hausman), *CPI Antitrust Chronicle* June 2012.

"North American Performance-Base Regulation for the 21st Century." (with Jeff D. Makhholm and Stephen Collins), *Electricity Journal* vol. 25, Issue 4, May 2012.

"The Determinants of Pricing in the Mexican Domestic Airline Sector: The Impact of Competition and Airport Congestion." *Review of Industrial Organization* vol. 38:1 (2011), pp 43-60.

"Anticipating Merger Guidelines from Mexico's Commission on Competition." (with Elizabeth M. Bailey), *International Antitrust Bulletin* vol. 4, (2010).

“X-factor Updating and Total Factor Productivity Growth: The Case of Peruvian Telecommunications, 1996-2003.” (with Jeffrey I. Bernstein, Juan Hernandez and Jose Maria Rodriguez), *Journal of Regulatory Economics*, vol. 30:3 (2006), pp 316-342.

“Crecimiento de la demanda por servicios de comunicación móviles. Mitos y realidades (International Mobile Demand Growth: Myths and Reality)” (with Aniruddha Banerjee), *AHCIET Móvil* (September 2005).

“Concepto de costes básicos para la modelización entelecomunicaciones (Basic Economic Cost Concepts for Telecommunications Cost Modeling), *Perspectivas en Telecomunicaciones* (Perspectives in Telecommunications) (July 2005).

“Drivers of Demand Growth for Mobile Telecommunications Services: Evidence from International Panel Data.” (with Aniruddha Banerjee), in *Global Economy and Digital Society*, Elsevier (2004).

“Patterns in Global Fixed and Mobile Telecommunications Development: A Cluster Analysis.” (with Aniruddha Banerjee), *Telecommunications Policy*, vol. 28 (2004), pp. 107-132.

“The Impact of the Regulatory Process and Price Cap Regulation in Latin American Telecommunications Markets.” *Review of Network Economics*, vol. 2 (2003), pp. 270-286.

“Does Employee Ownership Motivate Workers? Worker Effort, Shirking and Horizontal Monitoring in ESOP.” *The Determinants of the Incidence and the Effects of Participatory Organizations*, *Advances in the Economic Analysis of Participatory and Labor Management*, edited by Takao Kato and Jeffrey Pliskin, Elsevier Science, vol. 7 (2003).

“The Internet: Market Characteristics and Regulatory Conundrums.” (with Aniruddha Banerjee), *Forecasting the Internet: Understanding the Explosive Growth of Data Communications*, edited by David G. Loomis and Lester D. Taylor, Kluwer Academic Publishers (2002), pp. 187-216.

Profits for All? The Costs and Benefits of Employee Ownership, Nova Science Publishers, (2001).

“Are Residential Local Exchange Prices Too Low? Drivers to Competition in the Local Exchange Market and the Impact of Inefficient Prices.” (with Karl McDermott), in *Expanding Competition in Regulated Industries*, edited by Michael Crew, Kluwer Academic Publishers (2000), pp. 149-168.

“Telecommunications Privatization and Tariff Rebalancing: Evidence from Latin America.” (with Aniruddha Banerjee), *Telecommunications Policy*, vol. 24 (2000), 233-252.

“Utility Regulation in Latin America.” (with Leonardo Giacchino, Cesar Herrera, Siôn Jones, Phillip Maggs, and Kristina Sepety), *Privatisation International*, edited by Mark Baker, vol. 2 (2000).

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“Essential Facilities, Economic Efficiency, and a Mandate to Share: A Policy Primer.” (with Karl McDermott, Kenneth Gordon, and William Taylor), Edison Electric Institute (January 2000).

“Does Ownership or Competition Matter? The Effects of Telecommunications Reform on Network Expansion and Efficiency.” *Journal of Regulatory Economics*, vol.15 (1999), pp. 65-92.

“Telecommunication Restructuring in Brazil: Issues and Options (A Report Based on the Proceedings of the U.S./Brazil Aspen Global Forum).” International Center for Public Administration and Policy Institute for Policy Research and Implementation, Graduate School of Public Affairs, University of Colorado at Denver (December 1997).

“When, Where and How? Implementing Effective Telecommunications Competition & Regulatory Policy.” *Journal of Project Finance* (Winter 1997).

“Telecommunications in Brazil: Restructuring and Privatization” (et. al.), A Report Based on the Proceedings of the Brazil/U.S. Aspen Global Forum, International Center for Public Administration and Policy Institute for Policy Research and Implementation, Graduate School of Public Affairs, University of Colorado at Denver, August (1997).

