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SUMMARY

Mr. Christopher J. Goncalves, a managing director and chair of BRG's Energy & Climate practice, has thirty-two years of international experience in the energy and financial industries. He advises energy industry and financial-sector clients in the areas of strategic business planning, energy transition strategy, commercial strategy, commercial negotiation, economic and market analysis, valuation, regulatory assessments, project development and financing, asset acquisitions and divestitures, and international carbon markets. He also provides energy industry and quantum expert analysis and testimony for international energy arbitration and litigation matters for law firms and industry clients.

As a business advisor, Mr. Goncalves has counseled industry and financial-sector clients on energy infrastructure and commerce, including liquefied natural gas (LNG), liquefied petroleum gases (LPGs), natural gas, oil, conventional power generation, renewable energy, and hydrogen. He is accomplished in providing these services to global energy companies, national energy companies, utilities, state energy agencies, independent developers, equity investors, and banks.

Mr. Goncalves also is a seasoned industry and damages expert with independent analysis, reporting, and testimony experience for significant international arbitration and litigation matters concerning disputed energy prices, markets, commercial standards, valuation, and financing requirements for energy projects, assets, contracts, and transactions. He has provided expert analysis and reports for over fifty pre-dispute and dispute matters under the auspices of ICSID, UNCITRAL, the ICC, ICDR/AAA, the Milan Chamber of Commerce, the Royal Courts of Justice of England and Wales, and US federal courts. Of these, Mr. Goncalves has provided oral testimony in eighteen international investment and commercial disputes. Who's Who Legal has recognized Mr. Goncalves as a leading energy industry and damages expert for several years and as a global elite thought leader in 2022.

Among his expert witness and business advisory experience, Mr. Goncalves has served as the lead LNG and natural gas market and industry expert to energy companies and their legal counsel for over a dozen LNG and natural gas price reviews and/or price review arbitrations in Europe and Asia. He also has provided LNG commercial strategy for short- and long-term sales pricing, target markets, and priority customers for leading NOCs and US LNG exporters.

Mr. Goncalves recently coauthored the following chapters: "Expert Role in Causation Analysis for Energy Transition Related Arbitration," in *The Investment Treaty Arbitration Review – Edition 6*; and "Expert Evidence in Price Reviews and Disputes" in *Gas & LNG Price Arbitration 2019*. He also has given numerous presentations and has written several articles on LNG and natural gas market, commercial, and pricing conditions worldwide.

His professional experience spans over fifty countries throughout the Americas, Western Europe, Eastern Europe, Eurasia, the Middle East, Africa, and Asia. Within these regions, he offers direct

energy market experience in the United States, Canada, Mexico, Guatemala, El Salvador, Panama, Trinidad and Tobago, Colombia, Venezuela, Ecuador, Peru, Bolivia, Chile, Argentina, Brazil, the United Kingdom, Netherlands, Belgium, Germany, France, Spain, Italy, Hungary, Russia, Ukraine, Azerbaijan, Georgia, Turkey, Algeria, Egypt, Qatar, Jordan, Kuwait, Yemen, the Kingdom of Saudi Arabia, Nigeria, Angola, Senegal, Côte d'Ivoire, Namibia, Morocco, India, Pakistan, Singapore, Malaysia, Indonesia, East Timor, Papua New Guinea, Australia, China, Japan, South Korea, and other countries.

EDUCATION

MA, International Affairs and Economics	Johns Hopkins University, SAIS
BA, International Relations and Economic Development (<i>phi beta kappa, magna cum laude, hons.</i>)	Brown University

PREVIOUS POSITIONS

2010–2012	<i>Vice President, Energy & Environment</i> , Charles River Associates, Washington, DC
2004–2010	<i>Director, Energy</i> , Navigant, Washington, DC
2001–2004	<i>Managing Director, International Programs</i> , Pace Global Energy Services, Fairfax, VA
1998–2001	<i>Director, Financial Advisory</i> , Pace Global Energy Services, Fairfax, VA
1993–1998	<i>Vice President, International Projects</i> , Crossborder Energy, Inc., Washington, DC
1989–1991	<i>Corporate Finance Associate</i> , Citicorp, National Corporate Division, New York, NY

PROFESSIONAL EXPERIENCE

Energy Industry and Quantum Expert for International Dispute Resolution

Investment Arbitration and Litigation Matters

- **UNCITRAL Arbitration Regarding Oil and Gas Production in Asia.** For a UNCITRAL investment arbitration regarding oil and gas production in Asia, provided expert analysis of the underlying economics and economic incentives for the sovereign host and private investors in a large-scale oil and gas development. Provided expert reports, and the hearings are pending.
- **UNCITRAL Arbitration Regarding Onshore Wind Power in North America.** Serving as lead damages and industry expert for an investment arbitration regarding an onshore wind power investment project in North America. The dispute is being argued under the Chapter 11 investment provisions of the North American Free Trade Agreement and concerns

allegations regarding fair and equitable treatment, among other matters. Expert reports and hearings are pending.

- **Union Fenosa Gas v. Arab Republic of Egypt.** For an ICSID investment arbitration regarding LNG terminal impairment, led the development of industry expert reports for an investment arbitration regarding alleged LNG asset impairment and natural gas feed gas curtailment. Provided detailed analysis of the host country natural gas markets, natural gas production, and global industry fundamentals. Provided expert reports and testimony.
- **Mr. Ali Allawi, Progas Energy Limited, Progas Holdings Limited, & Sheffield Engineering Company Limited v. Islamic Republic of Pakistan.** Served as industry expert for an investment dispute between a Southeast Asian government and a private investor regarding the terms and conditions for an investment in a terminal for liquid fuel imports. The UNCITRAL dispute regarded the cause of the project's poor financial performance, whether due to the host government's alleged regulatory actions or fundamental market conditions. Provided expert reports and testimony.
- **Mesa Power Group LLC. v. Government of Canada.** Served as lead damages and industry expert for an UNCITRAL investment arbitration regarding several onshore wind power investment projects in Canada. The dispute was argued under the Chapter 11 investment provisions of the North American Free Trade Agreement and concerned allegations regarding fair and equitable treatment, among other matters. Provided expert reports and testimony.
- **Windstream Energy LLC. v. Government of Canada.** Served as lead damages and industry expert for an UNCITRAL investment arbitration regarding an offshore wind power investment project in North America. The arbitration was conducted under the Chapter 11 investment provisions of the North American Free Trade Agreement. Provided expert reports and testimony.
- **Chevron Corporation v. The Republic of Ecuador.** Acted as lead industry expert in an UNCITRAL investment dispute regarding the alleged denial of justice in several undecided Ecuadorean litigation matters. Managed a team of energy industry and damages experts in providing independent analysis of the accounting for oil production volumes, the producer's domestic market obligations, and producer volumes available for export. The damages calculations were based on detailed research and review of Spanish language contractual documentation, extensive related petroleum sector market and production reports, and operating ledgers. Provided expert reports and testimony.
- **PSEG Global Inc. and Konya ilgin Elektrik Uretim ve Ticaret Limited Sirketi v. Republic of Turkey.** Served as background consulting expert to the lead industry expert in an ICSID investment dispute between an international investor and the Turkish Ministry of Energy regarding a BOT concession project. Provided expert analysis and reporting in support a colleague's expert reports and testimony.
- **State of New Jersey v. YPF and Repsol.** As lead industry and damages expert, led a team of financial, economic, and energy market experts in the valuation of a series of oil and gas production assets in four countries in Southeast Asia and South America that are subject to

US litigation claims for fraudulent conveyance in relation to a cause of action against the asset owners. Provided expert analysis and reports, prior to settlement by the parties prior to the trial.

