

Jeff Makholm *Voir Dire*

Dr. Jeff D. Makholm has extensive experience in pricing, regulation and market issues for regulated energy infrastructure industries. He has consulted for firms, governments, regulatory agencies or collective interest groups on the issues of competition, rate/toll design, formula rates, cost of capital, regulatory rulemaking, incentive ratemaking, load forecasting, least-cost planning, cost measurement, contract obligations and bankruptcy.

He has appeared as an expert witness in public utility rate cases and has testified before administrative and civil law courts on more than 300 occasions.

He publishes extensively on regulatory matters for the energy supply industry (with more than 100 publications).

Dr. Makholm has extensive experience in Canadian/US tariff/rate case settings, including cost of service, tariff/rate design and the regulatory rules that apply to tariff/rate setting. He is familiar with all aspects of incentive-based, and formula-based tariff/rate setting.

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Dr. Makhholm concentrates on the issues surrounding the market and regulation for energy (electricity and gas), transportation (road and rail), and mining —those that operate networks (pipelines, electricity transmission networks, rail and road networks, telecommunications and water utility systems) and those operating infrastructure business at specific sites, such as mines, hydrocarbon rigs, oil refineries, electricity generation plants, oil and gas storage facilities, gas treatment plants, sewage treatment plants and airports. These issues include the broad categories of project valuation, efficient pricing, market definition, traded commodity valuation, and the components of reasonable regulatory practices. Specific valuation issues in the extractive industries include the value of permits for include the right to explore and develop natural resources and the exchange-traded spot, hedged and transported value of commodities. Specific pricing issues include tariff design, incentive ratemaking, and the unbundling of prices and services, and analysis of energy commodities markets (including derivative markets comprising forwards, futures and swaps for commodities and liquefied natural gas—LNG). Issues of market definition include assessments of mergers, including the identification and measurement of market power. Issues of reasonable regulatory practices include the creation of credible and sustainable accounting rules for ratemaking as well as the establishment of administrative procedures for regulatory rulemaking and adjudication. On such issues among others, Dr. Makhholm has prepared expert testimony, reports and statements, and has appeared as an expert witness in more than 300 proceedings in state, provincial and federal civil and administrative regulatory proceedings in the United States and Canada, and before civil courts, international arbitrations tribunals, regulatory bodies and Parliamentary panels abroad.

Dr. Makhholm's clients in the United States include privately held oil, gas and utility corporations, rail companies, public corporations, government agencies and consumer groups. He has represented dozens of gas and electric distribution utilities, as well as both intrastate and interstate oil and gas pipeline companies and oil, gas and electricity producers. Dr. Makhholm has also worked with many leading law firms engaged in issues pertaining to the local and interstate regulation of energy utilities.

Internationally, Dr. Makhholm has directed an extensive number of projects in the mining, utility and energy transportation businesses in 20 countries on six continents. These projects have involved work for investor-owned and regulated businesses as well as for governments and the World Bank. These projects have included advance pricing and regulatory work prior to major gas, railroad and toll highway privatizations (Poland, Argentina, Bolivia, Mexico, Chile and Australia), gas industry restructuring and/or pricing studies (Canada, China, Spain, Morocco, Mexico and the United Kingdom), utility mergers and market power analyses (New Zealand), gas development and and/or contract and financing studies (Tanzania, Egypt, Israel and Peru), regulatory studies (Chile, Argentina), and oil pipeline transport financing and regulation (Russia). As part of this work, Dr. Makhholm has prepared reports, drafted regulations and conducted training sessions for many government, industry and regulatory personnel.

Dr. Makhholm has more than 100 publications in various peer-reviewed and editor-reviewed journals (*Climate and Energy*, *Review of Environmental Economics and Policy*, *Economics of Energy & Environmental Policy*, *Public Utilities Fortnightly*, *Natural Gas and Electricity*, *The Electricity Journal*, *The Energy Law Journal*, and *Competition and Regulation in Network Industries*)—involving a wide range of subjects pertaining to his research work. His latest book, *The Political Economy of Pipelines: A Century of Comparative Institutional Development*, was published by the University of Chicago Press in 2012 and re-issued in Chinese in 2016 by Beijing's Petroleum Institute Press. He is a frequent speaker at US and International conferences and seminars addressing market, pricing and regulatory issues for the energy, commodities and transportation sectors.

EDUCATION

UNIVERSITY OF WISCONSIN-MADISON,
MADISON, WISCONSIN
Ph.D., Economics, 1986
Dissertation: Sources of Total Factor Productivity in the Electric Utility Industry
M.A., Economics, 1985

BROWN UNIVERSITY
PROVIDENCE, RHODE ISLAND
Graduate Study, 1980-1981

UNIVERSITY OF WISCONSIN-MILWAUKEE
MILWAUKEE, WISCONSIN
M.A., Economics, 1980
B.A., Economics, 1978

EMPLOYMENT

1996-present Senior Managing Director/Senior Vice President. National Economic Research Associates, Inc., (NERA) Boston, Massachusetts.

1986-1996 Vice President/Senior Consultant. National Economic Research Associates, Inc., (NERA) Boston, Massachusetts.

1987-1989 Adjunct Professor. College of Business Administration, Northeastern University, Boston, Massachusetts

1984-1986 Consulting Economist. National Economic Research Associates, Inc., (NERA) Madison, Wisconsin.

1983-1984 Consulting Economist. Madison Consulting Group, Madison, Wisconsin.

1981-1983 Staff Economist. Associated Utility Services, Inc., Moorestown, New Jersey.

TESTIMONY SINCE 1981

Before the Connecticut Public Utilities Regulatory Authority, Docket No. 24-12-01, Rebuttal Testimony on Behalf of Yankee Gas Services Company D/B/A Eversource Energy to Amend its Rate Schedules, April 11, 2025. Subject: Regulatory risk premium.

Before Independent Arbitration under the Alberta Arbitration Act, In the matter between Petrogas Energy Corp. and Enbridge Pipelines Inc., Witness Statement for Petrogas, December 20, 2024. Subject: Reasonable oil pipeline cost allocation and toll design.

Before the Connecticut Public Utilities Regulatory Authority, Docket No. 24-12-01, Testimony on Behalf of Yankee Gas Services Company D/B/A Eversource Energy to Amend its Rate Schedules, November 12, 2024. Subject: Regulatory risk premium.

Before the Connecticut Public Utilities Regulatory Authority, Docket No. 24-06-02, Testimony on Behalf of GennConn Energy LLC for Establishment of 2025 Revenue Requirements, June 28, 2024. Subject: Return on capital methodology.

Before the Public Utilities Commission of the State of Rhode Island, Docket No. 23-49-NG, Testimony on Behalf of the Division of Public Utilities and Carriers, February 9, 2024. Subject, proper depreciation of capital additions in light of considerations involving the effect of the “energy transition” on local gas distributor operations.

Before the Alberta Energy Regulator, Proceeding No. 432, in the matter of Reconsideration No. 1940992 concerning Amended Application No. 1932335, 24 January 2024. Report (with Laura T. W. Olive) on behalf of Plains Midstream Canada ULC, Pembina Pipeline Corporation, and SECURE Energy Services, Inc. Subject: Public interest considerations related to existing pipelines and prospective land development.

Before the Alberta Utilities Commission, Proceeding 27388, 2024-2028 Performance-Based Regulation Plan for Alberta Electric and Gas Distribution Utilities, January 17, 2023. Subject: Independent expert to update Total Factor Productivity (TFP) study used for PBR 1 plans in Alberta.

Before the Surface Transportation Board, STB Finance Docket No. 36500 (re: proposed merger of Canadian Pacific and Kansas City Southern), Verified Statement on Behalf of Canadian National Railway Company, June 9, 2022. Subject: Proper use of railroad statistical operational data in a merger application.

Before the State Corporation Commission of Kansas, Reply Testimony on behalf of the Kansas Industrial Group, Docket No. 22-NETE-419-COC, May 27, 2022. Subject: State certification of transmission capacity.

Before the State Corporation Commission of Kansas, Direct Testimony on behalf of the Kansas Industrial Group, Docket No. 22-NETE-419-COC, May 17, 2022. Subject: State certification of transmission capacity.

Before the Before the Régie de l’Energie, Direct Testimony on behalf of Hydro-Québec TransÉnergie, Docket No. R-4167-2021, February 25, 2022, Structure of a forecast-based PBR plan for capital additions.

Before the Superior Court of California, County of Los Angeles, Expert Report of Jeff D. Makholm on behalf of Developer Plaintiffs in Shapell Properties Inc et al. v. So Cal Gas Company et al., February 7, 2022. Subject: Regulatory common law and common law duties of public utilities.

Before the Ontario Superior Court of Justice, Rebuttal Expert Report of Jeff D. Makholm and Faten Sabry in Support of TransAlta in The Mangrove Partners Master Fund, Ltd. (“Plaintiff”) v. TransAlta Corporation, Brookfield BRP Holdings (Canada) Inc., et al. (CV-19-00618554-000), March 22, 2021, Subject: Minority shareholder dispute.

