CURRICULUM VITAE

Name:	BRENDAN LARKIN-CONNOLLY
Company:	DHInfrastructure
Position:	Manager
Years experience:	12
Citizenship:	United States

SUMMARY OF EXPERIENCE

Brendan Larkin-Connolly is a Principal at DHInfrastructure. He specializes in pricing, forecasting, and model simulation of energy delivery networks. From 2011 to 2013, Brendan was a staff member in the rates and revenue requirement division of the Massachusetts Department for Public Utilities (DPU), the state regulator responsible for rate setting and service quality in the electricity, water, and natural gas sectors. As a tariff analyst with the DPU he worked on a variety of regulatory cases providing him with an in-depth understanding of the regulatory process. Since returning to DHInfrastructure in 2013, Brendan has testified on behalf of utility consumer advocates in regulatory proceedings in Maryland and Massachusetts. He has also supported the development of expert testimony submitted on behalf of the California Parties in the FERC Refund Proceedings that stemmed from the California energy crisis in 2000-2001. As part of the analysis for the testimony he built database models for identifying market violations during the California electricity crisis and estimated what the competitive price for electricity would have been in California absent market manipulation.

COUNTRIES OF EXPERIENCE

United States, Kiribati, Tanzania, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Congo, Congo, The Democratic Republic of the, Cote d'Ivoire, Ethiopia, Gambia, Guinea, Kenya, Madagascar, Malawi, Mali, Mauritania, Mozambique, Niger, Nigeria, Senegal, Sierra Leone, South Africa, Uganda, Zambia, Lesotho, Ukraine, Kyrgyzstan, Timor-Leste, Nauru, Bangladesh, Republic of Georgia, Albania, Kazakhstan, Macedonia, The former Yugoslav Republic of, Kosovo, Vanuatu, Armenia, Mongolia, Romania, Serbia, Mexico, Japan, Russian Federation

QUALIFICATIONS AND PROFESSIONAL MEMBERSHIPS

American Economic Association
American Evaluation Association

OTHER TRAINING

The Basics: Practical Regulatory Training for the Electric Industry (NARUC/Center for Public Utilities, October 2011)
Workshop on Demand Forecasting for Planning and Ratemaking (Institute of Public Utilities, July 2010)

LANGUAGES

Language	Reading	Speaking	Writing
English	Good	Good	Good

PROFESSIONAL EXPERIENCE

PERIOD	EMPLOYER AND POSITION	RESPONSIBILITIES
Jan 2013 - Current	DHInfrastructure Manager	Regularly advises on energy sector planning and investment strategies, specifically renewable energy. He also advises on utility tariff setting methodologies and options for promoting investment in renewable energy technologies.
Jan 2011 - Jan 2013	Massachusetts Department of Public Utilities (DPU) Tariff Analyst	Provided technical advice and analysis on various utility financing and tariff setting regulatory cases involving investor owned electric, natural gas, and water distribution companies.
Jan 2008 - Jan 2011	DHInfrastructure Senior Analyst	Conducted research related to water and energy sector regulation, privatization, renewable energy, and energy efficiency.
Jan 2007 - Jan 2008	Department of Resource Economics, University of Massachusetts Research Assistant	Assisted Resource Economics Department professor with research in economic theory and industrial organizations.

PROJECT EXPERIENCE

MD PSC Case 9486: WGL Infrastructure Replacement Plan, 2018-2018

Country: United States

Client: Maryland's Office of People's Counsel (OPC)

Role: Lead Consultant/Utility Rates Expert

Sector: Policy and Regulation, Oil and Gas

Maryland's Strategic Infrastructure Development and Enhancement (STRIDE) program provides a cost recovery mechanism to incentivize local gas distribution companies to accelerate improvements in gas infrastructure. Washington Gas Light (WGL) filed a request to the Maryland Public Service Commission (PSC) to establish its second five-year plan (STRIDE 2 Plan) and associated surcharge. WGL's STRIDE 2 plan included separate transmission and distribution plans consisting of the same 11 categories being replaced under their existing distribution and transmission plans, as well as one new transmission asset category. Within its role as a consumer advocate, Maryland's Office of People's Counsel (OPC) intervened in the proceeding on behalf of WGL's residential consumers and wanted to hire a firm to support its staff with its review of WGLs proposed STRIDE 2 plan and surcharge recovery mechanism.

Brendan was the Lead Consultant and expert witness for the DHInfrastructure team hired by OPC. He conducted a comprehensive review of WGL's progress to date in completing replacements approved under its first five-year STRIDE plan. This analysis was used to determine the replacement rate that WGL had demonstrated it could achieve. The evaluation of the STRIDE 2 plan also included an assessment of whether the new transmission asset category met the eligibility requirements of the STRIDE statute and WGL's proposal to add a contingency to the project costs estimates used to set the STRIDE surcharge. Brendan submitted pre-filed direct and oral testimony on behalf of the OPC that focused on WGLs performance during its initial STRIDE program, its budgeting approach, and the STRIDE eligibility of the new transmission asset category.

DPU 18-GREC-04: Liberty Utilities 2018 Gas Infrastructure Reconciliation Filing, 2018-2018

Country: United States

Client: Massachusetts's Attorney General's Office of Ratepayer Advocacy (AGO)

Role: Lead Consultant/Utility Rates Expert

Sector: Policy and Regulation, Oil and Gas

The Massachusetts's Attorney General's Office of Ratepayer Advocacy (AGO) required the assistance of technical expert consulting services for its review of Liberty Utilities' reconciliation of 2017 Gas System Enhancement Plans (GSEP) and for review and approval of the 2018-2019 Gas System Enhancement Reconciliation Adjustment Factors (GSERAF) submitted to the Department of Public Utilities (DPU).

Brendan analyzed the prudence and eligibility of GSEP costs. To this end, he reviewed project cost estimates and invoices and submitted discovery questions on anomalies encountered. He also prepared cross-examination questions, supported the AGO at the evidentiary hearings, and subsequently wrote sections of the initial brief submitted to the DPU.

DPU 18-GREC-03: National Grid 2018 Gas Infrastructure Reconciliation Filing, 2018-2018

Country: United States

Client: Massachusetts's Attorney General's Office of Ratepayer Advocacy (AGO)

Role: Lead Consultant/Utility Rates Expert

Sector: Policy and Regulation, Oil and Gas

The Massachusetts's Attorney General's Office of Ratepayer Advocacy (AGO) required the assistance of technical expert consulting services for its review of Boston Gas Company and Colonial Gas Company d/b/a National Grid's reconciliation of its 2017 Gas System Enhancement Plans (GSEP) and for review and approval of each companies' 2018-2019 Gas System Enhancement Reconciliation Adjustment Factors (GSERAF) submitted to the Department of Public Utilities (DPU).