Commercial Arbitration and Litigation Matters

- **ICC Arbitration Regarding Solar PV Module Supply Agreement.** Analyzing project economics and damages for in relation to the alleged breach of a photovoltaic module supply agreement for a large Brazilian solar energy project. The damages analysis addresses the alleged breach impacts on capital expenditures, financing costs, and power generation and sales. Expert reports and hearings are pending.
- **UNCITRAL Arbitration Regarding LNG Supply Agreement Force Majeure.** Provided expert analysis and a first report in relation to an LNG contractual dispute regarding the application of a force majeure clause and efforts to mitigate the associated effects. The matter was settled prior to hearings.
- **UNCITRAL Arbitration Regarding LNG Supply Agreement Force Majeure.** Provided expert analysis in relation to an LNG contractual dispute regarding the application of a force majeure clause and efforts to mitigate the associated effects. Submitted the first expert reports and the reply report and hearings are pending.
- **Commercial Arbitration Regarding a Hydrogen Supply Agreement.** Provided independent expert analysis of the commercial, industry, market, and quantum issues involved in an arbitration claim and counterclaim regarding the buyer's alleged wrongful termination and seller's alleged refusal to perform, under a long-term Hydrogen Supply Agreement ("HSA") for a Steam Methane Reforming Hydrogen ("SMR") facility to supply both hydrogen and steam for a petroleum refinery. The analysis included assessments of the commercial foundations, Covid-19 pandemic and energy transition impacts on market and commercial conditions for the petroleum refining and hydrogen businesses, and analysis of damages for the claim and counterclaim. Provided expert reports and hearings are pending.
- **Natural Gas Commercial Arbitration.** Provided independent expert analysis in relation to a commercial dispute under the Swedish Arbitration Act of 1999 regarding the charges for transportation costs applicable to a specified delivery point under a long-term natural gas supply contract between a major European supplier and leading natural gas importer. Provided an expert reply report before the matter was settled by the parties.
- **ICC Arbitration Regarding the Early Termination of LNG SPAs.** Provided expert analysis on the LNG market conditions, contract valuation, and contractual losses for an Asian LNG portfolio player regarding the early termination of two LNG SPAs. The analysis included assessments of market conditions and commercial foundations, contractual losses related to early termination, valuation of the SPAs' commercial flexibility provisions, and analysis of mitigation sales of post-termination LNG cargoes. Provided a first expert report and the reply report and hearings are pending.

- **ICC Arbitration Regarding LNG Cargo Reloading in Spain.** Provided expert analysis of the market and commercial conditions, and economic incentives, for LNG cargo reloading from Spain in a commercial arbitration regarding alleged breach of contract. Provided the first expert report, and the reply report and hearings are pending.
- **Commercial Arbitration Regarding Utility Shareholders' Agreements.** Provided independent expert analysis of energy market fundamentals, business practices, and damages related to the claims of a lead shareholder in large electricity generation and distribution companies and their renewable energy development projects against the controlling joint venture ("JV") partner. The claims included alleged violations of the JV agreement related to profit sharing, investments, divestitures, service contracting, and branding for a portfolio of renewable energy projects. Provided expert analysis, with expert reports and the hearing pending.
- **LCIA Arbitration Regarding Integrated LNG Development in Africa.** Provided independent expert analysis of upstream natural gas reserves and production; LNG, NGLs, and natural gas market and pricing conditions and netback economics; infrastructure development options; construction and financing costs; and lost profits damages for a commercial arbitration regarding the feasibility, economics, and value of the integrated development of natural gas reserves and production; natural gas, NGL, and LNG infrastructure and production; and the relative economics and value of options for domestic sales and exports. This arbitration was before the London Court of International Arbitration (LCIA). Provided expert reports, and the hearing is pending.
- **Peru LNG v. Pluspetrol Peru, et al.** Provided expert analysis of the market and commercial conditions, and economic incentives, for LNG cargo reloading from the US Gulf Coast (USGC) in a commercial arbitration regarding alleged breach of contract. Provided expert reports and testimony.
- **Danagas v. IPR.** Provided an independent expert opinion relating to the factual circumstances relevant to an energy group's request for specific performance, taking into account the nature of its special agreements as assets, as well as the energy group's existing business, assets, Merger and Acquisition ("M&A") record, the oil and gas market environment, and other considerations, such as to what extent the acquisition of the Assets would "transform" the energy group into a leading local independent oil and gas company in the region. Provided an expert report and testimony.
- **HSBC Bank PLC and Spanish Egyptian Gas Company v. EGAS.** Provided expert analysis of the foundational and ongoing market and commercial conditions for an LNG Tolling Agreement in a commercial arbitration regarding alleged breach of contract. Provided expert reports and testimony.
- **Liberty v Senelec.** Provided independent expert analysis and a first report regarding the energy market fundamentals, industry practices, and quantum of damages for the alleged breach of a power purchase agreement ("PPA") by the national utility customer of an LNG to power project in Africa. The claim regarded the alleged effort of the utility to effectively cancel its commercial commitments under the PPA. Provided expert reports and testimony.

- **CRCICA Union Fenosa Gas v. EGAS.** For dual commercial arbitrations regarding LNG feed gas supply under a sale purchase agreement, led the development of dual industry expert reports for interrelated commercial arbitrations regarding alleged natural gas feed gas curtailment for LNG production. Provided detailed analysis of the host country natural gas markets, natural gas production, and global industry fundamentals. Provided expert reports and testimony.
- **ICDR Ecuadorian Oil Pipeline Commercial Dispute.** Provided expert damages analysis regarding the value of alleged force majeure transportation credits on Ecuador's heavy crude oil pipeline. The analysis included an accounting verification of the Claimant's accumulated transportation credits; an assessment of the commercial methods for monetization of the transportation credits by Ecuadorian and Colombian entities; and a damages analysis and valuation of the transportation credits through DCF analysis. The matter settled prior to the submission of the expert report.
- **Point Lisas Nitrogen Ltd. V. The National Gas Company of Trinidad & Tobago.** For a commercial arbitration regarding the renewal of a natural gas supply contract, led a team of economic, commercial, and upstream experts in providing detailed analysis regarding the historical evolution and long-term outlook for natural gas demand and supply availability in a major LNG producing country in the Americas for a commercial arbitration between the national gas company and a large industrial consumer. Provided expert reports and testimony.
- **Eni USA Marketing LLC v. Gulf LNG Energy LLC and Gulf LNG Pipeline LLC.** For a commercial arbitration, led a team of economic, commercial, and upstream experts in providing independent analysis of the North American natural gas and LNG import markets, and global LNG markets and commercial conditions, in relation to a commercial dispute about a long-term tolling agreement for LNG regasification and imports. Provided expert reports and testimony.
- **Petróleo Brasileiro v. El Paso Rio Claro Ltda. And El Paso Energy CAYGER II.** For an AAA arbitration under UNCITRAL rules, served as lead industry and damages expert on a dispute between a foreign energy investor and a state company engaged in a joint venture for power generation in Brazil. Managed a team of one forensic accountant and two Brazilian market experts in analyzing the Brazilian market and causes for impairment of a thermal power plant venture between the parties. The analysis covered long-term energy market fundamentals (power and gas supply, demand, price); gas production and imports from Bolivia; power and pipeline project financing risks, terms, and conditions; and the commercial foreseeability and reasonableness of the transaction terms in light of prevailing Brazilian market conditions. Provided expert reports and testimony.
- **CEL and INE v. Enel Green Power.** Acted as lead industry expert in an ICC commercial arbitration between the parties to a Shareholder's Agreement that established a strategic partnership for geothermal and other renewable energy investments in Central America. Led a team of energy experts in analyzing the commercial terms and standards for the Shareholder's Agreement with respect to the foreign investors' alleged rights to compel issuance of corporate equity in the renewable energy firm. The dispute centered on the firm's underlying profitability, including the negotiated sale of Certified Emissions Reduction

credits available under the Clean Development Mechanism established by the UN Framework Convention on Climate Change. The arbitration was conducted in Spanish under ICC rules. Provided expert reports and testimony.