TESTIMONY SINCE 1981 CONTINUED

Before the United States Bankruptcy Court Southern District of Texas Houston Division, Declaration in support of Gulfport Energy Corporation's Reply in Support of Motion for Entry of an Order (I) Authorizing Rejection of Certain Negotiated Rate Firm Transportation Agreements and Related Contracts Effective as of the Petition Date and (II) Granting Related Relief with TC Energy Effective as of the Petition Date, Case No. 20-35562-11, February 3, 2021. Subject: Response to objection to reject a gas pipeline firm transportation agreement in bankruptcy.

Before the United States Bankruptcy Court Southern District of Texas Houston Division, Declaration in support of Gulfport Energy Corporation's Reply in Support of Motion for Entry of an Order (I) Authorizing Rejection of the Firm Transportation Negotiated Rate Agreement with Rover Pipeline Company and Related Contracts Effective as of the Petition Date and (II) Granting Related Relief, Case No. 20-35562-11, February 3, 2021. Subject: Response to objection to reject a gas pipeline firm transportation agreement in bankruptcy.

Before the Canadian Energy Regulator, Reply Testimony in support of the Canadian Shippers Group in Enbridge Pipelines Inc. Canadian Mainline Contracting Application, Hearing Order RH-001-2020, December 7, 2020. Subject: Economic effects of a switch from common carriage to contract carriage on the largest pipeline originating in the Western Canada Sedimentary Basin (WCSB).

Before the Federal Energy Regulatory Commission, Reply Declaration in support of Gulfport Energy Corporation's Rebuttal Submission in response to Rover Pipeline LLC, Docket No. RP20-1233, October 26, 2020. Subject: Public interest matters related to abrogation or modification of gas pipeline contracts.

Before the Federal Energy Regulatory Commission, Reply Declaration in support of Gulfport Energy Corporation's Rebuttal Submission in response to ANR Pipeline Company, Columbia Gas Transmission, LLC, and Colombia Gulf Transmission LLC, Docket No. RP20-1236, October 26, 2020. Subject: Public interest matters related to abrogation or modification of gas pipeline contracts.

Before the Federal Energy Regulatory Commission, Declaration in support of Gulfport Energy Corporation's Motion to Intervene and Initial Submission responding to the Order on Petition for Declaratory Order filed by Rover Pipeline LLC, Docket No. RP20-1233, October 19, 2020. Subject: Public interest matters related to abrogation or modification of gas pipeline contracts.

Before the Federal Energy Regulatory Commission, Declaration in support of Gulfport Energy Corporation's Motion to Intervene and Initial Submission responding to the Order on Petition for Declaratory Order filed by ANR Pipeline Company, Columbia Gas Transmission, LLC, and Colombia Gulf Transmission LLC, Docket No. RP20-1236, October 19, 2020. Subject: Public interest matters related to abrogation or modification of gas pipeline contracts.

Before the Federal Energy Regulatory Commission, Declaration in support of Gulfport Energy Corporation's Motion to Intervene and Initial Submission responding to the Order on Petition for Declaratory Order filed by Midship Pipeline Company, LLC, Docket No. RP20-1237, October 16, 2020. Subject: Public interest matters related to abrogation or modification of gas pipeline contracts.

Before the Federal Energy Regulatory Commission, Reply Declaration in support of Gulfport Energy Corporation's Rebuttal Submission in response to Rockies Express Pipeline, LLC Direct Case, Docket No. RP20-1220, October 16, 2020. Subject: Public interest matters related to abrogation or modification of gas pipeline contracts.

Before the Federal Energy Regulatory Commission, Declaration in support of Gulfport Energy Corporation's Motion to Intervene and Initial Submission responding to the Order on Petition for Declaratory Order filed by Rockies Express Pipeline, LLC, Docket No. RP20-1220, October 9, 2020. Subject: Public interest matters related to abrogation or modification of gas pipeline contracts.

Before the United States Bankruptcy Court for the District of Delaware, Declaration in support of

TESTIMONY SINCE 1981 CONTINUED

Extraction Oil & Gas, Inc's Omnibus Motion for Entry of An Order (1) Authorizing Rejection of Unexpired Leases of Nonresidential Real Property and Executory Contracts, Case No. 20-11548, September 21, 2020. Subject: Response to objection to reject oil pipeline transportation services agreements with Grand Mesa Pipeline, LLC in bankruptcy.

Before the United States Bankruptcy Court for the District of Delaware, Declaration in support of Extraction Oil & Gas, Inc's Omnibus Motion for Entry of An Order (1) Authorizing Rejection of Unexpired Leases of Nonresidential Real Property and Executory Contracts, Case No. 20-11548, September 18, 2020. Subject: Response to objection to reject oil pipeline transportation services agreements with Platte River Midstream, LLC and DJ South Gathering, LLC in bankruptcy.

Before the United States Bankruptcy Court Southern District of Texas Houston Division, Declaration in support of Ultra Petroleum Inc.'s Reply in Support of Motion for Entry of an Order Authorizing Rejection of the Firm Transportation Negotiated Rate Agreement with Rockies Express Pipeline LLC Effective as of the Petition Date, Case No. 20-32631, July 2, 2020. Subject: Response to objection to reject a gas pipeline firm transportation agreement in bankruptcy.

Before the United States District Court for the District of Columbia, Second Declaration in Support of Dakota Access, LLC Brief of the Question of Remedy in Standing Rock Sioux Tribe v. United States Army Corps of Engineers, Case No. 1:16-cv-1534-JEB (and Consolidated Case Nos. 16-cv-1796 and 17-cv-267), May 27, 2020. Subject: Response to motion to vacate an easement while the Army Corps of Engineers conducts an environmental impact statement.

Before the Illinois Commerce Commission, Declaration in Support of Motion of Dakota Access, LLC and Energy Transfer Crude Oil Company, LLC. Answer in Opposition to the Petition for Interlocutory Review, Docket No. 19-0673, May 19, 2020. Subject: Authority to expanding pumping capacity on Certificated Pipelines in the State of Illinois.

Before the United States District Court for the District of Columbia, Declaration in Support of Dakota Access, LLC Brief of the Question of Remedy in Standing Rock Sioux Tribe v. United States Army Corps of Engineers, Case No. 1:16-cv-1534-JEB (and Consolidated Case Nos. 16-cv-1796 and 17-cv-267), April 29, 2020. Subject: Response to motion to vacate an easement while the Army Corps of Engineers conducts an environmental impact statement.

Before the United States District Court for the District of Nebraska, Expert Report in Laredo Ridge Wind, LLC; Broken Bow Wind, LLC; and Crofton Bluffs Wind, LLC v. Nebraska Public Power District, Case No. 8:19-cv-45. Subject: Change of control/assignment of contract right provisions in a contract for wind generation.

Before the Illinois Commerce Commission, Supplemental Surrebuttal Testimony on behalf of Dakota Access, LLC and Energy Transfer Crude Oil Company, LLC., Docket No. 19-0673, February 25, 2020. Subject: Authority to expanding pumping capacity on Certificated Pipelines in the State of Illinois.

Before the United States District Court for the District of Nebraska, Declaration in Opposition to the Project Entities' Motion for Summary Judgment in Laredo Ridge Wind, LLC; Broken Bow Wind, LLC; and Crofton Bluffs Wind, LLC v. Nebraska Public Power District, Case No. 8:19-cv-45, February 11, 2020. Subject: Change of control/assignment of contract right provisions in a contract for wind generation.

Before the Illinois Commerce Commission, Surrebuttal Testimony on behalf of Dakota Access, LLC and Energy Transfer Crude Oil Company, LLC., Docket No. 19-0673, January 17, 2020. Subject: Authority to expanding pumping capacity on Certificated Pipelines in the State of Illinois.

TESTIMONY SINCE 1981 CONTINUED

Before the Public Service Commission of the State of North Dakota, Direct Testimony on behalf of Dakota Access, LLC, November 13, 2019. Subject: Siting Application for new pumping facilities to expand capacity.

Before the Illinois Commerce Commission, Rebuttal Testimony on behalf of Dakota Access, LLC and Energy Transfer Crude Oil Company, LLC., Docket No. 19-0673, October 22, 2019. Subject: Authority to expanding pumping capacity on Certificated Pipelines in the State of Illinois.

Before the Illinois Commerce Commission, Surrebuttal Testimony on behalf of NextEra Energy Transmission MidAtlantic, Inc., Docket No. 18-0843, June 21, 2019. Subject: Certificate of Public Convenience and Necessity for electricity transmission asset purchase.

In the United States District Court for the Eastern District of New York, Case No.: 17 CIV. 5787 (WFK) (SJB), Expert Declaration on behalf of Just Energy Group, Inc., April 30, 2019. Subject: Pricing for retail energy supply.

