

## Mr. Richard Druce

Director

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### Overview

Mr. Druce is an expert in the economics of the energy and utility industries. He regularly supports utilities in the course of price control reviews, especially on matters related to cost forecasting and comparative benchmarking, willingness to pay analysis and incentive design. He also regularly works on electricity market modelling assignments, in the course of due diligence, long-term expansion planning studies, and policy appraisal. He has particular experience of the design and assessment of energy network tariffs, incentive mechanisms, and network and infrastructure access rules.

In the Middle East, Mr. Druce has worked extensively on electricity and water sector regulatory, restructuring and market reform assignments:

- In the UAE, he advised the Regulation and Supervision Bureau (RSB) on generation expansion planning in 2007 and on cost reflective tariff design in 2012. More recently, he led NERA's input into a major power and water sector restructuring assignment run by the Executive Affairs Authority, known as "Project Clean Slate". Since then, he has led NERA's work for the Emirates Water and Electricity Company (EWEC) which involves optimal expansion planning and tariff design.
- In Saudi Arabia, he is leading NERA's work for the Water and Electricity Regulatory Authority and the Ministry for Environment, Water and Agriculture (MEWA) on developing new regulatory arrangements for the power and water sectors.
- Elsewhere in the region, he is currently advising the GCCIA on the design and implementation of a "beneficiary pays" transmission charging regime and other commercial and regulatory issues. He is also advising the Oman Electricity Transmission Company (OETC) on transmission tariff design.

Mr. Druce has served as an expert witness in proceedings before the English High Court, as well as during appeals to the UK Competition and Markets Authority.

He holds an MPhil degree in Economics from St Catharine's College, Cambridge, where he specialised in microeconometrics and industrial organisation. He also holds a first class degree in Economics and Econometrics from the University of Bristol. Before joining NERA, he worked at the UK government's Office of Rail Regulation, where he contributed to several regulatory projects.

### Qualifications

**2005-2006**

**ST CATHARINE'S COLLEGE, CAMBRIDGE**  
MPhil Economics

**2002-2005**                      **UNIVERSITY OF BRISTOL**  
BSc Economics and Econometrics

## **Career Details**

**2006-Present**                      **NERA ECONOMIC CONSULTING**  
Director (2019-), London  
Associate Director (2016-19), London  
Senior Consultant (2012-16), London  
Consultant (2009-12), London  
Analyst (2006-09), London

**Summer 2004**                      **OFFICE OF RAIL REGULATION**  
**& Summer 2005**                      Temporary Assistant Economist

## **Project Experience**

### **2021**

- For Ocean Winds, a joint venture between ENGIE and EDP Renewables, conducting a study of the impact of volatility in Transmission Network Use of System (TNUoS) charges on the cost of financing new offshore wind farms in Great Britain.
- For Cadent Gas, acting as an economic expert on an appeal brought to the British Competition and Markets Authority (CMA) against a decision by Ofgem regarding the company's "RIIO-GD2" price control review.
- For the Emirates Water and Electricity Company (EWEC) in Abu Dhabi, advising on the tariffs and commercial arrangements offered for the sale of bulk power and water.
- For the Water and Electricity Regulatory Authority (WERA) in Saudi Arabia, advice on various economic and regulatory issues related to the restructuring and oversight of the Saudi electricity sector, including the design of new mechanisms to remunerate new solar and wind generation projects.
- For the Oman Electricity Transmission Company (OETC), support on the development of transmission tariffs for customers wheeling power across OETC's power transmission system.
- For Anglian Water, developing a framework for performing cost-benefit analysis in support of the company's 2024 Water Resource Management Plan (WRMP).
- For the Ministry for Environment, Water and Agriculture (MEWA) in Saudi Arabia, developing a new regulatory framework for the water sector in Saudi Arabia to be implemented by a new Water Regulator being established by MEWA.
- For a confidential investor, conducting vendor regulatory and market due diligence on a Portuguese gas and electricity business.
- For a confidential investor, conducting vendor regulatory due diligence on an English water and wastewater utility.
- For a confidential investor, conducting buy-side due diligence on an energy services company holding an international portfolio commercial and industrial solar PV sites, spread primarily around the Middle East.

### **2020**

- For a confidential client, support on an LCIA arbitration involving the treatment of electricity transmission losses in a long-term power purchase agreement.

- For UK Power Networks, conducting a stated preference willingness to pay study to value various aspects of service improvement, as an input into its business planning process for Ofgem’s RIIO-ED2 price control review.
- For Renewables UK, conducting a review of proposed reforms to British Transmission Network Use of System (TNUoS) charges to alter the “reference node”, which influences the charges paid by different types of generators.
- For Scottish Power Transmission and National Grid, conducting a review of Ofgem’s cost assessment (Real Price Effects, productivity improvement targets, comparative benchmarking) in the RIIO-T2 price control draft determination.
- For the Electricity and Cogeneration Regulatory Authority (ECRA) in Saudi Arabia, advising on the development of new ancillary service arrangements and the regulation of the “Principal Buyer” of electricity.
- For Cadent Gas, conducting a detailed review of Ofgem’s cost comparative benchmarking used to inform the RIIO-GD2 price control draft determination.
- For UK Power Networks, advice on comparative benchmarking in the context of preparing a business plan submission to Ofgem at the RIIO-ED2 price control review.
- For SSE Networks, developing a “totex optimisation” model to optimise the allocation of expenditure across its activities to maximise a social welfare function.
- For an English water company, support on a reference to the Competition and Markets Authority of the company’s PR19 business plan.
- For the Electricity and Cogeneration Regulatory Authority (ECRA) in Saudi Arabia, advising on the design of ancillary service markets.
- For SP Energy Networks, studying the impact on the proportions of the population likely to be in “fuel poverty” due to the significant investments required by 2035 to decarbonise electricity, heat and transport.
- For the Emirates Water and Electricity Company (EWEC), drafting an expansion plan for electricity generation and water desalination facilities.
- For a confidential investor, advising on the potential acquisition of a majority share in the Muscat Electricity Distribution Company in Oman.

## **2019**

- For Aboitiz InfraCapital and MetroPac Water Investments Corporation (Philippines), advising on the design of a Bulk Water Supply Agreement for the sale of water by a greenfield Reverse Osmosis desalination plant to the local water utility.
- For the Emirates Water and Electricity Company (EWEC), power and water market modelling to identify optimal generation investments and advising on the design of new Bulk Supply Tariffs.
- For Scottish Power Transmission, advising on the treatment of input price inflation and ongoing productivity improvement, and conducting financial risk modelling in the context of its RIIO-T2 business plan.
- For a consortium of water companies led by Sutton and East Surrey Water, reviewing proposals from England and Wales water regulator Ofwat regarding the funding of targets to accelerate the rate of leakage reduction achieved by regulated water companies.
- For Jersey Electricity plc, computing a standby charge for Combined Heat and Power facilities in Jersey.

- For Bristol Water, providing a wide-ranging review of proposed price control determination from England and Wales water regulator Ofwat, with a focus on comparative benchmarking, productivity targets and real input price inflation.
- For Cadent Gas, in the context of the RIIO-GD2 price review, conducting various willingness to pay valuation studies to be used as inputs into the appraisal of investment or operational schemes to be put forward in the company's business plan.
- For the Electricity and Cogeneration Regulatory Authority (ECRA) in Saudi Arabia, advising on the regulation of the Saudi Electricity Company's transmission and distribution business.
- For Affinity Water, reviewing the treatment in comparative benchmarking models by England and Wales water regulator Ofwat of regional wage variation.

