

# Joanna Martin Ziegenfuss

Ms. Joanna Martin Ziegenfuss offers 20 years of experience in the global energy industry. Her expertise in energy markets and infrastructure encompasses renewables, hydrogen, RNG, natural gas, LNG, SSLNG, and power generation. Ms. Martin Ziegenfuss has advised on market-entry business strategy, commercial strategy, energy procurement, feasibility analysis and due diligence of energy infrastructure developments, project finance and investment in energy assets, and energy transition to cleaner fuels.

Ms. Martin Ziegenfuss has provided key energy market expertise in several international commercial disputes under the ICC rule.

She has led engagements for international financial institutions, credit export agencies, investment banks, private equities, law firms, sovereign entities, major international energy companies, project developers and engineering firms.

Her energy expertise is underpinned by a strong environmental background gained in her earlier career, working as an environmental specialist on oil and gas developments and as an environmental advisor for an international oil company.

## EDUCATION

MBA Economics, Finance and Strategy	Cranfield School of Management, UK
Post Graduate Certificate in Project Finance	Middlesex University London, UK
MSc. Marine and Fisheries Science	University of Aberdeen, UK
BSc. Hons. Marine Biology	University of Wales, Swansea, UK
AMP qualification	Association of Project Managers, UK
CEnv. Chartered Environmentalist	Society for the Environment, UK
City & Guilds Cert. in Petroleum Processing Technology	OPITO, UK

## PREVIOUS POSITIONS

2022 - Present: *Owner Prasino LLC, Washington DC, US*

2017 - 2022: *Associate Director, Climate & Energy Practice, Washington DC, US*

2015 - 2017: *Independent Energy Consultant, Washington, DC, US*

2013 - 2015: *Senior Project Manager, Pace Global / Siemens, London, UK & Washington DC, US*

2011 - 2013: *Senior Consultant, Mott MacDonald Ltd, London, UK*

2004 - 2011: *Consultant, Genesis Oil & Gas Consultants Ltd, London, UK*

2000 - 2004: *Marine Scientist, Fisheries Research Services, Aberdeen, UK*

## PROFESSIONAL EXPERIENCE

### Energy Industry International Dispute Resolution

- **Ongoing Commercial Arbitration Regarding the Development of an SMR Hydrogen facility.** Contributed to industry expert analysis regarding key matters associated with the hydrogen market and commercial feasibility of the facility in the US Gulf Coast.
- **Ongoing Commercial Arbitration Regarding the Project Financing of a PV Solar Power plant.** Contributed to industry expert analysis regarding key matters associated with the global PV solar market and project development and financing of the facility in Latin America.
- **Ongoing Commercial Arbitration Regarding the Project Financing of an LNG Liquefaction Terminal.** Contributed to industry expert analysis regarding key matters associated with the project financing of a middle eastern LNG liquefaction terminal.
- **Ongoing Commercial Arbitration Regarding the Project Financing of a Hydroelectric Project.** Contributed to industry expert analysis regarding key matters associated with the project financing of a Latin American hydroelectric power project.
- **Ongoing Commercial Arbitration Regarding LNG Cargo Reloading.** Contributed to expert analysis of the market and commercial conditions, and economic incentives, for LNG cargo reloading in a commercial arbitration regarding alleged breach of contract.
- **Ongoing Investment Dispute Regarding a Petroleum Refinery.** Contributed to expert analysis of the domestic and import markets and pricing for refined petroleum products in an emerging market country. Analyzed the regulatory promises associated with the investment, the government's adherence to these promises, and counterfactual scenarios for refinery sales and revenue had the regulatory promises been kept in full.
- **Ongoing Commercial Arbitration Regarding Electric Utility Shareholders' Agreements.** Project managed and contributed to an 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 in a developing country against the controlling JV partner. The claims included alleged violations of the JV agreement related to profit sharing, investments, divestitures, service contracting, and branding. Final expert reports and testimony are pending.
- **Ongoing Commercial Arbitration Regarding LNG to Power Project PPA.** Project managed and contributed to an 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") for an LNG to power project for the national utility off-taker in a developing country. The claim regarded the alleged effort of the utility to effectively cancel its commercial commitments under the PPA.
- **Ongoing Commercial Arbitration Regarding LNG to Power Project JDA.** Project managed and contributed to the analysis of energy market fundamentals, industry practices, and quantum of damages for the alleged breach of a Shareholder's Development Agreement 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.
- **Ongoing Litigation Regarding Alleged Fraud in LNG Procurement.** Undertook detailed LNG market analysis for counsel regarding alleged fraud in LNG procurement arrangements for supply to an Asian buyer under a short-term LNG sale-purchase agreement.