Before the Massachusetts Department of Public Utilities, Case No. D.P.U. 18-150 (Massachusetts Electric Company and Nantucket Electric Company), Sur-Rebuttal Testimony on behalf of Cumberland Farms, Global Partners, etc., April 30, 2019. Subject: Electric vehicle charging incentive program.

Before the Illinois Commerce Commission, Rebuttal Testimony on behalf of NextEra Energy Transmission MidAtlantic, Inc., Docket No. 18-0843, March 28, 2019. Subject: Certificate of Public Convenience and Necessity for electricity transmission asset purchase.

Before the Massachusetts Department of Public Utilities, Case No. D.P.U. 18-150 (Massachusetts Electric Company and Nantucket Electric Company), Direct Testimony on behalf of Cumberland Farms, Global Partners, etc., March 22, 2019. Subject: Electric vehicle charging incentive program.

In the United States District Court for the District of Puerto Rico, PROMESA Title III, Case No. 17 BK 3283-LTS and Case No 17 BK 4780-LTS, Expert Declaration on behalf of Movants, February 25, 2019. Subject: Value of receiver in the bankruptcy of the Puerto Rico Electric Power Authority (PREPA).

In the Matter of the Arbitration and Conciliation Act, Cap. A18 Laws of the Federation of Nigeria, 2004, Addax Petroleum Development (Nigeria) Limited, Claimant, vs. Chevron Nigeria Limited, Respondent, Expert Report on behalf of Chevron Nigeria Limited, February 22, 2019. Subject: Value of crude oil.

Before the Federal Energy Regulatory Commission, Comments on behalf of the Interstate Natural Gas Association of America (INGAA) in the Matter of the FERC Notice of Inquiry Regarding Certification of New Interstate Gas Facilities, Docket No. PL18-1-000, July 25, 2018.

Before the Ontario Energy Board, Expert Report and Direct Testimony in case EB-2017-0307 on behalf of Enbridge Gas Distribution and Union Gas Limited regarding support of the productivity offset (the *X-factor*) to be used in the price cap formula that will apply to the two distribution businesses for the upcoming deferred rebasing periods, November 23, 2017.

Before the International Court of Arbitration, Case No. 19576/CA/ASM, Drummond Coal Mining LLC (DCM), et al, Respondents/Counterclaimants, vs. Ferrocarriles del Norte de Colombia S.A., Claimant/Counter-Respondent, Third Expert Report, 1 November 2017. Subject: Market values of mining export losses due to imposed constraints on capacity.

TESTIMONY SINCE 1981 CONTINUED

Before the New York State Public Service Commission, Rebuttal Testimony on behalf of the Retail Energy Supply Association (RESA). October 27, 2017. Subject: Provide perspective regarding the operation of retail energy markets in New York state.

Before the New York State Public Service Commission, Direct Testimony on behalf of the Retail Energy Supply Association (RESA). September 15, 2017. Subject: Provide perspective regarding the operation of retail energy markets in New York state.

Before the International Court of Arbitration, Case No. 19576/CA/ASM, Drummond Coal Mining LLC (DCM), et al, Respondents/Counterclaimants, vs. Ferrocarriles del Norte de Colombia S.A., Claimant/Counter-Respondent, Second Expert Report, 29 August 2017. Subject: Response to alleged damages claimed as a result of failure to meet contractual rail shipment obligations.

Before the Michigan Public Service Commission, Direct Testimony on behalf of Constellation NewEnergy Inc., Case No U-18248. DTE Electric Company. July 21, 2017. Subject: Economic analysis of proposed charges for electricity capacity in Michigan.

Before the Michigan Public Service Commission, Direct Testimony on behalf of Constellation NewEnergy Inc., Case No U-18239. Consumer's Energy Company. July 17, 2017. Subject: Economic analysis of proposed charges for electricity capacity in Michigan.

Before the International Court of Arbitration, Case No. 19576/CA/ASM, Drummond Coal Mining LLC (DCM), et al, Respondents/Counterclaimants, vs. Ferrocarriles del Norte de Colombia S.A., Claimant/Counter-Respondent, Expert Report, 20 June 2017. Subject: Market values of mining export losses due to imposed constraints on capacity.

Before the National Energy Board, Expert Report and Reply Testimony on behalf of Plains Midstream Canada ULC. Hearing Order RH-002-2016, May 15, 2017. Subject: Proper cost allocation for liquid fuel pipeline tariffs.

Before the National Energy Board, Expert Report and Direct Testimony on behalf of Plains Midstream Canada ULC. Hearing Order RH-002-2016, November 2016. Subject: Proper cost allocation for liquid fuel pipeline tariffs.

Before the Supreme Court of the State of New York, County of New York, Expert Testimony on behalf of plaintiffs in: S.A. de Obras y Servicios, Copasa and Cointer Chile, S.S. and Azvi Chile, S.A. Agencia en Chile, Plaintiffs v. The Bank of Nova Scotia and Scotiabank Capital, IAS Part 49, Index No. 651649/2013 and 651555/2012. August 10, 2016, Subject: Value of P3 toll road enterprise in Chile.

Before the National Energy Board, Expert Testimony on behalf of FortisBC Energy Inc., Hearing Order Number GH-003-2015, March, 2016. Subject: Tolling for pipeline extensions

Before the Superior Court of the State of Delaware in and for New Castle County, Expert Report on behalf of Deere & Company, in C.A. No. N13C-07-330 MMJ CCLD. December 2, 2015. Subject: Value of Power Purchase Agreements in the wind power industry.

Before the Superior Court of the State of California for the County of Los Angeles in the Matter of GAF Materials Corporation v. Paramount Petroleum Corporation, Opinion given September 3, 2015. Case No: BC 481673. Subject: Oil price indexing to set asphalt prices.

Before the United States District Court for the Northern District of Oklahoma, Expert Report on behalf of SFF-TIR, LLC, the Stuart Family Foundation (et al), Case No. 14-CV-369-TCK-FHM, June 30, 2015. Subject: Fair value of shares in a pipeline industry services firm.

TESTIMONY SINCE 1981 CONTINUED

Before the International Chamber of Commerce Expert Report on behalf of STP Energy Pte Ltd. Subject: Valuation of offshore oil and gas exploration permit, April 29, 2015.

Before the Régie de l'énergie, Written Evidence on behalf of Gaz Métro. Subject: Pricing of gas distribution system expansion, January 20, 2015

Before the Supreme Court of Western Australia, Filed Statement on behalf of North West Shelf Pty Ltd, Subject: Value and interpretation of gas swaps agreement, December 24, 2014.

Before the District Court of Tarrant County, Texas, 17th Judicial District, Expert Report of Jeff D. Makhholm on behalf of OAO Gazprom, et al, Subject: Valuation of failed LNG import project, November 14, 2014.

Before the National Energy Board, Expert Report and Direct Testimony on behalf of MAS (Market Area Shippers Group), Hearing Order RH-001-2014, July 2014. Subject: Effectiveness of toll design//regime in settlement.

Before the National Energy Board, Expert Testimony on behalf of FortisBC Energy Inc., Hearing Order Number GH-001-2014, July 10, 2014. Subject: Tolling for pipeline extensions.

Before the National Energy Board, Expert Testimony on behalf of Alliance Pipeline, May 22, 2014. Subject: Restructuring services/tolls.

Before the Economic Regulation Authority of Western Australia on behalf of ATCO Gas Australia, March 2014. Subject: Cost accounting for gas pipeline regulation.

Before the 298th Judicial District Court of Dallas County, Texas, Expert Testimony on behalf of plaintiff in Energy Transfer Partners, L.P., and Energy Transfer Fuel, L.P. v. Enterprise Products Partners, L.P., Enbridge (US) Inc., and Enterprise Products Operating LLC, Cause No. 11-12667, February 2014. Subject: Assessment of causation and valuation of damages from lost crude oil pipeline opportunity.

Before the National Energy Board, Expert Testimony on behalf of Enbridge Gas Distribution Inc. and Union Gas limited, Hearing Order MH-001-2013, November 1, 2013. Subject: Tolling issues involving pipeline abandonment.

Before the National Energy Board, Expert Report and Direct Evidence on behalf of MAS (Market Area Shippers Group), Hearing Order RH-001-2013, July 26, 2013. Subject: Contract renewal provisions.