## 2018

- For UK Power Networks, Scotia Gas Networks, Cadent Gas and Thames Water, conducting a joint study with engineers from Arcadis to identify and quantify the additional costs that utilities serving London, relative to those operating in other parts of Great Britain, and advising on how such costs can be controlled for in comparative benchmarking.
- For Affinity Water, advice on cost assessment and comparative benchmarking in preparation for the PR19 price control review.
- For Bristol Water, ongoing support on the preparation of a business plan for submission to Ofwat during the PR19 price control review, focusing on cost assessment and customer engagement issues.
- For Citipower/Powercor, SA Power Networks and United Energy (Australia), conducting an expert review of proposals from the Australian Energy Regulator to change its approach to indexing price control allowances for Distribution Network Service Providers to changes in outputs.
- For Severn Trent Water, conducting a Revealed Preference valuation study to inform cost benefit analysis required for its PR19 business plan.
- For Cadent Gas, in the context of preparing its business plan for the RIIO-GD2 price review, advising on the potential role for valuation and willingness to pay research.
- For a confidential client, preparing expert testimony in the course of a potential follow-on damages claim affecting the energy sector to be brought before the Competition Appeals Tribunal.
- For National Grid, Scottish Power and Scottish and Southern Energy, conducting a stated preference willingness to pay study regarding potential changes in the service provided by the British Transmission Owners, in preparation for the RIIO-T2 price control review.
- For Edison (Italy), developing a proposed regulated tariff methodology for a proposed Small Scale LNG investment on the island of Sardinia, including regasification facilities, expansions to distribution systems, and LNG coastal deposits.
- For AES (Northern Ireland), supporting engagement with the Northern Ireland Utility Regulator on potential generation contracts for power stations not awarded with Capacity Market Agreements.
- For the States of Jersey Department of the Environment, conducting an expert review of a "standby charge" to be levied on embedded generation by Jersey Electricity.
- For the UK Environment Agency, conducting a research study to draw lessons from behavioural economics and game theory on potential improvements to the Partnership Funding policy through

which state support is supplemented by voluntary contributions from the private beneficiaries of investments to prevent flooding or coastal erosion.

- For the Abu Dhabi Water and Electricity Company (ADWEC), power and water market simulation modelling to identify optimal generation investments, and developing proposals regarding the level and structure of tariffs to be offered to large energy users.
- For the Ministry for Environment, Water and Agriculture (Saudi Arabia), developing proposals for structuring a “balancing account”, aimed at reforming the ways in which subsidy is paid to the water sector in the Kingdom.
- For the Saudi Electricity Company (SEC), supporting SEC on discussions with the Electricity and Cogeneration Regulatory Authority (ECRA) on the development of regulatory methods for setting the Revenue Requirement for transmission and distribution network business units.

## **2017**

- For Mubadala Development Company and the Executive Affairs Authority of Abu Dhabi, advising on various economic issues related to the potential reform of the power and water sector in Abu Dhabi, including on the design of cost-reflective tariffs, optimal expansion planning, and economic impact assessment.
- For Endeavour Energy (Australia), conducting a review of methods used in Europe to conduct comparative benchmarking for the purpose of efficiency assessment in electricity distribution price control review.
- For NIE Networks, support in engaging with the Utility Regulator of Northern Ireland on a wide range of benchmarking and cost assessment topics in the RP6 price control review, including providing responses to UR consultation papers.
- For Wessex Water, conducting a Revealed Preference valuation study to inform cost benefit analysis required for its PR19 business plan.
- For Anglian Water, conducting Cost Benefit Analysis to inform the 2019 Water Resources Management Plan, and conducting a study to value improvements in drought resilience from the perspective of non-domestic customers using macroeconomic data on “gross value added” by sector which provides an input into this CBA analysis.
- For Bristol Water, support in the preparation of the PR19 business plan on topics including comparative benchmarking and special cost factors, and conducting various customer valuation studies to inform Cost Benefit Analysis.
- For Northumbrian Water, various customer engagement research to inform the Cost Benefit Analyses required to support the PR19 business plan.
- For UK Power Networks (UKPN), conducting peer review of regulatory submissions in response to Ofgem’s “RIIO2” consultation documents.
- For Edison (Italy), advice on development of new regulatory arrangements in the Small Scale LNG market in Italy, against the background of EU Directive 2014/94/EU, on the deployment of alternative fuels infrastructure (including LNG) across EU Member States.
- For Singapore LNG Corporation, conducting a benchmarking study comparing the costs and tariffs of the LNG import terminal in Singapore to those of comparable facilities.

## **2016**

- For NIE Networks, advice on a wide range of benchmarking and cost assessment topics in support of preparing its business plan for submission to the Northern Ireland Utility Regulator for the RP6 price control review.

- For the Association for Decentralised Energy, advice on Ofgem’s ongoing review of “embedded benefits”, the transmission network charging arrangements that remunerate embedded generators for helping to avoid transmission system costs.
- For Anglian Water, providing strategic advice on the development of a strategy to provide the societal and environmental valuation assumptions for the Cost Benefit Analysis modelling to be conducted as part of the PR19 business planning process.
- For Bristol Water, acting as a strategic advisor in the context of the customer valuation research programme to be conducted in preparation for the PR19 price control review.
- For the UK Competition and Markets Authority (CMA), analysing the welfare effects of proposed reforms to implement zonal transmission loss multipliers in the British wholesale electricity market.
- For I Squared Capital, economic analysis of the Irish energy retail markets in the context of the client’s acquisition of the Viridian business.
- For an Asian power sector investor, preparing a research paper reviewing the development status of smart grid and smart city projects, setting out the potential barriers to their efficient deployment, and forming policy recommendations for removing these barriers.
- For the Saudi Electric Company, ongoing support in the context of its ongoing restructuring programme, focusing on the development of new regulatory mechanisms for electricity transmission and distribution businesses.
- For the Singapore Gencos (Tuas Power, Senoko and YTL PowerSeraya), reviewing the potential future role of the vesting contract regime in the Singaporean power market, as both a means of mitigating market power and as a means of providing revenue stability to generators.

## 2015

- For RWE, analysing proposals put forward by the UK Competition and Markets Authority to introduce zonal transmission loss multipliers into British wholesale electricity trading arrangements. The work included cost-benefit analysis of the proposed reform.
- For the UK Energy Networks Association (DCRP P2 Working Group), advising on potential changes to Engineering Recommendation P2/6, the design standard that governs the investments that British electricity distributors are obliged to make in their networks to ensure security of supply.
- For UK Power Networks, advice in the course of the appeal to the Competition and Markets Authority of Ofgem’s “RIIO-ED1” price control decision by Northern Powergrid Limited.
- For UK Power Networks (with SP Energy Networks, Electricity North West and Northern Power Grid), advice in the course of the appeal to the Competition and Markets Authority of Ofgem’s “RIIO-ED1” price control decision by British Gas Trading Limited.
- For the UK Committee on Climate Change, in collaboration with Imperial College London, analysing the marginal power system integration cost associated with the connection of increased volumes of intermittent and other low carbon generation technologies.
- For the Gulf Cooperation Council Interconnection Authority, advice on the design of new tariffs and charges adopting a “beneficiary pays” transmission pricing approach, assessing the credibility of existing regulatory and commercial arrangements to enable the financing of interconnection expansion investments, and developing new tariffs for additional services offered by the Interconnector.
- For Phoenix Natural Gas Limited (Northern Ireland), providing advice in the course of the GD17 price control review, with a focus on real input price inflation and the calculation of regional wage adjustment factors in comparative benchmarking.