- **Point Lisas Nitrogen Ltd. v. The national Gas Company of Trinidad.** For a commercial arbitration regarding the renewal of a natural gas supply contract, undertook analysis for the expert report on 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.

### Clean Fuels

- **Green Hydrogen Business and Commercial Strategy Advisory for a Start-up.**
- **Green Hydrogen Plant Market and Economic Feasibility Evaluation for a Private Equity Firm.** Led the analysis of key market, commercial and geopolitical risks on the return on investment for each 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.
- **Green Steel Plant Market and Economic Feasibility Evaluation for a Steel Plant Owner.**
- **U.S. Gulf Coast Green and Blue Hydrogen Market Development Study for a Law Firm.**
- **Clean Fuel Options Advisory for a Foundry Owner/Operator in Macedonia**

### Energy Market, Economic and Commercial Strategy

- **Renewable Infrastructure Loans Market and Risk Evaluation for a Private Equity Firm.** Led the analysis of key market, commercial and geopolitical risks on the return on investment for each 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.
- **Spanish and Italian Renewable Markets Analyses for a Private Consortium.** Undertook a review of the Spanish and Italian renewable markets projected growth and regulations to evaluate the most cost beneficial option between purchasing renewable from the market or developing a renewable power generation project.
- **LNG Procurement and Commercial Evaluation for an Asian LNG Buyer.** Led a comprehensive LNG procurement and due diligence analysis for an Asian LNG buyer seeking to procure LNG and potentially invest in a U.S. LNG liquefaction terminal. The analysis included a global LNG market assessment, conducting LNG procurement market testing, 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.** Project managed a team of global LNG and natural gas 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.
- **Small-Scale LNG Liquefaction Plant Development Strategy for Mexican Developer.** Provided market analysis, commercial and financial strategy to client seeking to develop an LNG liquefaction and distribution in Mexico.
- **Small-Scale LNG Regional Delivery Network Development Strategy.** Provided advisory expertise to client seeking to develop Caribbean and Latin American natural gas transportation and delivery projects.