Before the 298th Judicial District Court of Dallas County, Texas, Supplemental Report on behalf of plaintiff in Energy Transfer Partners, L.P., and Energy Transfer Fuel, L.P. v. Enterprise Products Partners, L.P., Enbridge (US) Inc., and Enterprise Products Operating LLC, Cause No. 11-12667, July 24, 2013. Subject: Causation and damages in abandoned joint oil-pipeline venture

Before the 298th Judicial District Court of Dallas County, Texas, Rebuttal Expert Report on behalf of plaintiff in Energy Transfer Partners, L.P., and Energy Transfer Fuel, L.P. v. Enterprise Products Partners, L.P., Enbridge (US) Inc., and Enterprise Products Operating LLC, Cause No. 11-12667, March 2013. Subject: Causation and damages in abandoned joint oil-pipeline venture

Before the 298th Judicial District Court of Dallas County, Texas, Direct Expert Report on behalf of plaintiff in Energy Transfer Partners, L.P., and Energy Transfer Fuel, L.P. v. Enterprise Products Partners, L.P., Enbridge (US) Inc., and Enterprise Products Operating LLC, Cause No. 11-12667, January 2013. Subject: Causation and damages in abandoned joint oil-pipeline venture

TESTIMONY SINCE 1981 CONTINUED

Before the Alberta Public Utility Commission, Direct Testimony on behalf of ATCO Electric and ATCO Gas, Proceeding ID #2131, December 2012. Subject: Analysis of ATCO Electric's and ATCO Gas' capital tracker proposals

Before the American Arbitration Association, Expert Report with Dr. Victor P. Goldberg, Case No. AAA No. 16 132 Y 00502 11. December 17, 2012. Subject: Confidential Arbitration.

Before the National Energy Board, Written Evidence on behalf of FortisBC Energy Inc., Hearing Order GH-001-2012, May 29, 2012. Subject: Tariff treatment for pipeline extensions to new Canadian gas production regions.

Before the National Energy Board, Expert Report and Direct Testimony on behalf of Market Area Shippers Group, Hearing Order RH-003-2011, March 2012. Subject: Assessment of TransCanada's omnibus restructuring proposal and commentary on Market Area Shippers Group's alternative solution.

Before the Alberta Public Utility Commission (with Agustin J. Ros). Reply Expert Report. Application No. 1606029, AUC Proceeding 566. February 22, 2012. Subject: Update to TFP analysis and review of PBR plans for the Commission's performance-based regulation initiative.

Before the State Corporation Commission of the State of Kansas, Testimony on Behalf of Coffeyville Resources Refining & Marketing, LLC, Docket No. 12-MDAP-068-RTS. October 25, 2011. Subject: Reasonable ratemaking methodology.

Before the United States Federal Energy Regulatory Commission, Prepared Direct Testimony in Public Utilities Commission of Nevada and Sierra Pacific Power Company v Tuscarora Gas Transmission Company, Docket No. RP11-1823-000. October 17, 2011. Subject: Reasonable interstate gas pipeline tariff levels.

Before the Public Utilities Commission of Nevada, Pre-filed Rebuttal Testimony on behalf of Nevada Power Company and Sierra Pacific Power Company d/b/a NV Energy. Docket Nos. 11-03003, 11-03004 & 11-03005. August 3, 2011. Subject: Prudence of hedging practices.

Before the United States Federal Energy Regulatory Commission, Affidavit in Public Utilities Commission of Nevada and Sierra Pacific Power Company v Tuscarora Gas Transmission Company, Docket No. RP11-1823-000. February 28, 2011. Subject: Reasonable interstate gas pipeline tariff levels.

Before the Public Utilities Commission of Nevada, Prepared Direct on behalf of Nevada Power Company d/b/a NV Energy, 2011 Gas and Electric Deferred Energy Proceeding, Docket No. 11-03____. February 24, 2011. Subject: Prudence of hedging practices.

Before the Public Utilities Commission of Nevada, Prepared Direct on behalf of Sierra Pacific Power Company d/b/a NV Energy, 2011 Gas Deferred Energy Proceeding, Docket No. 11-03____. February 24, 2011. Subject: Prudence of gas hedging practices.

Before the Federal Energy Regulatory Commission and the State of Alaska Regulatory Commission, Prepared Direct Testimony on behalf of Trans Alaska Pipeline System. Docket No. IS09-348-004, *et al.* January 21, 2011. Subject: Prudence of capital rehabilitation costs.

Expert report filed before the Alberta Public Utility Commission (with Agustin J. Ros). Application No. 1606029, AUC Proceeding 566. December 30, 2010. Subject: Total factor productivity study for use in the Commission's performance-based regulation initiative.

TESTIMONY SINCE 1981 CONTINUED

Before the Commonwealth of Kentucky, Edmonson Circuit Court. Opinion on behalf of plaintiff in Honeycutt vs. Atmos Energy Corporation. Docket No. 09-CI-00198 and 10-CI-00040. September 10, 2010. Subject: Valuation of natural gas for royalty computations.

Before the Régie de l'Énergie, Direct Testimony on behalf of Hydro-Québec TransÉnergie. Demande R-3738-2010. August 2, 2010. Subject: Economic analysis of issues related to the regulatory policies for network upgrades.

Before the Public Utilities Commission of Nevada, Pre-Filed Supplemental Direct Testimony on behalf of Nevada Power Company, Sierra Pacific Power Company d/b/a NV Energy (electric and gas departments), Docket No: 10-03003, 10-03004, 10-03005. May 5, 2010. Subject: Gas hedging.

Before the Arkansas Public Service Commission, Rebuttal Testimony on behalf of Entergy Arkansas, Inc., Docket No. 09-084-U. March 24, 2010. Subject: Justification of the operation of a multi-year formula rate plan.

Before the Public Utilities Commission of Nevada, Pre-Filed Direct on behalf of Nevada Power Company, Docket No. 10-03003. February 26, 2010. Subject: Prudence of gas purchase costs.

Before the New York State Public Service Commission, Rebuttal Testimony on behalf of Rochester Gas and Electric Corporation, Case 09-E--07717 Case 09-G-0718 and New York State Electric & Gas Corporation, Case 09-E-0715, Case 09-E-0716. February 12, 2010. Subject: Cost of equity capital.

Before the Public Utilities Commission of Nevada, Pre-Filed Direct Testimony on behalf of Sierra Pacific Power Company, Docket No. 09-09001. December 15, 2009. Subject: Gas hedging plan.

Before the Public Utilities Commission of Nevada, Pre-Filed Direct Testimony on behalf of Nevada Power Company, Docket No. 09-07003. December 15, 2009. Subject: Gas hedging plan.

Before the New York State Public Service Commission, Direct Testimony on behalf of Rochester Gas and Electric Corporation, Case 09-E--07717 Case 09-G-0718. September 17, 2009. Subject: Cost of capital and capital structure.

Before the New York State Public Service Commission, Direct Testimony on behalf of New York State Electric & Gas Corporation, Case 09-E-0715, Case 09-E-0716. September 17, 2009. Subject: Cost of capital and capital structure.

Before the Arkansas Public Service Commission, Direct Testimony on behalf of Entergy Arkansas, Inc., Docket No. 09-084-U. September 4, 2009. Subject: Justification of the operation of a multi-year formula rate plan.

Submission before the New Zealand Commerce Commission, on behalf of Orion New Zealand Limited, July 31, 2009. Subject: Theory and practice of price cap regulation.

Before the Hawaii Public Utilities Commission, Testimony on behalf of Hawaiian Electric Company Inc., Docket No. 2008-0083. July 2009. Subject: Energy cost adjustment clause.

Before the Public Utilities Commission of Nevada, Pre-Filed Direct Testimony on behalf of Nevada Power Company, Docket No. 09-02____. February 27, 2009. Subject: Prudence of gas purchase costs.

TESTIMONY SINCE 1981 CONTINUED

Before the Public Utilities Commission of Nevada, Pre-Filed Direct Testimony on behalf of Sierra Pacific Power Company, Docket No. 09-02_____. February 27, 2009. Subject: Prudence of gas purchase costs.

Before the Department of Public Utility Control of Connecticut, Direct Testimony on behalf of Connecticut Natural Gas Corporation. Docket No. 08-12-06. January 11, 2009. Subject: Cost of capital.

Before the Department of Public Utility Control of Connecticut, Direct Testimony on behalf of Southern Connecticut Gas Corporation. Docket No. 08-12-06. January 11, 2009. Subject: Cost of capital.

Before the Public Utility Commission of Texas, Rebuttal Testimony on behalf of Lone Star Transmission, LLC. Docket No. 35665. November 14, 2008. Subject: Licensing of new electricity transmission projects.

Before the Public Utilities Commission of Ohio, Direct Testimony on behalf of The Dayton Power and Light Company. Case No. 08-1094-EL-SSO. October 10, 2008. Subject: Cost of capital.

Before the Illinois Commerce Commission, Rebuttal Testimony on behalf of Northern Illinois Gas Company, Case No. 08-0363. September 25, 2008. Subject: Cost of capital.

Before the Illinois Commerce Commission, Testimony on behalf of Northern Illinois Gas Company, Case No. 08-0363. April 29, 2008. Subject: Cost of equity.

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Before the Federal Energy Regulatory Commission, Prepared Rebuttal Testimony on behalf of the New England Customer Group of 15 Natural Gas Distribution Companies, Docket No. RP91 203 000 (Tennessee Gas Pipeline Company), May 27, 1994. Subject: Gas pipeline rate design.

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“Ex Ante or Ex Post? Risk, Hedging and Prudence in the Restructured Power Business,” with Meehan, E.T., and Sullivan, J.E., *The Electricity Journal*, Vol. 19, No 3 (April 2006), pp. 11-29.

