

May 13, 2016

By E-Mail & U.S. Mail

Pamela G. Monroe, Administrator
New Hampshire Site Evaluation Committee
21 South Fruit Street, Suite 10
Concord, NH 03301-2429
pamela.monroe@sec.nh.gov

Re: Docket No. 2015-06 – Joint Application of Northern Pass Transmission, LLC and Public Service Company of New Hampshire d/b/a Eversource Energy for a Certificate of Site and Facility

Dear Ms. Monroe:

Enclosed for filing in the above-captioned proceeding is Counsel for the Public's Motion for Leave to Retain The Brattle Group and for an Order Directing the Applicants to Bear the Costs Thereof.

Copies of the enclosure have been forwarded via e-mail to all parties on the enclosed Distribution List.

Thank you.

Sincerely,



Thomas J. Pappas

TJP/slb - 2398561_1

Enclosure

cc: Peter C.L. Roth, Esq.
Elijah J. Emerson, Esq.
Distribution List via e-mail

**THE STATE OF NEW HAMPSHIRE
SITE EVALUATION COMMITTEE**

No. 2015-06

Joint Application of Northern Pass Transmission, LLC and Public Service Company of New Hampshire d/b/a Eversource Energy for a Certificate of Site and Facility

**COUNSEL FOR THE PUBLIC’S MOTION FOR LEAVE TO RETAIN
THE BRATTLE GROUP AND FOR AN ORDER DIRECTING THE
APPLICANTS TO BEAR THE COSTS THEREOF**

Counsel for the Public, by his attorneys, the Office of the Attorney General and Primmer Piper Eggleston and Cramer PC, hereby moves, pursuant to RSA 162-H:10, V, for leave to retain an expert consultant and for an order directing Northern Pass Transmission, LLC and Public Service Company of New Hampshire d/b/a Eversource Energy (the “Applicants”) to bear the costs and fees of the consultant and reimburse Counsel for the Public or pay the fees and costs directly to the Brattle Group (“Brattle” or “Consultant”) in an amount up to \$751,000. In support hereof, Counsel for the Public respectfully represents as follows:

A. BACKGROUND.

On October 19, 2015, The Applicants submitted a Joint Application for a Certificate of Site and Facility (the “Application”) to the New Hampshire Site Evaluation Committee (the “Committee” or “SEC”) to construct a 192-mile transmission line to run through New Hampshire from the Canadian border in Pittsburg to Deerfield (the “Project”). The Application with its appendices contains more than 27,000 pages including numerous expert reports and studies.

On November 2, 2015, the Chairman of the Committee appointed a Subcommittee (the “Subcommittee”) to consider the Application. The Subcommittee accepted the Application on

December 18, 2015. The Applicants provided additional information for the Application on February 26, 2016, pursuant to the revised SEC Rules effective December 16, 2015.

B. LEGAL STANDARD.

Pursuant to RSA 162-H:9, I, Counsel for the Public “shall represent the public in seeking to protect the quality of the environment and in seeking to assure an adequate supply of energy. The counsel shall be accorded all the rights and privileges, and responsibilities of an attorney representing a party in formal action and shall serve until the decision to issue or deny a certificate is final.” Moreover, RSA 162-H:10, V, authorizes Counsel for the Public to “conduct such reasonable studies and investigations as [he] deems necessary or appropriate to carry out the purposes of this chapter” Counsel for the Public “may employ a consultant or consultants ... in furtherance of the duties imposed by this chapter, the cost of which shall be borne by the applicant in such amount as may be approved by the committee.” *Id.* Counsel for the Public’s broad role includes conducting studies and investigations necessary and appropriate to carry out the purposes of the statute. Order on Pending Motions, *In re Request of SEA-3, Inc. for Exemption*, dated August 10, 2015, at 9. Those issues “go beyond protection of the environment and assuring an adequate supply of energy” and include any matters identified in RSA 162-H:1. *Id.*

C. ARGUMENT.

Counsel for the Public wishes to retain the Brattle Group to provide expert analysis and opinion on the energy markets benefits and impacts of the Project. The Consultant is an independent consulting firm that provides economic analysis and expert testimony on management, regulatory, and policy issues to businesses, law firms, and public agencies in the United States and abroad. Consultant has advised many governmental entities, including the

New Hampshire Public Utilities Commission in Docket DE 14-238, the Commonwealth of Massachusetts and the State of Maine. In addition to providing analysis and testimony on the Project's impacts to energy markets, it is also expected that the Consultant will collaborate with other experts that Counsel for the Public retains (*e.g.*, local economics). The Consultant's resume is attached as Exhibit A and the details of services that Consultant will provide are set forth in the attached Exhibit B. The total cost of the work is estimated in ranges, depending upon the level of hearing phase activity, between \$594,000 and \$751,000.

Upon careful consideration of the Application, Counsel for the Public has deemed that the retention of Consultant's services, to analyze the Applicants' claimed energy market benefits and how those benefits will impact the public interest, is necessary to carry out the purpose of the siting statute and to evaluate how the Project may impact or benefit the welfare of the population, private property, industry and general economic growth, and whether the Project is in the public interest. As stated in RSA 162-H, the purpose of the siting statute is to find "a balance among those potential significant impacts and benefits" of the Project. RSA 162-H:1. Retention of the Consultant is necessary because it will provide Counsel for the Public and the Committee with an unbiased, independent, and thorough analysis of the Project's benefits for New Hampshire and its people.

The physical impacts of this proposed merchant transmission project, including impacts to aesthetics, natural resources, historic resources, safety and welfare of the hosting communities will be completely borne by New Hampshire. The main claimed benefit of the Project is its impact to regional wholesale electric markets, a *pro rata* share of which will accrue to New Hampshire residents. These benefits are what drive the other claimed benefits of the Project such as retail electrical rate savings, GDP growth and non-construction job growth. It is

impossible to understand the Project and whether it strikes the required balance between benefits and impacts without thoroughly understanding how the Project affects the wholesale markets.

The Consultant will investigate the Project's impact on the wholesale energy market. The Applicants hired London Economics International, LLC ("LEI") to estimate the wholesale market benefits of the Project. Pursuant to its analysis, LEI opined that the Project would result in an average savings of \$7.6 million to \$8.1 million in capacity market prices for New Hampshire for the first ten (10) years of the Project's operation. Pre-filed Direct Testimony of Julia Frayer (Redacted) at 6. ISO-NE's Forward Capacity Market is a complex market with many governing rules and there are important questions about how the Project would be able to participate and what the effects might be on the market of the Project's participation. Answering these questions and evaluating the Project's impact to wholesale markets requires a deep and nuanced understanding of the rules of the market, how it functions and how other participants will respond to the Project.

The Consultant also will be investigating the Project's impacts on the regional energy market. LEI opined that the Project will result in average energy market savings of \$8.2 million to \$10.2 million for New Hampshire. *Id.* In order to determine this, LEI had to make many assumptions about how the Project will participate in the market and how the market will react to that participation. These assumptions were made despite the fact that the Applicants have provided little information on Hydro-Quebec's commitment to deliver energy into that market. In addition, LEI estimates the Project will translate into similarly significant retail costs savings, which is ultimately how New Hampshire residents will benefit from the Project. These claimed benefits all require a thorough independent analysis because they make up the primary benefits that New Hampshire will receive from hosting the Project.

The Consultant will perform a detailed review of the LEI analysis and report. This will involve, among other things, scrutinizing the various inputs, testing the underlying assumptions and evaluating LEI's characterization of the results. The Consultant's scope of work and cost estimate also includes the performance of an independent analysis of the Project's energy market benefits. This is critical because of identified short-comings of the LEI review (*e.g.*, the base case assumes nothing happens if the Project is not approved) and because the Committee should base its findings and conclusions on an objective review of the Project's benefits, which presents more than just the best case scenario. This objective analysis will also look at unexpected market reactions that may occur if the Project is permitted, what are the consequences of the reactions and how those may improve or weaken the benefits of the Project. The Consultant's analysis will then be presented to the Committee, the public, and docket parties in a comprehensive report and accompanying pre-filed testimony. The variability in the Consultant's scope of work and cost estimate results from Counsel for the Public's and Consultant's uncertainty about how much litigation activity will be generated during the trial phase of the case that requires the involvement of the Consultant.

In order to determine whether the Project should be issued a Certificate of Site and Facility, it is Counsel for the Public's and the Committee's responsibility to evaluate how these benefits and impacts fit into the overall "public interest" of the Project. The retention of the Consultant is necessary to achieve that goal. In addition, among the purposes of RSA 162-H:1 is the acknowledgement that "the selection of sites for energy facilities may have significant impacts on and benefits to ... the welfare of the population, private property, the location and growth of industry [and] the overall economic growth of the state" The retention of the

Consultant is necessary to evaluate whether the Project would be consistent with those objectives.

Counsel for the Public researched, investigated and interviewed many potential experts prior to selecting the Consultant. The Consultant possesses the appropriate balance between (a) experience and relevant expertise, and (b) cost-effectiveness. Moreover, Counsel for the Public has worked with the Consultant to refine its scope of work to make sure it is focused to achieve prudent advice at a reasonable cost. Counsel for the Public recognizes that the Consultant's fee appears to be extraordinary. However, for a project of this scale and accounting for the sophistication and complexity of the economic analysis that is required to determine the primary project benefit, it is necessary to engage a consultant whose expertise and experience are at appropriate levels and finding such a firm is equally extraordinarily challenging. There is no one that Counsel for the Public could identify in the New Hampshire market, at New Hampshire prices, that could bring those levels of expertise and skill.

The Consultant's budget contains two phases. Phase I includes the work to review and analyze the Application in order to render conclusions and issue a report on the Consultant's findings. This work has a set budget because the work itself is within the Consultant's control. Phase II presents a range of costs since it involves work that depends upon other parties' demands upon the Consultant, such as data requests, and involves events, such as technical sessions and adjudicative hearings, the length of which are difficult to predict. The Phase II estimate has an estimate of costs for moderate demands upon the Consultant and an estimate of costs for greater demands upon the Consultant. All of Consultant's time will be billed hourly at Consultant's standard billing rates.

Counsel for the Public will forward Consultant's invoices to the Applicants' counsel for payment by the Applicants. Counsel for the Public also will forward to Applicants' counsel a forecast of estimated future costs so that Applicants can budget for them.

WHEREFORE, Counsel for the Public prays that the Committee enter an order authorizing the employment of the Brattle Group as consultants pursuant to RSA 162-H:10, V, and directing the Applicants to bear the costs, as incurred monthly, up to a total of \$751,000, and granting such other relief as may be just.

The Applicants' Position:

The Applicants assent to the relief sought in the motion, but not to any characterizations in the motion about the case or the Application.

The Following Parties Concur in this Motion:

The City of Concord
The City of New Hampton
The Town of Bridgewater
The Town of Woodstock
The Town of Littleton
The Town of Deerfield
The Ashland Water District
The Town of Bristol
The Town of Easton
The Town of Franconia
The Town of Northumberland
The Town of Sugar Hill
The Town of Whitefield
The Society for the Protection of NH's Forests
The Conservation Law Foundation
The Deerfield Abutter's Group
Susan E. Percy
Mark and Susan Orzeck
Virginia Jeffryes
Jon and Lori Levesque
David Schrier
Rodrigue and Tommy Beland
Eric, Elaine and Joshua Olson

Rodney Moore, et al
Cheryl Jenson, Co-Chair, Bethlehem Conservation Commission
Mary Lee
Taras Kucman
Maureen Quinn
Brad and Daryl Thompson

The Following Parties Object to this Motion:

No party has indicated their objection to the motion.

The Following Parties Take No Position on this Motion:

The City of Berlin

Respectfully submitted,

COUNSEL FOR THE PUBLIC,

By his attorneys,



Dated: May 13, 2016

By:

Peter C.L. Roth, Senior Assistant Attorney General
Environmental Protection Bureau
33 Capitol Street
Concord, NH 03301-6397
(603) 271-3679

PRIMMER PIPER EGGLESTON & CRAMER PC,

Dated: May 13, 2016


By: _____
Thomas J. Pappas, Esq. (N.H. Bar No. 4111)
P.O. Box 3600
Manchester, NH 03105-3600
(603) 626-3300
tpappas@primmer.com

-and-

Elijah D. Emerson, Esq. (N.H. Bar No. 19358)
PRIMMER PIPER EGGLESTON & CRAMER PC
P.O. Box 349
Littleton, NH 03561-0349
(603) 444-4008
eemerson@primmer.com

CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing MOTION OF COUNSEL FOR THE PUBLIC FOR LEAVE TO RETAIN THE BRATTLE GROUP AND FOR AN ORDER DIRECTING THE APPLICANTS TO BEAR THE COSTS THEREOF has this day been forwarded via e-mail or mail to persons named on the Distribution List of this docket.

Dated: May 13, 2016



Thomas J. Pappas, Esq. (N.H. Bar No. 4111)

Exhibit A

JÜRGEN WEISS

Principal

Cambridge, MA

+1.617.864.7900

Jurgen.Weiss@brattle.com

Dr. Jürgen Weiss is an energy and industrial organizations economist with 20 years of consulting experience in the United States, Europe and the Middle East, heading the firm's climate change practice. He specializes in issues broadly motivated by climate change concerns, such as renewable energy, energy efficiency, energy storage, the interaction between electricity, gas and transportation, and carbon pricing and the impact these changes have on existing assets, market structures, and long-term planning needs for electric utilities in North America, Europe, and the Middle East.

His consulting and expert testimony experience have focused on the impact of changing regulatory and incentive frameworks for low-carbon technologies, on the economics and value of both renewable generation sources and existing generation assets, and on the design of efficient incentive mechanisms for renewable energy, energy efficiency, energy storage, and climate change measures.

Dr. Weiss has consulted and written substantially on power assets valuation (including power plants, vertically integrated utilities and PPAs), carbon pricing and carbon market design, energy efficiency, conservation, storage, retail rates, renewable power, and Renewable Portfolio Standards. Dr. Weiss has testified in U.S. state and federal courts, as well as in state regulatory proceedings on related issues, most recently on several long-term contracts for renewable power projects. He has served on advisory councils as diverse as one for California's Low Carbon Fuel Standard, the King Abdullah City of Atomic and Renewable Energy in Saudi Arabia and, most recently, the Department of Energy's Wind Vision Task Force.

Prior to joining The Brattle Group, Dr. Weiss was a co-founder and managing director of Watermark Economics. In addition, he was previously the managing director of Point Carbon's global advisory practice and a director at LECG.