- **ICC Arbitration Regarding LNG to Power Project JDA.** Provided independent expert analysis and a first report regarding the energy market fundamentals, industry practices, and quantum of damages for the alleged breach of a Joint Development Agreement (“JDA”) for an LNG to power project in a developing country. The claim regarded the alleged effort of the claimant’s JDA partner to change its development strategy, and replace the claimant’s approach to engineering, procurement, and construction (“EPC”) contracting and project financing with an alternative approach that allegedly harmed the claimant. Provided an uncontested expert report prior to settlement of the matter by the parties before the hearing.
- **RCJ Litigation Regarding LNG Executive Compensation.** Led a team of market, commercial, and economic analysts in providing a detailed expert report regarding the recent past and future projected market and commercial conditions for LNG trading volumes and margins worldwide, as related to lost compensation for an LNG trader in a litigation matter before the Royal Court of Justice. Provided expert reports, prior to settlement of the matter by the parties before the trial.
- **Litigation Regarding Alleged Fraud in LNG Procurement.** Led a team of market, economic, commercial, and financial analysts in providing a detailed background analysis for counsel in a U.S. litigation regarding alleged fraud in LNG procurement arrangements for supply to an Asian buyer under a short-term LNG sale-purchase agreement. The opposing party has not pursued the litigation.
- **East Timor National Fiscal Authority v. Conoco.** Led a team providing comprehensive commercial and industry expert advisory services to national government authority in Southeast Asia that was involved in a detailed audit and potential arbitration with a major oil and gas producer regarding the commercial arrangements for natural gas, helium, and LNG production, transportation, liquefaction, and sales into end markets in East Asia. The dispute regarded a wide variety of technical, economic, financial, and fiscal matters related to production sharing, export, and commercialization. Provided expert analysis for pre-dispute advisory of the client.
- **Attila Doğan Construction and Installation Co. Inc. v. AMEC Americas Ltd.** Acted as a consulting LNG and gas expert to support the quantum expert in an ICC arbitration claim regarding delay damages associated with the construction of a manufacturing facility in Jordan. Analyzed the value of LNG and natural gas supplies in Egypt, the cost of transportation from Egypt to Jordan, and the delivered price of oil and gas in Jordan to refute the manufacturing facility’s claim of lost profits based on the projected low cost of Egyptian gas imports relative to regional oil supplies. Provided an expert report in support of a colleague’s expert report.
- **Electroandina – Edelnor v. YPF SA, Mobil Arg. SA, CGC SA and Tecpetrol SA.** Served as lead industry and damages expert in a commercial dispute between Chilean gas consumers (power generation and gas distribution facilities) and their gas suppliers in Argentina. Led a team of economic, commercial, and financial experts in the analysis of

energy (power and gas) markets damages in a dispute that was submitted to arbitration under ICC rules consistent with the terms of the client's gas supply contracts and was conducted entirely in Spanish. Provided expert reports, prior to settlement by the parties prior to the hearings.

- **Power Generation Mexico v. Entergy Power.** Served as lead commercial expert and directed a team of two other commercial and financial expert witnesses to advise counsel to the defendant in U.S. litigation related to a Development Agreement for four Mexican industrial generation projects. Subsequent to two days of deposition, the case was settled before going to trial in the US federal court system. Provided expert reports, and was deposed, after which the parties settled the matter prior to the trial.
- **Sempra v. CFE.** Served as an expert advisor to an Arbitral Panel in Mexico City regarding the alleged breach of a fuel supply contract between a private pipeline/marketing company and the state power authority. The arbitration venue was AAA. Provided expert issue memoranda and advisory support to assist the tribunal to evaluate the parties' written submissions and their arguments in the hearings.

EMEA Natural Gas and LNG Price Reviews and Arbitrations

- **Commercial Price Review Arbitration for Russian Gas Imports into SE Europe.** Acted as the lead commercial and market expert for counsel to a large gas buyer engaged in a commercial price review arbitration under a multi-year contract for the import of regarding natural gas imports from Russia into a southeast European country. Provided expert reports and testimony.
- **Ras Laffan Liquefied Natural Gas Company v. ENI S.P.A (Belgium).** Led a team of experts in providing independent expert services in a commercial arbitration regarding a price review under a long-term SPA between a large LNG supplier and a European buyer. The price dispute regarded LNG cargo loadings at the regasification terminal. Provided expert reports and testimony during the trigger phase of the arbitration, after which the parties settled the matter.
- **Gas Natural Aprovevisionamientos SDG, S.A. v. Qatar Liquefied Gas Company.** Led a team of LNG market and commercial experts in providing independent analysis for a contract (re)negotiation and commercial arbitration between a large European LNG and natural gas consumer and its large global LNG supplier. The arbitration regarded allegations of bad faith in price negotiations for a contract renewal between the parties. The scope of the reports included a comprehensive evaluation of the value of LNG in global markets after 2008. The analysis covered the evolution of global and regional LNG trade, trading patterns, prices and pricing practices, and mid- and long-term SPA contract prices, terms, and conditions. Provided expert reports and testimony.
- **Sequential Natural Gas Price Review Arbitrations in Italy.** Acted as the lead commercial and market expert in a gas price review arbitration relating to the Italian market. Led a team of international and Italian market experts in preparing expert and response reports to provide the tribunal with a comprehensive analysis of natural gas and LNG market conditions and changes in Italy and Europe during the review period, -how those markets

had changed over the review period, the appropriateness of continued oil price indexation, and the typical standards and practices then in effect for pricing natural gas and triggering price reviews in Europe. Provided expert reports for both matters, one of which prevailed in the hearing and the other of which was settled by the parties.

- **Atlantic Basin LNG Price Review.** Led a detailed analysis of market structure and price evolution for a LNG supplier and aggregator to prepare for price review negotiations, and potential ICC arbitration proceedings regarding the price indexation mechanism for a large volume, long-term LNG Sale-Purchase agreement involving deliveries to several regasification terminals in multiple countries in the Atlantic Basin. The parties settled the matter prior to the initiation of international arbitration.
- **Gas Natural Aprovevisionamientos v. Atlantic LNG Company of Trinidad and Tobago.** Served as project manager and as consulting international LNG and gas expert in a significant commercial arbitration regarding a series of large, vintage LNG sale and purchase agreements between a major supplier and its international customers. Co-managed the development of an LNG arbitrage model to support a project in international arbitration regarding LNG supply contract renegotiation and AAA arbitration proceeding. The model was used to analyze the real option value attributable to alleged inappropriate cargo diversions under a series of large LNG sale and purchase agreements between a major supplier and its international customers. Areas of dispute included price and price re-opener provisions, price renegotiation requirements, diversion of cargoes, and cargo arbitrage value in the Atlantic Basin. Provided expert analysis and reporting to support a colleague's expert reports.

Asia Natural Gas and LNG Price Reviews and Arbitrations

- **Ongoing Negotiation of LNG Price Review and SPA Volume and Flexibility Terms.** For a leading Japanese LNG importer, valued a full suite of LNG supply contracts based on fundamental price forecasting. Additionally, the team valued how contractual flexibility and potential uplift through short-term trading and negotiating improved volume and flexibility terms. Analyzed the competitiveness of LNG supply in the domestic power sector, including an analysis of spark and dark spreads and the impact of renewables. Provided commercial strategy regarding options for LNG contract renegotiation, restructuring, and/or dispute resolution with each supplier. Conducted detailed analysis of non-price commercial terms and provided advisory support for negotiating improved volume and flexibility terms under multiple SPAs.
- **LNG Price Review for a Southeast Asian Buyer.** Provided comprehensive analysis of the buyer's national and Asian regional long- and short-term LNG sale and purchase conditions and benchmark contracts over a historical review period to advise the buyer on recommended price adjustment options for formal price review negotiations and to provide an expert report for international commercial arbitration.
- **LNG Price Review for a Japanese Buyer.** Provided comprehensive analysis of Japanese LNG import market conditions and benchmark contracts over a historical review period to advise the buyer on appropriate negotiation positions for formal price review and/or an

expert report for international commercial arbitration. The matter was settled prior to arbitration.