- For a Consortium of Australian Electricity Distribution Companies, expert review of an econometric benchmarking study published by the Australian Energy Regulator (AER), as well as the AER's regulatory treatment of distributors' investment programmes to deliver enhanced outputs for consumers, and its approach to forecasting inflation in distributors' labour costs.
- For a British distribution network operator, advice on the potential case for appealing Ofgem's Final Determination from the RIIO-ED1 price control review to the Competition and Markets Authority. Our work included preparation of expert witness evidence on the regulatory treatment of smart grid technologies.

## 2014

- For RWE npower (in collaboration with Imperial College London), preparing expert evidence for submission to the English High Court in the course of Judicial Review proceedings, and preparing reports in the context of Project TransmiT to (1) compare the long-run marginal cost of transmission investment with tariffs under alternative charging methodologies, (2) estimate the welfare effects of the WACM2 charging methodology using detailed market and transmission system simulation models, and (3) review an Ofgem consultation paper.
- For UKPN, support in relation to the outlook for real input price inflation in the context of the RIIO-ED1 price control review.
- For Scottish Power Energy Networks, in the context of the RIIO-ED1 price control review, providing a range of support related to Ofgem's assessment of efficient costs, including analysis of econometric benchmarking, real input price inflation, the regulatory treatment of potential smart grid savings, and regional and "special" factors.
- For Dublin Airport Authority (2014), conducting a 'stated preference' study to assess passengers' willingness to pay for improvements in airport terminal facilities using econometric modelling techniques known as conditional and mixed logit regressions.
- For the British electricity Distribution Network Operators (DNO), through the Energy Networks Association, drafting a critique of Ofgem's Draft Determination of the allowance for Real Price Effects over the RIIO-ED1 control period, and forecasting inflation in cost indices using ARIMA methods.
- For the Singapore Gencos (Tuas Power, Pacific Light Power Corp, Senoko and PowerSeraya), preparing a review and critique of the Energy Market Authority of Singapore's Draft Determination of the Vesting Contract Level for 2015/16.
- For ElecLink, a proposed interconnector between Great Britain and France, designing the auction-based mechanism for allocating long-term capacity rights through an open season.
- For Thames Water, developing a "Special Factor" case as part of the Ofwat Price Review 2014 process, identifying and quantifying factors affecting the company's costs that are not allowed for in the Ofwat cost assessment benchmarking.
- For the Saudi Electric Company (SEC), advice on power sector restructuring issues in the context of the proposed divestment of shares in SEC's generation and distribution assets, and the introduction of more competitive power procurement arrangements, with a particular focus on the design of distribution network regulatory arrangements.
- For the UK Department of Environment, Food and Rural Affairs (Defra), conducting quality assurance of a Monte Carlo simulation model, and the econometric analysis used to calibrate input assumptions.

## 2013

- For Western Power Distribution, a UK electricity Distribution Network Operator (DNO), conducting financial risk modelling in the context of Ofgem's RIIO-ED1 price control review.

- For Scottish Power Energy Networks (SPEN), in the context of the RIIO-ED1 price control review, providing a range of support related to Ofgem’s assessment of efficient costs, including analysis of econometric benchmarking, real input price inflation, and financial risk modelling.
- For the European Commission (in collaboration with Imperial College London and KEMA), advising on the regulatory, commercial and market arrangements required to efficiently integrate renewables into the European power system. This assignment covered wholesale market design, transmission and distribution grid access and charging arrangements, and renewables subsidy mechanisms.
- For RWE npower (in collaboration with Imperial College London), preparing reports in the context of Project TransmiT assess the case for developing new transmission charging methodologies that sought to reflect better the costs that different technologies impose on the grid.
- For the Electricity and Cogeneration Regulatory Authority (ECRA) of Saudi Arabia, advising on various aspects of power market design, competition and regulatory issues, including detailed modelling of the KSA power system.
- For a confidential investor, performing regulatory due diligence for the London Array wind farm.
- For a confidential investor, valuation of UK onshore wind farms and a project to convert an existing coal-fired power station into a dedicated biomass generation facility.
- For a confidential client, providing economic analysis relating to changes in the costs of upstream oil and gas production in the context of a potential arbitration.
- For a confidential investor, valuation of a portfolio of power generation capacity (coal-fired, gas-fired CCGTs, pumped storage and oil-fired peakers).

## 2012

- For the Department for Energy and Climate Change (DECC), providing analysis of the long-term “balancing challenge” driven by the integration of intermittent renewables and the electrification of the heat and transport sectors.
- For RWE npower (in collaboration with Imperial College London), review of Ofgem proposals to amend Transmission Network Use of System (TNUoS) charges following Project TransmiT to better reflect the costs imposed on the transmission system by intermittent renewable power generators.
- For Wessex Water (UK), conducting a ‘stated preference’ study to assess consumers’ willingness to pay for improvements to the quality of water supply and sewerage service using econometric modelling.
- For Bristol Water (UK), conducting a ‘stated preference’ study to assess consumers’ willingness to pay for improvements to the quality of water supply using econometric modelling.
- For the Regulation and Supervision Bureau (Abu Dhabi), advising on the development of cost reflective tariffs for electricity and water supply, including statistical analysis of consumption data to estimate representative consumption profiles using “quantile regression” techniques, and the development of a detailed water and power sector despatch model.
- For the Department of Environment, Food and Rural Affairs (Defra), conducting quality assurance of a Monte Carlo simulation model, and the econometric analysis used to calibrate input assumptions.
- For the UK Office of Rail Regulation (ORR), analysing the impact of an increase in rail freight access charges on the demand for coal from the Electricity Supply Industry using a model of the wholesale electricity market.



- For a major UK utility, reviewing Ofgem’s proposals to implement “mandatory auctions” for the sale of electricity generated by the “big 6” utilities operating in the British market.
- For the Omani Power and Water Procurement Company (OPWP), advising on contractual, regulatory and market issues associated with the renegotiation of power and water purchase agreements (PWPAs).
- For an Irish utility, providing an independent review of the company’s 5-year business plan (electricity generation, wholesale trading, renewables and retail businesses) in support of a potential refinancing.
- For a confidential investor, valuation of a portfolio of power generation capacity (coal-fired, gas-fired CCGTs, pumped storage and oil-fired peakers).

## **2011**

- For a NW European gas trading company, providing economic advice regarding the appropriateness of the tariff charged for accessing a gas pipeline.
- For Power NI, providing regulatory advice and quantitative analysis (Monte Carlo simulation of cash balances) to estimate the margin required over the upcoming control period.
- For an Irish utility, providing an independent review of the company’s 5-year business plan (electricity generation, wholesale trading, renewables and retail businesses) in support of a potential refinancing.
- For ScottishPower, modelling the impact of the UK government’s Electricity Market Reform (EMR) proposals, including analysing the impact of the CO2 price floor and a targeted capacity mechanism.
- For RWE npower, in collaboration with Imperial College London, electricity market modelling work to compare the welfare effects of locational Transmission Network Use of System (TNUoS) charges with a uniform tariff.
- For a confidential investor, valuation of a portfolio of UK generation assets including gas and coal capacity, pumped storage and oil-fired peaking plant.
- For a confidential investor, valuation of UK gas-fired generators in support of a proposed transaction.
- For a confidential investor, conducting market due diligence for a proposed new nuclear power plant in the Bulgarian market, including long-term power price forecasting out to 2050.
- For NIE Energy Power Procurement Business, conducting bottom-up Monte Carlo modelling to assess the risks to which the company is exposed, and so estimate the margin required by the company through its price control.
- For NIE Energy Supply, advising on possible contract structures for the procurement of energy from renewable generators.