- **Small-Scale LNG Demand Market Analysis for a Japanese Investment Corporation.** Undertook a comprehensive analysis of future LNG consumption and economic value in key sectors in North America (marine bunkering, trucking, mining, rail, oil & gas, and off-grid industry). Developed an end-user LNG adoption model based on diesel projected demand, price margins, infrastructure availability and risk exposure. Delivered a strategic assessment of most the profitable sectors and U.S. regions for the client to target.
- **Small-Scale LNG Technology Market Entry Strategy for a US Equipment Manufacturer.** Assessed market demand for a 700 gpd liquefaction technology and evaluated the technology performance, advantages and weaknesses versus other competing technologies. Developed market entry strategy and positioning relative to demand markets and key competitive advantages.
- **US Northeastern States Small-Scale LNG Demand Market Analysis for a US Utility.** Led the analysis of the potential for diesel displacement by LNG in bunkering, trucking, and industry. Delivered strategic insights on key favorable markets for the client to target and leverage existing natural gas assets to enter the CNG/LNG market.
- **Small-Scale LNG Demand Market Analysis for a Global Oil & Gas Equipment Manufacturer.** Undertook a comprehensive analysis of industry and geographic markets to assess the potential demand for the client's 6,000 gallons per day liquefaction technology. Forecasted LNG adoption by 2020 and 2035 in the U.S., Canada, and Mexico in the following sectors: oil & gas drilling and flaring, industry, remote communities, and mining. Advised on potential revenue and industry market approach strategy.
- **Small-Scale LNG liquefaction Market Analysis for a US Private Equity Firm.** Assessed the market demand and financial viability of a 150,000 gpd liquefaction plant based in Texas. Analyzed the potential future LNG demand from regional markets and sectors, including: E&P drilling, industry, trucking and bunkering. Assessed competing risks from existing and proposed local liquefaction plants and analyzed available market relative to competition. Projected facility revenue and return on investment.
- **Small Scale Liquefaction Plants Pre-Due Diligence Assessment for a US Private Equity Firm.** Undertook a high-level review of two proposed small-scale liquefaction plants in the US Gulf Coast to assess whether they were economically viable to engage in a detailed due diligence. Reviewed pricing and tolling assumptions in relation to the facility's respective markets, evaluated capital cost, project development costs, regulatory process, and financial structuring schedule. Presented the client a high-level risk assessment of the proposed projects.
- **LNG Fuel Adoption Analysis Along the Rhine Corridor for the Consortium of Rhine Ports.** Undertook a comprehensive analysis of future LNG demand adoption in key markets (short-sea shipping, inland waterways vessels, trucking, and off-grid industry) along the Rhine corridor across the Netherlands, Belgium, France, Germany, and Switzerland as part of the EU LNG masterplan development. Analysis based on diesel order growth and end-user LNG adoption model and key national economic factors.
- **LNG Bunkering Market Analysis for a US Utility.** Led the analysis of LNG bunkering demand projections in key ports on the US West Coast from 2025 to 2035 for a utility seeking to extend its business portfolio. Developed a bunkering end-user LNG adoption model, segmented by ship type and assess regional LNG supply infrastructure development. Delivered forecasted volumes and market value by key ports and identified strategic locations for growth.

- **LNG Bunkering Barge Investment Analysis for a US Private Equity firm.** Analyzed the cost benefits and return on investment of investing in an LNG dual-fuel articulated tug barge. Assessed the supply and pricing of LNG fuel and competing fuels along the Louisiana and Florida coast and identified the most economical locations to source LNG fuel.
- **Mining Haul Truck Conversion to LNG Analysis for a U.S. Project Developer.** Undertook a comprehensive analysis of LNG fuel consumption, associated infrastructure requirements, capex and opex related to the conversion of diesel mine haul trucks to LNG fuel for project financing purposes.
- **LNG Peakshaving Plant Functionality Analysis for the American Gas Association.** Led a comprehensive review of North American LNG peakshaving plants to assess common drivers and barriers to the repurposing of the assets' primary functionality to a merchant business model servicing regional LNG demand.
- **LNG Fuel and CNG Demand Analysis in the European Market for a German Energy Company.** Undertook a comprehensive analysis of current and projected LNG fuel and CNG consumption, and infrastructure development in the vehicle sector in Northern Europe.
- **LNG Vehicle Standards and Codes Analysis for the American Gas Association.** Led the analysis of the U.S. LNG vehicle market, including drivers and regulatory factors mitigating its growth. Identified steps to resolve the disparity in standards and codes across the EU, Canada, and the U.S. to facilitate the adoption of LNG vehicles in the U.S.
- **Floating Liquefaction Facilities Development Costs Benchmarking for an Oil Major.** Global review, analysis, and benchmarking of FLNG development costs and construction schedules in support of a project screening process.

## Energy Project Feasibility and Due Diligences

- **Project Finance Loan Portfolio Due Diligence and Risk Analysis for a Private Equity Firm, Global.** Led a detailed global due diligence analysis of a \$3 billion portfolio of 50 project finance loans to energy infrastructure projects 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 LNG liquefaction and regasification assets, natural gas pipeline, refineries, petrochemical storage terminals, 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.
- **Commercial Feasibility Analysis of an LNG Floating Terminal for a European Petroleum Company, Greece.** Providing 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 evaluated the associated infrastructure requirements and costs. Currently, determining market competitive tariffs for the terminal services and advising on the commercial regulatory compliance requirements.
- **FPSO Project Finance Due Diligence for an Export Credit Agency, Brazil.** Acting as ECA financial advisor; assessing reasonableness of the project financial model and assumptions, analyzing completion, operational and commercial risks, sponsors credit quality, and providing expert review of the financial structure, project term sheet and associated contracts.

