

AJ Goulding

Name of the Firm: London Economics International LLC
Title: President
Date of Birth: 26 January 1969
Years with firm: 8
Nationality: U.S.A.

Key qualifications:

In his role as president of London Economics International LLC, A.J. Goulding manages a growing international consulting firm focused on finance, economic, and strategic consulting to the energy and infrastructure industries. In addition to serving as a sector expert in electricity and gas markets, his responsibilities include project management, marketing, budget and financial control, and recruiting. Starting fall semester of 2003, A.J. is also serving as an adjunct professor at Columbia University, where he teaches a course on electricity market design and regulatory economics.

A.J. specializes in regulatory economics and divestiture-related power sector asset valuation in the US, Canada, Asia, and emerging markets. He also advises major US and UK electric utilities on international business development strategy. A.J. is uniquely capable of assessing market design efforts from the standpoint of future private investors, identifying aspects that will enable the financing of new investment while at the same time providing economically-rational electricity prices. He is also particularly knowledgeable about the role of power marketers in creating specialized electricity risk management products and adding liquidity to wholesale power markets.

Among A.J.'s recent engagements have been a comprehensive review of the Romanian distribution sector, including tariff setting, distribution company valuation, and design of supply arrangements; advising Japanese utilities and banks on the implications of electricity sector reform; serving as an expert witness in a dispute related to IPPs in Thailand; leading advisory work on multiple innovative leasing and swap transactions related to network assets in Netherlands, Austria, and Australia; analysis of issues surrounding acquisitions of four major North American utilities/IPP; and evaluation and evaluation and analysis of all aspects of the electricity market design process in Alberta and Ontario.

With over twelve years of experience in evolving electricity and natural gas markets, A.J.'s diverse background enables him to work effectively in both emerging markets and OECD countries. On the US side, A.J. has been articulate in describing the new market relationships between wholesale power marketers, merchant plants, aggregators, and the existing investor owned utilities. In emerging markets, A.J. has considerable experience dealing with the challenges of mixed private and public ownership, difficulties in creating credit-worthy distribution and retail entities, and the realities of line losses, unreliable fuel deliveries, and

politicized labor relations. He is sensitive to the need to develop solutions to electric power sector restructuring problems which respect national pride while at the same time conforming to sound economic principles.

A.J. began his career performing natural gas market analysis for the ICF Resources subsidiary of ICF Kaiser International. Later, he lived for two years in New Delhi, India, where he advised the United States Agency for International Development (USAID) on electric power sector restructuring in India. He continued his work on India while pursuing his MA at Columbia University, leading to the publication of an article on Indian privatization. Simultaneously, he researched the process of power sector reform in Pakistan, contrasting it with the Indian experience. Upon completion of his MA, A.J. served as business development associate for Citizens Power LLC, a top ten US wholesale power marketer.

Education:

Earlham College, Richmond, Indiana, B.A. in Economics, 1991. College honors, scholar-athlete, public service graduate fellowship.

Columbia University, New York, New York, M.A. in International Business, 1997. Foreign Language and Area Studies fellowship, Cordier prize.

Employment record:

From: 1996

To: Current

Employer:

London Economics, United States

President (July 1999 to present) Senior Consultant (January 1998 to July 1999) Summer Associate (June 1996 to August 1996)

From: September 2003

To: present

Employer:

Columbia University

Adjunct Professor

From: 1997

To: 1997

Employer:

Citizens Power LLC; Boston, MA

Associate

From: 1994

To: 1995

Employer:

USAID; New Delhi, India

Energy Consultant

From: 1991

To: 1993

Employer:

ICF Resources, Inc.; Fairfax, VA

Analyst

Project Experience:

The projects briefly described below are typical of the work A.J. has performed throughout his career at London Economics, Citizens Power, USAID/India, and ICF Resources. A.J. also serves as an adjunct professor at Columbia University, where he teaches a course in electricity market design.