- **LNG Price Review for a Pacific Basin Seller.** Provided comprehensive analysis of Japanese LNG market conditions and benchmark contracts over a historical review period to advise the seller on appropriate negotiation positions for formal price review and/or expert reports for international commercial arbitration.
- **Consortium of Japanese Buyers v. Asian LNG Supplier.** Provided comprehensive analysis of regional Asian markets and import contracts for mid- to long-term LNG supply, and contractual and market pricing for a comprehensive price review and pre-dispute arbitration claim for reduced LNG prices under a pair of DES and FOB LNG supply contracts between a leading Asian LNG supplier and a consortium of large Asian LNG buyers. This work involved comprehensive analysis of all regional LNG import contracts into four major Asian countries over a six-year review period for SPAs with deliveries over the remainder of the five-year period to expiry of the SPAs between the parties. This included comprehensive review and cross-checking of several sources of LNG contract and pricing information, as well as detailed contextual analysis of historical and future LNG market fundamentals, prices, and price drivers. It also involved detailed advisory work for the corresponding legal claim from counsel to the buyer. The matter settled just prior to the submission of an international commercial arbitration claim.
- **Guangdong Dapeng LNG v. North West Shelf LNG.** Led a team of economic, commercial, and market experts in providing comprehensive analysis of the sellers' pre-dispute economic claim related to alleged economic force majeure, cost overruns, and necessary price increases for LNG supply to an Asian buyer from a major Pacific Basin supplier, and the buyer's claim regarding a series of undelivered cargoes. This work involved extensive analysis of the alleged force majeure and cost overruns, the causal relationship between them, and the timing, magnitude, and impact of the overruns. It also involved extensive analysis of opposing experts' analysis of long run marginal costs for relevant LNG facilities, and global and regional LNG market and price evolution and market drivers during the period of alleged force majeure and economic harm, as well as the current LNG market and price outlook over the horizon for requested price increases. The seller's claim did not proceed to arbitration.

Business Advisory for LNG, Natural Gas, and Petroleum

Global

- **LNG Commercial and Economic Strategy for an Asian LNG buyer.** Provided independent expert services for an overall commercial strategy to a leading East Asian LNG buyer to enhance the economics of an LNG portfolio of multiple SPAs. This engagement includes strategic prioritization of the SPAs targeted for renegotiation and/or price review, and recommendation of the specific strategy for each SPA considering options for informal negotiation, formal price review and/or international arbitration. It also involves ongoing expert advisory and contract-specific market and pricing analysis to support informal SPA renegotiations, formal price review negotiations, and eventual international arbitrations.

Serving as the lead industry and commercial expert. Provided strategic assessment and price review activity is ongoing.

- **LNG Procurement and Due Diligence for an Asian LNG Buyer.** Led a comprehensive LNG procurement and due diligence effort for an Asian LNG buyer seeking to procure LNG and potentially also invest in an LNG liquefaction terminal. The analysis included market assessment, conducting LNG procurement, commercial advisory, and commercial and investment due diligence, valuation, and negotiation support related to the buyer's objective of securing optimal LNG supply with or without investment in an LNG liquefaction project.
- **LNG Sales and Pricing Strategy for a Leading Producer.** Led a team of global natural gas and LNG market and commercial experts in the development of a long-term commercial and pricing strategy for a leading global producer. The team analyzed current market and commercial conditions for natural gas and LNG sales, and developed a detailed forecast of global, regional, and national market and commercial conditions for natural gas and LNG sales over the coming decade. Based on this forecast and other strategic considerations and client capabilities, the team developed a detailed sales and pricing strategy to optimize the long-term value of the client's entire natural gas and LNG export portfolio worldwide.
- **LNG Sales and Pricing Strategy for a U.S. LNG Exporter.** Led a team of global natural gas and LNG market and commercial experts in the development of a long-term commercial and pricing strategy for a leading U.S. LNG export developer. The team analyzed current market and commercial conditions for natural gas and LNG sales, and developed a detailed forecast of global, regional, and national market and commercial conditions for natural gas and LNG sales over the coming decade. Based on this forecast and other strategic considerations and client capabilities, the team developed a detailed sales and pricing strategy to ensure the project was positioned to compete successfully in an increasingly competitive global market environment for long-term LNG sales.
- **Due Diligence and Risk Analysis of Project Finance Loan Portfolio.** Led a detailed global due diligence analysis of a portfolio of over 80 project finance loans to energy infrastructure project companies for a private equity investor looking to invest in providing Basel III compliant loan loss reserves for a leading international bank. The loan portfolio included an array of LNG liquefaction and regasification; natural gas pipeline; petroleum and petrochemical refining, terminals, and storage; and thermal and renewable energy generation assets. For each loan/asset, the review addressed critical issues of market, commercial, regulatory, policy, and political risk to project revenues and debt service over the remaining term of each loan. The investment was completed on time and on budget.
- **Benchmarking of LNG Diversion Pricing and Practices.** Led a detailed benchmarking analysis of LNG diversion practices and performance for a Middle Eastern LNG supplier over a 4-year historical period. This work involved evaluation of the supplier's actual LNG diversion track record, prices, and netbacks as compared to the appropriate short-term LNG price references in several major diversion target markets Asia, Europe, and the Americas. Detailed research into historical LNG market conditions, trade patterns, DES prices and shipping costs was required to assure a rigorous and balanced analysis of diversions transacted on both a DES and FOB basis. The work also involved benchmarking of the

client's diversions practices and procedures in comparison to industry best practices and known competitor activities during the period.

Europe, Middle East, Africa (EMEA)

- **Commercial Feasibility Analysis of an LNG Floating Terminal in Europe.** Provided market and commercial analysis to assess the economic viability of developing an FSRU import terminal in the eastern Mediterranean. Provided demand projections of the accessible gas market and market prices, evaluated the associated infrastructure requirements and costs, and provided a detailed financial analysis to determine market competitive tariffs for the terminal services.
- **Economic Feasibility and Commercial Strategy for an LNG Regas Project.** Led the commercial component of a large economic feasibility analysis for a large state company considering LNG import into a Middle Eastern country. This involved a global LNG market and price forecast analysis and a recommended commercial strategy and specific counterparty and contracting recommendations for the procurement of peak summer LNG supply to serve local energy demand under favorable supply and price conditions. The client objective was to take advantage of emerging LNG summer surpluses and favorable price dynamics unleashed by the combination of burgeoning LNG supply, booming North American shale gas production, and sustained economic recession to procure long-term seasonal supply of a competitively priced and environmentally preferred LNG to liberate greater volumes of national petroleum production for export at increasingly high global oil prices.
- **Energy Audits for Pan-European Industrial Producer.** Led energy audit and market analysis teams in developing an integrated gas and power procurement strategy for a large multinational industrial corporation's operations in Hungary, Germany, and Netherlands. Coordinated closely with a parallel team covering client operations in the UK, Spain, and Italy.
- **Strategic, Commercial, and Technical Advisory for Baltic Subsea Gas Pipeline.** Managed advisory services to the export subsidiary of a leading global gas producer on a 3 Bcf/d, 1700km undersea natural gas pipeline project and other strategic pipeline alternatives to serve incremental target market demand in the UK, Northwestern Europe, and Scandinavia. The pipeline has been constructed. Also provided commercial and financial strategic advisory support related to LNG, marketing and trading, and other initiatives in Eastern and NW Europe.
- **Commercial Development and Negotiations for a Multi-National Oil Pipeline.** Co-managed an advisory team supporting a national pipeline company on structuring and negotiating the national interest in the \$3.0 billion, 50 MMtpa crude oil pipeline and a related natural gas pipeline to deliver oil and gas supplies from the Caspian region across Azerbaijan and Georgia to markets in Turkey and the Mediterranean. Included negotiation of the \$1.4 billion Turnkey Construction Agreement and related \$300 million Government Guarantee Agreement. The project was constructed and entered operation. The

engagement led to additional advisory work in the area of domestic pipeline system tariff modeling to support new regulatory and rate-making requirements established in Turkey.

- **Economic Feasibility Analysis for Ukrainian Refinery Project.** Led an economic feasibility analysis for a large refinery project in Ukraine designed to refine Caspian and Russian crude into high-grade petroleum products that are consistent with EU standards. The project aimed to serve end markets in Ukraine, Poland, and the Visegrad countries of Eastern Europe.