- **Refinery Project Finance Due Diligence for an Export Credit Agency, Kazakhstan.** Acting as ECA financial advisor; assessing reasonableness of the project financial model and assumptions, analyzing completion, operational and commercial risks, sponsors credit quality, and providing expert review of the financial structure, project term sheet and associated contracts.
- **LNG Terminal Feasibility Study for the Ministry of Energy, Kenya.** Managed a multidisciplinary team of engineers and financial experts to assess the most suitable development option (onshore vs. offshore), develop the engineering concept, financial model and environmental evaluation of the proposed terminal.
- **Large Crude Oil Storage Terminal Feasibility Study for a Major Oil Company, Middle East.** Led the project management, market research, analysis and multidisciplinary team of engineers and financial experts to develop the financial and engineering feasibility for a 200-million-barrel crude oil storage for a national oil company in the Middle East.
- **Refinery Feasibility Analysis for a Private Consortium, Afghanistan.** Led the project management and multidisciplinary team of engineers and financial experts to define a feasible design concept for a refinery in a remote location of Afghanistan.
- **LNG Import Terminal Due Diligence for an International Financial Institution, Pakistan.** Managed a multidisciplinary team of engineer to validate the capex and opex of a proposed floating regasification unit and assess the reasonableness of the business model considering the global LNG market, environmental compliance, and operations management. Identified key risks, resolutions, and mitigation measures to resolve and reduce client's risk exposure.
- **Onshore Shale Oil Field Due Diligence for an Investment Bank, France.** Led a technical, operational and environmental due diligence of onshore shale assets in the champagne region of France. Managed a multidisciplinary team of engineers to assess the reasonableness of the business model in view of the market, environmental compliance and operations management. Analyzed the validity of CAPEX, OPEX and technical assumptions. Identified key risks and proposed resolutions to resolve and reduce the client's risk exposure.
- **Onshore Oil Field Due Diligence for an Investment Bank, UK.** Led a technical, operational, and environmental due diligence of onshore shale assets in southwest England. Managed a multidisciplinary team of engineers to assess the reasonableness of the business model in view of the market, environmental compliance, and operations management. Analyzed the validity of CAPEX, OPEX and technical assumptions. Identified key risks and proposed resolutions to resolve and reduce the client's risk exposure.
- **Oil & Chemical Storage Terminal Due Diligence for an Oil Company, Netherlands.** Led a technical, operational, and environmental due diligence of one of Europe's largest oil and chemical storage terminals in Rotterdam. Managed a multidisciplinary team of engineers to assess the reasonableness of the business model in view of the market, environmental compliance and operations management. Analyzed the validity of CAPEX, OPEX and technical assumptions. Identified key risks and proposed resolutions to resolve and reduce the client's risk exposure.
- **Multi-fuel Station Regulatory Due Diligence for a Private Equity Firm, Mexico.** Led a regulatory compliance analysis of the concept design of a compact, modular, multi-fuel fueling station of a start-up venture for a private equity firm in Mexico. Undertook a detailed review of diesel, gasoline, LNG and CNG fueling regulations, codes, and standards in the U.S and Mexico, regulatory gap analysis and risk identification.