## **2010**

- For a confidential investor, power price forecasting and market analysis in the South Korean power market, including detailed analysis of Asian and world gas markets with focus on the Asian LNG spot market.
- For the Ministry of Trade and Industry (Singapore), providing technical and market advice in the course of an appeal by the Singapore “gencos” against a decision by the regulator to reform the vesting contract regime.
- For a large European utility, market analysis and price forecasting in the Polish electricity market, including the assessment of coal-fired generation investments.

- For an investment bank, conducting due diligence on an Irish utility, including a review of the Single Electricity Market and the Irish and Northern Irish electricity retail markets.
- For a large European utility, market modelling work to support generation investment decision making in the UK market.
- For a consortium of investors, market due diligence, including detailed market modelling, for a proposed CCGT investment in the Balkans.
- For a private equity fund, preparing a report on the investment climate for renewable generation in the British market, including forecasting prices in the markets for power and renewables obligation certificates.

## **2009**

- For London Underground Limited, providing ongoing support and advice in the course of the periodic review of the price clause in the PPP agreement with Tubelines Limited, focussing on the potential for future productivity growth and real input price inflation.
- For EDF Energy Networks, providing ongoing support, economic analysis and strategic advice in the course of the British electricity distribution price control review, with focus on benchmarking of costs, forecasting real input price inflation, and analysis of incentive mechanisms.
- For NIE PPB, support during the company's price control review focussing on modelling of working capital requirements.
- For the Department of Energy and Climate Change (DECC), analysing options for a regulatory framework for CO2 transportation infrastructure to enable the deployment of Carbon Capture and Storage technologies in the UK, including analysis of investment incentives under uncertainty about future demand for network infrastructure.
- For confidential investors, conducting market due diligence on UK, Irish and Italian generation assets.
- For BBL Company, advising on proposals for introducing an interruptible reverse flow service on the gas interconnector between the Netherlands and Great Britain.
- For the Lithuanian nuclear development company, market analysis and price forecasting for the Baltic markets and neighbouring European markets (Poland, Nord Pool, etc.), as an input to decision-making on a new nuclear plant in Lithuania.
- For a confidential client, support in preparation for a potential arbitration over the price clause in a gas supply agreement, reviewing the operation of gas markets in Britain and Belgium, and conducting econometric analysis of gas price series.
- For the International Finance Corporation, preparing a market report on the West African Power Pool (Ghana, Côte d'Ivoire, Benin and Togo), including wholesale electricity market modelling to establish optimal generation investment strategies.
- For a Turkish investor, modelling the evolution of the Turkish power market under a range of scenarios.

## **2008**

- For EDF Energy Networks, forecasting future real input price inflation for the network business to support a submission to the industry regulator during distribution price control review.
- For Wales and West Utilities, helping to design an auction for "interruption rights" on their network, to ensure that the auction meets regulatory planning requirements, and advising on the design of a bid selection algorithm.

- For a grouping of Singaporean generators, reviewing the energy regulator's proposals on vesting contracts, including a review of the regulators' estimate of the long-run marginal cost of electricity generation and the level of vesting contract coverage required to mitigate market power.
- For PowerGas (Singapore), support in designing a regulatory framework for a proposed LNG terminal, including financial modelling and drafting regulatory proposals to the industry regulator for the calculation of allowed costs and tariffs.
- For a utility investor, market due diligence and revenue forecasting in support of the client's bid to acquire one of the state-owned Singaporean gencons that were being sold in 2008.
- For an investment bank, preparing detailed electricity market reports on the Romanian, Bulgarian and Polish electricity markets, including wholesale power price forecasts and a comparison of renewables investment incentives across the markets.
- For DEPA (Public Gas Corporation of Greece), reviewing the draft gas transmission network code for the Greek gas transmission system, with a focus on gas balancing, as well as transmission and LNG terminal access arrangements.
- For the Australian Energy Market Commission, writing a factual report, reviewing the arrangements that have been adopted in relation to Advanced Metering Infrastructure (AMI) in Great Britain.
- For ENBW, reviewing and appraising a regulatory benchmarking study of international electricity transmission system operators.
- For a confidential client, forecasting power prices for the Polish electricity market.
- For EOS, undertaking market due diligence and revenue forecasting for the generation capacity owned by EOS and Atel in Europe (including storage hydro, pumped storage, run-of-river, nuclear, and fossil-fuel plants in Switzerland, France, Germany, Italy, Hungary and Czech Republic).
- For a confidential asset management firm, preparing a review of the Russian electricity sector, focussing on the reform of the regulatory system for electricity distribution networks to introduce "RAB regulation".
- For confidential clients, advising on potential energy sector merger transactions.

## **2007**

- For an investment bank, conducting due diligence on an Irish utility, including a review of the Single Electricity Market and the Irish and Northern Irish electricity retail markets.
- For E.ON UK Limited, providing support in its appeal to the UK Competition Commission against proposals to modify the gas uniform network code approved by the Gas and Electricity Markets Authority.
- For an independent power producer in the UK, preparing a report on the investment climate for renewable generation in the British market.
- For a UK electricity market investor, advising regarding investment strategies in the British electricity industry, including a description of the nature of electricity retail market competition.
- For Rede Electrica Nacional (Portuguese transmission network operator), designing an alternative regulatory system, containing incentives for cost minimisation, including financial modelling of the effects from the proposed system.
- For Fluxys, reviewing a benchmarking study undertaken at the request of the industry regulator to inform its "x-factor" decision.

- For National Grid Company, supporting an application to the EC for exemption from the Utilities Contracts Regulations, involving extensive research on European gas and electricity transmission and distribution networks.
- For the Regulation and Supervision Bureau, Abu Dhabi, modelling the electricity and water sectors to determine the least cost means of meeting electricity and water demand in Abu Dhabi over a 15-year horizon, using NERA's EESyM model.
- For Wales and West Utilities, providing economic advice during the periodic price control review, with focus on the benchmarking of operational expenditure.
- For Gas Transport Services, a review of different cost accounting methodologies, including a review of regulatory practice in other European countries.
- For an investment bank, conducting due diligence on a British electricity distribution network, including a review of the regulatory risks that the company faces.
- For a large European utility, preparing training materials regarding the structure of the British gas and electricity markets (including retail market competition and a review of regulatory policy debates).
- For a confidential client, valuing of a portfolio of EU Emissions Trading Scheme CO2 allowances, for support in litigation.
- For the Office of Rail Regulation, modelling the impact of altering rail freight track access charges on the UK wholesale electricity market using NERA's EESyM model.
- For Nuon and Essent, advising on a potential merger, in particular on consequences for the Dutch electricity market, involving modelling of Supply Function Equilibria.