Americas

- **Sales Origination for U.S. LNG Export Project.** Advised the developer of a North American LNG export terminal on market conditions and commercial terms for the sale of LNG tolling capacity and/or LNG supply to LNG buyers throughout Asia, Europe, and the Americas. Assisted with direct outreach to potential customers for purposes of initial commercial negotiations. The commercial success of this effort directly enabled the client to secure substantial long-term development funding.
- **Natural Gas and LNG Market Analysis for U.S. LNG Export Permit Filing.** Prepared a long-term market analysis and price forecast of North American and regional natural gas markets for the developer of a North American LNG export terminal and its legal counsel. The study covered the price and basis impacts of LNG exports under a variety of scenarios, as well as the implications for global LNG trade and pricing. It was attached to the developer's application to the US Department of Energy (DOE) for authorization to export LNG to non-Free Trade Agreement (FTA) nations.
- **Shale Gas Production, Transportation, and Market Analysis for Asian Investor.** Provided detailed analysis of natural gas market and transportation fundamentals for a foreign company engaged in shale gas production and power generation in the U.S. and Mexico. Evaluated competing supply resources, transportation routes and costs, for delivery of U.S. shale gas to power generation facilities in Mexico.
- **North American Natural Gas Market and Transportation Analysis.** Provided a detailed natural gas market analysis and price forecast under several scenarios for a variety of prospective pipeline expansions and/or re-tasking (for petroleum product service). This was used by an LNG and natural gas client to evaluate natural gas deliverability and price implications related to the commercial development of a potential North American liquefaction project for LNG exports into Pacific Basin markets.
- **LNG Market and Commercial Training for a State Utility Commission.** Prepared and provided an LNG industry, market, and commercial training seminar for the state regulatory commission of an island economy. The commission used this training as a part of their preparations to address issues of LNG import prices and commercial terms, terminal siting, construction, tariffs, contracts, and simultaneous natural gas and renewable energy integration into the local energy grid and utility operations.

- **North American Natural Gas Pipeline Analysis for an Asian LNG Buyer.** Led an analysis of the historical evolution and current practices for North American natural gas pipeline interchangeability as related to power generation operations in the US, prospective LNG exports to Japan, and potential LNG consumption in the Japanese power sector. The study was used by a large utility client interested in importing US LNG into Japan for consumption by Japanese power generation stations.
- **LNG Feed Gas Procurement Advisory for an Asian LNG Buyer.** Led an engagement to provide detailed market analysis and commercial advice related to the procurement of North American LNG and feed gas supply for a leading Asian LNG Buyer. This involved comprehensive analysis and forecasting of the North American natural gas shale gas production and economics, demand fundamentals market prices, basis differentials, and pipeline flows and utilization. This supported detailed commercial recommendations regarding where to purchase LNG and feed gas, how to price and index these supplies, how to secure and procure pipeline transportation, and how to craft appropriate long-term flexibility in a very promising but uncertain market environment.
- **Strategic Natural Gas and LNG Market Forecast for an Asian Buyer.** Led an analysis and forecast of North American natural gas and global gas and LNG supply-demand balances and prices to evaluate the magnitude and sustainability of price pressures and the commercial implications for a leading Asian LNG importer. The client was particularly interested in the long-term impact of North American and international shale gas production on LNG supply balances (surpluses) and prices. Included integrated modeling of the North American natural gas industry, global gas markets, and LNG commercial patterns and shipping economics worldwide. A recent update was performed to evaluate the additional impact of North American LNG exports on US gas prices, Asian LNG fundamentals and import prices, and the “Pacific shale spread” or price differential between US and Asian markets.
- **Integrated Gas and Power Market Analysis and Forecasting.** Led the natural gas and LNG analytic team supporting one of the largest Investor-Owned Utilities (“IOU”) in the U.S. This team provided all the IOU client’s long-term natural gas market and price analysis and forecasting to be used for power sector analysis and forecasting, integrated resource planning, strategy development, and regulatory filings. The critical market drivers and topics analyzed included: the outlook and sustainability of shale gas production levels and costs in light of key policy, regulatory, and gas demand scenarios; the level of potential demand growth in the electric and industrial sectors in the mid-term and the potential for demand destruction if prices grow substantially in the long-term; and the level and economic sustainability of LNG exports from North America.
- **Shale Gas and NGL Market Analysis for a Middle Eastern Investor.** Led analysis of the long-term impact of shale gas and oil production on natural gas liquids (NGLs) production volumes, composition, locations, and prices for a Middle Eastern petrochemical investor interested in North America. Prepared an analysis of all major NGL fractions (including propane, ethane, butane, isobutene, pentane, and natural gasoline) and the decline in production from conventional gas basins and rapid growth in unconventional shale gas and oil plays. The work was used in connection with an overall investment strategy in the North American petrochemical sector.

- **LNG SPA Price Negotiation.** Led a team of natural gas and LNG market and commercial experts in connection with the negotiation of an international LNG sale and purchase agreement between a leading international supplier and its equity partner at arm's length. Involved competitive and commercial counterparty analysis, international LNG opportunity cost (arbitrage) analysis, and detailed regional market analysis and fundamental forecasting, which included developing multiple relevant market forecast scenarios (macroeconomic/demand, shale production, LNG, pipeline infrastructure) to analyze price and basis impacts relevant to the contractual index pricing for the LNG.
- **Economic and Energy Market Impact Analysis of Peruvian LNG Exports.** Led a team of Latin American energy experts in preparing an analysis of the historical economic impacts on the Peruvian energy sector of the Peru LNG export project and a projection of the future costs and benefits of project continuation versus potential cancellation. This analysis was used to inform and address a policy debate in Peru regarding the potential reallocation of natural gas reserves and production that had been dedicated to the LNG export project for domestic customers.
- **Independent Market Consultant's Report for LNG Regas Project Financing in Mexico.** Led the development of a market consultant's report that analyzed Mexican natural gas market demand, transportation, and price fundamentals as they may impact the LNG project's long-term risks to revenue and debt service for an international consortium of commercial, investment, and export credit agency lenders that successfully financed a \$680 million, 3.65 MMtpa (500 MMcf/d) LNG terminal in Mexico. Included contract review, regulatory analysis and outlook, and financial/economic analysis, modeling, and forecasting. The financing boasted an 80/20 capital structure and a 15-year loan tenor, making it the longest tenor project financing in the Western Hemisphere since the credit crisis of 2008/2009. It was also the first project financing for an LNG terminal in Mexico.
- **Valuation of a Minority Equity Investment in a U.S. LNG Regas Development Project.** Managed a team of advisory experts in providing a detailed market analysis and financial valuation to support the due diligence and a successful acquisition bid by a European investor interested in acquiring a 30% minority stake in a US Gulf Coast LNG terminal project. Involved detailed analysis and long-term forecasting of North American natural gas demand fundamentals; scenarios for North American gas production, pipeline imports, LNG imports, and LNG terminal capacity; natural gas prices at relevant regional price points; price netbacks to competing LNG terminal projects; competitive analysis of LNG terminal margins and the locational value to LNG suppliers of the target terminal's LNG regasification capacity; development of a detailed revenue model and revenue scenarios for the target terminal; preparation of a full project pro forma; financial evaluation of the project's IRR, NPV, and DSCR; and decision-tree and probability analysis of the current value of the project based on the risks inherent in the project's ongoing development.
- **LNG and Natural Gas Market Competition and Regulatory Risk Analysis.** Co-managed a team of experts in advising counsel for a major international LNG supplier in evaluating US DOJ, FTC, and FERC standards and market trends as related to the future risks posed by US antitrust law and in structuring transactions so as to minimize such risk. Involved a

thorough market and commercial analysis of the subject transactions, market concentration in both LNG-related markets and gas markets in general, and the overall state of competition in those markets.