Divestiture Related Electricity, Gas, and Water Asset Valuation

- *bid for PJM coal-fired power station:* worked closely with private equity fund in creating deal team, preparing first round bid, and valuation of facility, including coal supply, environmental compliance, site options, and forecast of future revenues
- *modeling future Japanese electricity market dynamics:* for a leading Japanese financial institution, led workshop and directed the creation of an interactive model of the Japanese electric power sector. Issues addressed included quantification of plant asset values under various market scenarios, an assessment of the potential for stranded costs, review of debt coverage ratios, and exploration of the evolution of transmission assets
- *valuation of generation and distribution assets in Philippines and the Caribbean:* provided detailed analysis of regulatory trends in the Philippines and in selected Caribbean countries. Used regulatory filings, PPAs, and public information to develop a value for generation and distribution assets in these markets. Advised potential buyer on relative risk in each country examined, including country risk, regulatory risk, and fuel supply and load growth issues.
- *valuation of PPAs associated with IPPs in Thailand:* as an expert witness in an arbitration case, A.J. quantified the change in value resulting from modifications to several PPAs associated with a power project in Thailand. Engagement included review of PPAs, evaluation of Thai power sector restructuring process, extensive modeling of financial aspects of PPAs, and assessment of financing alternatives; client won on all claims
- *due diligence associated with Ontario transmission and distribution assets:* applied detailed understanding of performance-based ratemaking concepts to advise on valuation and strategic considerations associated with a bid for the largest transmission and distribution company in Ontario
- *valuation of New England based generation portfolio:* worked with potential acquirer of New England's largest generation portfolio to determine the costs of ongoing obligations associated with the portfolio, provide an understanding of long term market dynamics, and assess value of overall portfolio, including revenue forecasts and review of market rules
- *assessment of plant pro formas and underlying market environment in six Asian countries:* for leveraged buyout of major global IPP developer, assessed plant financial models, state of reform efforts, and potential for unbundling in Bangladesh, China, India, Philippines, Thailand, and Turkey

- ***valuation of integrated IOUs:*** coordinated evaluation effort for acquisition of Southeastern US utility and of Ontario municipal electric utility; tasks included assessment of impact of PBR, calculation of difference in profits from generation portfolio under ratebase versus in open market, and analysis of ratebase settlement
- ***valuation and regulation of LNG facilities:*** assessed potential for combination of strategically situated LNG facility with US wholesale power marketer; for separate client, advised on third party access requirements for LNG facilities in the US and relevance to potential regulatory changes in Japan
- ***valuation of Ontario generating plants, including assessment of regional electricity markets:*** organized and implemented major modeling effort to determine potential value of generation stations in Ontario. Assessed impact of transmission constraints and restructuring efforts in neighboring markets on future wholesale market prices
- ***reviewed of regulatory and market developments in the electric power sector in the Philippines and in several key Caribbean countries:*** Tasks included examining and valuing various IPP assets, creating long term tariff models for distribution companies, identifying potential purchasers of assets in the relevant countries, and defining strategic objectives associated with the assets. The engagement also included an analysis of the financial structure for asset purchases in emerging markets.

Power, Gas, and Infrastructure Sector Business Development and Strategy

- ***distressed asset acquisition strategy:*** advised a major Japanese utility on entry strategies to the US market, including performing a workshop on due diligence, US regional market analysis, and asset valuation; arranging for introductions to major asset sellers, potential investment partners, and advisors; and creating a screening methodology and database of potential acquisition targets
- ***impact of Ontario market changes on industrial consumers:*** for association of large power consumers in Ontario, assessed market trends and future entry and exit scenarios to determine long term price dynamics in the face of changes in government deregulation policies
- ***unbundling of French state-owned vertically integrated monopoly:*** worked with leading French electricity generator and supplier to examine how to create independent profit and loss statement for its generation assets, benchmark performance against expectations, and separate revenues from plant operations from those gained through trading
- ***workshop on performance-based ratemaking strategy:*** for first stand-alone transmission company in North America, conducted day long workshop on issues associated with PBR, including the types of PBR and which one is most appropriate for what type of company, the sources of efficiency gains observed in other transmission companies worldwide, and the impact of performance standards on profitability and flexibility

- *development of regulatory and financing strategy for transco:* for first stand-alone transmission company in North America, evaluated key transaction parameters, assessed allowed ROE, proposed strategy for attaining favorable incentive rates, and helped to identify potential cost savings
- *business development opportunities in India:* for UK electricity and mining conglomerate, provided detailed assessment of opportunities in construction of integrated mining and mine-mouth power stations and in distribution of electricity