“The Thaw: The End of the Ice Age for American Utility Rate Cases,” with Parmesano, H., *The Electricity Journal*, Vol. 17, No. 4 (July 2004), pp.69-74.

PUBLICATIONS (CONTINUED)

“In Defense of the ‘Gold Standard,’” *Public Utilities Fortnightly*, Vol. 141, No. 10 (May 2003), pp. 12-18.

“Incentive Regulation Meets Electricity Transmission on a Grand Scale: FERC Order No. 2000 and PBR,” *The Electricity Journal*, Vol. 13, No. 2 (May 2000), pp.57-64.

“ISO’s Not the Answer for Gas,” *Natural Gas*, Vol. 14, No. 5 (December 1997), pp. 1-6.

Utility Regulation 1997: Economic Regulation of Utilities and Network Industries Worldwide (Chapter on United States), Center for the Study of Regulated Industries, (ISBN 1-901597-00-8) 1997.

“X Marks the Spot: How to Calculate Price Caps for the Distribution Function,” *Public Utilities Fortnightly*, Vol. 135, No. 22 (December 1997), p. 52.

“FERC Takes the Wrong Path in Pricing Policy,” *Natural Gas*, Vol. 12, No. 3 (September 1995), pp. 7-11.

The Distribution and Pricing of Sichuan Natural Gas, Chonxing University Press, Chonxing, China (ISBN 7-5624 -1006-2/F 94), 1995.

“Secondary Market Can Compete,” *Natural Gas*, Vol. 11, No. 3 (October 1994), pp. 13-17.

“Gas Pipeline Capacity: Who Owns It? Who Profits? How Much?” *Public Utilities Fortnightly*, Vol. 132, No. 18 (October 1994), pp. 17-20.

Why Privatize? Prospects in Developed and Underdeveloped Economies. *Viewpoint*. Marsh & McLennan Companies (Summer 1994).

“Calculating Fairness,” with Sander, D.O., *Public Utilities Fortnightly*, Vol. 131, No. 21 (November 1993), pp. 25-29.

“The Risk Sharing Strawman,” *Public Utilities Fortnightly*, Vol. 122, No. 1 (July 1988), pp. 24-29.

“The FERC Discounted Cash Flow: A Compromise in the Wrong Direction,” with C. J. Cicchetti, *Public Utilities Fortnightly*, Vol. 120, No.1 (July 1987), pp. 11-15.

UNPUBLISHED WORKING PAPERS

- “Mexico’s Singular Retreat from Energy Markets,” NERA Publication, 17 November 2021.
- “Re-Nationalizing Mexico’s “Best Practices” Competitive Electricity Market,” NERA Publication, 17 November 2021 (with Dr. José Antonio Peñuelas and Hamish Fraser).
- “History’s Greatest Public-Private Infrastructure Partnership: The US Gas Market and Its Role in a Low-Carbon Continent,” NERA Publication, 8 October 2021 (with Dr. Laura T. W. Olive).
- “Institutions, to Property Rights, to High-Technology Gas Markets”, Presented to the Property and Environment Research Center (PERC) Workshop: Innovation, Property Rights and the Structure of Energy. August 10-13, 2017. Bozeman, Montana.
- “The Political Economy of “P3” Public-Private Partnerships: Chilean Lessons for Rebuilding US Infrastructure,” NERA publication, March 25, 2017.
- “A Square Regulatory Peg in a Round Industry Hole: Europe’s Gas Industry Problems,” NERA publication, 11 January 2017.
- “2011 Speech Revisited—Whither the “Fourth Gas Package” for the EU: Dealing with Paralysis in Europe’s Gas Industry,” NERA publication, 8 December 2016.
- “A Half-Century of Computing the Cost of Capital for Utilities at NERA,” NERA publication, November 9, 2015.
- “Pipeline Capacity Rights to Support a Competitive Gas Market: Theory and Applications”, with Nina Hitchins, NERA publication, September 26, 2015.
- “A Petroleum Tanker of a Different Color: Obstacles to an LNG-based Global Gas Spot Market,” with Laura T.W. Olive, NERA Publication, August 18, 2015.
- “Seeking Competition and Supply Security in Natural Gas: The US Experience and European Challenge,” Prepared for the 1st CESSA Conference, Berlin University of Technology, Berlin, Germany, May 31, 2007.
- “Allowed Return on Equity in Canada and the United States: An Economic, Financial and Institutional Analysis,” Study commissioned by the Canadian Gas Association, February 2008 (with K.G. Gordan).
- “The Theory of Relationship Specific Investments, Long-Term Contracts and Gas Pipeline Development in the United States,” paper given at the Conference on Energy Economics and Technology at the Dresden University of Technology, Dresden, Germany, April 21, 2006.
- “Benchmarking, Rate Cases and Regulatory Commitment,” paper given at the Australian Competition & Consumer Commission’s Incentive Regulation and Overseas Developments Conference, Sydney, Australia, November 14, 1999
- “Price Cap Plans for Electricity Distribution Companies Using TFP Analysis,” with Quinn, M.J., NERA Working Paper, July 23, 1997.
- “Rocks on the Road to Effective Regulation: The Necessary Elements of Sound Energy Regulation,” paper presented at the Brazil-U.S. Aspen Global Forum, December 5, 1996.
- “Profit Sharing and “Sliding Scale” Regimes,” NERA Working Paper, Quinn, M.J., and Augustine, C., February 29, 1996.
- “Four Common Errors in Applying the DCF Model in Utility Rate Cases,” with Sander, D.O., NERA Working Paper, February 1992.

PUBLICATIONS (CONTINUED)

“Pareto Optimality through Non-Collusive Bilateral Monopoly with Cost-Of-Service Regulation,” with Cicchetti, C.J., *Energy and Environmental Policy Center*, Harvard University, Working Paper, April 1988.

RECENT SPEECHES

Austin Electricity Conference 2025, “Big, Small, and Everything in Between: The Dynamics of Electricity Reliability and Integration,” March 6-7, 2025, AT&T Hotel and Conference Center, Austin Texas.

Federal Energy Law Symposium on Data Center Issues, February 19, 2025. Panel discussion on data center issues, published in the *Energy Law Journal*, Vol. 46, No. 2 (May 5, 2025).

“Discounted Cash Flow (DCF) Method of Valuing Damages in Arbitration,” Harvard International Arbitration Law Student’s Association, Harvard University, March 26, 2019 (with Laura T.W. Olive).

“PL18: The Battles Over Gas Infrastructure Development,” NYU School of Law, Frank J. Guarini Center on Environmental, Energy, and Land Use Law, New York, Feb. 6, 2019.

Panel Moderator, 33rd Annual IPPNY Fall Conference, A New Energy Standard: Adapting to An Evolving Market & Grid, Panel Discussion - REV: An Outlook, September 14, 2018, Saratoga Springs, NY.

“An Economist’s View of Where and Why such IA Disputes Arise,” Presented at the 5th International Arbitration Conference. November 21, 2017. Perth, Australia.

“Institutions, to Property Rights, to High-Technology Gas Markets”, Presented to the Property and Environment Research Center (PERC) Workshop: Innovation, Property Rights and the Structure of Energy. August 10-13, 2017. Bozeman, Montana.

“The New Market Conditions in Latin America’s Energy Space,” Latin Lawyer 8th Annual Oil and Gas Conference, Mexico City, 18 May 2017.

“The Uncertain Connection between Unbundled Electricity Distributors and Interstate Pipeline Capacity,” Law Seminars International Energy in the Northeast Seminar, with Laura T.W. Olive, PhD. Boston, MA, September 23, 2016

“The Difficult Economics of a Worldwide LNG Commodity Market,” International Bar Association Annual Conference, Oil and Gas Law Committee Section. Washington DC, September 22, 2016

“How to Make LNG Accessible to All of Europe?” CEER Workshop. Athens, Greece, September 12, 2016.

“Gas Markets, Gas Use and Europe’s Gas Supply from the East,” Eurasian Natural Gas Infrastructure Conference, Istanbul, Turkey, June 9, 2015

“International Perspective on Pathways for Gas Market Reform in Australia,” Australian Domestic Gas Outlook, 2016, Sydney, Australia, March 8, 2016.

“What does a Gas Market Need?” Australian Domestic Gas Outlook 2016 In-Depth Learning Session B. Sydney, Australia, March 7, 2016.

“Gas as the Low-Carbon Bridge Fuel? Not without a Lot of Trouble,” International Bar Association, Vienna, Austria, October 8, 2015.

“The Political Economy of Gas Pipelines” ANDEG Energy Forum, Bogota, Colombia, 20 August 2015.

“Gas Market Centers and Balancing in the US: Facilitating the Competitive Entry and Trade in Gas,” FSR Specialized Training on the Regulation of Gas Markets, Florence, Italy, March 27, 2015.

“Gas Market in the US: Are there some lessons for Europe?” Gas Infrastructure Europe (GIE) Annual Conference 2014, Berlin, Germany, June 13, 2014.