- **Commercial Evaluation of Target LNG Suppliers for a U.S. Regas Project.** Assisted in evaluating project presentation materials and prospective NOC supplier targets for a US Gulf Coast terminal in the final stages of permitting. Involved evaluating Atlantic Basin National Oil Companies (NOCs) that are or soon will be LNG producers with an interest in shipping, selling, and trading their LNG directly—versus through larger International Oil Company (IOC) industry players—and consequently have an interest in contracting LNG regasification capacity in key US and European target markets. Also assisted in the direct approach and discussions with one of the target NOCs.
- **Regulatory Risk Analysis for Utility Investment in U.S. Regas Project.** Led a team of experts in preparing a comprehensive evaluation of regional and national LNG terminal regulatory and permitting constraints, policy challenges, and recommended strategies by which the utility can advance its objectives, minimize challenges, and mitigate risks for a large, regulated gas and power utility considering ground-breaking commitments to LNG supply, terminal capacity, and perhaps terminal equity.
- **Analysis of U.S. Southwest and Northwest Mexico Pipeline Gas Markets.** Provided a detailed analysis of NW Mexico and US Southwest markets for new LNG supplies to be delivered into Puerto Libertad, Sonora. Included detailed analysis of future demand, competing LNG and basin gas supply, LNG impacts on liquid trading hub prices, basis differentials, and inter-regional and international gas flows.
- **Market Analysis for Mexico Pipeline Development Projects.** Provided market analysis and commercial support related to the feasibility screening and development of seven natural gas pipeline and distribution projects located in the areas of Yucatan, Morelos, Toluca, Bajío, Tampico/Madero, Chihuahua/Durango/Nuevo Leon, and NW Baja. Work performed for separate clients on separate occasions.
- **Independent Consultants' Reports for Mexico Pipeline Project Financings.** Led large financial and market due diligence teams supporting Citibank/US EXIM Bank and Inter-American Development Bank financings for the San Fernando and Gasoducto Bajanorte pipeline projects in Mexico, respectively, including detailed regional and international flow modeling and analysis (to/from the US and potentially Guatemala), supply and demand forecasting, price forecasting, regulatory assessment, pro forma analysis and review, contract analysis and review, and coordination with other legal and independent engineer due diligence efforts.
- **Market and Commercial Due Diligence for Mexico Pipeline Sales.** Provided market and commercial due diligence for two successful pipeline asset buy-sell transactions in the Bajío and Yucatan regions of Mexico. Work performed for separate clients on separate occasions.

- **Central America IPP and Pipeline Project Development.** Supported developers of electricity generation and gas pipeline infrastructure projects in Central America with expertise in market analysis, commercial analysis and negotiation, and project finance.
- **Gas Supply Contract Negotiation in Brazil and Venezuela.** Supported the negotiation of two natural gas supply contracts for industrial cogeneration facilities with Cegas in Brazil and PDVSA in Venezuela, respectively. Work performed for separate clients on separate occasions. Supported PDVSA and USTDA with a detailed market analysis and forecast related to the prospective development and financing of a pipeline from the PDVSA system at Barbacoas to Cumana and Isla Margarita in Venezuela.
- **South America Pipeline Investment Screening Analysis.** Supported a large international pipeline company in the opportunity screening and transaction due diligence for potential pipeline acquisitions in Brazil, the Southern Cone, and Venezuela, including detailed due diligence supporting a bid for the GasAndes pipeline from Argentina to Chile.

Business Advisory for Power Generation

- **Project Development and Finance Advisory for an Integrated Gas-to-Power Project.** Provided expert advice to a natural gas E&P company engaged in developing a gas-fired power generation facility. Advised the development of commercial terms and financing conditions for the project and its commercial offer of baseload and peaking supply in the regional Southern Africa power markets.
- **Hydrogen Storage and Power Generation in North America.** Advised a land trust on strategic options for commercial engagement in an integrated project for the off-peak production and storage of green hydrogen and on-peak hydrogen power generation and power sales.
- **Latin America Carbon Credit Analysis for Clean Energy Investor.** Led a team of international consultants in identifying international renewable and energy-efficiency development projects capable of generating approximately 200,000 tons of carbon dioxide emissions (tCO₂e) of CERs by 2012 or later under the CDM framework of the UNFCCC for a large European utility new to Brazil and South America. To help the utility expand its access to an international pool of renewable energy projects, the team used its significant network of industry clients and contacts to identify, screen, and introduce projects, with most being sourced in Latin America, especially Brazil, Peru, Mexico, and Central America. The screening and selection process involved assessment of underlying project economic feasibility as well as the feasibility of CDM approval and ultimate prospects for obtaining and generating CERs. Also involved detailed quantification of mid-term CER generation potential based upon established methodologies for the highest ranked candidates.
- **Power, Gas, and LNG Investment Strategy for Brazil.** Provided a comprehensive energy investment strategy review to identify and screen opportunities that might be suitable for a large international energy company evaluating whether to redouble its investments in Brazil. Included assessment of market drivers and structures, risks, competition, returns, and

company positioning in electric generation (conventional and renewable), transmission and distribution, and LNG and natural gas transportation and distribution.

- **Market and Commercial Due Diligence for Bond Financing of Brazil Hydro Complex.** Provided market and commercial due diligence for hydro and thermal project financings in Brazil, including a \$300MM flagship 144A Bond Financing for a large Brazilian hydro complex.
- **Evaluation of Distressed Power Generation Assets in Colombia.** Led the analysis of key long-term value drivers and revenue potential related to an investment bank client's bid to acquire a distressed gas-fired power generation station in Colombia. Key issues involved the re-regulation of power pricing and system operations, the timing of future export transmission projects and export volumes to Ecuador and Panama, and the secondary market for turbines in and around the Caribbean Basin.
- **Development of Operations Manual for Power Generator in Colombia.** Evaluated gas supply terms and conditions and developed fuel nomination procedures included in the operations manual for a significant gas fired IPP project jointly owned and operated by an international investor and a local regional utility in Colombia.
- **Commercial Restructuring and Divestiture of Caribbean Cogen Asset.** Led the restructuring and divestiture of a 50MW industrial cogeneration asset in the Caribbean, including financial analysis, commercial and contractual restructuring, contract negotiation, financial and technical due diligence, preparation of a data room, identification and screening of investor candidates, and recommendation of final sales value and terms.
- **Analysis and Monitoring of Power Tariffs for Mexico Regulator.** Supervised a team of four consulting companies in supporting Mexico's Energy Regulatory Commission with the analysis and monitoring of long-run marginal costs and tariffs for all of Mexico's generation, transmission, and distribution operations.
- **Fuel Procurement Strategy and Negotiation for IPP Projects in Mexico.** Provided fuel procurement strategy and fuel contract negotiation support for three IPP and industrial generation projects in Mexico. Work performed for separate clients on separate occasions.
- **Market Analysis and Forecasting for UK Power Generation Investor.** Coordinated analysis of long-term natural gas supply/demand balances, supply gaps, seasonality of demand, system load factors, new import pipeline and LNG infrastructure timing and probability, NBP price correlations to oil and continental gas prices, and projected prices and price risks over a financing forecast horizon for two separate hedge funds evaluating current and prospective investments in the UK power generation business.
- **Market Analysis and Valuation of UK Power Generation.** Co-led the power market forecasting and valuation efforts supporting a large equity investor's bid to acquire the Drax coal-fired power generation station in the UK, one of Europe's largest coal-fired assets.

PRESENTATIONS

- “Strategic and Commercial Implications of the Methane Mitigation Imperative,” Presentation at 21st World LNG Summit and Awards 2021, Rome, Italy, December 1, 2021.
- “Mitigating Methane Emissions in the Natural Gas and LNG Supply Chains: Pricing and Strategy Implications,” Training Session with Atha Arapogianni, Joanna Martin Ziegenfuss, and Katie Bays at 21st World LNG Summit and Awards 2021, Rome, Italy, November 30, 2021.
- “Energy Transition Dark Side: Scale and Risk of Stranded Assets,” GAR Live: Energy Disputes, London, UK, September 30, 2021.
- “LATAM Energy Reforms and Arbitration-Focus on Mexico,” Hogan Lovells Seminar, Paris Arbitration Week 2021, September 23, 2021.
- “From Resource Scarcity to Energy Abundance,” Webinar with Matthew Tanner, Transition Economist: PE Live, January 27, 2021.
- “Energy Transitions and Decarbonization – Americas, EU, and Developing Countries Perspectives,” Webinar with Brian Lloyd of Sempra LNG and Bobby Quintos of Delta Offshore Energy, Energy Dialogues, January 26, 2021.
- “Decarbonization Downside? Net Zero Policy is Not Zero Sum for LNG,” Webinar, DMG World LNG Virtual Summit and Awards, December 2, 2020.
- “Covid-19, Climate Change, and Their Implications for LNG Trade and Natural Gas in South America,” Presentation with Roberto Cunha at Madrid Energy Conference, September 15, 2020.
- “Covid-19 Pandemic: Market and Commercial Implications for Japanese Buyers,” Presentation with Stephen Del Regno at CWC Japan LNG & Gas Virtual Summit, July 8-9, 2020.
- “Oil and Gas Contracts During and Post Covid-19,” Webinar with Richard Nelson and Wade Coriell of King & Spalding, PE Live, April 23, 2020.
- “Taking Cover from Covid-19 Under LNG Contracts,” Webinar with Richard Nelson of King & Spalding, CWC 12th Asia Pacific Summit, April 15, 2020.
- “Intensified Climate Policy Impacts on LNG Supply and Trade,” Presentation at CWC 20th World LNG Summit, Rome, Italy, December 5, 2019.