AREAS OF EXPERTISE

- Climate Change Economics
- Renewable Energy and Energy Efficiency
- Electric Power
- Market Design and Regulatory Policy
- Valuation

JÜRGEN WEISS

EDUCATION

Dr. Weiss holds an MBA from Columbia University and a Ph.D. in Business Economics from Harvard University.

EXPERIENCE

Climate Change / Renewable Energy / Energy Efficiency

- Dr. Weiss is currently assisting the Australian Energy Market Commission in developing options for the development of a Safeguard Mechanism to assure that greenhouse gas emissions from existing power plants will not exceed baseline emissions in the future. (ongoing)
- For the Advanced Energy Economy Institute, Dr. Weiss led a team of Brattle experts to assess the North American Electric Reliability Corporation's (NERC) initial reliability assessment of the U.S. Environmental Protection Agency's Clean Power Plan, which is designed to lower greenhouse gas emissions from existing power plants. The project involved assessing NERC's review and providing a range of options for providing reliability while complying with the Clean Power Plan. (2015)
- For the Saudi Arabian electricity regulator, Dr. Weiss developed a roadmap for combined heat and power projects, which involves technology screening, cost-benefit analysis, market sizing, identification of regulatory barriers and the proposal of regulatory and policy solutions to increase the penetration of economically beneficial CHP applications in industry, seawater desalination and district cooling. (2014/15)
- For the Solar Energy Industry Association, Dr. Weiss authored a report examining the experience with Germany's solar PV support programs in detail. The report evaluated the impact of Germany's system of feed-in tariffs (FITs) on the cost of solar, retail rates, macroeconomic competitiveness, greenhouse gas emissions and system reliability, with an eye towards lessons that can be learned from the German experience. (2014)
- For the Office of Energy Resources of the State of Rhode Island, Dr. Weiss and his colleague Dr. Berkman performed an economic and environmental impact analysis of the State's distributed energy and renewable energy fund programs. (2013-2014)

JÜRGEN WEISS

- For the European Bank for Reconstruction and Development (EBRD) and as part of a team led by the law firm Pierce Atwood LLP, Dr. Weiss was responsible for developing an economic and environmental impact assessment of a large number of proposed changes to the laws of Kazakhstan in the areas of water, waste and energy/air emissions designed to move the country toward a Green Economy. (2013-2014)
- For the Texas Clean Energy Coalition, Dr. Weiss was a co-author of several reports analyzing in detail the potential performance of natural gas-fired versus wind and solar generation in ERCOT using a novel modeling approach combining long-term capacity expansion modeling and very short-term production costing modeling including various ancillary services markets. A 2014 update examined the implications for the same trade off once combined heat and power as well as demand response programs were more carefully evaluated. (2013/2014)
- On behalf of Great River Energy, a large mid-western generation and transmission utility, Dr. Weiss developed a proposal to use an ISO-based carbon pricing mechanism as a way to comply with Section 111(d) of the United States Clean Air Act (“Existing Source Rule”) (2013-2014)
- For the Saudi Arabian electricity regulator, Dr. Weiss helped evaluate the implications of Saudi Arabia’s ambitious renewable energy goals on the existing and future Saudi electric system, including an analysis of appropriate incentive structures, transmission upgrades and regulatory changes (2013).
- On behalf of a group of not-for-profit organizations including the Center for American Progress, the Sierra Club, the Clean Energy States Alliance and the US Offshore Wind Collaborative, Dr. Weiss led a study on the economic impact of scaling offshore wind energy to the point where it might reach grid parity with conventional sources of electricity (2013).
- For a private renewable energy developer, Dr. Weiss co-authored a study on the impact of long-term contracting for renewable energy projects on the levelized costs of such projects and the resulting potential resulting benefits to ratepayers from acquiring renewable energy through bundled long-term contracts rather than either contracts for only individual attributes or merchant sales (2013).
- Dr. Weiss co-authored a report for the Bipartisan Policy Center analyzing the domestic and international experience with various forms of renewable energy support, drawing lessons about key elements of a successful U.S. renewable support policy (2012).

JÜRGEN WEISS

- Dr. Weiss led a Brattle team on two reports for the Solar Energy Industry Association analyzing the hypothetical impact of additional amounts of PV capacity on wholesale prices, customer payments and greenhouse gas emissions in Texas and New York respectively (2012).
- For a major California electric utility, Dr. Weiss helped develop an experimental simulation design to test the market rules of the proposed greenhouse gas cap and trade market scheduled to begin operations in the fall of 2012 (2012).
- Dr. Weiss served on the Advisory Panel on the Low Carbon Fuel Standard for the California Air Resources Board (2011).
- Dr. Weiss served as a member of the Advisory Panel to KA-CARE (King Abdullah City of Atomic and Renewable Energy), where he helped the Kingdom of Saudi Arabia evaluate various proposals to foster the development of renewable energy in the context of the construction of a new city (2011).
- Dr. Weiss evaluated several renewable power long-term power purchasing agreements for the MA Office of the Attorney General and served as an expert witness in related regulatory proceedings before the Massachusetts Department of Public Utilities (2010/2011/2013).
- For a major European electric utility, Dr. Weiss prepared and presented an analysis of various approaches to financing energy efficiency projects, including an assessment of their ability to address various perceived barriers to the widespread deployment of energy efficiency programs (2011).
- For the trading operation of a major German electric utility, Dr. Weiss prepared and presented an analysis of the impact of a 100% fossil-free energy supply on various aspects of wholesale electricity markets, both in the long-run and along a transition path of increased penetration of intermittent renewable resources (2011).
- Dr. Weiss co-authored two reports with Dr. Mark Sarro based on Brattle's analysis of the impact of AB 32 on small businesses in California. The study, commissioned by the Union of Concerned Scientists, analyzed both the impact of AB 32 on various energy prices such as electricity, natural gas and transportation fuels and the impact such price increases might have on small businesses, based on overall small business statistics as well as discounted cash flow analyses of two specific small businesses (2010).
- On behalf of the Massachusetts Attorney General Dr. Weiss served as an expert witness in the Cape Wind proceeding, in which approval of a 15-year power purchasing agreement for

JÜRGEN WEISS

the output from the 468MW offshore wind project was sought. The analysis focused on a comparison of the terms of the proposed PPA to the costs of comparable offshore wind projects and contracts in the United States and Europe (2010).

- For a developer of HVDC transmission lines, Dr. Weiss prepared a report assessing the comparable cost of various renewable energy options to be delivered into the Southeastern United States, including the delivery of wind resources from within or outside the region and through existing AC transmission networks and/or new DC transmission lines. The analysis involved a comparison of levelized costs of various options as well as a calculation of GHG reductions resulting from increased renewable generation (2010).
- Dr. Weiss participated in the preparation of a report for a large European industry association, which made several suggestions regarding the design of auctions for Phase III of the European Union Emissions Trading Scheme (EU ETS). The analysis addressed issues such as price discovery, price certainty, avoidance of market manipulation, tools for allowing participation to smaller emitters, etc. (2010).
- For a US-based not-for profit organization, Dr. Weiss helped develop a report on the potential scope for a United States “green bank” with particular emphasis on the ability of such an entity to address energy efficiency market failure issues (2009/2010).
- For a US-based merchant power developer, Dr. Weiss evaluated the levelized costs of a range of technologies including nuclear, new conventional coal fired generation, new CCGTs, onshore wind, offshore wind and photovoltaic power in comparison with a proposed Integrated Gasification Combined Cycle plant (2009).
- For a number of private and public clients, Dr. Weiss participated in the development of a global model of carbon pricing under a variety of policy assumptions (2008).
- For the National Roundtable on the Environment and the Economy (NRTEE) of Canada, Dr. Weiss helped develop a report analyzing the non-price barriers to the deployment of various energy efficiency technologies in Canada as part of Canada’s efforts to lower greenhouse gas emissions, including in particular ground source heat pumps (2008).
- For the California Public Utilities Commission, Dr. Weiss provided consulting support for the development of a tradable Renewable Energy Certificates (REC) scheme within the context of California’s existing Renewable Portfolio Standard (2007).

JÜRGEN WEISS

Power Markets / Valuation

- For a larger private equity firm, Dr. Weiss helped evaluate the potential value of a large group of Midwestern combined cycle gas turbines covered by a complex power purchasing agreement, the value of which depended on a number of factors such as the potential retirement of various coal plants in the region (2012).
- Dr. Weiss assisted a Chinese power company in evaluating various options to develop and economically operate electricity storage systems in China (2011).
- Dr. Weiss was a testifying expert on international assets in a litigation matter brought by a successor to Mirant against the Southern Company. Dr. Weiss testified to the value and value drivers of assets in Germany, the United Kingdom, the Philippines, China, Argentina, Chile, Brazil and several Caribbean countries. The assets considered included single power plants (mostly with PPAs), vertically integrated electric utilities and electric distribution utilities (2007/2008).
- Dr. Weiss was a testifying expert in a litigation case over a Power Purchasing Agreement between a major U.S. electric utility and a power marketer. In his testimony, Dr. Weiss analyzed the value of replacement power offered during a construction delay of the associated co-generation facility (2005).
- On two separate occasions, Dr. Weiss valued a proposed PPA in the context of the contemplated sale of Vermont Yankee Nuclear Plant. The testimony involved the comparison of price and terms of a proposed PPA to alternative market payments (2000, 2002).

TESTIMONY

Direct Prefiled Testimony and Exhibits of Judy W. Chang and Jurgen Weiss, Ph.D. in Response to Fitchburg Gas and Electric Company's Petition for Approval of a Purchase Power and Renewable Energy Certificate Contract in accordance with the requirements of Section 83A of the Massachusetts Green Communities Act and the Request for Proposal Process approved by the Department of Public Utilities in D.P.U. 13-57, in front of the Massachusetts Department of Public Utilities, Docket No. D.P.U. 13-146 (November 2013).

Direct Prefiled Testimony and Exhibits of Judy W. Chang and Jurgen Weiss, Ph.D. in Response to Massachusetts Electric Company and Nantucket Electric Company d/b/a National Grid's Petition for Approval of a Purchase Power and Renewable Energy Certificate Contract in accordance with the requirements of Section 83A of the Massachusetts Green Communities Act and the Request for Proposal

JÜRGEN WEISS

Process approved by the Department of Public Utilities in D.P.U. 13-57, in front of the Massachusetts Department of Public Utilities, Docket No. D.P.U. 13-147 (November 2013).

Direct Prefiled Testimony and Exhibits of Judy W. Chang and Jurgen Weiss, Ph.D. in Response to NSTAR Electric Company's Petition for Approval of a Purchase Power and Renewable Energy Certificate Contract in accordance with the requirements of Section 83A of the Massachusetts Green Communities Act and the Request for Proposal Process approved by the Department of Public Utilities in D.P.U. 13-57, in front of the Massachusetts Department of Public Utilities, Docket No. D.P.U. 13-148 (November 2013).

Direct Prefiled Testimony and Exhibits of Judy W. Chang and Jurgen Weiss, Ph.D. in Response to Western Massachusetts Electric Company's Petition for Approval of a Purchase Power and Renewable Energy Certificate Contract in accordance with the requirements of Section 83A of the Massachusetts Green Communities Act and the Request for Proposal Process approved by the Department of Public Utilities in D.P.U. 13-57, in front of the Massachusetts Department of Public Utilities, Docket No. D.P.U. 13-149 (November 2013).

Direct Prefiled Testimony of Judy Chang and Dr. Jurgen Weiss in Response to Fitchburg Gas and Electric Company's Petitions for Approval of a Purchase Power and Renewable Energy Certificate Contract in accordance with the requirements of the Act Relative to Green Communities (St. 2008, c. 169, § 83) and the Request for Proposal Process approved by the Department of Public Utilities in D.P.U. 10-76, in front of the Massachusetts Department of Public Utilities, Docket No. 11-30 (July 2011).

Direct Prefiled Testimony of Judy Chang and Dr. Jurgen Weiss in Response to Western Massachusetts Electric Company's Petitions for Approval of a Purchase Power and Renewable Energy Certificate Contract in accordance with the requirements of the Act Relative to Green Communities (St. 2008, c. 169, § 83) and the Request for Proposal Process approved by the Department of Public Utilities in D.P.U. 10-76, in front of the Massachusetts Department of Public Utilities, Docket No. 11-12 (June 2011).

Direct Testimony of Judy Chang and Dr. Jurgen Weiss in Response to NSTAR Electric Company's Petitions for Approval of a Purchase Power and Renewable Energy Certificate Contract in accordance with the requirements of the Act Relative to Green Communities (St. 2008, c. 169, § 83) and the Request for Proposal Process approved by the Department of Public Utilities in D.P.U. 10-76, in front of the Massachusetts Department of Public Utilities, Dockets No. 11-05, 11-06 and 11-07 (June 2011).

Direct Prefiled Testimony of Judy Chang and Dr. Jurgen Weiss in Response to NSTAR Electric Company's Petitions for Approval of a Purchase Power and Renewable Energy Certificate Contract in accordance with the requirements of the Act Relative to Green Communities (St. 2008, c. 169, § 83) and the Request for Proposal Process approved by the Department of Public Utilities in D.P.U. 10-76, in front of the Massachusetts Department of Public Utilities, Dockets No. 11-05, 11-06 and 11-07 (May 2011).

Gutachterliche Stellungnahme zum Gutachten von Mag. Dr. Dr. Doris Hildebrand, LL.M. der EE&MC GmbH "Schadensberechnung österreichisches Aufzugs- und Fahrtreppenkartell: Teil A" von Dr. Robert J. Reynolds und Dr. Mag. Mag. Jürgen Weiss, (October 2010).

JÜRGEN WEISS

Gutachterliche Stellungnahme zum Gutachten vom November 2009 von O. Univ.-Prof. Dr. Hanns Abele und Ao. Univ.-Prof. Dr. Guido Schäfer bezüglich Schadensersatz von Uniq, Dr. Robert J. Reynolds und Dr. Jürgen Weiss, (October 2010).

Gutachterliche Stellungnahme zum Gutachten von Prof. Hanns Abele und Prof. Guido Schäfer betreffend Die ökonomischen Konsequenzen der Kartellbildung Aufzugbranche in Österreich – Ermittlung der Kartellpreisaufschläge (Juni 2009)“, Dr. Robert J. Reynolds und Dr. Jürgen Weiss, (September 2010).