## **2006**

- For EDF Energy Networks, advising on the scope for distributed generation in the London electricity market.
- For The Gas Forum, advising on proposed reforms of the charging structure for gas transmission exit capacity in the UK, involving a cost benefit analysis of the proposed reforms and an analysis of the economics of gas pipeline capacity.
- For a grouping of Singaporean generators, reviewing the energy regulator's proposals on vesting contracts to control market power.
- For a confidential client, advising on the competition effects of mergers on British energy markets.
- For a large European utility, conducting market due diligence and revenue forecasting for a gas storage asset in the Netherlands.

## Dr. Laura T. W. Olive

Associate Director

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Dr. Olive is an Associate Director in NERA’s Global Energy Practice, based in Boston. She has nearly a decade of experience in analyzing the regulation and economics of energy and transport. She has extensive experience in the regulation of natural gas infrastructure such as interstate pipelines and gas distribution as well as electric generation, transmission, distribution, and retail markets and regulation. She has supported clients in the gas, electric, and water transmission and distribution sectors with regard to changing needs in the energy transition such as the impact of incorporation renewables on tariff design, incentive regulation, and cost recovery methods.

She written extensively on the interaction of gas and electricity regulation and markets during New England’s polar vortex events in a paper published in the *Economics of Energy & Environmental Policy*. Dr. Olive recently published an article in the *Energy Law Journal*, “The Politics of US Oil Pipelines: The First Born Struggles to Learn from the Clever Younger Sibling” analyzing the different regulatory structures governing oil and gas pipelines in the United States. She is currently working on a paper with NERA’s global energy and transport group on electric vehicle and charging station markets and regulation.

Dr. Olive holds a PhD in economics from Northeastern University, specializing in Industrial Organization, where research focused on analyzing competition and market structure in regulated and formerly regulated industries. She completed her Bachelor of Arts degree, *summa cum laude*, at Simmons College, majoring in economics and minoring in public policy.

## Qualifications

**2013**                      **NORTHEASTERN UNIVERSITY**  
Ph.D. Economics

**2008**                      **SIMMONS COLLEGE**  
B.A. Economics

## Career Details

**2012-Present**            **NERA ECONOMIC CONSULTING**  
Associate Director, Senior Consultant, Consultant, Associated  
Consultant  
Boston, Massachusetts

2010–2013

NORTHEASTERN UNIVERSITY

Lecturer, Principles of Microeconomics, Boston, Massachusetts

## Testifying Experience

Declaration in Support of Dakota Access, LLC Brief of the Question of Remedy in Standing Rock Sioux Tribe v. United States Army Corps of Engineers, Case No. 1:16-cv-1534-JEB (and Consolidated Case Nos. 16-cv-1796 and 17-cv-267) before the United States District Court for the District of Columbia, April 29, 2020. Subject: Impact of shutting down the pipeline during period of economic uncertainty.

Surrebuttal Testimony on behalf of Dakota Access, LLC and Energy Transfer Crude Oil Company, LLC., Docket No. 19-0673, regarding a *Joint Petition for an Order under Section 8-503 of the Public Utilities Act for authority to install additional pumping stations and pumping facilities on existing certificated pipelines in the State of Illinois*, before the Illinois Commerce Commission, January 17, 2020. Subject: Crude oil markets and the US pipeline and refining industries.

Rebuttal Testimony on behalf of Dakota Access, LLC and Energy Transfer Crude Oil Company, LLC., Docket No. 19-0673, regarding a *Joint Petition for an Order under Section 8-503 of the Public Utilities Act for authority to install additional pumping stations and pumping facilities on existing certificated pipelines in the State of Illinois*, before the Illinois Commerce Commission, October 22, 2019. Subject: Crude oil markets and the US pipeline and refining industries.

Direct testimony (with Julie M. Carey), on behalf of American Electric Power Service Corporation, regarding *American Electric Power Service Corporation's Market Power Analysis for Southwest Power Pool Balancing Authority Area*, before the Federal Energy Regulatory Commission, June 26, 2018. Subject: Electric generation market power analysis.

Direct testimony, on behalf of Constellation NewEnergy, Inc. and Constellation Energy Services Inc., in *In the matter, on the Commission's own motion, to open a docket to implement the provisions of Section 6w of 2016 PA 341 for Cloverland Electric Cooperative's service territory*, Case No 7-18258, before the Michigan Public Service Commission for the State of Michigan. Subject: Appropriate charge for retailers holding electric capacity contracts.

Direct testimony, on behalf of Constellation New Energy, Inc. and Constellation Energy Services, Inc., in *In the matter, on the Commission's own motion, to open a docket to implement the provisions of Section 6w of 2016 PA 341 for Upper Michigan Energy Resources Corporation's service territory*, Case No. U-18253, before the Michigan Public Service Commission for the State of Michigan. Subject: Appropriate charge for retailers holding electric capacity contracts.

Direct testimony, on behalf of Constellation New Energy, Inc. and Constellation Energy Services, Inc., in *In the matter, on the Commission's own motion, to open a docket to implement the provisions of Section 6w of 2016 PA 341 for Upper Peninsula Power Company's service territory*, Case No. U-18254, before the Michigan Public Service

Commission for the State of Michigan. Subject: Appropriate charge for retailers holding electric capacity contracts.

## **Project Experience**

- |             |   |
|-------------|---|
| <b>2021</b> | <b>Bloom Energy<br/>Regulation and Tariffs</b><br>Analysis of electric and gas operational requirements and tariffs for behind-the-meter fuel cell interconnections.  |
| <b>2021</b> | <b>TransAlta<br/>Minority Shareholder Dispute</b><br>Analysis regarding the Alberta energy market and other North American electricity markets.   |
| <b>2021</b> | <b>Gulfport Energy Corporation<br/>Bankruptcy</b><br>Analysis regarding public interest matters in the rejection of a gas pipeline contracts in bankruptcy proceeding before the Southern District of Texas.  |
| <b>2020</b> | <b>Gulfport Energy Corporation<br/>FERC Filed Rates</b><br>Analysis regarding public interest matters related to abrogation or modification of gas pipeline contracts with Rockies Express Pipeline, Midship Pipeline, TC Energy Pipelines, and Rover Pipeline. |
| <b>2020</b> | <b>Chesapeake Energy Corporation<br/>Bankruptcy</b><br>Analysis regarding public interest matters in the rejection of a gas pipeline contract in bankruptcy proceeding before the Southern District of Texas.   |
| <b>2020</b> | <b>Extraction Oil &amp; Gas<br/>Bankruptcy</b><br>Analysis regarding public interest matters in the rejection of an oil pipeline contract in bankruptcy proceeding.   |
| <b>2020</b> | <b>Ultra Resources<br/>Bankruptcy</b><br>Analysis regarding public interest matters in the rejection of a gas pipeline contract in bankruptcy proceeding.   |
| <b>2020</b> | <b>Confidential Client<br/>Storage</b><br>Damages analysis related to blowout of NGL well in Texas.   |
| <b>2020</b> | <b>City of Los Angeles Office of Public Accountability</b>  |