- “LNG Commercial and Financing Optimization in the Era of Abundance and Flexibility,” Training Session with Michael Whalen at CWC 20th World LNG Summit, Rome, Italy, December 3, 2019.
- “Climate Policy Impacts on LNG Trade,” Presentation at North American Gas Forum, Washington, D.C., October 22, 2019.
- “Climate Policy Impacts on the LNG Industry,” Presentation at Baker Botts LNG Forum on Climate Policy, October 15, 2019.
- “LNG Market and Price Imperatives for Supply Competition,” Presentation at CWC 11th Asia Pacific Summit, Singapore, June 26, 2019.
- “The LNG Flexibility Imperative: Unlocking LNG Competitiveness and Liquidity through Commercial Change and Flexibility,” LNG 19, Shanghai, China, April 5, 2019.
- “LNG Price and Flexibility Imperatives for Competition,” Presentation at 2nd CWC Japan LNG & Gas Summit, Tokyo, Japan, February 19, 2019.
- “LNG Pricing and Flexibility Imperatives for Demand Growth,” Presentation at CWC 19th Annual World LNG Summit, Lisbon, Portugal, November 28, 2017.
- “LNG Commercial and Financing Optimization in the Era of Abundance and Flexibility,” Training Session with Michael Whalen at CWC 19th Annual World LNG Summit, Lisbon, Portugal, November 27, 2017.
- “Market Change, Policy, and Pricing: Implications for New LTCs and FID,” Presentation and Training Session at CWC 10th Asia Pacific Summit, Singapore, October 18, 2018.
- “Market Change and Pricing: Getting the Right Price or the Price Right?” Training Session at CWC 10th Asia Pacific Summit, Singapore, October 16, 2018.
- “The New LNG Flexibility Imperative: Optimizing Value in LTCs and Portfolios,” C5 2nd Asia Congress on Successfully Negotiating and Renegotiating Long Term Gas Supply Contracts, Singapore, April 10, 2018.
- “The New LNG Flexibility Imperative: Optimizing Value in Contracts and Portfolios,” CWC Japan LNG & Gas Summit, Tokyo, Japan, February 6, 2018.
- “Procurement and Portfolio Optimization in an Era of Abundance and Flexibility,” CWC 18th Annual World LNG Summit, Lisbon, Portugal, November 29, 2017.
- “LNG Contract and Portfolio Optimization in the Era of Abundance and Flexibility,” Training Session with Tom Choi at CWC 18th Annual World LNG Summit, Lisbon, Portugal, November 28, 2017.

- “Global Context for LNG Procurement and Optimization in Brazil,” Institute of the Americas 2017 Brazil Energy Roundtable, Rio de Janeiro, November 8, 2017.
- “Optimizing Flex Value for LNG Exports,” North American Gas Forum, Washington, DC, October 2, 2017.
- “Repricing LNG and Optimizing Flexibility,” Presentation and Training Session at CWC 9th Asia Pacific Summit, Singapore, September 20, 2017.
- “The Global Context for European LTCs and Pricing,” C5 7th Annual Congress on Successfully Negotiating and Renegotiating Long Term Gas Supply Contracts in Europe, Berlin, July 6 and 7, 2017.
- “Cracking the Commercial Code for US LNG Sales in a Tough Market,” LNGgc Americas Conference on Understanding the Future of US LNG Exports: Pricing, Markets, Infrastructure & Projects, Houston, June 2, 2017.
- “Long Term LNG Supply Contracts and Pricing in Asia,” C5 1st Asia Congress on Successfully Negotiating and Renegotiating Long Term Gas Supply Contracts, Singapore, February 27, 2017.
- “LNG Market Acceleration: The New World of Contracts and Pricing,” CWC 17th Annual World LNG Summit, Barcelona, Spain, December 14, 2016
- “LNG Markets, Contracts, and Pricing in an Increasingly High Velocity Market,” Training Session with Tom Choi and John House at CWC 17th Annual World LNG Summit, Barcelona, Spain, December 12, 2016
- “The New LNG Abundance and Repricing Challenges,” CWC 8th Asia Pacific Summit, Singapore, September 22, 2016.
- “Repricing LNG, Price Reviews, and Arbitration,” Training Session with John House at CWC 8th Asia Pacific Summit, Singapore, September 20, 2016.
- Conference Chair, Day One, C5 6th Annual Congress on Successfully Negotiating and Renegotiating Long Term Gas Supply Contracts, Berlin, Germany, June 30, 2016.
- “How Abundant LNG Impacts Long-Term Natural Gas Contracts,” C5 6th Annual Congress on Successfully Negotiating and Renegotiating Long Term Gas Supply Contracts, Berlin, Germany, July 1, 2016.
- “Be Careful What You Ask For: LNG Opportunities and Risks from the New Natural Gas Abundance,” LNG 18, Perth, Australia, April 11-15, 2016.
- “*Pretium Americana*: The Brave New World for Buying and Selling LNG,” CWC 16th Annual World LNG Summit, Rome, Italy, December 2, 2015.

- “*Pretium Americana*: The Brave New World for Buying and Selling LNG,” Training Session with Daniel Glazner at CWC 16th Annual World LNG Summit, Rome, Italy, December 1, 2015.
- “LNG Pricing in an Era of Abundance,” CWC 7th Asia Pacific Summit, Singapore, September 9, 2015.
- “LNG Contracting, Price Reviews, and Arbitration,” Training Session with Christian Jeffrey at CWC 7th Asia Pacific Summit, Singapore, September 8, 2015.
- “Breaking Rules and Changing the Game, Will Shale Gas Rock the World?” Energy Bar Association CLE Webinar, Washington, DC, July 14, 2015.
- “Are We on the Verge of a Global Gas Market?” C5 5th Annual Congress on Successfully Negotiating and Renegotiating Long Term Gas Supply Contracts, Berlin, Germany, July 1-2, 2015.
- “Golden Age of Opportunity for Unconventional Gas and LNG,” 26th World Gas Conference, Paris, France, June 1-5, 2015.
- “LNG Shakeout? Liquefaction Challenges in a Surplus LNG, Soft Oil Market,” CWC 15th Annual World LNG Summit, Paris, France, November 18-21, 2014.
- “Managing Feedgas for North American LNG Supply,” Training Session with Daniel Glazner at CWC 15th Annual World LNG Summit, Paris, France, November 18-21, 2014.
- “North American Shale and LNG: Implications for Contracts and Pricing,” CWC 6th Asia Pacific Summit, Singapore, September 24, 2014.
- “The Rise of North American Shale and LNG Exports: Implications for Long-Term Contracts and Pricing,” C5 4th Annual Congress on Successfully Negotiating and Renegotiating Long Term Gas Supply Contracts, Berlin, Germany, July 2, 2014.
- “Genie on the Loose!” Energy Bar Association CLE Event: Global Perspectives on Hydraulic Fracturing, Washington, DC, April 24, 2014.
- “Genie in a Bottle: Introducing Henry Hub,” Société Générale Energy Conference, Naples, Florida, April 1, 2014.
- CWC 14th Annual World LNG Summit, Paris, France, November 18-21, 2013.
- “North America LNG Exports – Impacts on Alaska and Beyond,” Panellist at KL Gates 2nd Annual Alaska Oil & Gas Conference, Anchorage, Alaska, July 10, 2013.
- “North American LNG Exports: How Disruptive for Global Markets,” Second Cyprus Natural Gas Conference, Nicosia, Cyprus, June 20-21, 2013.