RECENT SPEECHES (CONTINUED)

“Ensuring Natural Gas Availability,” MIT Energy Initiative, 2013 MITEI Symposium, Cambridge, Massachusetts, April 16, 2013.

“Regulating Access to Gas in North America,” Florence School of Regulation, FSR Specialized Training, Florence, Italy, March 13, 2013.

“The Role of Regulation and the Challenges Going Forward,” Speech given at the 10th Annual Tufts Energy Conference, Panel 3: The Natural Gas Boom. Medford, Massachusetts, February 21, 2015.

“Natural Gas in the Transformation Process in Europe,” German Institution for Economic Research (DIW Berlin), Schumpeter Hall, Berlin, Germany. May 15, 2012.

“The Trouble with Europe: Infrastructure, Institutions and Investment,” Keynote Speech at EPRG Winter Seminar 809. Cambridge, U.K., December 5, 2011.

“Regulating Gas TSO’s in Europe: Where are all the Pipelines?” Oil and Gas Pipes Global Conference. London, U.K., November 29, 2011.

“Security of Supply in Europe,” Florence School of Regulation, State of the EU Conference at the European University Institute. Florence, Italy, May 10, 2012.

“Regulating Gas Pipelines: United States and Europe,” Florence School of Regulation, FSR Summer Course Advanced Training on Gas Markets. Florence, Italy, March 23, 2011.

“Foundation for Regulating Pipelines, United States and Europe: Two Different Regulatory Worlds,” Florence School of Regulation Summer Course on Regulation of Energy Utilities. Florence, Italy, June 30, 2010.

“Governance and the Electricity Sector,” Governance and Regulation in the Electricity Sector Conference. Toronto, Ontario, June 4, 2010.

“Public Utility Companies and Regulatory Risk,” Saul Ewing’s 4th Annual Public Utility Symposium. Philadelphia, PA, May 24, 2010.

“It’s All About Inland Transportation,” US Gas Pipelines Reflect What’s Happening in Europe,” Florence School of Regulation Specialized Training on Regulation of Gas Markets. Florence, Italy, March 24, 2010.

“Windmills and Wires: FERC Rate Cases, Transmission Cost Allocation, and Renewable Power Development,” Law Seminars International Sixth Annual National Conference on Today’s Utility, Las Vegas, Nevada, February 11, 2010.

“The East-West Energy Corridor and Europe’s Energy Security,” The Brookings Institution conference on Turkey, Russian and Regional Energy Strategies, Washington D.C., July 15, 2009.

“Understanding U.S. Gas Pipelines,” Florence School of Regulation, FSR Summer School on Regulation of Energy Utilities. Florence, Italy, June 24, 2009.

“Vertical Relations in Energy Markets: On the Role of Contracts and Other Legal Entitlements in the U.S. Gas Transport Market”, Vienna University of Economics and Business, Workshop 2009. Vienna, Austria, May 29, 2009.

“Institutional, Transactional and Political Barriers to Competitive Gas Market in Europe: Europe’s Pipelines and Economics,” Florence School of Regulation Workshop: Tariffs for European Gas Transmission Networks. Florence, Italy, March 6, 2009.

RECENT SPEECHES (CONTINUED)

“Cost recovery mechanisms: Options and where each works best; what approach is most likely to get necessary projects built,” Law Seminars International, Utility Rate Case: Issues and Strategies 2009. Las Vegas, Nevada, February 5, 2009.

“Alaska as a Gas Supplier: Where is the North Slope Gas Going, and How?” Law Seminars International, Energy in Alaska conference. Anchorage, Alaska, December 8-9, 2008.

“Maintaining Adequate Infrastructure in the Natural Gas and Electric Industries,” Increasing Longer-Term Stability in Energy Markets conference sponsored by the Institute for Regulatory Policy Studies. Springfield, Illinois, May 1, 2008.

“Rate Decoupling and Associated Rate and Cost Issues,” New Hampshire Public Utilities Commission, Concord, New Hampshire, November 6, 2007.

“Electricity Transmission Cost Allocation in New England: A Throwback to an Earlier Era in Gas Transmission,” Law Seminars International, Energy in the Northeast conference, Boston, Massachusetts, October 18-19, 2007.

“Rate Decoupling and Associated Rate and Cost Issues,” American Gas Association (AGA) Legal Forum. Vail, Colorado, July 15- 17, 2007.

“Seeking Competition and Supply Security in Natural Gas: The US Experience and European Challenge,” 1st CESSA Conference, Berlin, Germany, May 31-June 1, 2007.

“Toward a Regulatory Equilibrium in Gas Hedging,” Electric Utility Consultants’ Conference: Utility Hedging in an Era of Natural Gas Price Volatility, Arlington, Virginia, October 4, 2006.

“The Theory of Relationship Specific Investments: Long-Term Contracts and Gas Pipeline Development in the United States.” Dresden University of Technology Workshop on Energy Economics and Technology, April 21, 2006.

“A Gas Network to Meet the Needs of New Electricity Generators,” Ontario Energy Association, Ontario, Canada, June 23, 2005.

“Forks in the Road for Electricity Transmission,” Electricity Industry Regulation and Restructuring conference by The Salt River Project and The Arizona Republic, October 11, 2002.

“Role of Yardsticks in Cost & Service Quality Regulation,” London Regulated Industries Group, November 30, 2000.

“Natural Gas Issues: Retail Competition, LDC Gas Rate Unbundling, and Performance Based Rates,” Wisconsin Public Utility Institute, November 17, 2000.

“Performance Based Ratemaking (PBR) in Restructured Markets,” Edison Electric Institute Seminar in San Antonio Texas, April 27, 2000.

“Benchmarking versus Rate Cases and the Half Live of Regulatory Commitment,” Australian Competition & Consumer Commission’s Incentive Regulation and Overseas Development Conference, Sydney, Australia, November 19, 1999.

“Benchmarking, Rate Cases and Regulatory Commitment,” Australian Competition & Consumer Commission’s Incentive Regulation and Overseas Developments Conference, Sydney, Australia, November 14, 1999.

“Gas and Electricity Sector Convergence: Economic Policy Implications,” Energy Week ’99, “The Global Shakeout,” The World Bank, Washington D.C., April 6-8, 1999.

RECENT SPEECHES (CONTINUED)

“Gas and Electricity Sector Convergence: Economic Policy Implications,” Economic Development Institute, The World Bank, Washington D.C., December 8-9, 1998.

“Sustainable Regulation for Russian Oil Pipelines,” Presentation at Pipeline Transportation: A Linkage Between Petroleum Production and Consumers, Moscow, June 25, 1997.

“Rocks on the Road to Effective Regulation,” Brazil/US Aspen Global Forum, Aspen, Colorado, December 5-8, 1996.

“Stranded Cost Case Studies in the Gas Industry: Promoting Competition Quickly,” MCLE Seminar: Retail Utility Deregulation, Boston, MA, June 17, 1996.

“Why Regulate Anyway? The Tough Search for Business-As-Usual Regulation,”—Panelist at St. Louis 1996, The Fifth Annual DOE-NARUC Natural Gas Conference, St. Louis, Missouri, April 30, 1996.

“Antitrust for Utilities: Treating Them Just Like Everyone Else”—Panelist at St. Louis 1996, The Fifth Annual DOE-NARUC Natural Gas Conference, St. Louis, Missouri, April 29, 1996.

“Natural Gas Pricing: The First Step in Transforming Natural Gas Industries”—One-Day Interactive Workshop on Pricing Strategy at The Future of Natural Gas in the Mediterranean Conference, Milan, Italy, March 27, 1996.

“Open Access in Gas Transmission,” New England Chapter of the International Association for Energy Economics, Boston, Massachusetts, December 13, 1995.

“Light-Handed Regulation for Interstate Gas Pipelines,” Twenty-Seventh Annual Institute of Public Utilities Conference, Williamsburg, Virginia, December 12, 1995.

“Ending Cost of Service Ratemaking,” Electric Industry Restructuring Roundtable, Boston, Massachusetts, October 2, 1995.

“Promoting Markets for Transmission: Economic Engineering or Genuine Competition?” The Forty-Ninth Annual Meeting of the Federal Energy Bar Association, Inc., May 17, 1995.

“End-Use Competition Between Gas and Electricity: Problems of Considering Gas and Electric Regulatory Reform Separately,” ORLANDO ‘95, The Fourth Annual DOE-NARUC Natural Gas Conference, Orlando, Florida, February 14, 1995.

“Incremental Pricing: Not a Quantum Leap,” Natural Gas Ratemaking Strategies Conference, Houston, Texas, February 3, 1995.

“The Feasibility of Competition in the Interstate Pipeline Market,” Institute of Public Utilities Twenty-Sixth Annual Conference, Williamsburg, Virginia, December 13, 1994.

“A Mirror on the Evolution of the Gas Industry: The Views from Within the Business and from Abroad,” 1994 LDC Meeting-ANR Pipeline Company, October 4, 1994.