## Energy Industry Environmental Assessments & Compliance

- **E&P Greenhouse Gas Emission Reduction Analysis for an Oil Major.** Undertook an emissions inventory analysis of E&P greenhouse gas (GHG) emissions and in collaboration with process engineers provided sustainable concept solutions to reduce GHG emissions from upstream development increasing energy efficiencies and thereby reducing project development costs.
- **E&P Environmental Impact Assessments of North Sea Offshore Installations.** Undertook new field development or field extension environmental impact assessments and secured environmental consent applications and permits for oil majors operating in the North Sea United Kingdom Continental Shelf.
- **UKCS Offshore Installation GHG Emissions Reduction Assessment and Implementation.** Working for an oil major and with a multi-disciplinary team of engineers, successfully reduced oil major's offshore installations' environmental footprint by 10%. Developed key performance indicators, monitoring, and reporting procedures to maintain emissions reduction progress.
- **UKCS Offshore Installation Environmental Compliance.** Working for an oil major, managed the daily environment compliance of an oil major's operating offshore installations in located in the North Sea United Kingdom Continental Shelf.
- **Global E&P Environmental Compliance of Onshore and Offshore Projects for Oil Majors.** Managed the environmental support for E&P projects developed by oil majors in Europe, Algeria, Kazakhstan, Uganda and Egypt.
- **UK and EU Oil & Gas Environment Regulation Monitoring.** Working for an oil major, researched, and appraised leadership team on emerging UK and European environmental regulations, identifying environmental policy developments, risks and opportunities that could shape business decisions.
- **E&P Environmental Support Procurement.** Working for an oil major, procured, and managed environmental consultant for discrete project support.

## PRESENTATIONS

- *Strategic and Commercial Implications of the Methane Mitigation Imperative.* 21<sup>st</sup> World LNG Summit, Rome, 2021.
- *Extending the Asset Return of North American LNG Peakshaving Plants.* World Gas Conference, Washington DC, 2018.
- *North American Marine Bunkering with LNG: Technical Opportunities, Challenges and Recent Experience.* With Ted Williams. World Gas Conference, Washington DC, 2018.
- *The Role of FSRUs in the LNG Market.* LNG Global Congress Americas Conference, Houston, 2017.
- *ECA Update: Coastal Zone and Inland Waterways Shipping.* LNG Fuel Summit & LNG Fueled Tugs and Barges Conference, New Orleans, 2016.
- *LNG Lowdown: Changing Market Drivers.* LNG Fuel Summit & LNG Fueled Tugs and Barges Conference, New Orleans, 2016.
- *LNG Fuel: The Trailblazers.* LNG Global Congress Americas Conference, Houston, 2016.
- *US Shale Exuberance, the Prospects for U.S. LNG Exports.* 3rd Annual Global LNG Forum, Lisbon, Portugal, 2013.

## **PUBLICATIONS**

- *Hydrocarbon Supply-Chain Grapples with Methane Abatement*, with Chris Goncalves. Oil and Gas Journal. April 2022.
- *Will Covid Crimp LNG as Bunker Fuel*, with Shiyana Gunasekara. LNG Industry. August 2020.
- *Public Private Partnerships Driving the Integration of Renewables into Microgrids*, with Robin Cantor, Gonçalo Mendes, and Noah Schlosser. Dentons Smart Cities Think Tank. May 2019.
- *LNG, Let's Get Small, Steve*, with Michael Whalen. Project Finance International. Global Energy Report. April 2018
- *The New LNG Flexibility Imperative*, with Chris Goncalves and Li Li. LNG Industry. April 2018
- *The Big Potential of Small-scale LNG*. Energy Industrial Council. Energy Focus. Winter 2018
- *Will the US Make a Splash in China?* Lloyd's List Maritime Intelligence. June 2017.
- *Off the Scale: On the Current State of Small-Scale LNG*. KNect365. April 2017.
- *The Time is Ripe for Small Scale LNG*. LNG Industry. October 2016.
- *LNG Fuel Remains Cost Competitive in Low Crude Price Environment*. Pace Global North American Distribution List. February 2015.
- *Electricity Capacity Mechanisms in France*. Pace Global European Distribution List. January 2013.

## **PROFESSIONAL MEMBERSHIPS**

- Women's Council on Energy and the Environment, US. Treasurer.
- United States Association for Energy Economics, US
- Society for the Environment, Chartered Environmentalist, UK

## **LANGUAGES**

- French (native)
- English (fluent)
- German (intermediate)