- “North American LNG Exports: Global Market Disruption and the Implications for BC LNG Supply,” CI Energy Group’s BC Natural Gas Symposium, Vancouver, BC, Canada, June 4-5, 2013.
- “North American LNG Exports: Global Market Disruption and Opportunity Cost of Supply to LAC,” XXII La Jolla Energy Conference, La Jolla, CA, May 20-22, 2013.
- “North American LNG Exports: How Disruptive for How Long?” LNG 17, Houston, Texas, April 17, 2013.
- “Drivers and Disruptions: The Challenge of Rebalancing Global LNG Markets,” CWC World LNG Summit, Barcelona, Spain, November 28, 2012.
- “US Natural Gas Demand and LNG Exports,” Global Gas Council, Inaugural Meeting, Washington, DC, October 25, 2012.
- “US Natural Gas Demand and LNG Exports,” Industrial Energy Consumers of America (IECA), Natural Gas and Oil Supplier Meeting, Washington, DC, October 2, 2012.
- “North American LNG Exports & ‘Shale Spreads’ – Implications for Independent Producers,” IPAA Spring Meeting, Petroleum Club, Houston, Texas, May 3, 2012.
- “North American LNG Exports: ‘Shale Spread’ Implications and Opportunities for the LAC Region,” Institute of the Americas, XXI La Jolla Energy Conference, La Jolla, CA, May 21, 2012.
- “North American LNG Exports & ‘Shale Spreads’ – Implications for Latin America and the Caribbean,” CWC, San Antonio, Texas, April 24-27, 2012.
- “North American LNG Exports and the Looming Price Debate – What Gas Utilization Strategy and Policy are needed to Maximize Long-Term US Benefits?” Industrial Energy Consumers of America (IECA), Washington, DC, April 17, 2012.
- “Chasing the Shale Spread: Potential New Markets for LNG,” Twelfth Annual World LNG Summit, CWC, Rome, Italy, November 14-17, 2011.
- “Shale Development and ‘Shale Spread’ Uncertainty in the Era of Technological, Regulatory, Policy, and Political Revolution,” World Shale Gas Conference and Exhibition, November 7-11, 2011.
- “An Underground Revolution in the Americas: Implications for LNG and Natural Gas,” Rio Gas Forum, CWC, Rio de Janeiro, Brazil, April 13-14, 2011.

- “America’s Underground Revolution: Strategic and Commercial Challenges Posed by Shale Gas Production,” Mesa Redonda sobre Energía en México: Reforma & Regulación, Mexico City, Mexico, December 13, 2010.
- Eleventh Annual World LNG Summit, CWC, Barcelona, Spain, December 1, 2010.
- “The New Global Gas Dynamic, Carnegie Energy and Climate Program,” Washington, DC, October 12, 2010.
- “Emerging Trends in Atlantic LNG Trade Volumes and Prices,” LNG 2010, SMI, London, UK, March 22, 2010.
- “US Renewable Energy: Prospects and Challenges,” Senate President’s Forum, Berlin, Germany, July 11, 2009.
- “Seizing Opportunities and Mitigating Risk through Carbon Reduction Planning,” Institute of the Americas, Latin America Energy Conference, La Jolla, CA, May 11-13, 2009.
- “The Fierce Urgency of 2009: Industry Strategies for Global Carbon Policy Change,” Institute of the Americas, Accelerating Carbon Development in Mexico, Mexico City, Mexico, February 4, 2009.
- “Energy Disputes in the Americas: Bringing Method to the Madness,” Institute of the Americas, XVII Annual Latin American Energy Conference, La Jolla, CA, May 13-14, 2008.
- “Energy Dispute Resolution: Bringing Method to the Madness,” Second International Oil & Gas Conference, World Petroleum Council and Energy Institute. Managing Risk Dispute Avoidance and Resolution, London, UK, September 19-20, 2007.
- “Navigating Challenges of Nationalization and Market Change in the Americas,” Fifteenth Annual Latin American Energy Conference, Institute of the Americas. La Jolla, CA, May 15-17, 2006.
- “Filling the Gap: Net Gas Imports and LNG in Perspective,” Mexican Energy Roundtable, Institute of the Americas, Mexico City, Mexico, December 7, 2005.
- “Battle of the Netbacks: *LNG vs. Gasoducto Suramericano*,” Mesa Redonda del Gasoducto Suramericano, Institute of the Americas, Montevideo, Uruguay, August 23-23, 2005.
- “LNG Markets and Commercial Challenges in Mexico and the Andean Region,” 14th Annual Latin American Energy Conference, Institute of the Americas, La Jolla, CA, May 16-17, 2005.

- “Peru’s LNG Sector: Developments and Prospects,” The Center for Latin American Issues, The George Washington University, Washington, DC, May 11, 2005.
- “Financing Americas LNG,” Project Finance-Euromoney Roundtable Business Meeting, Houston, TX, May 5, 2005.
- “Industrial and Pemex Generation: Potential, Challenges, and Solutions,” Mexican Energy Roundtable, Institute of the Americas, November 11, 2003.

PUBLICATIONS

1. “Expert Role in Causation Analysis for Energy Transition Related Arbitration,” With Alayna Tria, *The Investment Treaty Arbitration Review – Edition 6* (June 2021).
2. “Canadian LNG’s Last Best Chance?” With Tom Choi, *LNG Industry* (June 2021).
3. “LNG Market Under Increasing Pressure,” With Alayna Tria and Tristan Van Kote, *Petroleum Economist* (January 4, 2021).
4. “From Resource Scarcity to Energy Abundance and Infinite Supply,” With Matthew Tanner, Alayna Tria, and Tristan Van Kote, *Transition Economist* (January 2021).
5. “Energy Transition Bridge Fuel: Do We Still Need Natural Gas?” With Tom Choi and Tristan Van Kote, *Public Utilities Fortnightly* (October 15, 2020).
6. “Like a Bat out of Hell: Energy and the Post-Pandemic Economy” With Robert Stoddard, Alayna Tria, and Tristan Van Kote, *Petroleum Economist* (June and July 2020).
7. “Expert Evidence in Price Reviews and Disputes,” *Gas & LNG Price Arbitration 2019*.
8. “Breaking Rules and Changing the Game: Will Shale Gas Rock the World?” *Energy Law Journal* (Volume 35, No.2, 2014).
9. “Genie on the Loose!” With Anthony Melling. *LNG Industry* (May 2014).
10. “Perfect Match? European Natural Gas Markets and North American LNG Exports.” With Anthony Melling. *Wiley Periodicals, Natural Gas and Electricity* (March 2014).
11. “North American LNG Exports Present Epic Opportunities and Risks.” *Wiley Periodicals, Natural Gas and Electricity* (January 2014).
12. “Epic Change and Existential Risk of North American LNG Exports.” *LNG Journal* (June 2013).
13. “An Underground Revolution.” *LNG Industry* (Spring 2011).

14. "Natural Gas Exports from Mexico." *Wiley Periodicals, Natural Gas and Electricity* (May 2009).
15. "Shadows of Uncertainty: Trends that will Shape the Future of Power Supply and Gas Demand." With Patrick Hurley. *Insight* (October 2007).
16. "Axis of Uncertainty: Bolivian Oil and Gas Nationalization and Its Implications for the Future of Regional Gas Infrastructure Development." With Federico Garcia Lopez. *Project Finance* (July 2006).
17. "Lessons from the (Liquefied) Natural Gas Market." *Wiley Periodicals, Natural Gas and Electricity* (July 2006).
18. "Steady Heat: The Mexican Natural Gas Sector Keeps Burning, But Is the Flame Beginning to Flicker?" With Daniel E. White. *Project Finance* (July 15, 2003).

PROFESSIONAL MEMBERSHIPS

International Association for Energy Economics

International Bar Association, Associate Member

Energy Bar Association, Associate Member

Phi Beta Kappa

LANGUAGES

English (native), Spanish (fluent), German (fluent), Italian (proficient), Portuguese (intermediate), and Turkish (basic)