Brendan analyzed the prudence and eligibility of GSEP costs. To this end, he reviewed project cost estimates and invoices and submitted discovery questions on anomalies encountered. He also prepared cross-examination questions, supported the AGO at the evidentiary hearings, and subsequently wrote sections of the initial brief submitted to the DPU.

MD PSC Case 9480: Columbia Gas of Maryland 2018 Rate Case, 2018-2018

Country: United States

Client: Maryland Office of People's Counsel (OPC)

Role: Expert Witness

Sector: Policy and Regulation, Litigation support, Oil and Gas

Columbia Gas of Maryland (CMD) filed a petition to Maryland's Public Service Commission (PSC) to increase its gas distribution base rates by $5.9 million or 13.3 percent on April 13, 2018. The filing represented the sixth consecutive year that CMD had requested an increase in base rates. Within its role as a consumer advocate, Maryland's Office of People's Counsel (OPC) intervened in the proceeding on behalf of CMDs residential consumers and wanted to hire a firm to review CMDs petition.

Brendan submitted direct and oral testimony on behalf of OPC. His written testimony focused on the justification for CMDs petition to increase its base rates above the current rates. He reviewed CMDs proposed cost of service, class cost of service studies, distribution of revenues by customer class, and residential rate design. His recommendations on revenue requirements combined with the OPC's other recommendations on return on equity and depreciation amounted to a $2.5 million or 40 percent reduction from CMD's request. Brendan subsequently advised OPC through settlement negotiations and provided oral testimony on an environmental remediation issue not included in the settlement agreement.

MD PSC Case 9479: Columbia Gas of Maryland Infrastructure Replacement Plan, 2018-2018

Country: United States

Client: Maryland Office of People's Counsel (OPC)

Role: Lead Consultant/Utility Rates Expert

Sector: Policy and Regulation, Oil and Gas

Maryland's Strategic Infrastructure Development and Enhancement (STRIDE) program provides a cost recovery mechanism to incentivize local gas distribution companies to accelerate improvements in gas infrastructure. Columbia Gas of Maryland (CMD) filed a request to Maryland's PSC to establish its second five-year STRIDE Plan (STRIDE 2) and associated surcharge. For STRIDE 2, CMD proposed to accelerate replacement of bare steel and cast-iron mains from 7.56 miles to 8.5 miles per year. Within its role as a consumer advocate, Maryland's Office of People's Counsel (OPC) intervened in the proceeding on behalf of CMDs residential consumers and wanted to hire a firm to support its staff with its review of CMDs proposed STRIDE 2 plan and surcharge recovery mechanism.

Brendan's analysis focused on whether the historical leak record of bare steel and cast-iron mains supported the request to further accelerate replacement. He also identified problems with the annual budgets the Company had made for STRIDE 2. He submitted pre-filed testimony that summarized his findings and recommended that PSC deny approval of STRIDE 2 and require CMD to submit a new plan that maintained its current replacement rate. Following a settlement agreement, Brendan reviewed all documents submitted in compliance with the agreement and submitted pre-filed testimony on behalf of OPC supporting the settlement.

MD PSC Case 9468: Baltimore Gas and Electric Infrastructure Replacement Plan, 2018-2018

Country: United States

Client: Maryland Office of People's Counsel (OPC)

Role: Lead Consultant/Utility Rates Expert

Sector: Policy and Regulation, Oil and Gas

Maryland's Strategic Infrastructure Development and Enhancement (STRIDE) program provides a cost recovery mechanism to incentivize local gas distribution companies to accelerate improvements in gas infrastructure. Baltimore Gas and Electric (BGE) filed a request to the Maryland Public Service Commission (PSC) to establish its second five-year Strategic Infrastructure Development and Enhancement Plan (STRIDE 2) and associated surcharge. BGE was in the final year of its first five-year STRIDE plan that had established a timeline for replacing all leak-prone gas mains and services by 2043. For its second five-year plan, STRIDE 2, BGE proposed to accelerate the replacement pace such that activities would be completed six years earlier. Within its role as a consumer advocate, Maryland's Office of People's Counsel (OPC) intervened in the proceeding on behalf of BGE's residential consumers and wanted to hire a firm to support its staff with its review of BGEs proposed STRIDE 2 plan and surcharge recovery mechanism.

Brendan's analysis focused on whether BGE had sufficiently justified the need to further accelerate replacement activities. To this end, he used Pipeline and Hazardous Materials Safety Administration (PHMSA) data on the national stock of leak-prone infrastructure to evaluate how BGEs replacement activities compared to a peer group of gas distribution companies. He also looked at the historical leak record of the assets being proposed for accelerated replacement to determine if there was evidence their condition had worsened in recent years. His third piece of analysis was a benefit cost analysis comparing the initial STRIDE timeline to the modified timeline proposed for STRIDE 2. He submitted pre-filed and oral testimony that summarized his findings and recommended that PSC deny approval of STRIDE 2 and require BGE to submit a new plan that maintained its current replacement rate.

Preparation of the SREP Investment Plan for Kiribati, 2018-2018

Country: Kiribati

Client: The World Bank

Role: Project Director

Sector: Clean Energy, Sector Planning

The Government of Kiribati requested assistance in the preparation of an Investment Plan, which would be used to apply for renewable energy project funding through the Climate Investment Fund's Scaling Up Renewable Energy Program (SREP). The primary objective of the Investment Plan was to identify renewable energy projects where SREP resources and other sources of funds could be used to overcome barriers to investment.

Brendan led a team of national and international technical consultants to carry out the renewable energy resource assessment and the financial analysis of potential renewable energy resource options. He then evaluated the economic and financial viability of each renewable technology by using financial models to calculate the levelized cost of energy. Next, using a set of scoring criteria agreed with Governments SREP National Task Force to capture national renewable energy policy goals and the economic and financial analysis, he prioritized technologies for the Investment Plan. As a final output, Brendan developed a complete Investment Plan, which identified specific investment opportunities in solar PV and battery storage and potential sources of funding for each opportunity.

Water Tariff and Affordability Study in Arusha, Tanzania, 2017-2018

Country: Tanzania

Client: Arusha Urban Water Supply and Sanitation Authority (AUWSA)

Role: Financial Analyst

Sector: Policy and Regulation, Water and Sanitation

The Arusha Urban Water Supply and Sanitation Authority (AUWSA) wanted to conduct a tariff and willingness-to-pay study as part of an African Development Bank (AfDB) funded project to improve and expand the water and sanitation network in Arusha City. The two components of the project included a cost-of-service study and a willingness-to-pay study. For the of the cost-of-service study, AUWSA wanted a financial model that they could use for future tariff filings to the water sector regulator. They also wanted the model to allow them to forecast the impact of increased debt service on its financial performance and tariff levels. AUWSA wanted a willingness-to-pay study to understand how much they could

charge for new water connections and septic tank vacuum truck services.