Direct Testimony of Dr. Jurgen Weiss and Judy Chang in Response to the Petition of Massachusetts Electric Company and Nantucket Electric Company d/b/a National Grid for approval by the Department of Public Utilities of amended power purchase agreements between National Grid and Cape Wind Associates, LLC., in front of the Massachusetts Department of Public Utilities, Docket No. 10-54 (September, 2010).

Direct Prefiled Testimony of Dr. Jurgen Weiss and Judy Chang in Response to the Petition of Massachusetts Electric Company and Nantucket Electric Company d/b/a National Grid for approval by the Department of Public Utilities of amended power purchase agreements between National Grid and Cape Wind Associates, LLC., in front of the Massachusetts Department of Public Utilities, Docket No. 10-54 (August 20, 2010).

Deposition of Dr. Jurgen Weiss in MC ASSET RECOVERY, LLC, Plaintiff, v. THE SOUTHERN COMPANY, Defendant, CIVIL ACTION No. 1:06-CV-0417-BBM (February 2008).

Expert Report of Dr. Jurgen Weiss in MC ASSET RECOVERY, LLC, Plaintiff, v. THE SOUTHERN COMPANY, Defendant, CIVIL ACTION No. 1:06-CV-0417-BBM (December 2007).

Deposition in re: Welding Rod Products Liability Litigation, Case No. 1:03-CV-17000 MDL Docket No. 1535 (May 2005).

Deposition in Tractebel Energy Marketing, Inc., Plaintiff, against AEP Power Marketing, Inc., American Electric Power Company, Inc., and Ohio Power Company, defendants, 03 CIV.6731(HB)(JCF); and Ohio Power Company and AEP Power Marketing, Inc., Plaintiff, against Tractebel Energy Marketing, Inc. and Tractebel S.A. (now known as Suez-Tractebel S.A.), Defendants. 03 CIV.6770(HB)(JCF) (March 2005).

Preliminary Expert Witness Declaration of Jurgen Weiss, Ph.D. in re: Welding Rod Products Liability Litigation, Case No. 1:03-CV-17000 MDL Docket No. 1535 (February 2005).

Rebuttal Report of Dr. Jurgen Weiss in Tractebel Energy Marketing, Inc., Plaintiff, against AEP Power Marketing, Inc., American Electric Power Company, Inc., and Ohio Power Company, defendants, 03 CIV.6731(HB)(JCF); and Ohio Power Company and AEP Power Marketing, Inc., Plaintiff, against Tractebel Energy Marketing, Inc. and Tractebel S.A. (now known as Suez-Tractebel S.A.), Defendants. 03 CIV.6770(HB)(JCF) (February 2005).

JÜRGEN WEISS

Direct Testimony of Dr. Jurgen Weiss in Petition and tariff filing of Green Mountain Power Corporation re: proposed rate design changes to take effect January 1, 2005, in front of the Vermont Public Service Board, Docket No. 6958 (December 2004).

Prefiled Surrebuttal Testimony of Dr. Jurgen Weiss in Petition and tariff filing of Green Mountain Power Corporation re: proposed rate design changes to take effect January 1, 2005, in front of the Vermont Public Service Board, Docket No. 6958 (November 2004).

Prefiled Testimony of Dr. Jurgen Weiss in Petition and tariff filing of Green Mountain Power Corporation re: proposed rate design changes to take effect January 1, 2005, in front of the Vermont Public Service Board, Docket No. 6958 (August 2004).

Expert Report of Dr. Jurgen Weiss in Keith Lemon and Lori Lemon, Plaintiffs, vs. Daniel P. McNeil and West Lynn Creamery, Defendants, in Superior Court of the Commonwealth of Massachusetts, (August 2004).

Direct Testimony of Dr. Jurgen Weiss in Investigation into General Order No.45 filed by Vermont Yankee Nuclear Power Corporation re: proposed sale of Vermont Yankee Nuclear Power Station and related transactions, in front of the Vermont Public Service Board, Docket No. 6545 (2002).

Prefiled Rebuttal Testimony of Dr. Jurgen Weiss in Investigation into General Order No.45 filed by Vermont Yankee Nuclear Power Corporation re: proposed sale of Vermont Yankee Nuclear Power Station and related transactions, in front of the Vermont Public Service Board, Docket No. 6545 (March 2002).

Prefiled Testimony of Dr. Jurgen Weiss in Investigation into General Order No.45 filed by Vermont Yankee Nuclear Power Corporation re: proposed sale of Vermont Yankee Nuclear Power Station and related transactions, in front of the Vermont Public Service Board, Docket No. 6545 (January 2002).

Prefiled Rebuttal Testimony of Dr. Jurgen Weiss in Investigation into General Order No.45 filed by Vermont Yankee Nuclear Power Corporation re: proposed sale of Vermont Yankee Nuclear Power Station and related transactions, in front of the Vermont Public Service Board, Docket No. 6300 (June 2000).

Direct Testimony of Dr. Jurgen Weiss in Investigation into General Order No.45 filed by Vermont Yankee Nuclear Power Corporation re: proposed sale of Vermont Yankee Nuclear Power Station and related transactions, in front of the Vermont Public Service Board, Docket No. 6300 (May 2000).

Deposition of Dr. Jurgen Weiss in Investigation into General Order No.45 filed by Vermont Yankee Nuclear Power Corporation re: proposed sale of Vermont Yankee Nuclear Power Station and related transactions, in front of the Vermont Public Service Board, Docket No. 6300 (April 2000).

Prefiled Testimony of Dr. Jurgen Weiss in Investigation into General Order No.45 filed by Vermont Yankee Nuclear Power Corporation re: proposed sale of Vermont Yankee Nuclear Power Station and related transactions, in front of the Vermont Public Service Board, Docket No. 6300 (April 2000).

JÜRGEN WEISS

PUBLICATIONS AND PUBLIC REPORTS

“EPA’s Clean Power Plan and Reliability: Assessing NERC’s Initial Reliability Review”, Jürgen Weiss, Bruce Tsuchida, Michael Hagerty, and Will Gorman, prepared for the Advanced Energy Economy Institute, February 2015.

“What can (or should) we take away from Germany’s renewable experience?” Electricity Daily, January 2015.

“Germany’s Energiewende Enjoys Broad Support, But Policy and Technical Challenges Must be Solved”, Published in Climate Change Business Journal, Volume VII, December 2014.

“Solar Energy Support in Germany: A Closer Look”, Prepared for the Solar Energy Industries Association, July 2014.

“Policy Brief - EPA’s Proposed Clean Power Plan: Implications for States and the Electric Industry”, Metin Celebi, Kathleen Spees, Michael Hagerty, Samuel A. Newell, Dean M. Murphy, Marc Chupka, Jürgen Weiss, Judy Chang, and Ira H. Shavel, June 2014.

“Exploring Natural Gas and Renewables in ERCOT, Part III: The Role of Demand Response, Energy Efficiency, and Combined Heat & Power”, Ira H. Shavel, Peter S. Fox-Penner, Ryan Hledik, Pablo Ruiz, Yingxia Yang, Jürgen Weiss, and Rebecca Carroll, May 29, 2014.

“A Market-based Regional Approach to Valuing and Reducing GHG Emissions from Power Sector”, Judy Chang, Jürgen Weiss, and Yingxia Yang, prepared for Great River Energy, April 2014.

“Exploring Natural Gas and Renewables in ERCOT Part II: Future Generation Scenarios for Texas”, Ira H. Shavel, Jürgen Weiss, Peter S. Fox-Penner, Pablo Ruiz, Yingxia Yang, Jake Zahniser-Word, and Rebecca Carroll, Prepared for The Texas Clean Energy Coalition, December 2013.

“Partnering Natural Gas and Renewables in ERCOT”, Jürgen Weiss, Heidi Bishop, Peter S. Fox-Penner, and Ira H. Shavel, Prepared for the Texas Clean Energy Coalition, June 2013.

“The Importance of Long-Term Contracting for Facilitating Renewable Energy Project Development,” Jürgen Weiss and Mark Sarro, prepared for Ridgeline Energy LLC, May 7, 2013.

“Mut zum Ausstieg,” Jürgen Weiss, *Handelsblatt*, No. 44, March 4, 2013.

“A Learning Investment-Based Analysis of the Economic Potential for Offshore Wind: The Case of the United States,” Jürgen Weiss, Mark Sarro, and Mark P. Berkman, prepared for the Center of American Progress; February 28, 2013.

“What is the role of cap-and-trade schemes in reducing CO2 and other greenhouse gas emissions?” Jürgen Weiss, in *Comment Visions*, February 7, 2013, <http://www.commentvisions.com/#play>.

JÜRGEN WEISS

“Reforming Renewable Support in the United States: Lessons from National and International Experience,” Jürgen Weiss and Pedro L. Marín, prepared for the Bipartisan Policy Center, November 2012.

“The Potential Impact of Solar PV on Electricity Markets in Texas,” Jürgen Weiss, Judy Chang, and Onur Aydin, prepared for the Solar Energy Industry Association, June 19, 2012

“Renewables 2012 Global Status Report,” Renewable Energy Policy Network for the 21st Century (REN21); Jürgen Weiss served as lead topical contributor to the energy storage chapter, June 11, 2012.

“Gas Demand Response: Are LDCs and customers ready for dynamic prices?” Ahmad Faruqui and Jürgen Weiss, Fortnightly’s SPARK, August 25, 2011, <http://spark.fortnightly.com>.

“The Economic Impact of AB 32 on California Small Businesses – An Update,” Mark Sarro and Jürgen Weiss, prepared for the Union of Concerned Scientists, September 2010.

“What Does Copenhagen Mean for Investments in Low-Carbon Technologies?,” Jürgen Weiss, *The Journal of Environmental Investing*, Beyond Copenhagen, Vol 1, No. 1 (2010), www.thejei.com.

Comment on “After COP 15, who or what will drive the push towards developing clean energy?” Jürgen Weiss, *Comment Visions*, January 2, 2010, http://www.commentvisions.com/month/february/2010/visions_from#2

“The Economic Impact of AB 32 on California Small Businesses,” Mark Sarro and Jürgen Weiss, prepared for the Union of Concerned Scientists, December 2009.

“Carbon as an Investment Opportunity,” Jürgen Weiss and Veronique Bugnion, *Environmental Alpha*, Angello Calvello (editor), Wiley Finance, November 2009.

“Estimating the value of electricity storage in PJM: Arbitrage and some welfare effects,” Jürgen Weiss, Ramteen Sioshansi, Paul Denholm, and Thomas Jenkin, *Energy Economics*, Vol 31 (2009), pp.269-277.

“The Estimated Levelized Cost of Energy for Alternative Power Generation Technologies,” Jürgen Weiss and Mark Sarro, October 2009.

“Waxman-Markey Unintended Consequences of the Auction Reserve Price,” Jürgen Weiss and Mark Sarro, June 2009.

“Waxman-Markey Math: What are the numbers and what might they mean?” Jürgen Weiss and Mark Sarro, May 2009.

“A Serious Flaw in the Waxman-Markey Discussion Draft,” Jürgen Weiss, Mark Sarro, Peter Cramton, and Steven Stoff, April 2009.

“Allocation of allowances would likely make cutting GHG emissions more costly,” Jürgen Weiss and Mark Sarro, April 2009.

JÜRGEN WEISS

“Carbon Cap and Trade versus Tax - Getting beyond the basics,” Jürgen Weiss and Mark Sarro, April 2009.

“What to Expect and Not to Expect from Carbon Risk Disclosure,” Jürgen Weiss and Mark Sarro, April 2009.

“Modeling & Forecasting Carbon Prices,” Carbon Market Insight — Americas 2008, Jürgen Weiss and Mark Sarro, November 14, 2008.

“Are REC Markets a Wreck Waiting to Happen?” Jürgen Weiss, *Natural Gas & Electricity*, Vol. 23, No. 4, November 2006.

“Integrating Fuel Cells and RPS Markets: Recommendations and Strategies for Advancing Fuel Cells, Distributed Generation and RPS Markets,” Jürgen Weiss and Cameron Brooks, A Working Paper by Clean Energy Group, June 2006.

“A Solution for a Very Old Problem,” Jürgen Weiss and Hoff Stauffer, *The Electricity Journal*, Vol. 19 Issue 4, May 2006.

“Market Power and Power Markets,” Jürgen Weiss, *Interfaces*, Volume 32, No. 5, September-October 2002, pp (37-46).

“New Economy Litigation: Claims to Intellectual Property and Human Capital in a Global Institutional Environment Changing at the Speed of Thought,” Jürgen Weiss, Mark Sarro, and Kenneth D. Gartrell, International Society of New Institutional Economics, September 2001.

“Netzzugang in Deutschland im internationalen Vergleich,” Jürgen Weiss, Wolfgang Pfaffenberger, Carlos Lapuerta, Hannes Pfeifenberger, *Energiewirtschaftliche Tagesfragen*, Band 49, Heft 7, 1999, pp (446-451).

“Separate Marketing of Natural Gas by Joint Venture Producers in Australia,” Jürgen Weiss and Paul R. Carpenter, prepared for Optima Energy, Australia, submitted to the Upstream Issues Working Group, Australian and New Zealand Minerals and Energy Council, September 26, 1998.

PRESENTATIONS

“Using Storage to Capture Renewables: Does Size Matter?,” Jürgen Weiss, Judy Chang, and Kathleen Spees; presented at the 15th Annual POWER Conference on Energy Research and Policy, The Energy Institute at Haas, University of California Berkeley, 2010.

“Whack the MAC: Why we should be skeptical about negative-cost carbon abatement and how to unlock the potential of conservation investments,” Jürgen Weiss and Mark Sarro, EUEC Conference and Expo, February 2, 2009.

JÜRGEN WEISS

“Economic Challenges to Developing DG under RPS,” Jürgen Weiss, EUCI’s 2nd Annual Conference on Renewable Portfolio Standards East: Understanding Markets, Development and Technology, Cambridge, MA, May 16-17, 2006.

“Estimating the Value of Electricity Storage: Some Size, Location and Market Structure Issues,” Jürgen Weiss and Thomas Jenkin, EESAT Conference Proceedings, EESAT 2005, San Francisco, October 17-19, 2005.

LANGUAGES

Dr. Weiss is trilingual in English, German and French and has been active professionally in all three languages.