	<p><b>Water Cost of Service</b> Review the LADWP water marginal cost of service study and provide recommendations.</p>
2020	<p><b>State of Alaska, Department of Natural Resources Acquisition</b> Provide report to DNR regarding sale of BP Alaska assets to Hilcorp Alaska.</p>
2020	<p><b>Confidential Client Gas Pipeline Regulation</b> Analysis related to postage stamp tolls proposal for a major gas pipeline in Canada.</p>
2020	<p><b>Promigas Colombia Gas Pipeline Regulation</b> Analysis of entry/exit proposal for gas pipeline network in Colombia.</p>
2020	<p><b>Nebraska Public Power District Electricity Contracts</b> Analysis of a contract for wind-generated power in Nebraska.</p>
2019-2021	<p><b>Confidential Client Oil Pipeline Regulation</b> Common carriage and market power dynamics for a major crude oil pipeline in Canada.</p>
2019	<p><b>Institutional Equity Investors Cost of Capital</b> Cost of capital for investors in Pacific Gas &amp; Electric.</p>
2019	<p><b>CAMMESA Argentina Gas Pipeline Regulation</b> International review of gas markets and regulation for the electric system operator in Argentina.</p>
2019	<p><b>Just Energy Retail Electricity and Gas</b> Support for retail energy provider in litigation regarding prices charged for energy supply service in New York.</p>
2019	<p><b>National Public Finance Guarantee Corporation, Assured Guaranty Corp., Assured Guaranty Municipal Corp., and Syncora Guarantee, Inc. Bankruptcy</b> Support bondholders in bankruptcy of Puerto Rico Electric Power Authority.</p>



- 2019**                      **Council of Australian Governments (COAG)**  
**Gas Pipeline Regulation**  
 Report for COAG to review alternative regulatory models for natural gas pipelines and provide potential reform options.
- 2018**                      **Chevron Nigeria**  
**Damages**  
 International arbitration for a pipeline transportation contract dispute between two major oil companies.
- 2018**                      **Confidential Canadian Rail Company**  
**Merger**  
 Support for questions with regulations of transportation in merger between a rail company and a trucking firm in Canada.
- 2018**                      **Comisión Reguladora de Energía (CRE)**  
**Competition in Energy Markets**  
 Support the Mexican government separate wholesale and retail energy functions in electricity, gas, and petroleum products in Mexico.
- 2018**                      **Comisión Reguladora de Energía (CRE)**  
**Gas Pipeline Regulation**  
 Support the Mexican government initiative to reform its natural gas sector.
- 2018**                      **Confidential US Electric and Gas Utility**  
**Innovative Regulatory Frameworks**  
 Develop report on North American regulatory frameworks for a large utility.
- 2018**                      **Interstate Natural Gas Association of America (INGAA)**  
**Gas Pipeline Certificate Policy**  
 Support for comments on the FERC Notice of Inquiry on changes to Pipeline Certification requirements.
- 2018**                      **Confidential US Electric Utility**  
**Merger**  
 Analysis of vertical market power concerns in a merger between two electric utilities.
- 2018**                      **Enbridge Gas Distribution**  
**Regulatory Structure**  
 Report for Enbridge in discussions with the Ontario Energy Board regarding the OEB initiative to change its structure and role.
- 2017 – 2018**            **Crescent Point**  
**Crude Oil Pipeline Affiliates**

Complaint before the National Energy Board regarding common carrier obligations.

- 2017**                    **Confidential Shortline Railroad Company**  
**Trackage Rates**  
Analysis of interest rental component associated with trackage rights on a freight railroad.
- 2017**                    **Confidential Shortline Railroad Company**  
**Rail Rates**  
Analysis of revenue factors associated with commodity shipments on shortlines.
- 2017**                    **Constellation NewEnergy, Inc. and Constellation Energy Services**  
**Capacity Charge**  
Economic analysis and testimony regarding Michigan’s SRM capacity charge for retail electricity suppliers in Michigan
- 2017**                    **Enbridge Gas Distribution, Union Gas Limited**  
**Total Factor Productivity**  
Calculation of X-factor for the Companies’ Price Cap IR Plans.
- 2017**                    **Retail Energy Supply Association**  
**Retail Electricity and Gas**  
Analysis of the retail electricity and gas market in New York State for regulatory hearings.
- 2017**                    **Oil Production/Marketing Company**  
**International Arbitration**  
Valuation of an oil product distribution and marketing firm in Japan.
- 2017**                    **Confidential Coal Producer**  
**International Arbitration**  
Analysis of damages associated with transportation of coal by rail in Colombia.
- 2016-2017**            **Plains Midstream Canada ULC**  
**Cost of Service and Toll Design**  
Analysis of cost of service and toll design for a Group 2 NGL pipeline in Canada.
- 2016**                    **Confidential Construction Company**  
**Chilean Toll Road Concessions**  
Analysis of bid model for toll road concessions in Chile. Calculation of damages related to unsuccessful bid.
- 2016**                    **New Gulf Resources**  
**Gas Gathering Assets Valuation and Damages**

Conducted analysis and prepared a report describing the value of gas gathering assets in Texas using a blended approach of the market value and income capitalization methods. Determined damages resulting from a sale of these assets.

- 2016**                    **FortisBC Energy Inc**  
**Tolling for Pipeline Extension and Expansion in British Columbia**  
Analysis of the impact of NGTL's Towerbirch Expansion Project on competition in the Northeast British Columbia market. Assisted in preparation of testimony to describe the impact of rolled-in tolls in contrast to incremental tolls for the Project.
- 2015-2016**            **Confidential Unconventional Gas Producer**  
**Pipeline Cost of Service**  
Analysis of the cost of service for gathering lines in a major natural gas shale play in the United States.
- 2015-2016**            **Confidential Asphalt Producer**  
**Oil Futures Liquidity**  
Analysis of the liquidity of WTI during temporary southbound capacity constraints at Cushing, OK.
- 2015-2016**            **Smithyman & Zakoura, Chartered/Jayhawk Pipeline**  
**Oil Pipeline Policy and Tariffs**  
Development of expert testimony and calculation of tariff in relation to a Kansas oil pipeline capacity lease case before the FERC.
- 2015-2016**            **SFF-TIR**  
**Valuation**  
Development of expert testimony and modeling to evaluate appropriate cash-out merger share price for minority shareholders in a pipeline inspection services firm.
- 2014-2015**            **Confidential Australian Joint Venture**  
**Gas Supply Agreement Negotiation**  
Assisted in development of materials, presentations, and IR responses in a cost review and LNG contract price negotiation in Australia.
- 2014-2015**            **Alliance Pipeline**  
**Restructuring of services and tolls**  
Development of expert testimony and IR responses as part of Alliance's restructuring proposal with the National Energy Board, including modelling of pipeline tolls and first-of-its-kind assessment of natural gas pipeline market power in the United States and Canada.
- 2014-2015**            **STP Energy**  
**Offshore Exploration and Production Permit Arbitration**

Development of expert testimony with regards to an agreement between STP Energy and Discovery Geo to develop an offshore gas field in New Zealand in arbitration at the ICC International Court of Arbitration.

**2014-2015**

**Gazprom OAO  
Civil dispute involving gas field development and LNG importation**

Assisted in modelling of LNG netback prices and development of an expert report, and preparation for a jury trial in front of a Tarrant County, Texas District Court in relation to a dispute between a U.S oil company and Russian oil company regarding ownership of the a Russian gas field, tortious interference, and trade secret misappropriation with regards to a plan to import LNG into the United States in the mid-2000s.

**2014-2015**

**North West Shelf Joint Venture (NWSJV)  
Gas Supply Agreement Arbitration**

Development of expert testimony with regard to contract take-or-pay provisions and gas swap agreements in Australia.