Brendan led the cost-of-service and tariff advisory component of the project. His reviewed AUWSAs historical and planned costs, customer consumption patterns, and recent operating performance. He then developed a set of recommendations for determining revenue requirements, allocating costs, and designing tariffs. He built an Excel-based cost-of-service model that implemented these recommendations and provided 10 years of tariff estimates. He also conducted training sessions for AUWSA staff on the cost-of-service model so that it could be used in future tariff filings. Finally, he developed a tariff implementation and transition plan.

Developing an Africa Energy Strategy for the World Bank, 2017-2018

Country: Burkina Faso

Client: The World Bank

Role: Director

Sector: Policy and Regulation, Sector Planning, Electricity

The World Bank wanted to compile a set of Country Engagement Notes for 26 African countries, including an overview of past progress, ongoing challenges, and potential areas for World Bank engagement in each country's energy sector. The World Bank wanted the Notes to be incorporated into a regional synthesis report that summarized corporate and regional commitments in Africa as well as the Bank's current engagement strategies. The Notes would be used to inform World Bank operations during the International Development Association (IDA) 20182019 period.

Brendan drafted the Country Engagement Notes. As part of this work, he researched qualitative and quantitative indicators of energy access, security of supply, operational competence, financial viability, and financing in each country's energy sector. He selected key performance indicators and developed a rating system to score each country's progress. He assessed progress in the sector and areas where IDA engagements could be beneficial. Brendan presented draft Notes to each World Bank country team and incorporated their feedback into a final set of Notes. He then drafted a regional synthesis report that consolidated each country's challenges and provided an overview of past World Bank operations and paradigm shifts for future engagement in the region.

Sierra Leone Regulatory Strengthening and Tariff Development, 2017-2018

Country: Sierra Leone

Client: Millennium Challenge Corporation Coordinating Unit (MCCU)

Role: Tariff Expert

Sector: Policy and Regulation, Electricity, Water and Sanitation

MCC wanted to support the Commissioners and technical staff of Sierra Leone's Electricity and Water Regulatory Commission (EWRC) in developing the skills and knowledge necessary for EWRC to become an effective, independent, and transparent regulator for the electricity and water sectors. Specifically, MCC wanted to develop a training program for EWRC's Board of Directors; develop a business plan for the regulator; develop key regulations and tariff methodologies for both sectors; provide substantial training and capacity building to EWRC staff; and provide ongoing advisory support through an embedded regulatory advisor. MCC hired AARC, with DHInfrastructure as subcontractor, to implement the project.

Brendan provided support on the development of EWRC's tariff setting procedures and regulations. This work included: i) creating tariff filing reporting forms; ii) preparing the tariff review procedures, including data request and public hearing rules, that were practiced through the dry-run; iii) drafting a uniform system of accounts for water and electricity companies; and iv) advising on EWRC staffing requirements. In addition to these activities, Brendan conducted training modules on tariff setting process and performance regulation for EWRC's Commissioners and senior leadership.

Preparation of SREP Investment Plan for Lesotho, 2017-2017

Country: Lesotho

Client: The World Bank

Role: Project Director

Sector: Clean Energy, Sector Planning, Electricity

The Government of Lesotho requested assistance in the preparation of an Investment Plan (IP), which would be used to apply for renewable energy project funding through the Climate Investment Funds Scaling Up Renewable Energy

Program (SREP). The primary objective of the IP was to identify renewable energy projects where SREP resources and other sources of funds could be used to overcome barriers to investment. These projects were identified by building upon existing analyses of renewable energy potential in Lesotho through in-depth resource and financing modeling. Project identification also involved working with a diverse set of national and international stakeholders from industry, academia and government.

Brendan led a team of national and international technical consultants to carry out the renewable energy resource assessment and the financial analysis of potential renewable energy resource options. He then built financial models of dozens of renewable energy resources, and used dispatch modeling software to evaluate the impact of various renewable energy resources on Lesotho's future energy supply. As a final output, Brendan developed a complete IP, which identified specific investment opportunities and potential sources of funding for each opportunity.

D.P.U. 16-105: Eversource Electric Utility-Scale Solar, 2016-2016

Country: United States

Client: Massachusetts Attorney General's Office

Role: Expert Witness

Sector: Policy and Regulation, Clean Energy, Electricity, Litigation support

Eversource Energy submitted a request to the Massachusetts' Department of Public Utilities for pre-approval to develop, construct, own, and operate 62 MW of solar PV capacity on company-owned sites. Eversource's Petition also included a request for approval of a new Solar Expansion Cost Recovery Mechanism (SECRM), a surcharge for recovering the incremental revenue requirement associated with the proposed solar program. The Attorney General of the Commonwealth of Massachusetts (Attorney General), as part of her duties as public advocate, intervened in the case on behalf of Massachusetts ratepayers. DHInfrastructure was hired by the Attorney Generals Office of Ratepayer Advocacy (AGO) as expert consultants to assist the AGO during the proceedings of the Eversource docket.

Brendan was the lead consultant for the DHInfrastructure team hired by the Attorney General to provide expert advice to staff throughout the docket. He submitted both direct and oral testimony on behalf of the AGO. His testimony specifically focused on the potential bill impacts of Eversource's cost recovery proposal and included recommendations to help mitigate the impact on ratepayers. In addition, Brendan reviewed docket filings; drafted discovery; provided AGO attorneys with support during cross-examination of company witnesses at evidentiary hearings; and contributed to written briefs.

Abengoa Kaxu Project Evaluation, 2016-2017

Country: South Africa

Client: International Finance Corporation (IFC)

Role: Evaluation Specialist/ Team Leader

Sector: Evaluation, Clean Energy, Electricity

Abengoa KaXu is a 100 MW power plant developed by Abengoa Solar South Africa Pty Ltd, in the Northern Cape Province of South Africa. Kaxu was the first operational private sector utility-scale CSP plant with storage in the developing world. After the first year of the plant's operation, IFC wanted an evaluation to inform IFC Blended Finance Unit, IFC management, CTF member countries, the climate finance community, and other key stakeholders of the development outcomes achieved by the project through design, construction and first year of operation. The evaluation would also gather baseline data for a potential second phase evaluation and would further assess the role that Kaxu project has played as part of the CTF South Africa Investment Plan as well as the Government of South Africa's Renewable Energy Independent Power Producer Procurement (REIPPP) Programme. Lastly, the evaluation would provide lessons learned for future projects of this kind.

Brendan led all aspects of the evaluation. The evaluation was structured around a set of evaluation questions proposed by the client. To answer each question he and his team conducted several interviews with development agency, Government, and private sector stakeholders involved in the Abengoa KaXu project; reviewed all project documents; and gathered information on the CSP market before and after the project. The evaluation paid special attention to the potential demonstration role the KaXu plant has played in expanding the market for CSP in Africa.