SAMUEL A. NEWELL

Principal

Cambridge, MA

+1.617.234.5725

Sam.Newell@brattle.com

Dr. Samuel Newell is an expert in electricity wholesale markets, market design, generation asset valuation, demand response, integrated resource planning, and transmission planning. He has more than 17 years of experience supporting clients throughout the U.S. in electricity regulatory, litigation, and business strategy matters. He frequently provides testimony and expert reports to Independent System Operators (ISOs), the FERC, state regulatory commissions, and the American Arbitration Association.

Dr. Newell earned a Ph.D. in technology management and policy from the Massachusetts Institute of Technology, an M.S. in materials science and engineering from Stanford University, and a B.A. in chemistry and physics from Harvard College.

Prior to joining The Brattle Group in 2004, Dr. Newell was the Director of the Transmission Service at Cambridge Energy Research Associates. Before that, he was a Manager in the Utilities Practice at A.T. Kearney.

AREAS OF EXPERTISE

- Electricity Wholesale Market Design and Analysis
- Energy Litigation
- Generation Asset Valuation
- Integrated Resource Planning
- Demand Response
- Gas-Electric Coordination
- Transmission Planning and Modeling
- RTO Participation and Configuration
- Market Power and Market Mitigation
- Tariff and Rate Design
- Business Strategy

EXPERIENCE

Electricity Market Wholesale Design and Analysis

- **Cost-Benefit Analysis of ERCOT's Proposed Future Ancillary Services Design.** For ERCOT, evaluated the benefits of its proposal to unbundle ancillary services products, enable broader participation by load resources and new technologies, and tune its procurement amounts to system conditions. Worked closely with ERCOT staff to understand the products and the quantities needed for each product, and how generation, load resources, and new technologies could provide each product. Directed their simulation of the market using the PLEXOS model; evaluated other benefits outside of the model.

SAMUEL A. NEWELL

- **Capacity Auction Design for Western Australia.** For Western Australia's Public Utility Office, drafted a whitepaper and advised on the design of its new capacity auction mechanism.
- **Third Triennial Review of PJM Capacity Market and CONE Study.** For PJM, conducted third tri-annual review of the Reliability Pricing Model. Addressed the shape of the demand curve, the Cost of New Entry (CONE) parameter, and the methodology for estimating the energy margins and ancillary services revenues in the Net CONE calculation.
- **ISO New England Capacity Demand Curve.** For ISO New England, worked with ISO staff and stakeholders to develop a capacity demand curve for the Forward Capacity Market. Started by establishing reliability and market design objectives. Solicited stakeholder input by facilitating several meetings with the NEPOOL Markets Committee. Provided a range of candidate curves and evaluated them against reliability and market design objectives, showing tradeoffs between reliability uncertainty and price volatility (using a probabilistic locational capacity market simulation model we developed). Worked with Sargent & Lundy to estimate the Net Cost of New Entry (Net CONE) to which the demand curve prices are indexed. Submitted testimonies before FERC, which accepted the proposed curve as supported by our analysis.
- **Evaluation of Investment Incentives and Resource Adequacy in ERCOT.** For the Electric Reliability Council of Texas (ERCOT), led a team to (1) characterize the factors influencing generation investment decisions; (2) evaluate the energy market's ability to support investment and resource adequacy at the target level; and (3) evaluate options to enhance long-term resource adequacy while maintaining market efficiency. Performed forward-looking simulation analyses of prices, investment costs, and reliability. Interviewed a broad spectrum of stakeholders; worked with ERCOT staff to understand the relevant aspects of their planning process, operations, and market data. Findings and recommendations became a launching point for a PUCT proceeding, in which I filed comments and presented at several workshops between June 2012 and July 2013.
- **Economically Optimal Reserve Margins in ERCOT.** For the Public Utility Commission of Texas (PUCT) and the Electric Reliability Council of Texas (ERCOT), co-authored a report estimating the economically-optimal reserve margin in ERCOT. Conducted the study in collaboration with Astrape Consulting to construct a series of economic and reliability modeling simulations that account for uncertain weather patterns, generation and transmission outages, and multi-year load forecasting errors. The simulations also incorporate detailed representation of the Texas power market, including intermittent wind and solar generation, operating reserves, different types of demand response, the full range of emergency procedures (such as operating reserve deletion), scarcity pricing provisions, and load-shed events.

SAMUEL A. NEWELL

- **Western Australia Reserve Capacity Mechanism.** For EnerNOC, evaluated the Western Australia Reserve Capacity Mechanism in comparison with international best practices and made recommendations for improvements to meet reliability objectives more cost effectively. Evaluated the advantages and disadvantages of a revised capacity market compared to adopting an energy-only market design in the region. Submitted report and presented recommendations to the Electricity Market Review Steering Committee and other senior government officials.
- **Market Development Vision for MISO.** For the Midcontinent Independent System Operator (MISO), worked with MISO staff and stakeholders to codify a Market Vision as the basis for motivating and prioritizing market development initiatives over the next 2-5 years. Authored a foundational report for that Vision, including: describing the core services MISO must continue to provide to support a well-functioning market; establishing a set of principles for enhancing those services; identifying seven Focus Areas offering the greatest opportunities for improving MISO's electricity market; and proposing criteria for prioritizing initiatives within and across Focus Areas.
- **Second Triennial Review of PJM Capacity Market and CONE Study.** For PJM, conducted second tri-annual review of the Reliability Pricing Model. Analyzed capacity auction results and response to market fundamentals. Interviewed stakeholders and documented concerns. Addressed key market design elements and recommended improvements to reduce pricing uncertainty and safeguard future performance. Led a study of the Cost of New Entry (CONE), based on detailed engineering estimates developed by EPC contractor CH2M HILL, for use in PJM's setting of auction parameters. Served as PJM's witness in filing CONE values and a Settlement Agreement.
- **Evaluation of Reliability Pricing Model (RPM) Results and Design Elements.** For PJM, co-led a detailed review of the performance of its forward capacity market. Reviewed the results of the first five forward auctions for capacity. Concluded that the auctions were working and demonstrated success in attracting and retaining capacity, but made more than thirty recommendations for improvement. Recommendations addressed ways to remove barriers to participation, ensuring adequate compensation/penalties, and improving the efficiency of the market. Resulting whitepaper was submitted to the FERC and presented to PJM stakeholders.
- **Evaluation of ISO-NE Forward Capacity Market (FCM) Results and Design Elements.** With the ISO-NE market monitoring unit, reviewed the performance of the first two forward auctions in ISO-NE's FCM. Evaluated key design elements regarding demand response participation, capacity zone definition and price formation, an alternative pricing rule for mitigating the effects of buyer market power, the use of the Cost of New Entry in auction parameters, and whether to have an auction price ceiling and floor.

SAMUEL A. NEWELL

- **Evaluation of Moving to a Forward Capacity Market in NYISO.** For NYISO, conducted a benefit-cost analysis of replacing its existing short-term ICAP market with a four-year forward capacity market (FCM) design. Evaluated options based on stakeholder interviews, the experience of PJM and ISO-NE with their forward capacity markets, and review of the economic literature regarding forward capacity markets. Addressed the following attributes of FCM relative to the existing market: risks to buyers and suppliers, mitigation of market power, implementation costs, and long-run costs. Recommendations used by NYISO and stakeholders to help decide whether to pursue a forward capacity market.
- **RTO Integration of Demand Response (DR) for Resource Adequacy.** For MISO, helped modify its tariff and business practices to accommodate DR in its resource adequacy construct by defining appropriate participation rules. Informed design by surveying in detail the practices of other RTOs, and by characterizing the DR resources within the MISO footprint.
- **Integration of DR into ISO-NE's Energy Markets.** For ISO-NE, provided analysis and assisted with a stakeholder process to develop economic DR programs to replace the ISO's initial economic DR programs when they expired.
- **Integration of DR into MISO's Energy Markets.** For MISO, wrote a whitepaper evaluating various approaches to incorporating economic DR in energy markets. Assessed the efficiency and the "realistic achievable potential" for each approach. Identified implementation barriers. Recommended changes to business rules to efficiently accommodate curtailment service providers (CSPs).
- **MISO Capacity Market Enhancements.** Supported MISO in developing market design elements for its proposed annual locational capacity auctions.
- **Evaluation of MISO's Resource Adequacy Construct and Market Design Elements.** For MISO, conducted the first major assessment of its new resource adequacy construct. Identified several major successes and a series of recommendations for improvement in the areas of load forecasting, locational resource adequacy, and determination of the target level of reliability. The report incorporates extensive stakeholder input and review, and comparisons to other ISOs' capacity market designs. Continued to consult with MISO in its work with the Supply Adequacy Working Group on design improvements.
- **Evaluation of MISO's Demand Response Integration.** For MISO, conducted an independent assessment of its progress in integrating DR into its resource adequacy, energy, and ancillary services markets. Analyzed market participation barriers to date. Assessed the likelihood of MISO's "ARC Proposal" to eliminate barriers to participation by curtailment service providers. Made recommendations for potential further improvements to market design elements.
- **Evaluation of Tie-Benefits.** For ISO-NE, analyzed the implications of different levels of tie-benefits (i.e., assistance from neighbors, allowing reductions in

SAMUEL A. NEWELL

- installed capacity margins) on capacity costs, emergency procurement costs, capacity prices, and energy prices. Resulting whitepaper submitted by ISO-NE to the FERC in its filing on tie-benefits.
- **Evaluation of Major Initiatives.** With ISO-NE and its stakeholders, developed criteria for identifying “major” market and planning initiatives that trigger the need for the ISO to provide qualitative and quantitative information to help stakeholders evaluate the initiative, as required in ISO-NE’s tariff. Also developed guidelines on the kinds of information ISO-NE should provide for major initiatives.
 - **LMP Impacts on Contracts.** For a West Coast client, critically reviewed the California ISO’s proposed implementation of locational marginal pricing (LMP) in 2007 and analyzed implications for “seller’s choice” supply contracts. Developed a framework for quantifying the incremental congestion costs that ratepayers would face if suppliers financially delivered power to the lowest priced nodes; estimated potential incremental contract costs using a third party’s GE-MAPS market simulations (and helped to improve their model inputs to more accurately reflect the transmission system in California). Applied findings to support the ISO in design modifications of the California market under LMP.
 - **RTO Accommodation of Retail Access.** For MISO, made recommendations for improving business practices in order to facilitate retail access (and to enable auctions for the supply of regulated generation service). Analyzed the retail access programs in the three restructured states within MISO -- Illinois, Michigan, and Ohio. Performed a detailed study of retail accommodation practices in other RTOs, focusing on how they have modified their procedures surrounding transmission access, qualification of capacity resources, capacity markets, FTR allocations, and settlement.

Energy Litigation

- **Demand Response Arbitration.** Provided expert testimony on behalf of a client that had acquired a demand response company and alleged that the company had overstated its demand response capacity and technical capabilities. Analyzed discovery materials including detailed demand response data to assess the magnitude of alleged overstatements. Calculated damages primarily based on a fair market valuation of the company with and without alleged overstatements. Provided deposition, expert report, and oral testimony in arbitration before the American Arbitration Association (non-public).
- **Contract Damages.** For the California Department of Water Resources and the California Attorney General’s office, supported expert providing testimony on damages resulting from an electricity supplier’s breaches of a power purchase agreement. Analyzed two years of hourly data on energy deliveries, market prices, ISO charges, and invoice charges to identify and evaluate performance violations

SAMUEL A. NEWELL

and invoice overcharges. Assisted counsel in developing the theory of the case and provided general litigation support in preparation for and during arbitration. Resulted in successful award for client.

- **Contract Damages.** For the same client described above, supported expert providing testimony in arbitration regarding the supplier's alleged breaches in which its scheduled deliveries were not deliverable due to transmission congestion. Quantified damages and demonstrated the predictability of congestion, which the supplier was allegedly supposed to avoid in its choice of delivery points.
- **Contract Termination Payment.** For an independent power producer, supported expert testimony on damages from the termination of a long-term tolling contract for a gas-fired power plant in PJM, involving power market forecasting, financial valuation techniques, and a detailed assessment of the plant's costs and operating characteristics. Prepared witness for arbitration and assisted counsel in deposing and cross-examining opposing experts. Resulted in resounding victory for client.

Generation Asset Valuation

- **Valuation of a Generation Portfolio in ERCOT.** For the current owners of a portfolios of gas-fired assets (including a cogen plant), estimated the fair market value of their assets by modeling future cash flows over a range of plausible scenarios. Analyzed the effect of load growth, entry, retirements, environmental regulations, and gas prices could have on electricity prices, including scarcity prices under ERCOT's Operating Reserve Demand Curve. Evaluated how future changes in these drivers could cause the value to shift over time.
- **Valuation Methodology for a Coal Plant Transaction in PJM.** For a part owner of a very large coal plant being transferred at an assessed value that was yet to be determined by a third party, wrote a manual describing how to conduct a market valuation of the plant. Addressed drivers of energy and capacity value; worked with an engineering subcontractor to describe how to determine the remaining life of the plant and CapEx needs going forward. Our manual was used to inform their pre-assessment negotiation strategy.
- **Valuation of a Coal Plant in PJM.** For the lender to a bidder on a coal plant being auctioned, estimated the market value of the plant. Valuation analysis focused especially on the effects of coal and gas prices on cash flows, and the ongoing fixed O&M costs and CapEx needs of the plant.
- **Valuation of a Coal Plant in New England.** For a utility, evaluated a coal plant's economic viability and market value. Analysis focused on projected market revenues, operating costs, and capital investments likely needed to comply with future environmental mandates.