Electric, Gas, and Water Market Restructuring and Deregulation

- *resource adequacy mechanisms for Alberta:* worked with generators association to assess alternative approaches to assuring resource adequacy. Reviewed mechanisms for capacity and default supply procurement worldwide, developed alternatives for Alberta, and engaged in intensive stakeholder consultation.
- *review of stranded cost settlement and default supply pricing:* prepared support for regulatory filing in Pennsylvania assessing benefits to customers from a proposal to extend recovery period for competitive transition charge while extending fixing price for default supply
- *lessons from North American experience for Chinese regulators and grid companies:* for a set of Chinese state-owned companies, including grid operators, the nuclear operating company, and provincial power companies, London Economics International LLC prepared a series of detailed briefings on developments in electricity market design worldwide, with a particular emphasis on lessons from the North American experience. This experience was then used to highlight the various alternatives for market design in China, and the potential outcomes
- *implications of restructuring the Japanese power sector:* for a major Japanese development bank, we analyzed the impact of proposed reforms on a Japanese transmission and generation company, including the potential for stranded costs, opportunities for expansion of transmission, and future tariff setting regimes. The engagement included extensive training of the development bank's staff, as well as the creation of a working model of the Japanese power sector
- *preparing appropriate framework for private investment in Romanian distribution sector:* on behalf of a private client, worked with Romanian regulators to develop a consensus on approaches to capital recovery, PBR application, performance standards, supply cost-pass through, and cost of capital. These elements served as preconditions for the private investor's participation in the privatization process
- *critiquing and improving electricity market structure in Alberta:* for market institutions and regulators in the Canadian province of Alberta, performed extensive analysis of current industry market structure, including role of Power Pool, Transmission Administrator, Market Surveillance Administrator, the Scheduling Coordinator, and the Balancing Pool.

Directed detailed analysis of market power issues associated with divestiture of specific assets and advised on particular market rules to ameliorate strategic behavior

- ***2nd generation PBR in Ontario:*** leading Cdn. \$1.5 million engagement focusing on design of second generation PBR in Ontario. Key components include estimating total factor productivity (TFP), determining appropriateness of yardstick competition, analyzing demand-side management programs in the context of PBR, and examining service quality indicators
- ***assessment of changes in market power for a FERC Section 203 filing:*** in connection with a proposed combination of generation portfolios, developed testimony concerning the change in market concentration as a result of the transaction, including an assessment of changes in HHIs under various market definitions
- ***review of durability of gas franchises in the face of competition:*** reviewed state regulator decisions and FERC rulings regarding sanctity of natural gas distribution franchises, assessed relevance in the face of deregulation of gas markets
- ***economic efficiency effects of retail market design:*** for major US electricity retailer, analyzed various forms of retail electricity competition and default service parameters and compared them to retail/wholesale structure in other industries to determine welfare effects
- ***implications of performance based ratemaking (PBR) in the Caribbean:*** for a privately owned integrated electric company based on a well developed Caribbean island, directed strategic analysis of implications of PBR, suggested approach to regulators, and provided indicative benchmarking analysis
- ***strategic implications of US deregulation:*** performed in-depth study of the impact of unbundling in the US on the fundamental economics of the electric power industry at all points on the value chain; identified regional investment opportunities congruent with these dynamics
- ***market power concerns in Ontario:*** determined concentration ratios for existing configuration of generation plant, developed set of recommended portfolios to minimize market power across all timeslots in hourly market in preparation for divestiture or other market power mitigation mechanisms
- ***institutional development for IPP promotion:*** contributed to Indian private power promotion efforts through technical assistance program to state electricity boards, central government agencies, and private firms, with particular emphasis on role of PURPA in creating US IPP industry
- ***market response to tax credit:*** performed in-depth analysis of impact of Section 29 tax credit for nonconventional fuels production on supply and price response in US southwestern gas markets

- ***bagasse cogeneration:*** worked extensively with Indian sugar mills, equipment suppliers, government investment promotion agencies, and state electricity boards to develop cost-effective targeted loan and technical assistance program to promote bagasse cogeneration
- ***barriers to introduction of new coal combustion technologies in emerging markets:*** served as liaison between India's National Thermal Power Corporation (NTPC) and US research institutions to assess ways to adapt US coal combustion technologies to Indian conditions

Publications:

Goulding, A.J. and Bridgett Neely "Acceding to Succeed" *Public Utilities Fortnightly*, July 2004.