2015 Gas System Enhancement Reconciliation Adjustment Factor Filings, 2016-2016

Country: United States

Client: Massachusetts Attorney General's Office

Role: Lead Consultant

Sector: Policy and Regulation, Litigation support, Oil and Gas

The Massachusetts Attorney General's Office (AGO) required the assistance of technical expert consulting services for the investigation and litigation of the review and approval of the reconciliation of 2015 Gas System Enhancement Plans (GSEP) and for review and approval of the Gas System Enhancement Reconciliation Adjustment Factors (2015 GREC Filings) submitted to the Department of Public Utilities. DHInfrastructure was asked to provide consulting service on the petitions of: The Berkshire Gas Company, docketed as D.P.U. 16-GREC-02; and Boston Gas Company and Colonial Gas Company each d/b/a National Grid, docketed as D.P.U. 16-GREC-03.

As lead consultant on this project, Brendan supported the AGO in all facets of the docket proceedings, including review of initial and compliance filings, drafting and review of discovery questions, interrogation of expert witnesses, and preparation of briefs.

Ukraine Cost of Gas Service and Financial Analysis, 2016-2016

Country: Ukraine

Client: The World Bank

Role: Regulatory Specialist

Sector: Policy and Regulation, Heating, Oil and Gas

The World Bank wanted to assess the financial standing of Ukraine's gas sector and major gas companies after tariff reforms in 2014 and 2015 and in advance of further planned increases in 2016-2017. The financial assessment resulted in recommendations for improving the sector's and companies' financial standing, including revisions to tariff-setting methodologies.

Brendan reviewed Ukraine's current and planned tariff-setting regulations and practices; projected gas demand, supply and transit volumes for 2016 and 2017; assessed tariffs that would allow the sector and major companies to achieve financial cost recovery; and made recommendations for revising planned tariff reforms and tariff-setting methodologies.

WB Economic Viability of SHPPs in Kyrgyzstan, 2016-2016

Country: Kyrgyzstan

Client: The World Bank

Role: Project Manager

Sector: Policy and Regulation, Clean Energy, Sector Planning, Electricity

Hydropower has historically played an important role in the power sector of the Kyrgyz Republic, but hydropower capacity has become increasingly inadequate to meet growing demand, particularly during winter months. The World Bank wanted to hire a consulting firm to give the Government of the Kyrgyz Republic a better understanding of the economic viability of small hydropower (SHPP) development in the Kyrgyz Republic and the financial support that would be required to facilitate and maintain the commercial operation of SHPPs in the short and long term. The economic and financial analysis conducted as part of this project complements a concurrent assignment of the legal and regulatory framework for SHPPs in the Kyrgyz Republic that is being carried out by the World Bank. Together, these two projects provide insight into the feasibility of developing SHPP potential in the Kyrgyz Republic.

Brendan is managing all aspects of this project. His team has compiled a list of all identified potential SHPP sites and then estimated the economic and financial costs associates with each potential project. He then compared the costs of these sites to the other alternative sources of energy (domestic CHP and imports) to identify which sites were financially and economically viable options. Finally, he is estimating the potential impact on end user tariffs of various SHPP investment scenarios.

Timor-Leste District Capitals Water Tariff Study, 2016-2016

Country: Timor-Leste

Client: Asian Development Bank (ADB)

Role: Tariff Specialist

Sector: Policy and Regulation, Water and Sanitation

The Government of Timor-Leste has committed to providing safe, 24-hour piped water supply to all urban households by 2030 under the country’s Strategic Development Plan 2011-2030. Achieving this objective will require not only substantial investment in rehabilitating and expanding water supply systems, but will require on-going investments in operations and maintenance to ensure sustained improvements in water supply services. As part of this plan, the Ministry of Public

Works Transport and Communications (MOPTC) is preparing a new National Water Supply Policy and revising tariff rates. The Asian Development Bank is supporting MOPTC to (1) review the Water Services Tariff Policy, (2) confirm that the principles for tariff setting are appropriate, (3) review tariff structure and rates and (4) provide adjustments to ensure that rates are consistent with tariff policy objectives and principles.

Brendan provided advice on 1) estimating the revenue requirement to cover costs of expanding and rehabilitating water systems in Dili, Manatuto, and Oecusse 2) allocating costs across customer classes and 3) tariff design options that are most suitable to the Timor-Leste context.

Nauru Power and Water Tariff and Subsidy Reform, 2015-2016

Country: Nauru

Client: Asian Development Bank (ADB)

Role: Team Leader

Sector: Policy and Regulation, Electricity, Water and Sanitation

The Government of Nauru requested technical assistance (TA) from the Asian Development Bank (ADB) to reform electricity tariffs for its national utility provider, Nauru Utilities Corporation (NUC). This TA aimed to contribute to long-term sustainability and viability of NUC as an electric utility and to support proposed investments in NUCs generation facilities under ADBs Nauru Electricity Supply Security and Sustainability Project. The scope of the TA was subsequently expanded to include support for water tariff reforms. The objective of this additional TA was to make similar tariff-setting and subsidy recommendations for NUC's Water Service Division.

Brendan led the tariff reform initiative which in addition to tariff setting recommendations included a Willingness-to-Pay survey of residential customers and a subsidy analysis of existing Government subsidies. As part of the tariff setting reform he developed revenue requirement, cost of service, and tariff design recommendations for NUC to implement.

Preparation of the Scaling-up Renewable Energy Program (SREP) Investment Plan in Bangladesh, 2015-2015

Country: Bangladesh

Client: The World Bank

Role: Project Manager

Sector: Clean Energy, Sector Planning, Electricity

The Government of Bangladesh requested assistance in the preparation of an Investment Plan (IP), which would be used to apply for renewable energy project funding through the Climate Investment Funds Scaling Up Renewable Energy Program (SREP). The primary objective of the IP was to identify renewable energy projects where SREP resources and other sources of funds could be used to overcome barriers to investment. These projects were identified by building upon existing analyses of renewable energy potential in Bangladesh through in-depth resource and financing modeling. Project identification also involved working with a diverse set of national and international stakeholders from industry, academia and government. In preparing the IP, we assessed the potential for developing the following renewable resource options: wind power, solar PV, small hydropower, geothermal power, biomass and biogas, solar-based microgrids, solar home systems, and solar irrigation pumps.

Brendan managed all aspects of developing the IP, including the comprehensive assessment of potential renewable energy projects in Bangladesh. As part of this assessment, he built a financial model for calculating the levelized energy costs (LECs) of each renewable energy option. The LEC analysis was used in conjunction with an economic and social impact evaluation of each option to develop a priority ranking of renewable energy projects. These rankings were then used as the basis for the IP. which identified specific investment opportunities and potential sources of funding for each opportunity.

Least Economic Cost Planning of New Supply in Georgia, 2014-2015

Country: Republic of Georgia

Client: The World Bank

Role: Project Manager

Sector: Clean Energy, Sector Planning, Electricity

The World Bank requested a least-cost power supply study for Georgia. The objective of the least-cost plan was to inform the Government of options for meeting future domestic and export power demand. The World Bank wanted several supply portfolios to be considered for the least-cost plan. The supply portfolios would take into account the existing hydropower potential in Georgia as well as other supply options such as CCGT, renewables, energy efficiency, and

imports. The least-cost plan would be determined by ranking each supply portfolio according to Long-Run Average Incremental Costs (LRAIC) and net present values. The final report would then provide the Government with a better understanding of the generation supply requirements in the coming years, along with a least-cost plan for meeting these requirements and a tariff impact analysis.