SAMUEL A. NEWELL

- **Valuation of Generation Assets in New England.** To inform several potential buyers' valuations of various assets being sold in ISO-NE, provided energy and capacity price forecasts and cash flows under multiple scenarios. Explained the market rules and fundamentals to assess key risks to cash flows.
- **Valuation of Generation Asset Bundle in New England.** For the lender to the potential buyer of generation assets, provided long-term energy and capacity price forecasts, with multiple scenarios to test whether the plant could be worth less than the debt. Reviewed a broad scope of documents available in the "data room" to identify market, operational, and fuel supply risks.
- **Valuation of Generation Asset Bundle in PJM.** For a major retail energy provider preparing to bid for a bundle of generation assets, provided energy and capacity price forecasts and reviewed their valuation methodology. Analyzed the supply and demand fundamentals of the PJM capacity market. Performed locational market simulations using the Dayzer model to project nodal prices as market fundamentals evolve. Reviewed the client's spark spread options model.
- **Wind Power Development.** For a developer proposing to build a several hundred megawatt wind farm in Michigan provided a market-based revenue forecast for energy and capacity. Identified gas and CO₂ allowance prices as the key drivers of revenue uncertainty, and evaluated the implications of several detailed scenarios around these variables.
- **Wind Power Financial Modeling.** For an offshore wind developer proposing to build a 350 MW project in PJM off the coast of New Jersey, analyzed market prices for energy, renewable energy certificates, and capacity. Provided a detailed financial model of project funding and cash distributions to various types of investors (including production tax credit). Resulting financial statements were used in an application to the state of New Jersey for project grants.
- **Contract Review for Cogeneration Plant.** For the owner of a large cogeneration plant in PJM, conducted an analysis of revenues under the terms of a long-term PPA (in renegotiation) vs. potential merchant revenues. Accounted for multiple operating modes of the plant and its sales of energy, capacity, ancillary services, and steam over time.
- **Generation Strategy/Valuation.** For an independent power producer, acted for over two years as a key advisor on the implementation of the client's growth strategy. Led a large analytical team to assess the profitability of proposed new power plants and acquisitions of portfolios of plants throughout the U.S. Used the GE-MAPS market simulation model to forecast power prices, transmission congestion, generator dispatch, emissions costs, energy margins for candidate plants; used an ancillary model to forecast capacity value.
- **Generation Asset Valuation.** For multiple banks and energy companies, provided valuations of financially distressed generating assets. Used GE-MAPS to simulate

SAMUEL A. NEWELL

net energy revenues; a capacity model to estimate capacity revenues; and a financial valuation model to value several natural gas, coal, and nuclear power plants across a range of plausible scenarios. Identified key uncertainties and risks in the acquisition of such assets.

Integrated Resource Planning (IRP)

- **IRP in Connecticut (for the 2008, 2009, 2010, 2012, and 2014 Plans).** For the two major utilities in Connecticut and The Connecticut Department of Energy and Environmental Protection (DEEP), lead the analysis for five successive integrated resource plans. Plans included projecting 10-year Base Case outlooks for resource adequacy, customer costs, emissions, and RPS compliance; developing alternative market scenarios; and evaluating resource procurement strategies focused on energy efficiency, renewables, and traditional sources. Used an integrated modeling system that simulated the New England locational energy market (with the DAYZER model), the Forward Capacity Market, and REC markets, and suppliers' likely investment/retirement decisions. Addressed electricity supply risks, natural gas supply into New England, RPS standards, environmental regulations, transmission planning, emerging technologies, and energy security. Solicited input from stakeholders. Provided oral testimony before the DEEP.
- **Contingency Plan for Indian Point Nuclear Retirement.** For the New York Department of Public Service (DPS), assisted in developing contingency plans for maintaining reliability if the Indian Point nuclear plant were to retire. Evaluated generation and transmission proposals along three dimensions: their reliability contribution, viability for completion by 2016, and the net present value of costs. The work involved partnering with engineering sub-contractors, running GE-MAPS and a capacity market model, and providing insights to DPS staff.
- **Analysis of Potential Retirements to Inform Transmission Planning.** For a large utility in Eastern PJM, analyzed the potential economic retirement of each coal unit in PJM under a range of scenarios regarding climate legislation, legislation requiring mercury controls, and various capacity price trajectories.
- **Resource Planning in Wisconsin.** For a utility considering constructing new capacity, demonstrated the need to consider locational marginal pricing, gas price uncertainty, and potential CO₂ liabilities. Guided client to look beyond building a large coal plant. Led them to mitigate exposures, preserve options, and achieve nearly the lowest expected cost by pursuing a series of smaller projects, including a promising cogeneration application at a location with persistently high LMPs. Conducted interviews and facilitated discussions with senior executives to help the client gain support internally and begin to prepare for regulatory communications.

SAMUEL A. NEWELL

Demand Response (DR)

- **International Survey of Demand Response provision of energy, ancillary services, and capacity.** For the Australian Energy Market Commission, co-authored a report to inform their efforts to integrate demand response into its National Energy Market.
- **ERCOT DR Potential Study.** For ERCOT, estimated the market potential for DR by end-user segment, based on interviews with curtailment service providers and utilities and informed by penetration levels achieved in other regions. Presented results to the Public Utility Commission of Texas at a workshop on resource adequacy.
- **DR Potential Study.** For an Eastern ISO, analyzed the biggest, most cost-effective opportunities for DR and price responsive demand in the footprint, and what the ISO could do to facilitate them. For each segment of the market, identified the ISO and/or state and utility initiatives that would be needed to develop various levels of capacity and energy market response. Also estimated the potential and cost characteristics for each segment. Interviewed numerous curtailment service providers and ISO personnel.
- **Evaluation of DR Compensation Options.** For ISO-NE, analyzed the implications of various DR compensation options on consumption patterns, LMPs, capacity prices, consumer surplus, producer surplus, and economic efficiency. Presented findings in a whitepaper that ISO-NE submitted to FERC.
- **Wholesale Market Impacts of Price-Responsive Demand (PRD).** For NYISO, evaluated the potential effects of widespread implementation of dynamic retail rates. Utilized the PRISM model to estimate effects on consumption by customer class, applied empirically-based elasticities to hourly differences between flat retail rates and projected dynamic retail rates. Utilized the DAYZER model to estimate the effects of load changes on energy costs and prices.
- **Energy Market Impacts of DR.** For PJM and the Mid-Atlantic Distributed Resources Initiative (sponsored by five state commissions), quantified the market impacts and customer benefits of DR programs. Used a simulation-based approach to quantify the impact that a three percent reduction of peak loads during the top 20 five-hour blocks would have had in 2005 and under a variety of alternative market conditions. Utilized the DAYZER market simulation model, which we calibrated to represent the PJM market using data provided by PJM and public sources. Results were presented in multiple forums and cited widely, including by several utilities in their filings with state commissions regarding investment in advanced metering infrastructure and implementation of DR programs.
- **Present Value of DR Investments.** For Pepco Holdings, Inc., analyzed the net present value of its proposed DR-enabling investments in advanced metering

SAMUEL A. NEWELL

infrastructure and its efficiency programs. Estimated the reductions in peak load that would be realized from dynamic pricing, direct load control, and efficiency. Built on the Brattle-PJM-MADRI study to estimate the short-term energy market price impact and addressed the long-run equilibrium offsetting effects through several plausible supplier response scenarios. Estimated capacity price impacts and resource cost savings over time. Documented findings in a whitepaper submitted to DE, NJ, MD, and DC commissions. Presented findings to DE Commission.

Gas-Electric Coordination

- **Evaluation of Electricity Customer-Supported Gas Pipeline Investment.** For the Maine Office of Public Advocate, co-sponsored testimony regarding the reliability and economic impacts if the Maine PUC signed long-term contracts for electricity customers to pay for new gas pipeline capacity into New England. Critiqued other experts' reports and provided a framework for evaluating whether such procurements would be in the public interest, considering their costs and benefits vs. alternatives.
- **Evaluation of Electric Customer-Supported Gas Pipeline Investment.** For the Massachusetts Attorney General's office, provided input for their comments in the Massachusetts Department of Public Utilities' docket investigating whether and how new natural gas delivery capacity should be added to the New England market.
- **Fuel Adequacy and Other Winter Reliability Challenges.** For an ISO, co-authored a report assessing the risks of winter reliability events due to inadequate fuel, inadequate weatherization, and other factors affecting resource availability in the winter. Evaluated solutions being pursued by other ISOs. Proposed changes to resource adequacy requirements and energy market design to mitigate the risks.
- **Gas-Electric Reliability Challenges in the Midcontinent.** For the Midcontinent ISO (MISO), provided a PowerPoint report assessing future gas-electric challenges as gas reliance increases. Characterized solutions implemented or proposed in other ISOs. Provided inputs on the cost of firm pipeline gas vs. the cost and operational characteristics of dual-fuel capability.

Transmission Planning and Modeling

- **Benefit-Cost Analysis of Proposed New York AC Transmission Upgrades.** For the New York Department of Public Service (DPS) and NYISO, led a team to provide a cost-benefit analysis of 21 different proposed projects to increase transfer capability between Upstate and Southeast New York. We quantified a broader scope of benefits than most such studies: traditional production cost savings from reduced congestion (using GE-MAPS); additional production cost savings considering non-

SAMUEL A. NEWELL

normal conditions; resource cost savings from being able to retire Downstate capacity, delay new entry, and shift the location of future entry Upstate; avoided costs from replacing aging transmission facilities that would have to be refurbished soon in any case; reduced costs of integrating new renewable resources Upstate in the future; and effects on tax receipts. Several projects provided positive net present value (net of the projects' revenues requirements), and we identified those with the greatest and most robust net value. DPS used our analysis to inform its recommendation to the New York Public Service Commission to declare a "Public Policy Need" to build a project such as the best ones identified.

- **Evaluation of New York Transmission Projects.** For the New York Department of Public Service (DPS), provided a cost-benefit analysis for the "TOTS" transmission projects. The work showed net production cost and capacity resource cost savings sufficient to justify the project costs, and the lines were approved. The work involved running GE-MAPS and a capacity market model, and providing insights to DPS staff.
- **Benefits of New 765kV Transmission Line.** For a utility joint venture between AEP and ComEd, analyzed renewable integration and congestion relief benefits of their proposed \$1.2 billion RITELine project in western PJM. Guided client staff to conduct simulations using PROMOD. Submitted testimony to FERC.
- **Benefit-Cost Analysis of a Major Transmission Project for Offshore Wind.** Submitted testimony on the economic benefits of the Atlantic Wind Connection Project, a proposed 2,000 MW DC offshore backbone from New Jersey to Virginia with 7 onshore landing points. Described and quantified the effects of the Project on congestion, capacity markets, CO₂ emissions, system reliability and operations, jobs and economic stimulus, and the installed cost of offshore wind generation. Directed Ventyx staff to simulate the congestion, production cost, and LMP impacts using the PROMOD model.
- **Analysis of Transmission Congestion and Benefits.** Analyzed the impacts on transmission congestion, and customer benefits in California and Arizona of a proposed inter-state transmission line. Used the DAYZER model to simulate congestion and power market conditions in the Western Electricity Coordination Council region in 2013 and 2020 considering increased renewable generation requirements and likely changes to market fundamentals.
- **Benefit-Cost Analysis of New Transmission.** For a transmission developer's application before the California Public Utility Commission (CPUC) to build a new 500 kV line, analyzed the benefits to ratepayers. Analysis included benefits beyond those captured in a production cost model, including the benefits of integrating a pumped storage facility that would allow the system to accommodate a larger amount of intermittent renewable resources at a reduced cost.

SAMUEL A. NEWELL

- **Benefit-Cost Analysis of New Transmission in the Midwest.** For the American Transmission Company (ATC), supported Brattle witness evaluating the benefits of a proposed new 345 kV line (Paddock-Rockdale). Advised client on its use of PROMOD IV simulations to quantify energy benefits, and developed metrics to properly account for the effects of changes in congestion, losses, FTR revenues, and LMPs on customer costs. Developed and applied new methodologies for analyzing benefits not quantified in PROMOD IV, including competitiveness, long-run resource cost advantages, reliability, and emissions. Testimony was submitted to the Public Service Commission of Wisconsin, which approved the line.
- **Transmission Investments and Congestion.** Worked with executives and board of an independent transmission company to develop a metric indicating congestion-related benefits provided by its transmission investments and operations.
- **Analysis of Transmission Constraints and Solutions.** For a large, geographically diverse group of clients, performed an in-depth study identifying the major transmission bottlenecks in the Western and Eastern Interconnections, and evaluating potential solutions to the bottlenecks. Worked with transmission engineers from multiple organizations to refine the data in a load flow model and a security-constrained, unit commitment and dispatch model for each interconnection. Ran 12-year, LMP-based market simulations using GE-MAPS across multiple scenarios and quantified congestion costs on major constraints. Collaborated with engineers to design potential transmission (and generation) solutions. Evaluated the benefits and costs of candidate solutions and identified several highly economic major transmission projects.
- **Merchant Transmission Impacts.** For a merchant transmission company, used GE-MAPS to analyze the effects of the Cross Sound Cable on energy prices in Connecticut and Long Island.
- **Security-Constrained Unit Commitment and Dispatch Model Calibration.** For a Midwestern utility, calibrated their PROMOD IV model, focusing on LMPs, unit commitment, flows, and transmission constraints. Helped client to understand their model's shortcomings and identify improvement opportunities. Also assisted with initial assessments of FTRs in preparation for its submission of nominations in MISO's first allocation of FTRs.
- **Model Evaluation.** Led an internal Brattle effort to evaluate commercially available transmission and market simulation models. Interviewed vendors and users of PROMOD IV, Gridview, DAYZER, and Henwood LMP. Performed intensive in-house testing of each model. Evaluated accuracy of model algorithms (e.g., LMP, losses, unit commitment) and ability and ease to calibrate models with backcasts using actual RTO data.

SAMUEL A. NEWELL

RTO Participation and Configuration

- **Market Impacts of RTO Seams.** For a consortium of utilities, submitted written testimony to the FERC analyzing the financial and operational impact of the MISO-PJM seam on Michigan and Wisconsin. Evaluated economic hurdles across regional transmission organization (RTO) seams and assessed the effectiveness of inter-RTO coordination efforts underway. Collaborated with MISO staff to leverage their PROMOD IV model to simulate electricity markets under alternative RTO configurations.
- **Analysis of RTO Seams.** For a Wisconsin utility in a complaint proceeding before the FERC, assisted expert witness providing testimony regarding (1) the inadequacy of MISO and PJM's current efforts to improve inter-RTO coordination, and (2) the large net economic benefit of implementing a full joint-and-common market. Analyzed lack of convergence between MISO and PJM in energy prices and in shadow prices of reciprocal coordinated flow gates. Analyzed results of MISO and PJM's market simulation models.
- **RTO Participation.** For an integrated Midwest utility, advised client on alternative RTO choices. Used GE-MAPS to model the transmission system and wholesale markets under various scenarios. Presented findings to senior management. Subsequently, in support of testimonies submitted to two state commissions, quantified the benefits and costs of RTO membership on customers, considering energy costs, FTR revenues, and wheeling revenues.

Market Power and Market Mitigation

- **Offer Review Trigger Prices in ISO-NE.** For the Internal Market Monitor in ISO New England, developed offer review trigger prices for screening for uncompetitively low offers in the Forward Capacity Market. Collaborated with Sargent & Lundy to conduct a bottom-up analysis of the costs of building and operating gas-fired generation technologies and onshore wind; also estimated the costs of energy efficiency, and demand response. For each technology, estimated capacity payments needed to make the resource economically viable, given expected non-capacity revenues, a long-term market view, and a cost of capital. Recommendations were filed with and accepted by the FERC.