**2014**

**FortisBC Energy Inc  
Tolling for pipeline extensions in Canada**

Analyzed toll methodology, opposing expert evidence, and regulatory precedent to develop expert testimony, IR responses, and closing arguments in front of the National Energy Board with regards to the appropriateness of rolled-in versus incremental tolling of NGTL's proposed North Montney Mainline extension of the existing NGTL Alberta System.

**2014**

**Gáz Métro, Enbridge Gas Distribution, Union Gas Distribution  
Contract renewal provisions**

Analyzed settlement provisions, opposing expert evidence, market access in Ontario and Quebec, and regulatory precedent to develop expert testimony and IR responses in front of the National Energy Board with regards to the Market Area Shippers settlement agreement with TransCanada.

**2014**

**Confidential Australian Joint Venture  
Pricing Principles for Domestic Gas Reservation Policy**

Formulated a methodology to determine a schedule of reasonable prices based on long-run incremental average cost (LRAIC) for obligations to sell gas under the Western Australian Domestic Gas Reservation Policy.

**2014**

**Royal Bank of Canada  
Gas Supply Agreement Dispute**

Development of an expert report in a gas supply agreement dispute between RBC and three municipal gas distributors in Nevada and Iowa involving analysis of Basel III regulations, capital requirements, commodity swaps and interest rate swaps. The case was settled prior to completion of the report.

- 2014**                    **Energy Transfer Partners**  
**Damages Calculations and Economic Analysis in Pipeline Dispute**  
Economic analysis and research of the oil refinery market in the Gulf Coast as well as review of case documents and information in the public domain to assist in preparation for jury trial in Texas court.
- 2014**                    **Confidential Automobile Manufacturer**  
**Damages calculation in EPA dispute**  
Assisted in the collection and analysis of market cost, price, and vehicle characteristic data negotiation between two manufacturers and the Environmental Protection Agency.
- 2012-2014**            **Confidential US Telecommunications Firm**  
**Damage calculation in a class action suit**  
Developed various methodologies to sample data and to calculate damages based on errors in billing system data that resulted in incorrect charges to customers.
- 2013**                    **Mexican Association of Mass Distribution and Delivery Enterprises (AMEDEM)**  
**Mexican postal sector reform**  
Assisted in the development of a report providing economic analysis of the Mexican Postal Sector. Conducted extensive economic literature review on economies of scale, scope, density, demand characteristics, as well as reviewed studies examining the impact of liberalization in postal markets and other network industries around the globe. Reviewed international experience with regards to various policies including pricing and universal service provisions. Conducted market power assessment of AMEDEM and SEPOMEX.
- 2013**                    **Sprint**  
**Early termination fee class action**  
Compilation and analysis of advertising data for a class action suit regarding mobile telephone contract early termination fees.
- 2012-2013**            **Puerto Rico Telephone**  
**Cable television antitrust**  
Conducted economic and regulatory literature review to assist in the relevant market definition for cable television in Puerto Rico by examining cable demand, inclusion of direct broadcast satellite systems, quality and price impacts, and the effect of telco entry into the

market. Assisted in the development of demand models and measures of consumer surplus in this market.

**2012-2013**

**AméricaMóvil**

**Asymmetric regulation and must carry obligations**

Conducted economic literature review on asymmetric mobile termination rates and must carry obligations around the globe.

**2012-2013**

**Confidential Retail Client**

**Evaluation of exclusive supplier agreements in Mexico**

Assisted in the development of explanatory tables displaying data and results and auditing of calculations presented in the report which analyzed market power based on the impact of consumer perceptions on exclusive supplier agreements collected through surveys conducted in various Mexican cities.

**2012**

**AméricaMóvil**

**Fixed-line Infrastructure**

Research of Telmex fixed-line telecommunications network infrastructure based on public filings with the Securities and Exchange Commission.

**2012**

**Verizon Communications**

**Bankruptcy Litigation**

Assisted in the development of an expert report discussing regulatory precedent and firm prudence in the sale of Verizon Communications assets in Maine, New Hampshire, and Vermont to FairPoint Communications which later resulted in bankruptcy of FairPoint.

**Publications**

**2021**

**Latin America's Changing Energy Mix and Its Impact on International Arbitrations**

*Arbitraje Comercial y de Inversión en el Sector Energético en América Latina* (with V. Irastorza)

**2020**

**The Role of Cost-Reflective Distribution Tariffs and Flexibility Contracts in Supporting the Energy Transition**

*NERA Working Paper* (with R. Druce, G. Anstey, W. Taylor, and L. Dix)

**2020**

**The Grid Mod Squad: Investors, Ratepayers, and Regulators**

*NERA Working Paper* (with Max N. Luke)

**2020**

**The Discounted Cash Flow Method of Valuing Damages in Arbitration**

*The Investment Treaty Arbitration Review, Fifth Edition, ed. Barton Legum* (with Jeff D. Makholm)

- 2020**                    **Interview with Laura T.W. Olive, Ph.D.**  
*The Energy Dispatch, Issue 9 (April 2020)*
- 2019**                    **Polar Vortexes in New England: Missing Money, Missing Markets, or Missing Regulation?**  
*Economics of Energy & Environmental Policy, March 2019, Volume 8, Issue 2 (with Jeff D. Makhholm)*
- 2019**                    **A Hitchhiker’s Guide to Gas Demand Response**  
*NERA Working Paper*
- 2019**                    **Extending Demand Response to the Natural Gas Industry**  
*Environmental & Energy Litigation, American Bar Association, Winter 2019, Volume 3, Issue 2*
- 2019**                    **The Discounted Cash Flow Method of Valuing Damages in Arbitration**  
*The Investment Treaty Arbitration Review, Fourth Edition, ed. Barton Legum (with Jeff D. Makhholm)*
- 2018**                    **Risky Business: New Trends in North American Regulation**  
*NERA Working Paper (with Max N. Luke)*
- 2016**                    **Vision of Liquefied Natural Gas Hub: Mirage on the Ocean?**  
*Public Utilities Fortnightly, 154(11): 26-29,84.*
- 2016**                    **Variations in Inland Transport Regulation: a Barrier to a Competitive Global LNG Market**  
*Current Sustainable/Renewable Energy Reports, 3(1): 10-17.*
- 2016**                    **The Politics of US Oil Pipelines: The First Born Struggles to Learn from the Clever Younger Sibling**  
*Energy Law Journal, November 2016. pp. 409-427. (with Jeff D. Makhholm)*
- 2015**                    **A Petroleum Tanker of a Different Color: Barriers to a Global Gas Market via LNG**  
*Working Paper (with Jeff. D. Makhholm)*
- 2013**                    **Three Essays on the Impact of Market Structure on Network Industries**  
*Dissertation, completed in partial fulfillment of the requirement for the degree of Doctor of Philosophy in the Field of Economics*