Goulding, A.J. "Avoiding a Canadian California" *Public Utilities Fortnightly*, February 5, 2003.

Goulding, A.J., Julia Frayer, Jeffrey Waller "X Marks the Spot: How UK Utilities Have Fared Under Performance-Based Ratemaking" *Public Utilities Fortnightly*, July 15, 2001.

Goulding, A.J., Julia Frayer, Nazli Z. Uludere "Dancing with Goliath: Prospects After the Breakup of Ontario Hydro" *Public Utilities Fortnightly*, March 1, 2001.

Goulding, A.J., Carlos Rufin, and Greg Swinand "Role of Vibrant Retail Electricity Markets in Assuring that Wholesale Power Markets Operate Effectively." *Electricity Journal*, December 1999.

Adamson, Seabron and A.J. Goulding "The ABCs of Market Power Mitigation: Use of Auctioned Biddable Contracts to Enhance Competition in Generation Markets." *Electricity Journal*, March 1999.

Goulding, A.J. "Retreating from the Commanding Heights: Privatization in an Indian Context." Columbia University: *Journal of International Affairs*, Winter 1997, pp. 581-612.

Hass, Mark R. and A.J. Goulding. "Impact of Section 29 Tax Credits on Unconventional Gas Development and Gas Markets." Society of Petroleum Engineers: SPE 24889, presented at 67th Annual Technical Conference, Washington, DC, October 6, 1992.

Speaking engagements:

"Key considerations with regards to resource adequacy mechanisms in Alberta." Speaker, Independent Power Producers Society of Alberta luncheon, Calgary, Alberta, November 3, 2004.

"Finding the silver lining: investment opportunities in Canadian power markets" Speaker, 2004 Canada Power Conference, Toronto, Ontario, September 30, 2004.

"Adding value for the shareholder: Managing small utilities in a period of regulatory change." Speaker, Ontario Electricity Distributors Association, London, Ontario, June 8, 2004.

"Case studies in electricity market design: learning from experience." Guest lecturer, Columbia University Center for Energy and Marine Policy graduate program, International Energy Systems and Business Structures class, New York, New York, April 8, 2003.

"The grass is always greener' vs. 'All of your eggs in one basket': investment outlook for California and foreign markets." Speaker, Platt's Global Power Markets Conference, New Orleans, Louisiana, March 31, 2003.

"Transmission congestion, valuation, and investment issues in the region surrounding Ontario." Speaker, Canadian Institute conference on Interjurisdictional Power Transactions, Toronto, Ontario, April 8, 2002.

"Update on new generation development in Alberta." Speaker, Canadian Institute conference on Managing Electricity Price Volatility in Alberta, Calgary, Alberta, February 27, 2002.

"The Alberta market structure and implications of structural change." Speaker, Insight Conferences Alberta Power Summit, Calgary, Alberta, February 22, 2002.

"Implications for developers of key aspects of competing Midwest ISO designs." Speaker, INFOCAST conference on Maximizing the Value of QFs and IPPs, Orlando, Florida, February 1, 2001.

"Risk and rewards from PBR for US utilities: lessons from overseas." Speaker, UTECH 2000 conference, St. Petersburg, Florida, November 30, 2000.

"Dancing with Goliath: increasing competition in Ontario wholesale generation market." Speaker, Canadian Independent Power conference, Toronto, Ontario, November 27, 2000.

"Asset valuation in evolving global power markets." Speaker and case study facilitator, World Bank conference on Emerging Issues in the Power Sector, Washington, DC, April 19-21, 2000.

"Overseas exposure: is it worth the risk?" Speaker at Global Power Markets Conference, organized by Global Power Report and McGraw-Hill, New Orleans, Louisiana, April 16-19, 2000.

"Profiting from retail: challenges for MEUs." Speaker at conference on buying and selling electric utilities in Canada, organized by IBC USA conferences, Toronto, Ontario, Canada, November 15-17, 1999.

"Assessing the US electricity market and evaluating US targets." Facilitator for workshop on US acquisition opportunities for European energy firms, organized by IIR Limited, London, England, February 9-11, 1999.

Languages:

Language

English
French
Hindi
Japanese

Reading

Fluent
Good
Moderate

Speaking

Fluent
Good
Fair
Moderate

Writing

Fluent
Good
Moderate