SAMUEL A. NEWELL

- **Buyer Market Power.** On Behalf of the “Competitive Markets Coalition” group of generating companies, helped develop and evaluate various proposals for improving PJM’s Minimum Offer Price Rule so that it more effectively protects the capacity market from manipulation by buyers while reducing interference with non-manipulative activity. Participated in discussions with other stakeholders. Submitted testimony to FERC supporting tariff revisions that PJM filed.
- **Vertical Market Power.** Before the NYPSC, examined whether the merger between National Grid and KeySpan could create incentives to exercise vertical market power. Employed a simulation-based approach using the DAYZER model of the NYISO wholesale power market and examined whether outages of National Grid’s transmission assets significantly affected KeySpan’s generation profits.
- **Market Monitoring and Market Power Mitigation.** For the PJM Interconnection, assessed their market mitigation practices and co-authored a whitepaper “Review of PJM’s Market Power Mitigation Practices in Comparison to Other Organized Electricity Markets” (with P. Fox-Penner, J. Pfeifenberger, J. Reitzes, and others).

Tariff and Rate Design

- **Wholesale Rates.** On behalf of a G&T co-op in the Western U.S., provided testimony regarding its wholesale rates, which are contested by member co-ops. Analyzed the G&T co-op’s cost of service and its marginal cost of meeting customers’ energy and peak demand requirements.
- **Transmission Tariffs.** For a merchant generating company participating in FERC hearings on developing a Long Term Transmission Pricing Structure, helped lead a coalition of stakeholders to develop a position on how to eliminate pancaked transmission rates while allowing transmission owners to continue to earn their allowed rate of return. Analyzed and presented the implications of various transmission pricing proposals on system efficiency, incentives for new investment, and customer rates throughout the MISO-PJM footprint.
- **Retail Rate Riders.** For a traditionally regulated Midwest utility, helped general counsel to evaluate and support legislation, and propose commission rules addressing rate riders for fuel and purchased power and the costs of complying with environmental regulations. Performed research on rate riders in other states; drafted proposed rules and tariff riders for client.
- **Rate Filings.** For a traditionally regulated Midwest utility, assisted counsel in preparing for a rate case. Helped draft testimonies regarding off-system sales margins and the cost of fuel.

SAMUEL A. NEWELL

Business Strategy

- **Evaluation of Cogeneration Venture.** For an unregulated division of a utility holding company, led the financial evaluation of a nascent venture to build and operate cogeneration facilities on customer sites. Estimated the market size and potential pricing, and assessed the client's capabilities for delivering such services. Analyzed the target customer base in detail; performed technical cost analysis for building and operating cogeneration plants; analyzed retail/default rate structures against which new cogeneration would have to compete. Senior management followed our recommendations to shut down the venture.
- **Strategic Sourcing.** For a large, diversified manufacturer, coordinated a cross-business unit client team to reengineer processes for procuring electricity, natural gas, and demand-side management services. Worked with top executives to establish goals. Gathered data on energy usage patterns, costs, and contracts across hundreds of facilities. Interviewed energy managers, plant managers, and executives. Analyzed potential suppliers. Wrote RFPs and developed negotiating strategy. Designed internal organizational structure (incorporating outsourced service providers) for managing energy procurement on an ongoing basis.
- **M&A Advisory.** For a European utility aiming to enter the U.S. markets and enhance their trading capability, evaluated acquisition targets. Assessed potential targets' capabilities and their value versus stock price. Reviewed experiences of acquirers in other M&A transactions. Advised client against an acquisition, just when the market was peaking (just prior to collapse).
- **Marketing Strategy.** For a large power equipment manufacturer, identified the most attractive target customers and joint-venture candidates for plant maintenance services. Evaluated the cost structure and equipment mix of candidates using FERC data and proprietary data. Estimated the potential value client could bring to each potential customer. Worked directly with company president to translate findings into a marketing strategy.
- **Distributed Generation (DG) Market Assessment.** For the unregulated division of an integrated utility, performed a market assessment of established and emerging DG technologies. Projected future market sizes across multiple market segments in the U.S. Concluded that DG presented little immediate threat to the client's traditional generation business, and that it presented few opportunities that the client was equipped to exploit.
- **Fuel Cells.** For a European fuel cell component manufacturer, acted as a technology and electricity advisor for a larger consulting team developing a market entry strategy in the U.S.

SAMUEL A. NEWELL

TESTIMONY and REGULATORY FILINGS

“Benefit-Cost Analysis of Proposed New York AC Transmission Upgrades,” Appendix 1 to Comparative Evaluation of Alternating Current Transmission Upgrade Alternatives, Trial Staff Final Report, *Proceeding on Motion of the Commission to Examine Alternating Current Transmission Upgrades*, New York State Department of Public Service, Matter No. 12-02457, Case No. 12-T-0502, September 22, 2015. Also presented to NYISO and DPS Staff at the Technical Conference, Albany, NY, October 8, 2015.

Before the Maine Public Utilities Commission, Docket No. 2014-00071, filed “Testimony of Dr. Samuel A. Newell and Matthew P. O’Loughlin on Behalf of the Maine Office of the Public Advocate, Comments on LEI’s June 2015 Report and Recommendations for a Regional Analysis,” November 18, 2015.

Before the Federal Energy Regulatory Commission, Docket No. ER14-2940-000, filed “Response of Dr. Samuel A. Newell and Dr. Kathleen Spees on Behalf of PJM Interconnection, LLC Regarding Variable Resource Requirement Curve,” for use in PJM’s capacity market, November 5, 2014.

Before the Federal Energy Regulatory Commission, Docket No. ER15-68-000, filed “Affidavit of Dr. Samuel A. Newell on behalf of PJM Interconnection, LLC,” regarding the Cost of New Entry for use in PJM’s Minimum Offer Price Rule, October 9, 2014.

Before the Texas House of Representatives Environmental Regulation Committee, Hearing on the Environmental Protection Agency’s Newly Proposed Clean Power Plan and Potential Impact on Texas, invited by Committee Chair to present, “EPA’s Clean Power Plan: Basics of the Rule, and Implications for Texas,” Austin, TX, September 29, 2014.

Before the Federal Energy Regulatory Commission, Docket No. ER14-2940-000, filed “Affidavit of Dr. Samuel A. Newell and Mr. Christopher D. Ungate on Behalf of PJM Interconnection, LLC,” regarding the Cost of New Entry for use in PJM’s capacity market, September 25, 2014.

Before the Federal Energy Regulatory Commission, Docket No. ER14-2940-000, filed “Affidavit of Dr. Samuel A. Newell and Dr. Kathleen Spees on Behalf of PJM Interconnection, LLC Regarding Periodic Review of Variable Resource Requirement Curve Shape and Key Parameters,” September 25, 2014.

Before the Public Utilities Commission of the State of Colorado, Proceeding No. 13F-0145E, “Answer Testimony and Exhibits of Samuel A. Newell on Behalf of Tri-State Generation and Transmission Association, Inc.,” regarding an analysis of complaining parties’ responses to Tri-State Generation and Transmission Association, Inc.’s Third Set of Data Requests, Interrogatory, September 10, 2014.

Before the Maine Public Utilities Commission, Docket No. 2014-00071, “Testimony of Dr. Samuel A. Newell and Matthew P. O’Loughlin on Behalf of the Maine Office of the Public Advocate, Analysis of the Maine Energy Cost Reduction Act in New England Gas and Electricity Markets,” July 11, 2014.

SAMUEL A. NEWELL

Before the Federal Energy Regulatory Commission, Docket No. ER14-1639-000, filed “Testimony of Dr. Samuel A. Newell and Dr. Kathleen Spees on behalf of ISO New England Inc. Regarding a Forward Capacity Market Demand Curve,” April 1, 2014.

Before the Federal Energy Regulatory Commission, Docket No. ER14-1639-000, filed “Testimony of Dr. Samuel A. Newell and Mr. Christopher D. Ungate on Behalf of ISO New England Inc. Regarding the Net Cost of New Entry For The Forward Capacity Market Demand Curve,” April 1, 2014.

Before the Federal Energy Regulatory Commission, Docket No. ER14-616-000, filed “Affidavit of Dr. Samuel A. Newell on Behalf of ISO New England Inc.,” and accompanying “2013 Offer Review Trigger Prices Study,” regarding the Minimum Offer Price Rule new capacity resources in capacity auctions, December 13, 2013.

Before the American Arbitration Association, provided expert testimony (deposition, written report, and oral testimony at hearing) in a dispute involving the acquisition of a demand response company, July-November, 2013. (Non-public).

Before the Public Utility Commission of Texas, at a workshop on Project No. 40000, presented “Report On ORDC B+ Economic Equilibrium Planning Reserve Margin Estimates Prepared By The Brattle Group,” on behalf of The Electric Reliability Council of Texas (ERCOT), June 25, 2013. Subsequently filed additional comments, “Additional ORDC B+ Economic Equilibrium Planning Reserve Margin Estimates,” July 29, 2013.

Before the Federal Energy Regulatory Commission, Docket No. ER13-535-000, filed “Affidavit of Dr. Samuel A. Newell on Behalf of the ‘Competitive Markets Coalition’ Group Of Generating Companies,” supporting PJM’s proposed tariff revisions to change certain terms regarding the Minimum Offer Price Rule in the Reliability Pricing Model, December 28, 2012.

Before the Federal Energy Regulatory Commission, Docket No. ER12-513-000, filed “Affidavit of Dr. Samuel A. Newell on Behalf of PJM Interconnection, LLC,” in support of PJM’s Settlement Agreement regarding the Cost of New Entry for use in PJM’s capacity market, November 21, 2012.

Before the Texas House of Representatives State Affairs Committee, Hearing on the issue of resource adequacy in the Texas electricity market, presented “The Resource Adequacy Challenge in ERCOT,” on behalf of The Electric Reliability Council of Texas, October 24, 2012.

Before The Public Utility Commission of Texas, at a workshop on Project No. 40480, presented “Resource Adequacy in ERCOT: ‘Composite’ Policy Options,” and “Estimate of DR Potential in ERCOT” on behalf of The Electric Reliability Council of Texas (ERCOT), October 25, 2012.

Before The Public Utility Commission of Texas, at a workshop on Project No. 40480, presented “ERCOT Investment Incentives and Resource Adequacy,” September 6, 2012.

Before The Public Utility Commission of Texas, at a workshop on Project No. 40480, presented “Summary of Brattle’s Study on ERCOT Investment Incentives and Resource Adequacy,” July 27, 2012.

Before the Federal Energy Regulatory Commission, Docket No. ER12-____-000, Affidavit of Dr. Samuel A. Newell on Behalf of SIG Energy, LLLP, March 29, 2012, Confidential Exhibit A in Complaint of Sig Energy, LLLP, SIG Energy, LLLP v. California Independent System Operator Corporation, Docket No. EL 12-____-000, filed April 4, 2012 (Public version, confidential information removed).

SAMUEL A. NEWELL

Before the Federal Energy Regulatory Commission, Docket No. ER12-13-000, filed “Response of Dr. Samuel A. Newell and Dr. Kathleen Spees on Behalf of PJM Interconnection, LLC,” regarding the Cost of New Entry for use in PJM’s capacity market, January 13, 2012.

Before the Federal Energy Regulatory Commission, Docket No. ER12-13-000, Affidavit of Dr. Samuel A. Newell on Behalf of PJM Interconnection, LLC, re: the Cost of New Entry Estimates for Delivery Year 2015/16 in PJM’s Reliability Pricing Model, filed December 1, 2011.

Before the Federal Energy Regulatory Commission, Docket Nos. ER11-4069 and ER11-4070, Direct testimony of Johannes Pfeifenberger and Samuel Newell on behalf of the RITELine Companies, re: the public policy, congestion relief, and economic benefits of the RITELine Transmission Project, filed July 18, 2011.

Before the Federal Energy Regulatory Commission, Docket No. No. EL11-13-000, Direct testimony of Johannes Pfeifenberger and Samuel Newell on behalf of The AWC Companies re: the public policy, reliability, congestion relief, and economic benefits of the Atlantic Wind Connection Project, filed December 20, 2010.

“Economic Evaluation of Alternative Demand Response Compensation Options,” whitepaper filed by ISO-NE in its comments on FERC’s Supplemental Notice of Proposed Rulemaking in Docket No. RM10-17-000, October 13, 2010 (with K. Madjarov).

Before the Federal Energy Regulatory Commission, Docket No. RM10-17-000, Filed Comments re: Supplemental Notice of Proposed Rulemaking and September 13, 2010 Technical Conference, October 5, 2010 (with K. Spees and P. Hanser).

Before the Federal Energy Regulatory Commission, Docket No. RM10-17-000, Filed Comments re: Notice of Proposed Rulemaking regarding wholesale compensation of demand response, May 13, 2010 (with K. Spees and P. Hanser).

Before the Connecticut Department of Public Utility Control, provided oral testimony to support the 2010 “Integrated Resource Plan for Connecticut” (see below), June 2010.

2010 “Integrated Resource Plan for Connecticut,” report co-submitted with The Connecticut Light & Power Company and The United Illuminating Company to the Connecticut Energy Advisory Board, January 4, 2010. Presented to the Connecticut Energy Advisory Board January 8, 2010.

“Dynamic Pricing: Potential Wholesale Market Benefits in New York State,” lead authors: Samuel Newell and Ahmad Faruqui at The Brattle Group, with contributors Michael Swider, Christopher Brown, Donna Pratt, Arvind Jaggi and Randy Bowers at the New York Independent System Operator, submitted as “Supplemental Comments of the NYISO Inc. on the Proposed Framework for the Benefit-Cost Analysis of Advanced Metering Infrastructure,” in State of New York Public Service Commission Case 09-M-0074, December 17, 2009.

Before the Connecticut Department of Public Utility Control, provided oral testimony to support the 2009 “Integrated Resource Plan for Connecticut” (see below), June 30, 2009.

SAMUEL A. NEWELL

2009 “Integrated Resource Plan for Connecticut,” report co-submitted with The Connecticut Light & Power Company and The United Illuminating Company to the Connecticut Energy Advisory Board, January 1, 2009.