“Another Look at What’s Driving Utility Stock Prices.” (with John L. Damagalski and Philip R. O’Connor), *Public Utilities Fortnightly* (January 1997).

“Regulatory Change and the Dismantling of the Bottleneck.” Tenth NARUC Biennial Regulatory Information Proceedings (October 1996).

“Stranded Costs: Is the Market Paying Attention? A Look at Market-to-Book Ratios.” (with John L. Damagalski and Philip R. O’Connor), *Public Utilities Fortnightly* (May 1996).

“The Gas Storage Market: What Does it Tell Us?” (with Ruth Kretschmer), *Public Utilities Fortnightly* (April 1996).

“Incentive Ratemaking in Illinois: The Transition to Competitive Markets” (with Terry S. Harvill), *Public Utilities Fortnightly* (July 1995).

Mr. Sai Shetty is a Research Associate at The Brattle Group with experience in the regulation and economics of the energy sector. With a background in econometrics, his work focuses on the application of econometric principles to understand outcomes in electricity markets. Mr. Shetty has worked with electric utilities on innovative pricing strategies to estimate customer load impacts attributed to pricing pilots and in performance based regulation to help quantify productivity growth in the electric transmission industry. Mr. Shetty has also been involved in projects estimating demand for electric vehicles and residential solar photovoltaics; analysis of the Value of Lost Load (VoLL) to study the cost of electricity outages using a statistical approach based on historic data; and estimating cross-subsidies as a result of Net Energy Metering based on alternative electric rate designs.

Mr. Shetty previously worked as a decision analyst at a US based healthcare consulting firm from 2015 – 2017, focusing on pricing analytics for specialty drugs. Mr. Shetty holds a M.S. degree in Economics from the University of Wisconsin – Madison and a B.Tech degree in Chemical Engineering from the National Institute of Technology Karnataka, India.

AREAS OF EXPERTISE

- ◆ *Demand Side Management*
- ◆ *Econometric Estimation and Forecasting*
- ◆ *Pilot Design and Impact Evaluation*
- ◆ *Rate Design*
- ◆ *Performance Based Regulation*

SELECTED EXPERIENCE

- **Impact Evaluation of Time-of-Use (TOU) Pilot.** Assisted three utilities in Maryland in quantifying the residential load impacts over the first summer of a three-year TOU pricing pilot. Conducted econometrics analysis to study residential customers' load patterns and isolate the effect of the pilot in the presence of exogenous factors that affect load consumption. Estimated demand elasticities quantifying customer's load shifting behavior in response to price signals.
- **Alternative Rate Design for Net Energy Metering (NEM) Customers.** Formulated rate design structures as part of a Maryland utility's efforts to understand the cross-subsidy between solar and non-solar customers. Analyzed alternatives to the standard volumetric pricing strategies in a bid to reduce the cross-subsidy and make residential electric rates more reflective of cost drivers.
- **US Electric Vehicle (EV) Demand Estimation.** For a large utility in Maryland, assisted with the building of a vast dataset consisting of US EV sales related data. Used econometric estimation techniques to model EV adoption in the US as a part of the company's efforts to understand the levers that drive EV sales. Leveraged the model to forecast EV sales in Maryland to gauge EV performance against the State's Zero Emission Vehicle (ZEV) mandate.
- **Revenue Cap Mechanism for Electric Transmission.** As part of a regulatory rate case proceeding, assisted a large Canadian utility to study total factor productivity (TFP) trends for transmission

companies. Built a model that calculates TFP growth for a sample of US utilities involved in transmission services, which provide a benchmark to compare the utility's productivity.

- **Value of Lost Load Estimation.** Assisted a large Southern electric utility with the quantification of the value of lost load (VoLL) to help the company better understand customers' valuation of electric power service and drive investment decisions. This involved econometric techniques to model costs incurred by customers in the event of an outage as a function of various demographic and economic factors, which was then used to predict the VoLL for a given customer class profile.
- **Review of Energy Efficiency Forecasts for IRP Purposes.** Conducted a thorough review of demand side management programs implemented in the continental US to inform realistic forecasts of energy efficiency with the purpose of modeling net load projections for a large Caribbean utility and compare with those published in their IRP.
- **Analysis of Electric Transmission Networks for Ratemaking.** In a litigation proceeding involving electric transmission rates, assisted a renewable energy company in analyzing historical power flows and loads on a transmission owner's network in order to ascertain the degree of integration between systems of varying voltages for the purpose of cost recovery through rates.