“Creating New Markets Out of Old Utility Services,” Fifteenth Annual NERA Santa Fe Antitrust and Trade Regulation Seminar, Santa Fe, New Mexico, July 9, 1994.

“Sources of and Prospects for Privatization in Developed and Underdeveloped Economies,” Spring Conference of the International Political Economy Concentration and the National Center for International Studies at Columbia University, New York, March 30, 1994.

“Experiencias en el Desarrollo del Mercado de Gas Natural (Experiences in gas market development),” “Perspectivas y Desarrollo de Mercado de Gas Natural,” Centro de Extensión de la Pontificia Universidad Católica de Chile, November 16, 1993.

RECENT SPEECHES (CONTINUED)

“The Role of Rate of Return Analysis in a More Progressive Regulatory Environment,” Twenty-Fifth Financial Forum held by the National Society of Rate of Return Analysts, Philadelphia, Pennsylvania, April 27, 1993.

“Privatization of Energy and Natural Resources,” International Privatization Conference “Practical Issues and Solutions in the New World Order,” New York, New York, November 20, 1992.

RECENT INTERNATIONAL REPORTS

“Serious Problems with CREG Document 070 Facing Colombia’s Energy Market.”, report generated for the Asociación Nacional de Empresas Generadoras (ANDEG). White paper (with Graham Shuttleworth) assessing the economic and policy implications of a proposal by the Colombian Energy and Gas Regulatory Commission (CREG) to reform the country’s Reliability Charge mechanism for the wholesale power market. September 2015.

“Principles and Methodology of a Domgas Commercial Price Threshold” Report generated for North West Shelf Joint Venture (NWSJV) to define a methodology for computing a schedule of minimum *reasonable* prices (the Commercial Price Threshold) for prospective gas production for domestic gas (Domgas) based on the NWSJV’s supply costs. August 13, 2014.

Gas Pipeline Transport in China: An Economic, Financial and Institutional Analysis,” report prepared for Gazprom Export and BP Russian Investments Limited on gas transmission networks and gas pipeline tariffs in China. August 6, 2008.

“Consultation Paper: Development of Approaches Towards Regulating Tariffs for Petroleum Pipelines, Storage and Loading Facilities in South Africa,” Report prepared for the National Energy Regulator of South on the determination of economically feasible approaches towards establishing revenue requirements, regulating the setting/approval of tariffs, and developing rules, guidelines and framework regarding regulatory accounts for the petroleum pipelines, storage, and loading facilities in South Africa. December 14, 2006.

“Regulatory Assessment of the Turkish Electricity Sector.” Report prepared for Prisma Energy on the examination of the economic and regulatory risks facing investors in the privatization of the energy infrastructure of Turkey. December 6, 2006.

“Calculation of the X-Factor in the 2nd Reference Report of the Bundesnetzagentur.” Report prepared for E. ON Ruhrgas, Germany: Design of a regulatory method based on comparison of average tariffs, consistent with new German legislation on the regulation of gas transmission networks. April 21, 2006. (with Graham Shuttleworth and Michael Kraus).

“Cargo Access Charges for the Jorge Chavez International Airport in Lima, Peru.” A report prepared for OSITRAN (Public Transport Infrastructure Regulator) on behalf of Lima Airport Partners S.R.L. February 19, 2004.

A Critique of CEPA’s Report on “Productivity Improvements in Distribution Network Operators:” A report for EDF Energy (with Graham Shuttleworth). December 16, 2003.

Advised on Fare Regulation Issues related to the Impending Merger of the MTRC and KCRC Railroad Companies in Hong Kong, Mercer Consulting on behalf of MTRC, 2003-2004.

“Natural Gas Pipeline Access Regulation”. Report prepared for BHP Petroleum Pty Ltd., May 31, 2001.

“Manual de Procedimientos para el Sistema Uniforme de Cuentas Regulatorias Eléctricas (SUCRE) de México” (April 2000). The report includes an explanation of each of the accounts needed for regulation, recording procedures and the structure the information should take when reporting to the regulator.

“Investigation into Petronets’ Liquid Fuels Pipeline Tariffs: Final Report” (March 9th, 2000). This report presents NERA opinions in the quasi-arbitration of the tariffs disputes in the oil industry in South Africa for their liquids pipelines.

“Seeking Genuine Gas Competition in NSW”, prepared for BHP Petroleum Pty. Ltd., February 18, 2000.

“Análisis y Revisión del Recurso de Revocatoria Interpuesto por la Compañía Boliviana de Energía S.A. (COBEE) a la Resolución SSDE N° 92/99 de la Superintendencia de Electricidad” (September 6, 1999). This report represents NERA’s opinion on COBEE’s appeal in the electricity tariff review process in Bolivia (report in Spanish).

“Gas Sector Regulation Consultancy Services” report prepared for the Vietnam Oil and Gas Corporation, August 10, 1999.

“Natural Gas Demand Estimation for Guatemala, Honduras and El Salvador” (July 19th, 1999). This report done for an international consortium of companies presents calculations of prices and volumes of natural gas demand for three Central American countries if a pipeline is built from Mexico.

“Comments on East Australian Pipeline Limited Access Arrangements: (July 15, 1999). Report prepared on behalf of Incitec Ltd.

“Supplementary Submission to IPART on AGLGN’s Proposed Access Arrangements” on behalf of Incitec Limited (April 27th, 1999). This submission discusses reload practices, customer contributions, operating expenses and recalculates charges for a user of the distribution network in New South Wales, Australia.

“Supplementary Submission to IPART on AGLGN’s Proposed Costs and Tariffs” on behalf of BHP (April 15th, 1999). This submission explains how NERA recalculated charges for AGLGN in New South Wales, Australia.

“Initial Comments on AGLGN’s Revised Access Arrangement Information” on behalf of BHP (March 20th, 1999). This submission presents NERA’s comment to AGLGN submission to IPART in New South Wales, Australia.

“International Restructuring Experience” (February 12th, 1999). This paper surveys a number of countries whose experience of restructuring and competition in the electricity sector is directly relevant to the proposed changes in Mexico – Argentina, Australia, Chile, Guatemala, New Zealand, Norway, Spain, the US and the UK

“Report I: Review of the Regulatory Framework” (January 18th, 1999). This report presents the options for a natural gas framework in Peru.

“Conceptual Framework for the Reform of the Electricity Sector in Mexico: White Paper” (November 24th, 1998). This report represents the White Paper for restructuring of the electricity sector in Mexico which is being used in Congress for debate.

“Precios del Gas Natural para la Generación de Electricidad en el Perú” (November 16th, 1998). This report analyzes different alternatives for the treatment of natural gas prices in the electricity tariff model (report in Spanish).

“Tariffs and Subsidies: Report for the Tariffs Group” (November 10th, 1998). This report presents recommendation on the path for tariffs and subsidies for 1999 to the Electricity Tariffs Group of the Government of Mexico.

“Gasoducto México-Guatemala: Informe Final” (October 22nd, 1998). This report analyzes the legal and regulatory framework in both Mexico and Guatemala and costs and volumes for the building of a natural gas pipeline connecting both countries. A copy of the report was given by President Zedillo (Mexico) to President Arzú (Guatemala) (report in Spanish).

“Checks and Balances in Regulating Power Pools: Seven case Studies. A Report for the Electricity Pool of England and Wales” (September 10th, 1998). This report surveys the regulation of power pools in electricity industries around the world.

“Fuels Policy Group: Recommendations” (September 11th, 1998). This report presents recommendations to the Government of Mexico on their fuels policies for the electricity sector.

“Análisis de Costos e Inversiones. Revisión Tarifaria de Transener” (August 25, 1998). Report given to ENRE (the Argentinean electricity regulator) on behalf of a Consortium of Generators on the analysis of costs and investments to be considered for the revenue requirement of the electricity transmission company (report in Spanish).

“Central America Pipeline: Regulatory Analysis and Proposal” (July 28, 1998). This report presents the regulatory analysis and development of a fiscal, legal and commercial framework proposal for gas import, transportation, distribution and marketing in El Salvador, Honduras and Guatemala regarding the proposed Central American Pipeline.

“Energy Regulation in El Salvador” (July 28, 1998). This report presents a deep analysis of the electricity and natural gas regulatory, legal and tax frameworks in El Salvador.

“Energy Regulation in Guatemala” (July 28, 1998). This report presents a deep analysis of the electricity and natural gas regulatory, legal and tax frameworks in Guatemala.

“The Cost of Capital for Gas Transmission and Distribution Companies in Victoria” (June 22, 1998). Report prepared for BHP Petroleum Pty Ltd.

“Principios Económicos Básicos de Tarificación de Transmisión Eléctrica. Revisión Tarifaria de Transener” (May 26, 1998). The main purpose for this report was to provide an economic and regulatory analysis of laws, decrees, license and documents of the tender to provide advise in the tariff review of Transener (the electricity transmission company in Argentina), to present an economic analysis of transmission tariffs and to provide an opinion on specific topics to be discussed in the public hearing. This report was written for a consortium of generators in Argentina (reports in English and Spanish)

“Asesoría en la Fijación de Tarifas de Transener y Normativa del Transporte, Benchmarking Study” (May 26, 1998). This report compares the costs of Transener (the electricity transmission company in Argentina) with those of other companies elsewhere for a consortium of generators (the electricity transmission company in Argentina).