“Informational Filing of the Internal Market Monitoring Unit’s Report Analyzing the Operations and Effectiveness of the Forward Capacity Market,” prepared by Dave LaPlante and Hung-po Chao of ISO-NE with Sam Newell, Metin Celebi, and Attila Hajos of The Brattle Group, filed with FERC on June 5, 2009 under Docket No. ER09-1282-000.

Before the Connecticut Department of Public Utility Control, provided oral testimony to support the 2008 “Integrated Resource Plan for Connecticut” and “Supplemental Reports” (see below), September 22-25, 2008.

“Integrated Resource Plan for Connecticut,” co-submitted with The Connecticut Light & Power Company and The United Illuminating Company to the Connecticut Energy Advisory Board; co-authored with M. Chupka, A. Faruqui, D. Murphy, and J. Wharton, January 2, 2008. Supplemental Report co-submitted with The Connecticut Light & Power Company and The United Illuminating Company to the Connecticut Department of Utility Control; co-authored with M. Chupka, August 1, 2008.

“Quantifying Customer Benefits from Reductions in Critical Peak Loads from PHI’s Proposed Demand-Side Management Programs,” whitepaper by Samuel A. Newell and Ahmad Faruqui filed by Pepco Holdings, Inc. with the Public Utility Commissions of Delaware (Docket No. 07-28, 9/27/2007), Maryland (Case No. 9111, filed 12/21/07), New Jersey (BPU Docket No. EO07110881, filed 11/19/07), and Washington, DC (Formal Case No. 1056, filed 10/1/07). Presented orally to the Public Utility Commission of Delaware, September 5, 2007.

Before the Public Service Commission of Wisconsin, Docket 137-CE-149, “Planning Analysis of the Paddock-Rockdale Project,” report by American Transmission Company re: transmission cost-benefit analysis, April 5, 2007 (with J.P. Pfeifenberger and others).

Prepared Supplemental Testimony on Behalf of the Michigan Utilities before the Federal Energy Regulatory Commission, Docket No. ER04-718-000 et al., re: Financial Impact of ComEd’s and AEP’s RTO Choices, December 21, 2004 (with J. P. Pfeifenberger).

Prepared Direct and Answering Testimony on Behalf of the Michigan-Wisconsin Utilities before the Federal Energy Regulatory Commission, Docket No. ER04-375-002 et al., re: Financial Impact of ComEd’s and AEP’s RTO Choices on Michigan and Wisconsin, September 15, 2004 (with J.P. Pfeifenberger).

Declaration on Behalf of the Michigan-Wisconsin Utilities before the Federal Energy Regulatory Commission, Docket No. ER04-375-002 et al., re: Financial Impact of ComEd’s and AEP’s RTO Choices on Michigan and Wisconsin, August 13, 2004 (with J.P. Pfeifenberger).

SAMUEL A. NEWELL

PUBLICATIONS

“Western Australia’s Transition to a Competitive Capacity Auction,” report prepared for Enernoc, January 29, 2016 (with K. Spees and C. McIntyre).

“Enhancing the Efficiency of Resource Adequacy Planning and Procurements in the Midcontinent ISO Footprint—Options for MISO, Utilities, and States,” report prepared for NRG, November 9, 2015 (with K. Spees and R. Lueken).

“International Review of Demand Response Mechanisms,” report prepared for Australian Energy Market Commission, October 2015 (with T. Brown, K. Spees and D.L. Oates).

“Resource Adequacy in Western Australia — Alternatives to the Reserves Capacity Mechanism,” report prepared for EnerNOC, Inc., August 2014 (with K. Spees).

“Third Triennial Review of PJM’s Variable Resource Requirement Curve,” report prepared for PJM Interconnection, LLC, May 15, 2014 (with J. Pfeifenberger, K. Spees, A. Murray, and I. Karkatsouli).

“Cost of New Entry Estimates for Combustion Turbine and Combined Cycle Plants in PJM,” report prepared for PJM Interconnection, LLC, May 15, 2014 (with M. Hagerty, K. Spees, J. Pfeifenberger, Q. Liao, and with C. Ungate and J. Wroble at Sargent & Lundy).

“Developing a Market Vision for MISO: Supporting a Reliable and Efficient Electricity System in the Midcontinent.” Foundational report prepared for Midcontinent Independent System Operator, Inc., January 27, 2014 (with K. Spees and N. Powers).

“Estimating the Economically Optimal Reserve Margin in ERCOT,” report prepared for the Public Utilities Commission of Texas, January 2014 (with J. Pfeifenberger, K. Spees and I. Karkatsouli).

“Resource Adequacy Requirements: Reliability and Economic Implications,” September 2013 (with J. Pfeifenberger, K. Spees).

“Capacity Markets: Lessons Learned from the First Decade,” Economics of Energy & Environmental Policy. Vol. 2, No. 2, Fall 2013 (with J. Pfeifenberger, K. Spees).

“ERCOT Investment Incentives and Resource Adequacy,” report prepared for the Electric Reliability Council of Texas, June 1, 2012 (with K. Spees, J. Pfeifenberger, R. Mudge, M. DeLucia, and R. Carlton).

“Trusting Capacity Markets: does the lack of long-term pricing undermine the financing of new power plants?” Public Utilities Fortnightly, December 2011 (with J. Pfeifenberger).

“Second Performance Assessment of PJM’s Reliability Pricing Model: Market Results 2007/08 through 2014/15,” report prepared for PJM Interconnection LLC, August 26, 2011 (with J. Pfeifenberger, K. Spees, and others).

“Cost of New Entry Estimates for Combustion-Turbine and Combined-Cycle Plants in PJM,” report prepared for PJM Interconnection LLC, August 24, 2011 (with J. Pfeifenberger, K. Spees, and others).

SAMUEL A. NEWELL

“Fostering economic demand response in the Midwest ISO,” *Energy* 35 (2010) 1544–1552 (with A. Faruqui, A. Hajos, and R.M. Hledik).

“DR Distortion: Are Subsidies the Best Way to Achieve Smart Grid Goals?” *Public Utilities Fortnightly*, November 2010.

“Midwest ISO’s Resource Adequacy Construct: An Evaluation of Market Design Elements,” report prepared for MISO, January 2010 (with K. Spees and A. Hajos).

“Demand Response in the Midwest ISO: An Evaluation of Wholesale Market Design,” report prepared for MISO, January 2010 (with A. Hajos).

“Cost-Benefit Analysis of Replacing the NYISO’s Existing ICAP Market with a Forward Capacity Market,” whitepaper written for the NYISO and submitted to stakeholders, June 15, 2009 (with A. Bhattacharyya and K. Madjarov).

“Fostering Economic Demand Response in the Midwest ISO,” whitepaper written for MISO, December 30, 2008 (with R. Earle and A. Faruqui).

“Review of PJM’s Reliability Pricing Model (RPM),” report prepared for PJM Interconnection LLC for submission to FERC and PJM stakeholders, June 30, 2008 (with J. Pfeifenberger and others).

“Reviving Integrated Resource Planning for Electric Utilities: New Challenges and Innovative Approaches,” *Energy*, Vol. 1, 2008, The Brattle Group (with M. Chupka and D. Murphy).

“Enhancing Midwest ISO’s Market Rules to Advance Demand Response,” report written for MISO, March 12, 2008 (with R. Earle).

“The Power of Five Percent,” *The Electricity Journal*, October 2007 (with A. Faruqui, R. Hledik, and J. Pfeifenberger).

“Quantifying Customer Benefits from Reductions in Critical Peak Loads from PHI’s Proposed Demand-Side Management Programs,” whitepaper prepared for Pepco Holdings, Inc., September 21, 2007 (with A. Faruqui).

“Review of PJM’s Market Power Mitigation Practices in Comparison to Other Organized Electricity Markets,” Report prepared for PJM Interconnection LLC, September 14, 2007 (with P. Fox-Penner, J. Pfeifenberger, J. Reitzes and others).

“Valuing Demand-Response Benefits in Eastern PJM,” *Public Utilities Fortnightly*, March 2007 (with J. Pfeifenberger and F. Felder).

“Quantifying Demand Response Benefits in PJM,” study report prepared for PJM Interconnection, LLC and the Mid-Atlantic Distributed Resources Initiative, January 29, 2007 (with F. Felder).

“Modeling Power Markets: Uses and Abuses of Locational Market Simulation Models,” *Energy*, Vol. 2, 2006, The Brattle Group (with J. Pfeifenberger).

SAMUEL A. NEWELL

“Innovative Regulatory Models to Address Environmental Compliance Costs in the Utility Industry,” October 2005 Newsletter, American Bar Association, Section on Environment, Energy, and Resources; Vol. 3 No. 1 (with J. Pfeifenberger).

PRESENTATIONS

“Performance Initiatives and Fuel Assurance—What Price Mitigation?” presented to Northeast Energy Summit 2015 Panel Discussion, Boston, MA, October 27, 2015.

“PJM Capacity Auction Results and Market Fundamentals,” presented to Bloomberg Analyst Briefing Webinar, September 18, 2015 (with J. Pfeifenberger and D.L. Oates).

“Energy and Capacity market Designs: Incentives to Invest and Perform,” presented to EUCI Conference, Cambridge, MA, September 1, 2015.

“Electric Infrastructure Needs to Support Bulk Power Reliability,” presented to GEMI Symposium: Reliability and Security across the Energy Value Chain, The University of Houston, Houston, TX, March 11, 2015.

Before the Arizona Corporation Commission, Commission Workshop on Integrated Resource Planning, Docket No. E-00000V-13-0070, presented “Perspectives on the IRP Process: How to get the most out of IRP through a collaborative process, broad consideration of resource strategies and uncertainties, and validation or improvement through market solicitations,” Phoenix, AZ, February 26, 2015.

“Resource Adequacy in Western Australia—Alternatives to the Reserve Capacity Mechanism (RCM),” presented to The Australian Institute of Energy, Perth, WA, October 9, 2014.

“Market Changes to Promote Fuel Adequacy—Capacity Market to Promote Fuel Adequacy,” presented to INFOCAST- Northeast Energy Summit 2014 Panel Discussion, Boston, MA, September 17, 2014.

“EPA’s Clean Power Plan: Basics and Implications of the Proposed CO₂ Emissions Standard on Existing Fossil Units under CAA Section 111(d),” presented to Goldman Sachs Power, Utilities, MLP and Pipeline Conference, New York, NY, August 12, 2014.

“Capacity Markets: Lessons for New England from the First Decade,” presented to Restructuring Roundtable Capacity (and Energy) Market Design in New England, Boston, MA, February 28, 2014.

“The State of Things: Resource Adequacy in ERCOT,” presented to INFOCAST – ERCOT Market Summit 2014 Panel Discussion, Austin, TX, February 24-26, 2014.

“Resource Adequacy in ERCOT,” presented to FERC/NARUC Collaborative Winter Meeting in Washington, D.C., February 9, 2014.

“Electricity Supply Risks and Opportunities by Region,” presentation and panel discussion at Power-Gen International 2013 Conference, Orlando, FL, November 13, 2013.

SAMUEL A. NEWELL

“Get Ready for Much Spikier Energy Prices—The Under-Appreciated Market Impacts of Displacing Generation with Demand Response,” presented to the Cadwalader Energy Investor Conference, New York, February 7, 2013 (with K. Spees).

“The Resource Adequacy Challenge in ERCOT,” presented to The Texas Public Policy Foundation’s 11th Annual Policy Orientation for legislators, January 11, 2013.

“Resource Adequacy in ERCOT: the Best Market Design Depends on Reliability Objectives,” presented to the Harvard Electricity Policy Group conference, Washington, D.C., December 6, 2012.

“Resource Adequacy in ERCOT,” presented to the Gulf Coast Power Association Fall Conference, Austin, TX, October 2, 2012.

“Texas Resource Adequacy,” presented to Power Across Texas, Austin, TX, September 21, 2012.

“Resource Adequacy and Demand Response in ERCOT,” presented to the Center for the Commercialization of Electric Technologies (CCET) Summer Board Meeting, Austin, TX, August 8, 2012.

“Summary of Brattle’s Study on ‘ERCOT Investment Incentives and Resource Adequacy,’” presented to the Texas Industrial Energy Consumers annual meeting, Austin, TX, July 18, 2012.

“Market-Based Approaches to Achieving Resource Adequacy,” presentation to Energy Bar Association Northeast Chapter Annual Meeting, Philadelphia, PA, June 6, 2012.

“Fundamentals of Western Markets: Panel Discussion,” WSPP’s Joint EC/OC Meeting, La Costa Resort, Carlsbad, CA, February 26, 2012 (with Jürgen Weiss).

“Integrated Resource Planning in Restructured States,” presentation at EUCI conference on “Supply and Demand-Side Resource Planning in ISO/RTO Market Regimes,” White Plains, NY, October 17, 2011.

“Demand Response Gets Market Prices: Now What?” NRRI teleseminar panelist, June 9, 2011.

Before the PJM Board of Directors and senior level representatives at PJM’s General Session, panel member serving as an expert in demand response on behalf of Pepco Holdings, Inc., December 22, 2007.

“Resource Adequacy in New England: Interactions with RPS and RGGI,” Energy in the Northeast Law Seminars International Conference, Boston, MA, October 18, 2007.

“Corporate Responsibility to Stakeholders and Criteria for Assessing Resource Options in Light of Environmental Concerns,” Bonbright Electric & Natural Gas 2007 Conference, Atlanta, GA, October 3, 2007.

“Evaluating the Economic Benefits of Transmission Investments,” EUCI’s Cost-Effective Transmission Technology Conference, Nashville, May 3, 2007 (with J. Pfeifenberger, presenter).

“Quantifying Demand Response Benefits in PJM,” PowerPoint presentation to the Mid-Atlantic Distributed Resources Initiative (MADRI) Executive Committee on January 13, 2007, to the MADRI Working Group on February 6, 2007, as Webinar to the U.S. Demand Response Coordinating Council, and to the Pennsylvania Public Utility Commission staff April 27, 2007.

“Who Will Pay for Transmission,” CERA Expert Interview, Cambridge, MA, January 15, 2004.

SAMUEL A. NEWELL

“Reliability Lessons from the Blackout; Transmission Needs in the Southwest,” presented at the Transmission Management, Reliability, and Siting Workshop sponsored by Salt River Project and the University of Arizona, Phoenix, AZ, December 4, 2003.

“Application of the ‘Beneficiary Pays’ Concept,” presented at the CERA Executive Retreat, Montreal, Canada, September 17, 2003.