Brendan oversaw all aspects of the cost planning study. He developed a forecast model for predicting hourly electricity demand from 2015 to 2030. In addition, he prepared an assessment of the generating capacity at existing and future power sector assets. This assessment involved meeting with sector stakeholders to discuss energy sector plans and gathering information on potential generation and transmission projects. The set of potential power sector projects was then evaluated on a least-cost basis using dispatch modeling software. Brendan then developed a financial model to determine the potential tariff impact of the least-cost plan.

Evaluation of Public-Private Partnership Transaction Advisory Program in Europe and Central Asia, 2014-2014

Country: Albania

Client: International Finance Corporation (IFC)

Role: PPP Specialist

Sector: Public Private Partnerships, Evaluation, Electricity

The International Finance Corporation's (IFCs) transaction advisory services group needed a consulting firm to evaluate the operations of two donor-funded programs that it manages: the Southeast Europe Infrastructure Advisory (SEIA) and Europe and Central Asia Infrastructure Advisory (ECA IA). The main objective of this review was to provide lessons learned that would generate actionable recommendations for IFC and the donor governments on whether support for these programs should be continued past their expiry in 2015.

Brendan prepared a summary of the PPP activity in the ECA region. His review included an assessment of the market for PPPs in the region and the individual experience of the countries served by SEIA and ECA IA.

Scaling Up Renewable Energy (SREP) Investment Plan for Vanuatu, 2014-2014

Country: Vanuatu

Client: Department of Energy, Ministry of Climate Change and Natural Disasters, Government of Vanuatu

Role: Energy Sector Modeler

Sector: Clean Energy, Sector Planning, Electricity

The Government of Vanuatu needed assistance with the preparation of a renewable energy Investment Plan, which would be used to apply for funding through the Climate Investment Funds' Scaling Up Renewable Energy Program (SREP).

Brendan built financial models of dozens of renewable energy resources, and used dispatch modeling software to evaluate the impact of various renewable energy resources on Vanuatu's future energy supply.

Kyrgyzstan Energy Tariffs: Revision of Electricity and District Heating Tariff Methodology and Key Performance Indicators (KPIs), 2013-2014

Country: Kyrgyzstan

Client: The World Bank

Role: Project Manager/Tariff Specialist

Sector: Policy and Regulation, Electricity, Heating

The Kyrgyz Republic needed a well-defined methodology for setting power and heating tariffs. The World Bank asked DHInfrastructure to support the Ministry of Energy of the Kyrgyz Republic in establishing a sustainable, transparent and equitable tariff setting methodology aimed at ensuring cost-recovery, and improved transparency and accountability.

Brendan managed all aspects of this project. He drafted the regulations for tariff setting and performance monitoring and then worked with Regulatory Department staff to adopt the regulations. The tariff regulations took into account the existing institutional structure of the energy sector and international best practice. As part of the adoption process, he conducted training sessions for Regulatory Department staff and briefed utility companies and government officials on the new tariff setting process. He also provided recommendations for options to establish protections for low-income customers and develop transition mechanisms for potential tariff increases.

Armenia Water Tariff Study, 2013-2014

Country: Armenia

Client: The World Bank

Role: Tariff Specialist

Sector: Policy and Regulation, Water and Sanitation

Water and wastewater tariffs in Armenia are very low and do not cover operating and maintenance (O&M) expenditures or provide sufficient funds to adequately deal with asset rehabilitation. Consequently, there are looming concerns about the long-term sustainability of service provision by existing public-private partnership (PPP) arrangements. The World Bank Group (WBG) requested assistance in developing a water sector tariff study for Armenia to assess the levels of the current water and wastewater tariffs in terms of cost-recovery. The World Bank wanted a description of a number of tariff scenarios, taking into account financial, economic, efficiency and equity objectives. Lastly, a plan of actions would be developed to move from the current tariff levels and structure to an agreed future tariff level and structure.

Brendan provided advice on the design options for end user tariffs. He prepared SWOT analysis on various tariff design options (uniform volumetric, non-uniform volumetric, increasing block, and fixed) and used this analysis to provide the Government with a recommended tariff structure.

DPU 12-86: Milford Water Company Rate Case, 2013-2013

Country: United States

Client: Department of Public Utilities

Role: Rate Analyst

Sector: Policy and Regulation, Water and Sanitation

Milford Water Company (MWC) petitioned the DPU for a general rate increase of $3,817,870 (82.7 percent). A major factor for filing this case was the installation of a new water treatment plant that represented a $20,839,558 addition to rate base.

Mr. Larkin-Connolly was responsible for a peer review of the Departments Order for this case. He reviewed the proposed cost of service submitted by MWC and then checked the individual adjustments made by the Department in the Order. As part of the costs of service review he also checked the Company's proposed rate base, that included the water treatment plant additions. The Department disallowed costs of the plan addition related to contractor financing, unsubstantiated post-test year expenditures, and funds used during construction. Mr. Larkin-Connolly checked the calculations of these $979,164 in adjustments and updated the cost of service to account for the change in rate base. Total adjustments to the cost of service led to a $1,340,888 reduction in the proposed rate increase.

Armenia Scaling Up Renewable Energy (SREP) Investment Plan, 2013-2013

Country: Armenia

Client: Armenia Renewable Resource and Energy Efficiency

Role: Renewable Energy Financial Analyst

Sector: Policy and Regulation, Clean Energy, Sector Planning, Electricity

The Armenia Renewable Resources and Energy Efficiency Fund (R2E2) wanted to prepare a renewable energy (RE) Investment Plan (IP), which would be used to apply for US$ 40 million of funding through the Climate Investment Funds Scaling Up Renewable Energy Program (SREP). The objective of the IP was to bring together all prior analyses of RE carried out in Armenia, and conduct more in-depth resource and financial modeling to identify the best RE options in Armenia. The following RE options were reviewed as part of this assignment: wind power, solar PV and solar thermal power, geothermal power, biomass, landfill gas, waste water treatment plant gas, and solar thermal and geothermal heating.

Brendan calculated the LECs of various RE options and used this analysis to assess the economic and financial viability of different RE technologies in Armenia.

Armenia Power Sector Policy Note Update, 2013-2013

Country: Armenia

Client: The World Bank

Role: Project Manager/ Energy Modeling Specialist

Sector: Policy and Regulation, Sector Planning, Electricity

Over the past two decades, the power sector of Armenia has achieved significant improvements in payment discipline, subsidy reform and improvement of regulation. However, the Government of Armenia will need to make significant investments to secure an adequate electricity supply and improve energy security as well as initiate measures to protect the poor while maintaining the financial viability of the sector. This project set out to present an unbiased analysis of the following: (a) least-cost portfolio options for meeting Armenia's power demand in the future, including costs as well as advantages and disadvantages of each option; (b) the transmission bottlenecks and associated investment needs; (c) the end-user tariff impacts of new investments, and the optimal mitigation measures to minimize these impacts.