## **Presentations**

- 2021** “WEN Coffee Power Hour on February 2021 Texas Cold Weather Event” Hosted by the South Louisiana and Greater Albany Chapters of the Women’s Energy Network, May 25, 2021
- 2021** “Climate Policy, Investment Treaties, and Investor-State Dispute Settlement” Moderator, CiArb North America Branch Young Members Group Series on Climate Change, Decarbonization, and International Dispute Resolution, May 20, 2021
- 2020** “What Just Happened? What Might Happen Next for the U.S. Shale Industry?” 11<sup>th</sup> Law of Shale Plays Conference, September 9, 2020
- 2020** “Oil, Gas and the Energy Transition,” MIT Energy Conference 2020, Cambridge, MA, April 2, 2020
- 2019** “The Economics of an Arbitration,” 3<sup>rd</sup> BVI International Arbitration Conference, British Virgin Islands, November 22, 2019
- 2019** “Discounted Cash Flow Method of Valuing Damages in Arbitration,” Harvard International Arbitration Law Students Association, Cambridge, MA, March 26, 2019
- 2017** “Crude Oil and Transportation Market and Regulatory Developments,” 2017 AOPL Annual Business Conference, Seattle, WA, September 21, 2017
- 2017** “An Institutional Perspective on the Regulation of Pipelines in the United States,” Energy Bar Association 2017 Annual Meeting and Conference, Washington, D.C., April 3, 2017
- 2016** “The Uncertain Connection between Unbundled Electricity Distributors and Interstate Pipeline Capacity,” Law Seminars International Energy in the Northeast Seminar, Boston, Massachusetts, September 23, 2016.
- 2015** “A Petroleum Tanker of a Different Color: Barriers to a Global Gas Market via LNG,” 80<sup>th</sup> International Atlantic Economic Society Conference, Boston, Massachusetts, October 9, 2015.

## **Memberships**

**Boston International Arbitration Council**, Advisory Board Member

**Institute for Energy Law**, Advisory Board Member

**Chartered Institute of Arbitrators, North America Branch Young Members Group**, Steering Committee Member



## Dr. Michael Dawes

Consultant

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## Overview

Dr. Dawes is a Consultant in NERA London's Energy, Environment, Communications, and Infrastructure (EECI) Practice. Michael joined in February 2019, having previously completed his PhD in Economics from the University of Oxford. In his time at NERA, Michael's project experience has primarily related to market and tariff design across electricity and water markets; and across Australia, the Middle East, Canada, and Great Britain.

Prior to his PhD, Michael completed an MSc in Economics for Development with Distinction at the University of Oxford. He also holds a BA in Economics with First Class Honours from the University of Cambridge.

## Qualifications

<b>2014 – 2019</b>	<b>UNIVERSITY OF OXFORD</b> PhD. Economics
<b>2013 – 2014</b>	<b>UNIVERSITY OF OXFORD</b> MSc. Economics for Development (Distinction)
<b>2010 – 2013</b>	<b>UNIVERSITY OF CAMBRIDGE</b> BA. Economics (First Class Honours)

## Career Details

<b>2019-Present</b>	<b>NERA ECONOMIC CONSULTING</b> <u>Consultant (2021-), London</u> <u>Economic Analyst (2019-21), London</u>
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## Project Experience

### 2021

- For **Oman Electricity Transmission Company (Ongoing)**: support on the development of transmission tariffs for customers wheeling power across OETC's power transmission system;

- For the **Emirates Water and Electricity Company (EWEC) in Abu Dhabi** (2021), advising on the tariffs and commercial arrangements offered for the sale of bulk power and water, including to other Emirates in the United Arab Emirates;
- For a **confidential investor** (2021): Provided buy-side market due diligence support in a transaction involving a distributed solar generation provider for commercial and industrial customers across the MENA region;
- For **Ocean Winds** (2021), a joint venture between ENGIE and EDP Renewables, conducting a study of the impact of volatility in Transmission Network Use of System (TNUoS) charges on the cost of financing new offshore wind farms in Great Britain;

## 2020

- For **Emirates Water and Electricity Company (EWEC) in Abu Dhabi** (2020-21): Provided support to design a bulk supply tariff methodology for electricity and water in Abu Dhabi, and calculate tariffs. Provided additional support to align tariff with EWEC's regulatory accounts;
- For a **confidential client** (2020): vendor regulatory due diligence related to the sale of an electricity and gas network company in Portugal;
- For **Scottish Power Transmission and National Grid** (2020), conducting a review of Ofgem's cost assessment in the RIIO-T2 price control draft determination.
- For a **confidential energy supplier in Great Britain** (2020): Support relating to Ofgem's proposed design of a tariff cap for prepayment meter customers in Great Britain;
- For the **Regulators' Alliance for Progressing Infrastructure Development (RAPID)** (2020): Conducted a study into the role of contract design in promoting the efficient bulk trading of water in England and Wales. We made both contractual and regulatory recommendations to improve the pricing and the allocation of risks in bulk supply contracts including considering the incentives for efficient trade in the industry;
- For **Netbeheer Nederland** (2020): A review of regulatory innovation incentives for network utilities across global jurisdictions and recommendations for adoption in the Netherlands;
- For the **Australian Energy Market Commission (AEMC)** (2020): Support to assess the expected costs and benefits of the AEMC's proposed access reforms, which include the introduction of locational marginal pricing (nodal pricing) for generators and the introduction of financial transmission rights (FTRs). NERA's work included a review of the costs and benefits of similar reforms in other jurisdictions, and the detailed modelling of the National Electricity Market (NEM) of Australia to estimate the benefits of the proposed reforms;

## 2019

- For **Ofgem** (2019): Performed a cost-benefit analysis and options assessment of possible designs of a Market Making Obligation (MMO) to promote liquidity in the British wholesale market for electricity. NERA's work included the development of a

proprietary model to quantify the estimated benefits accruing from each of the proposed MMO designs in Great Britain;

- For **an English water company** (2019): Support on a reference to the Competition and Markets Authority of the company's PR19 business plan;
- For **a confidential client** (2019): Support in the regulatory due diligence process related to the acquisition of a majority share in the Muscat Electricity Distribution Company in Oman;
- For **Electricity and Cogeneration Authority (ECRA) in Saudi Arabia** (2019): Provided support in the design of a bulk supply tariff and transmission use of system charge for electricity;
- For **Emirates Water and Electricity Company (EWEC) in Abu Dhabi** (2019): Provided support to design a bulk supply tariff methodology for electricity and water in Abu Dhabi. Worked with energy market modelling to forecast supply-demand mix and regional trade in order to construct the cost-reflective tariff. Worked with key stakeholders throughout design process;
- For **Australian Energy Market Commission** (2019): Performed a cost-benefit analysis of possible designs of a Market Making Obligation (MMO) to promote liquidity in the National Electricity Market. NERA's work included the provision of an assessment of the design and performance of international MMOs, and development of a new, proprietary model to quantify the estimated benefits accruing from each of the proposed MMO designs in Australia;
- For **a leading energy retailer in Great Britain** (2019): Produced a report assessing current supplier licensing arrangements in Great Britain and submitted to Ofgem. Undertook an analysis of potential changes to supplier licensing arrangements that aim to reduce the incidence of supplier failure;
- For **Council of Australian Governments** (2019): Produced a report providing confidential advice on the design of gas markets internationally and how those principles could be adapted to be appropriate for application in Australia;
- For **a leading generator and retailer in New Zealand** (2019): Produced a report providing a cost and impact assessment of the proposed changes to the Market Making Obligation (MMO) in New Zealand. The report was submitted to the Electricity Authority;
- For **a confidential client** (2019): Support in the regulatory due diligence process related to the acquisition of an electricity supplier;
- For **National Air Traffic Services in Great Britain** (2019): Produced a report to provide an assessment of the estimated required headcount of air traffic controllers for the upcoming price control period.