“International Regulation Tool Kit: Argentina” (March 20, 1998). This document describes the natural gas regulatory framework in Argentina for BG.

“Tarificación de los Servicios Que Prestan las Terminales de Gas LP” (January 9, 1998). The final report given to PEMEX Gas y Petroquímica Básica (México) for the determination of rates for LPG terminals.

“NERA-Pérez Compañía Distribution Tariff Model” (January 5, 1998). This report explains the methodology behind NERA’s calculations of distribution tariffs for Pérez Compañía in Monterrey.

“Monterrey Natural Gas Market Assessment,” (January 5, 1998). A series of reports were written to present the results of the market study of the demand for natural gas in the geographic zone of Monterrey to a company interested in bidding for the natural gas distributorship.

“Resolving the Question of Escalation of Phases (bb) and (cc) Under the Maui Gas Sale and Purchase Contract”, prepared for the New Zealand Treasury, December 16, 1997.

“Timetable and Regulatory Review for the Monterrey International Public Tender,” (December 5, 1997). A description of the necessary steps to bid for a distribution company as well as an explanation and analysis of natural regulations in Mexico for Pérez Compañía.

“Economic Issues in the PFR for 18.3.1(I)(bb) & (cc)”, prepared for the New Zealand Treasury, November 17, 1997.

“NERA’s Distribution Tariff Model” (October 29, 1997). This report explains the methodology behind NERA’s calculations of distribution tariffs for MetroGas.

“Evaluation Design Standards for MetroGas,” (October 24, 1997). This report dealt with the analytical support resulting from work with MetroGas to create a meticulously-documented security criterion analysis that supported its efforts to obtain due recognition—and appropriate tariff treatment—for its costs.

“Ghana Natural Gas Market Assessment,” prepared for the Ministry of Mines and Energy, Ghana (March-July, 1997). A series of four reports assessing prospective gas demand usage and netback prices for a number of proposed pipeline project alternatives.

“Final Report for Russian Oil Transportation & Export Study: Commercial, Contractual & Regulatory Component,” prepared for The World Bank, June 25, 1997.

Response to FIEL’s criticisms regarding NERA’s report “Cálculo del Factor de Eficiencia (X)” (June 2, 1997).

“Impacts on Pemex of Natural Gas Regulations” prepared for Pemex Gas y Petroquímica Básica México, May 21, 1997.

“Market Models for Victoria’s Gas Industry: A Review of Options,” April 1997, prepared for Broken Hill Proprietary (BHP) Petroleum, to propose an alternative model for gas industry restructuring in Victoria, Australia.

“New Market Arrangements for the Victorian Gas Industry,” prepared for Broken Hill Proprietary Petroleum; March 13, 1997.

“CEG Privatization: Comments to the Regulatory Framework,” prepared for Capitaltec Consultoria Economica SA describing our comments with respect to the regulatory framework and the license proposed in the privatization of Riogas and CEG in Rio de Janeiro, Brazil; March 7, 1997.

“Determination of the Efficiency Factor (X),” prepared for ENARGAS, Argentina, January 24, 1997.

“Determination of Costs and Prices for Natural Gas Transmission,” prepared for Pemex Gas y Petroquímica Básica, México, December 19, 1996.

“Regulating Argentina’s Gas Industry,” a report prepared for The Ministry of Economy and The World Bank, November 26, 1996.

“Open Access and Regulation,” prepared for Gascor, in the State of Victoria, Australia; (October 2, 1996).

“A Review and Critique of Russian Oil Transportation Tariffs (Russian Oil Transportation & Export Study; Commercial, Contractual & Regulatory Component),” prepared for The World Bank, June 13, 1996.

“Tariff Options for Transneft (Russian Oil Transportation & Export Study; Commercial, Contractual & Regulatory Component),” prepared for The World Bank, June 6, 1996.

“Comments on the Proposed Amendments to the Regulation of Airports in New Zealand,” prepared for the New Zealand Parliament Select Committee hearings on the regulation of monopolies, March 13, 1996.

“Evaluating the Shell Camisea Project,” prepared for Perupetro S.A., Government of Peru, December 8, 1995.

“Towards a Permanent Pricing and Services Regime,” prepared for British Gas, London, England, November, 1995.

“Final Report: Gas Competition in Victoria,” prepared for Gas Industry Reform Unit, Office of State Owned Enterprises, June 1995.

“Natural Gas Tariff Study,” prepared for the World Bank, May 1995, consisting of:

Principles and Tariffs of Open-Access Gas Transportation and Distribution Tariffs
Handbook for Calculating Open-Access Gas Transportation and Distribution Tariffs

“Economic Implications of the Proposed Enerco/Capital Merger,” prepared for Natural Gas Corporation of New Zealand, December 1994.

“Contract Terms and Prices for Transportation and Distribution of Gas in the United States,” prepared for British Gas TransCo, November 1994.

“Economic Issues in Transport Facing British Gas,” prepared for British Gas plc, December 1993.

“Overview of Natural Gas Corporation's Open-Access Gas Tariffs and Contract Proposals,” prepared for Natural Gas Corporation of New Zealand, October 1993.

PARTIAL LIST OF ENERGY CLIENTS SERVED WORLDWIDE**ELECTRIC UTILITY**

AEP Energy Services, Inc
 Alberta Power Limited
 American Electric Power Company
 Atlantic Electric Company
 Boston Edison Company
 Central Hudson Gas and Electric
 Central Maine Power Company
 Central Power & Light Company
 Commonwealth Edison Company (Unicom/Exelon)
 Commonwealth Energy System
 Consolidated Edison Company of New York, Inc
 Conowingo Power Company
 Duquesne Light Company
 Edison Electric Institute
 Entergy Gulf States, Inc
 Florida Power and Light Company
 Green Mountain Power Company
 Long Island Lighting Company
 Massachusetts Municipal Wholesale Electric Company
 Massachusetts Electric Company
 Nantahala Power Company
 New York State Electric & Gas Corporation
 Niagara Mohawk Power
 Ohio Power Company
 Orange & Rockland Utilities
 Pennsylvania Power and Light Company
 Pennsylvania Power Company
 Philadelphia Electric Company
 PJM electricity transmission owners
 Public Service Company of New Hampshire
 Public Service Company of New Mexico
 Public Service Electric and Gas Company
 Portland General Electric Company
 Reliant Energy HL&P
 Rochester Gas and Electric Corp.
 Sierra Pacific Power Corporation
 Southwest Electric Power Company
 Southwestern Public Service Company
 Tampa Electric Company
 Texas-New Mexico Power Company
 TXU Electric Company
 United Illuminating Company
 UtiliCorp Networks Canada
 Virginia Electric and Power Company
 West Penn Power Company
 West Texas Utilities Company
 Western Massachusetts Electric Co.

GAS UTILITY

Alberta Northeast Gas Company
 ANR Pipeline Company
 ARKLA, Inc.
 Atlanta Gas Light Company
 Bay State Gas Company
 Berkshire Gas Company
 Blackstone Gas Company
 Boston Gas Company
 Bristol & Warren Gas Company
 British Gas plc
 Brooklyn Union Gas Company
 Canadian Western Natural Gas
 Chattanooga Gas Company
 Citizens Gas Supply Corporation
 Colonial Gas Company
 Commonwealth Gas Company
 Connecticut Natural Gas Corp.
 Consolidated Gas Supply Corp.
 Elizabethtown Gas Company
 Empire State Pipeline Company
 ENAGAS (Spain)
 EnergyNorth, Inc.
 Equitable Gas Company
 Essex County Gas Company
 Fall River Gas Company
 Fitchburg Gas & Electric Light Company
 Gas and Fuel Corporation of Victoria
 Gateway Pipeline Company
 Granite State Gas Transmission, Inc.
 Great Falls Gas Company
 Holyoke, Mass. Gas & Electric Dept.
 ICG Utilities (Ontario) Ltd.
 KN Energy, Inc.
 Michigan Consolidated Gas Company
 Middleborough Municipal Gas & Electric
 National Fuel Gas Distribution Corp.
 Natural Gas Corporation of New Zealand
 Natural Gas Pipeline of America
 Northern Indiana Public Service
 Norwich Department of Public Utilities
 Pacific Gas Transmission
 Pemex Gas y Petroquímica Básica
 Pennsylvania Gas and Water Company
 Peoples Gas Light and Coke Company
 Polish Oil and Gas Company
 Providence Gas Company
 Southern Connecticut Gas Company
 Southwest Gas Corporation
 Transwestern Pipeline Company
 Valley Gas Company
 Washington Gas Light Company
 Westfield Gas & Electric Light Dept.
 Wisconsin Gas Company
 Yankee Gas Services Company