For this project, Brendan prepared a forecast of power demand in Armenia for the next 20 years; developed a least-cost power supply plan for meeting the projected demand; and assessed the end-user tariff impacts of this plan. He also prepared a summary presentation of the results of this project that was given to the Government of Armenia.

DPU 13-75 : Bay State Gas Company Rate Case, 2013-2013

Country: United States

Client: Department of Public Utilities

Role: Tariff Analyst

Sector: Policy and Regulation, Electricity

Bay State Gas Company requested an increase in base rates for the second year in a row because it argued that its current rate structure did not allow for a reasonable opportunity to earn its permitted rate of return. As a solution to its earning deficiency the Company proposed to create a regulatory asset for the recovery of depreciation, interest, and tax costs incurred on leak-prone pipe replacement projects between the in-service date and when the Company begins earning a recovery on the addition. The Company also proposed six months of post-test year plant additions in order to account for the additional regulatory lag resulting from an extension of the DPUs statutory rate suspension period from six to ten months.

Mr. Larkin-Connolly conducted a review of Bay State Gas Company's operating costs over the previous ten years in order to assess the reason for the Company's inability to earn its rate of return. His analysis showed that while costs related to investment in plant had increased, the largest cost drivers were administrative and general expenses. He also reviewed the Company's proposed test year and post-test year plant additions to determine whether they were both prudent and used and useful.

DPU 12-97: Western Massachusetts Electric Company (WMECo) Revenue Neutral Rate Design, 2012-2012

Country: United States

Client: Department of Public Utilities

Role: Tariff Analyst

Sector: Policy and Regulation, Electricity

As part of a prior settlement agreement with the Attorney General of Massachusetts, WMECo agreed to file a new rate design aimed at aligning customer distribution rates closer to equalized rates of return. The change in distribution rates coincided with a permanent reduction in one of the Company's reconciling mechanisms that allowed for the increase in distribution rates of some customers without an overall increase in their total bill. The need for a distribution rate realignment was due to the Company's prior base rate proceeding in which rates were set for some customers below equalized rates of return leading to cross-subsidization between classes.

Mr. Larkin-Connolly prepared a presentation on the Company's two rate design proposals to inform the Commission about the advantages and disadvantages of each proposal. The Commission used his analysis to select a design that both moved classes closer to equalized rates of return and gave all customer classes a reduction in total bills.

Transaction Advisory for Urban Services in South Gobi, 2012-2013

Country: Mongolia

Client: Ministry of Road, Transportation, Construction and Urban Development, Mongolia

Role: Utility Regulation Specialist

Sector: Public Private Partnerships, Policy and Regulation, Water and Sanitation, Urban Services

Urban services in Omnogovi and Dornogovi aimags did not meet the needs of the existing population. The population was expected to double with increased economic activity from mining and cross-border trade with the People's Republic of China. Recognizing the importance of improving the quality and access to urban services, the Asian Development Bank (ADB) funded transaction advisory services to support the Government of Mongolia in carrying out

recommendations for institutional reforms in the sector. As part of the reforms, the Government solicited private sector operators to provide water and sanitation services IN the Omnogovi and Dornogovi Aimags, and established a national independent regulator for water and sanitation services.

Brendan supported the development of the new independent regulator. He prepared training material on tariff setting and performance monitoring for new regulatory department staff. He also drafted regulations for licensing and service quality indicators.

DPU 12-25 : Bay State Gas Company Rate Case, 2012-2012

Country: United States

Client: Department of Public Utilities

Role: Tariff Analyst

Sector: Policy and Regulation, Electricity

Bay State Gas Company requested a $29.2 million rate increase from the Department. The Company's proposal included the use of a future test year, modifications to an existing capital tracker, and updates to its decoupling mechanism.

Mr. Larkin-Connolly was responsible for reviewing these proposed regulatory mechanisms. Given the Department's standard of basing rates on an historic test year, the focus on his investigation was whether the Company had presented a sufficient reason for needing to break from this tradition. He presented his analysis on the impact of using a future test year versus the historic test year to the Department's Commissioners in order to provide them the necessary background information for making a decision on the Company's proposal. Also, in response to the Company's failure to meet the Departments expectations to increase leak-prone pipe replacement under its existing capital tracker mechanism, he helped develop an annual mileage threshold the Company will have to meet in order to earn recovery of the investments outside of a rate case. In addition, Mr. Larkin-Connolly reviewed the plant additions the Company proposed to add to rate base. This review included an examination of project reports and cost-variance analysis for 272 projects with costs greater than $50,000.

Development of Electricity Tariff and Subsidy Methodology for Armenia, 2012-2012

Country: Armenia

Client: The World Bank

Role: Tariff Advisor

Sector: Policy and Regulation, Electricity

Armenia's power sector faces challenges in ensuring adequate energy supply, safeguarding energy security, and keeping energy supply affordable for customer, while maintaining financial sustainability of the sector. The World Bank hired DHInfrastructure to assess the levels of the current electricity tariffs in terms of cost-recovery and recommend improvements to the tariff structure in order to ensure efficient use of electricity in Armenia.

Brendan advised the project team on best-practice tariff setting approaches. He provided recommendations on the cost components to include in the revenue requirement and appropriate allocation factors for allocating the cost of service.

DPU 12-115 : National Grid Electric 2013 RDM, 2012-2012

Country: United States

Client: Department of Public Utilities

Role: Tariff Analyst

Sector: Policy and Regulation, Electricity

National Grid Electric Company submitted to the DPU for approval of its annual Revenue Decoupling Mechanism (RDM) filing. National Grids RDM is based on a comparison of benchmark revenue per class to actual billed revenue per class. In addition, the Company's RDM filing also requested approval for its 2013 Capital Expenditure Factor (CapEx) that allows for recovery of certain additions to utility plant in 2012.

Mr. Larkin-Connolly reviewed the Company's calculation of both the RDM and CapEx factors and helped draft an Order initially approving the rates subject to reconciliation following a final review after hearings and comments from interveners.

DPU 11-78 & DPU 11-79: National Grid Gas Company Request for Long-Term Financing, 2011-2011

Country: United States

Client:

Role: Tariff Analyst

Sector: Policy and Regulation, Electricity

National Grid Gas requested Department approval to acquire $550 million in new long-term debt. The company requested flexible terms in order to quickly enter the market and capture the benefits of existing low interest rates.

Mr. Larkin-Connolly was in charge of the preparing the capital review and description of financing sections for the Department's Order. His review of the company's petition included extensive analysis of their utility plant account and current long-term debt.

Assessment of Energy Supply Options for Kosovo, 2011-2012

Country: Kosovo

Client: The World Bank

Role: Analyst

Sector: Clean Energy, Sector Planning, Electricity

The World Bank requested an analysis of the cost of alternative power plant options (developed on a BOT or BOO basis) available to Kosovo for meeting energy consumption and peak demand until 2025. Power plant options were to include lignite, gas and fuel oil plant, in combination with a fixed package of renewables.

Brendan developed the forecast and hourly dispatch models used in the analysis. He also researched supply options for generation in Kosovo.

California Electricity Crisis Proceedings, 2011-2012

Country: United States

Client: Pacific Gas & Electric (PG&E)

Role: Economic Analyst

Sector: Policy and Regulation, Electricity, Litigation support

A large US electric utility, wanted to demonstrate to the Federal Energy Regulatory Commission (FERC) that sellers in the California electricity markets during the summer of 2000 committed California ISO tariff violations. The utility also wanted to calculate a set of competitive prices that would have been expected to occur in the California electricity markets if sellers had not committed tariff violations and compare those prices to the amounts actually received by sellers. Finally, the utility wanted to calculate refunds that would be paid by sellers to California utilities for certain types of energy transactions in order to mitigate prices charged above just and reasonable levels.

Brendan supported the preparation of expert testimony on behalf of the utility. He built database models to identify economic withholding of power marketers and estimated a competitive price for electricity that would have been consistent with a market free of manipulation.

Development of Utility Reform Options for Nauru's Electric and Water Utility, 2010-2011

Country: Nauru

Client: Asian Development Bank (ADB)

Role: Analyst

Sector: Public Private Partnerships, Policy and Regulation, Electricity, Water and Sanitation

The Asian Development Bank (ADB) wanted to advise the Government of Nauru on the reform of its utilities (electricity, water, and fuel supply) sector, given the poor reliability and quality of service, and near complete financial dependency on donors. All utilities were under direct control of the Ministry of Commerce, Industry, and Environment.

Brendan researched the experience of utility reform in small island countries. He developed case studies of countries that implemented each of the proposed reform options.

Assessment of the Impact of the Financial Crisis on the Energy Sector in Eastern Europe and Central Asia, 2010-2010

Country: Armenia

Client: The World Bank

Role: Analyst

Sector: Sector Planning, Electricity

The global financial crisis has put increasing pressure on investments in the electricity sector in Europe and Central Asia as private capital flows, domestic lending, and access to international capital markets have been heavily scaled back. The World Bank wanted to analyze the effects of the financial crisis on the electricity sector in Ukraine, Romania, Serbia, Kyrgyz Republic and Armenia.

Brendan analyzed the impact of the financial crisis on electricity demand, private and public capital flows into the sector, operating and capital expenditures, tariffs, and the cost of financing.

Market Study of the US Smart Grid Industry for Japanese Utilities, 2010-2010

Country: United States

Client: Two Japanese electric utility companies

Role: Lead Analyst

Sector: Policy and Regulation, Clean Energy, Electricity

Two of Japans largest electric utility companies (CHUBU Electric Power Company, Tokyo Electric Power Company) requested a report on the state of Smart Grid deployment in the US.

Brendan prepared a report for the utilities that focused on how the American Recovery and Reinvestment Act (ARRA) affected Smart Grid. The influx of funding in Smart Grid provided by ARRA has affected the plans of utilities, regulators, and manufacturers alike. The report also included a review of the current market for smart grid technology and existing barriers preventing investment.

Development of an Energy Policy Note for the World Bank in Armenia, 2009-2010

Country: Armenia

Client: The World Bank

Role: Forecast Analyst

Sector: Policy and Regulation, Sector Planning, Electricity

Armenia has adequate operational capacity to meet domestic demand but given the impending decommissioning of its nuclear power plant, uncertainties with the construction of a new one, and overall age of its other generation assets, the country may experience peak demand shortages in the medium to long term. In addition, sections of the electricity transmission network require urgent rehabilitation and or replacement. These problems coupled with long term financial sustainability, energy security and regional integration considerations necessitate a need for analysis of the energy sector. Consequently, the World Bank wanted an energy sector policy note which described the sector's strategic priorities, key challenges faced, and bottlenecks in the short to long term, as well as potential actions to overcome them.

Brendan modeled electricity demand in Armenia using advanced regression techniques. The demand model was used to forecast electricity growth until 2030 as well as peak demand over this time forecasts were used to assess the potential of several generation options for meeting demand.

Evaluation of SECO's Energy Sector funding to Eastern Europe and Central Asia, 2009-2010

Country: Albania

Client: State Secretariat for Economic Affairs (SECO)

Role: Lead Analyst

Sector: Evaluation, Electricity

Switzerland’s State Secretariat for Economic Affairs (SECO) provides financial and technical assistance in the energy and water sectors. The goal of SECO intervention in the energy sector is to contribute to economic development by ensuring the supply of reliable and financially sustainable energy. SECO wanted to conduct an independent evaluation of energy sector interventions in 17 Eastern Europe and Central Asia countries. SECO requested that the evaluation give special focus to the interventions in Albania, Kyrgyzstan, Romania, and Serbia. The evaluation assessed the effectiveness of SECOs assistance by determining how project outputs, outcomes, and impacts aligned with SECOs strategy for each country.

Brendan was in charge of developing all research and analysis procedures. He collected quantitative and qualitative data from project documents and stakeholder interviews. He used the collected data to create logframes for each of SECOs project in order to clarify objectives and results.

Capacity Building and Assessment of Reform Options for Water Service Providers in Mexico, 2009-2010

Country: Mexico

Client: United States Agency for International Development (USAID)

Role: Analyst

Sector: Policy and Regulation, Water and Sanitation

The Mexican Institute of Water Technology (Instituto Mexicano de Tecnologia de Agua) requested technical assistance from USAID to help build capacity among municipal water providers, as well as members of communities, to improve the quality, efficiency and sustainability of local water service.

Brendan conducted a survey of the organizational structure and regulatory policies of water services at the state-level. As part of a review of Water Service Providers (WSP) in each state he evaluated the financial performance of each WSP based on collection efficiency, tariff recovery level, and operating costs.

Market Study of the Smart Grid Industry in the US, 2009-2009

Country: Japan

Client: New Energy and Industrial Technology Organization (NEDO)

Role: Lead Analyst

Sector: Policy and Regulation, Clean Energy, Electricity

The New Energy and Industrial Technology Development Organization (NEDO) wanted to know about the use of Smart Grid technologies in the United States. To this end, NEDO commissioned a survey on ongoing Smart Grid initiatives including the federal and state level policies supporting Smart Gird, the market segmentation of Smart Grid companies, and Smart Grid projcts that were currently being developed.

Brendan was the primary author of this report. Brendan's analysis included a summary of smart grid technologies, the benefits of a modern power grid, and government policy supporting implementation. In order to provide NEDO with a detailed account of current industry conditions Brendan interviewed multiple industry leaders of the public and private sector. He also completed a survey of all Smart Grid projects in the planning stages or already in development.

Design of Universal Services Fund in the Armenia Telecommunications Sector, 2009-2009

Country: Armenia

Client: The World Bank

Role: Analyst

Sector: Policy and Regulation, Telecommunications

The Law on Electronic Communications in Armenia required the Public Services Regulatory Commission (PSRC) to establish a Universal Services Fund (USF) for the telecommunications sector in Armenia. The World Bank wanted to help the PSRC develop regulations that would establish the USF, determine which services would be covered by the USF, and set the appropriate level of tax that would be levied on operators.

Brendan had surveyed international experiences with universal service funds in order to present PSRC with different service options. He assisted on the drafting of requirements for universal service obligations. He estimated costs of installing the recommended service bundle using a set of cross-sectional data from other rural telecommunication projects in the region.

Development of an Electricity Sector Investment Prospectus for Kenya, 2009-2009

Country: Kenya

Client: The World Bank

Role: Lead Analyst

Sector: Policy and Regulation, Clean Energy, Sector Planning, Electricity

The Government of Kenya has set ambitious targets to expand access to electricity throughout the country, including

expanding electricity connections by 1 million by 2012. The World Bank wanted to help the Government plan for these new connections, and engaged Castalia to prepare a prospectus that combined technical GIS-based electrification plans with least-cost financing options for the new investments.

Brendan completed an analysis of the existing debt of the major energy sector participants. He also prepared a detailed report of existing internationally financed projects in Kenya's energy sector.

Reform of Public Urban Service Organizations in Mongolia, 2008-2010

Country: Mongolia

Client: Asian Development Bank (ADB)

Role: Analyst

Sector: Public Private Partnerships, Policy and Regulation, Heating, Urban Services

The Government of Mongolia wanted to improve service quality andcost recovery of multi-utilities that provide water, sewerage, heating, and solidwaste disposal services in Mongolias provincial capitals. The Asian DevelopmentBank (ADB) asked for recommendations on how the Government could achieve these goals by adopting alternative institutional arrangements for delivery of these services.

Brendan wrote case studies on different service delivery arrangements used elsewhere in the world. These cases were presented to ADB and the Government of Mongolia as potential arrangement options.

Assessment of Infrastructure Needs and Financing Options in Mongolia's Gobi Desert Mining Region, 2008-2009

Country: Mongolia

Client: The World Bank

Role: Lead Analyst

Sector: Policy and Regulation, Sector Planning, Electricity

The Government of Mongolia (GoM) was seeking to develop world class mines in the South Gobi region. The World Bank was assisting GoM to develop a regulatory framework. The World Bank commissioned Castalia to undertake a background study on the development of urban settlements in connection with mining development.

Brendan surveyed international experience with population influx to mining regions, researched estimates for the cost of infrastructure, and built a model to forecast infrastructure needs based on population and type of dwelling. He created multiple diagrams and written briefs to demonstrate current infrastructure and mining projects in Mongolia and also provided insight into a possible solution for infrastructure provision using case studies of Subic Bay, Philippines and Misima Island, Papa New Guinea.

Options for Asset Transfer in the Reform of Kenya's Water and Sanitation Sector, 2008-2009

Country: Kenya

Client: The World Bank (Water and Sanitation Program)

Role: Analyst

Sector: Policy and Regulation, Water and Sanitation

The World Bank wanted to help the Government of Kenya complete the ambitious reforms launched by the 2002 Water Act (the Water Act). The Water Act sought to address the problems in Kenyas water supply and sanitation sector by creating new institutions and reallocating functions between existing and new institutions. The details of this reallocation were specified in the 2005 Water (Plan of Transfer of Water Services) Rules (the Transfer Plan) under the Water Act. By 2008, the transfer of most of the assets, liabilities, personnel, responsibilities and powers had not yet taken place. The World Bank requested help to advise the Government on how to advance the transfer plan, and whether to change any aspects of the transfer plan to make it more feasible.

Brendan reviewed the 2005 Transfer Plan and helped identify barriers that had prevented its success. He also helped develop recommendations for preventing these barriers in the new Transfer Plan.

Assessment of Opportunities for Energy Efficiency Investment in Armenia, 2008-2008

Country: Armenia

Client: The World Bank

Role: Analyst

Sector: Policy and Regulation, Clean Energy, Sector Planning, Electricity

The World Bank wanted to evaluate the potential benefits to Armenia of improving energy efficiency at all segments of the value chain (production, transmission and consumption), and recommend energy efficiency policy priorities for Armenian policymakers.

Brendan compiled a dataset of energy use by country and formed a forecasting model to predict the potential benefit and cost of multiple sector-specific energy efficiency initiatives in Armenia.

Market Study of Cellulosic Ethanol Industry in the US, 2007-2009

Country: United States

Client: New Energy and Industrial Technology Organization (NEDO)

Role: Lead Analyst

Sector: Policy and Regulation, Sector Planning, Electricity

Japans New Energy and Industrial Technology Development Organization (NEDO), requested a review of the technical and financial feasibility of cellulosic ethanol production in the United States. A second study was completed in 2009 with updates on the new policy as well as a review on technological breakthroughs during the year.

Brendan was the primary author of the 2009 update of a report prepared by DHInfrastructure in 2008. Brendan's analysis included a survey of changes in the ethanol industry in 2008. The review included the effects of bio-fuel production, new production technologies, and recent government and state policy. This analysis also included a survey of the status of cellulosic ethanol commercial feasibility.

Assessment of Opportunities for Energy Efficiency Investment in Russia, 2007-2008

Country: Russian Federation

Client: The World Bank

Role: Analyst

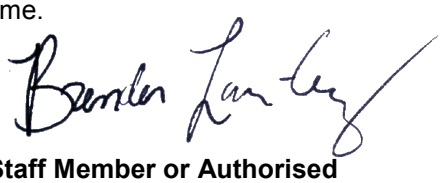
Sector: Policy and Regulation, Clean Energy, Sector Planning, Electricity

The World Bank wanted to evaluate the potential benefits to Russia of improving energy efficiency at all segments of the value chain (production, transmission and consumption), and recommend energy efficiency policy priorities for Russian policymakers.

Brendan researched international examples of barriers to energy efficiency and contributed case studies of potential solutions to energy efficiency. These solutions included demand side management, energy service companies, energy efficiency labels, metering, loan guarantees, and targeted subsidies. In addition, Brendan completed an extensive review of the value chain of the Russian energy sector and created a flow diagram documenting the potential for efficiency across all sectors.

CERTIFICATION

I, the undersigned, certify that to the best of my knowledge and belief, these data correctly describes my qualifications, my experience and me.



10/1/2019

Signature of Staff Member or Authorised Representative of Firm

Date (Day/Month/year)