JAMES A. READ, JR.

Principal

Cambridge, MA

+1.617.864.7900

James.Read@brattle.com

James Read is an expert in valuation, risk management, and capital budgeting. He specializes in the application of option pricing methods to analyze the value and risk of securities, derivatives, non-financial contracts, and real assets. His consulting practice is focused on the energy industry, especially electric power and natural gas.

Mr. Read's consulting engagements have involved, among other topics, energy trading and contract valuation; market and credit risk measurement and management; power and fuel procurement; hedging retail electric and gas service obligations; valuation of generation, storage and transmission assets; analysis, modeling and forecasting energy market prices and volatility; and investment decision making. He has developed analytical methods and software tools for valuation and risk management of energy contracts and portfolios. He has also developed and taught professional training courses on these topics. In addition to his management consulting, Mr. Read has served as a consulting and testifying expert in litigation and regulatory matters involving cost of capital, valuation, commercial damages, securities, taxes, and energy trading.

Prior to joining The Brattle Group, Mr. Read was a Principal with Incentives Research Inc., and before that Director of Financial Consulting with Charles River Associates. He holds a B.A. in economics from Princeton University and an M.S. in finance from the Sloan School of Management at the Massachusetts Institute of Technology.

AREAS OF EXPERTISE

- Electric Power
- Natural Gas
- Risk Management
- Securities
- Valuation

EXPERIENCE

Management Consulting

- Mr. Read has conducted independent reviews of risk management policies, procedures, and compliance for electric power companies in the United States and Canada.
- Advised numerous companies in the electric power industry regarding portfolio risk assessment and management, including forward curve building, volatility modeling and estimation, valuation of energy contracts and generation assets, calculation of risk exposures, and measurement of portfolio risk.

JAMES A. READ, JR.

- Analyzed historical data on availability and outages of generating units to develop a model for describing and forecasting generation fleet reliability.
- Worked with a major electric utility to develop a custom methodology for measuring the risk of its power supply portfolio. This was used for regulatory reporting as well as internal management purposes.
- Developed economic theory for allocating capital to lines of business in multiple-line insurance companies.
- For the Electric Power Research Institute (EPRI), directed development of the *Energy Book System* (EBS) software for valuation and management of energy resources. EBS includes tools for portfolio risk management, valuation and pricing of wholesale and retail energy contracts, and management of generation resources.
- Developed and taught professional training courses for EPRI on the application of derivatives methods for understanding the value and risk of commodity contracts and physical assets. Courses include *Value & Risk in Energy Markets*, *Applied Valuation & Risk Management*, and *Generation Asset Valuation*.
- Advised many clients in connection with the valuation of power generation assets for purchase or sale. Projects entailed development and use of options-based valuation tools as well as estimation of long-term forward price curves and volatility term structures.
- Developed a derivatives-based methodology for estimating the cost of capital for investments in merchant power generation.
- Designed methodology for pricing a new product in the gas pipeline industry that would allow shippers to purchase options on pipeline capacity expansion.
- Developed a valuation algorithm for a retail electric service that allows the supplier to buy back electric energy when wholesale market conditions are tight.
- Developed an options-based valuation and decision-making model of nuclear power plants. The model explicitly incorporates the flexibility to shut down prior to operating license expiration and the flexibility to extend the operating license.
- Advised Tennessee Valley Authority and other companies in connection with their evaluations of bids received in response to power purchase option RFPs. Engagements involved development of models for evaluating option-type bids and development of forward price and volatility curves.
- Mr. Read is a principal author of the *Utility Capital Budgeting Notebook*, which integrates previous EPRI studies in finance and project evaluation into a single text.

JAMES A. READ, JR.

- For EPRI, prepared a report that describes how the theory and methods of option pricing can be exploited to help evaluate investment projects and contracts.
- In a study for EPRI, developed a methodology for selecting project-specific discount rates. The methodology is based on the idea that cash flows can be partitioned into risk classes, and hence that the value of an investment project can be found by adding up the values of the parts.
- In a study for EPRI, identified a conceptual problem that arises in applications of the revenue requirements method when utility ratemaking procedures are inflexible. The study pointed out that there is feedback between demand and rates, which may undermine the logic for cost-based evaluation of projects.
- In a study for EPRI, developed a rigorous procedure for calculating the cost of holding fuel and other commodity inventories. The procedure exploits information in commodity futures and money markets.
- In a study for EPRI, was part of study team that developed theoretical and empirical analyses of a bias that exists in conventional measures of market risk when applied to the shares of public utility companies. It explained why a bias is likely to arise, provided empirical confirmation of the bias, and devised corrected measures of market risk.
- In a study for EPRI, prepared an exposition of the revenue requirements method. Among other findings, the report concluded that the appropriate risk-adjusted discount rate for calculating the present value of revenue requirements may differ from the discount rate used to calculate net present value. It also identified the logical errors involved in the use of customer discount rates for calculating the present value of revenue requirements.
- Project manager in a study for the U.S. Department of Energy to assess the cost of capital for public and private investments in petroleum stockpiles. The objective of the research was to assess the investment value of private oil stocks and thereby determine the effectiveness of government policies aimed at stimulating private stockpile formation.

Litigation and Regulatory Support

- In a class action matter, Mr. Read prepared an expert report on the cost of capital acquired through the merger of a public company with a special purpose acquisition company (SPAC). The merger involved a complex exchange of warrants and shares.
- In a federal tax matter, Mr. Read was an expert witness on the economic substance of foreign exchange transactions ostensibly facilitated by a credit agreement with a major financial institution.

JAMES A. READ, JR.

- Advised legal counsel in several matters involving allegations of manipulation of natural gas and electricity markets in the United States.
- Served as a consulting expert in an international arbitration matter involving two companies in a joint venture to market beverages in Central America. The dispute centered on an option held by one of the parties to buy certain assets from the other, in particular, implementation of the formula set out in the shareholders' agreement for the option exercise price.
- Mr. Read served as a consulting expert in several tax matters that involved complex transaction structures utilizing exotic options and other derivatives.
- Served as a consulting expert in a number of litigation matters that involved option backdating. This work included assessing the odds that options were backdated as well as valuing executive and employee stock options.
- Advised counsel regarding energy trading and risk management practices in an arbitration between participants in a major energy marketing and trading joint venture.
- Provided legal counsel with economic analysis of a series of structured finance transactions in a litigation matter involving companies in the energy and financial services industries.
- Prepared an expert report on the determination of settlement prices for certain commodity futures contracts.
- Advised legal counsel in an arbitration that concerned the termination value of power supply contracts written under the WSPP master agreement.
- On behalf of an industry trade group, conducted a preliminary investigation of whether certain commodity futures prices had been manipulated.
- Analyzed gaming practices in the Western power markets during the energy crisis of 2000-2001. Prepared expert testimony for hearings before the Federal Energy Regulatory Commission.
- Assisted in the development of expert testimony in connection with regulatory hearings about the sale of a nuclear power station by a public utility to an unregulated energy company.
- Advised several clients in the electric utility industry in connection with the design, pricing, and risk management of "provider of last resort" and similar retail transition services created as part of industry restructuring.
- Analyzed the impact of credit risk on the pricing of energy contracts. Analysis was performed in the context of a regulatory review of energy procurement decisions.

JAMES A. READ, JR.

- Used option pricing methods to estimate the premium over cost required to compensate investors for the long-term nature of investments in railroad assets. Analysis was used in a revenue adequacy proceeding before the Surface Transportation Board.

Other Experience

- Financial Analyst, Corporate Financial Staff, General Motors Corporation. Mr. Read worked in forward product programs and corporate transfer pricing.
- Staff Economist, Mail Classification Research Division, United States Postal Service. Mr. Read's responsibilities included writing statements of work, technical evaluation of analytical study proposals, and directing contractors in the Postal Service's Long Range Classification Research Program.
- Staff Economist, Office of Rates, United States Postal Service. Mr. Read was engaged in the preparation of testimony filed with the Postal Rate Commission in support of requests for changes in rates. His responsibilities included cost analysis, revenue forecasting, econometric analysis of postal markets, and rate design.

PUBLICATIONS & WORKING PAPERS

"A Theory of Risk Capital" (with S. C. Myers and Isil Erel), *Journal of Financial Economics*, December 2015.

"Real Options, Taxes and Financial Leverage" (with S. C. Myers), National Bureau of Economic Research, Working Paper 18148, June 2012.

"Hedge Timing" (with R. Goldberg), *Public Utilities Fortnightly*, May 2012.

Advances in Volatility Modeling for Energy Markets (with R. Goldberg), EPRI, Palo Alto: December 2011. TR-1021812.

"Smart Power and Evolution of Risk Management" (with R. Goldberg and P. Fox-Penner), *Electric Light & Power*, December 2010.

"Just Lucky? A Statistical Test for Option Backdating" (with R. Goldberg), Social Science Research Network (SSRN), March 2007. Available at SSRN: <http://ssrn.com/abstract=1411190>.

Delta Hedging Energy Portfolios (with R. Goldberg), EPRI 1010686, Palo Alto: Electric Power Research Institute, 2005.

JAMES A. READ, JR.

Resource Planning and Procurement in Evolving Electricity Markets (with F. Graves and J. Wharton), prepared for Edison Electric Institute, January 2004.

Retail Risk Management: A Primer (with R. Goldberg), EPRI 1002225, Palo Alto: Electric Power Research Institute, 2003.

Analytic Approximations for Generation Option Values (with R. Goldberg), EPRI 1002209, Palo Alto: Electric Power Research Institute, 2003.

Portfolio Optimization: Concepts and Challenges, EPRI 1001567, Palo Alto: Electric Power Research Institute, 2002.

“Capital Allocation for Insurance Companies” (with S. C. Myers), *Journal of Risk and Insurance*, December 2001. (Selected by Casualty Actuarial Society as most valuable paper published by American Risk and Insurance Association in 2001. Winner of Robert C. Witt Research Award for outstanding feature article in the *Journal of Risk and Insurance* in 2001.)

Optimization and Valuation of Natural Gas Storage (with R. Goldberg), EPRI 1005947, Palo Alto: Electric Power Research Institute, 2001.

Describing Commodity Prices in the Energy Book System (with R. Goldberg), EPRI 1001170, Palo Alto: Electric Power Research Institute, 2000.

“Energy Derivatives and Price Risk Management” (with A. Altman and R. Goldberg), in *Pricing in Competitive Electricity Markets*, A. Faruqui and K. Eakin (eds.), Kluwer Academic Publishers, 2000.

Residual Obligations Following Electric Utility Restructuring (with F. Graves), Edison Electric Institute, May 2000.

“Dealing With a Price Spike World” (with R. Goldberg), *Energy & Power Risk*, May 2000.

Valuation and Management of Nuclear Assets, EPRI TR 107541, Palo Alto: Electric Power Research Institute, 1998.

“Capacity Prices in a Competitive Power Market” (with F. Graves), in *The Virtual Utility*, Kluwer Academic Publishers, 1997.

Option Pricing for Project Evaluation: An Introduction, EPRI TR-104755, Palo Alto: Electric Power Research Institute, 1995.

The Utility Capital Budgeting Notebook (with others), EPRI TR-104369, Palo Alto: Electric Power Research Institute, 1994.

JAMES A. READ, JR.

“It’s All Downstream From Here” (with S. Thomas), *Energy Risk*, June 1994.

“Analysis for Changing Minds” (with S. Thomas), *Energy Risk*, April 1994.

Project-Specific Discount Rates, report prepared for Electric Power Research Institute, 1992.

“Rates of Return that Include New Gas Industry Risks,” *Natural Gas*, November 1989.

“Estimating the Cost of Switching Rights on Natural Gas Pipelines” (with F. Graves and P. Carpenter), *Energy Journal*, October 1989.

Holding Costs for Fuel Inventories, EPRI P-6184, Palo Alto: Electric Power Research Institute, 1989.

“Option Pricing: A New Approach to Mine Valuation” (with S. Palm and N. Pearson), in *Selected Readings in Mineral Economics*, Pergamon Press, 1987.

Capital Budgeting for Utilities: The Revenue Requirements Method, EPRI EA-4879, Palo Alto: Electric Power Research Institute, 1986.

“Determining the Cost of Capital for Utility Investments” (with A.L. Kolbe and R. Lincoln), in *Energy Markets in the Longer Term: Planning Under Uncertainty*, Ed. A.S. Kydes and D.M. Geraghty, Elsevier Science Publishers, 1985.

The Cost of Capital: Estimating the Rate of Return for Public Utilities (with A.L. Kolbe and G. Hall), Cambridge: MIT Press, 1984.

Rate Shock and Power Plant Phase-Ins (with A.L. Kolbe), Charles River Associates, Washington, DC: Edison Electric Institute, 1984.

Critique of Conventional Betas as Risk Indicators for Electric Utilities (with A.L. Kolbe), EPRI EA-3392, Palo Alto: Electric Power Research Institute, 1984.

Presentations

“Valuation of Wind Power”, presented to *Wind Power Development Tutorial*, InfoCast, San Diego, July 9-10, 2009.

“Wind Power: Economic & Technology Risk”, presented to *Renewable Energy M&A Summit*, Infocast, Washington, D.C., April 15, 2009.

JAMES A. READ, JR.

“Techniques for Valuation of Wind Generation”, presented to *Wind Power Development Tutorial*, Infocast, San Francisco, July 29-30, 2008.

“Using Volatility in Valuation & Risk Management”, presented to *Gas Volatility*, Infocast, Houston, September 22-24, 2003.

“Fundamentals of Portfolio Risk Management” (with R. Goldberg), Tutorial presented to *Portfolio Optimization*, Infocast, Houston, November 14-16, 2001.

“Retail Transition Services in Electric Utility Restructuring,” Presentation to Illinois Energy Leadership, Chicago, October 29-30, 2001.

“Provider of Last Resort: Retrospect & Prospect,” Presentation to Staff Subcommittee on Accounting and Finance, National Association of Regulatory Utility Commissioners, Portland, Maine, October 1, 2001.

“Theory & Methods of Portfolio Risk Management” (with T. Parkinson), Tutorial presented to *Portfolio Risk Analysis & Management*, Infocast, Houston, February 16-18, 2000 and Chicago, October 2-4, 2000.

“Using Option Pricing Formulas,” Presentation to *Pricing Wholesale Energy Products & Services*, Infocast, Houston, November 28-30, 2000.

“The Effect of Volatility Modeling on Management Decisions,” Presentation to *Market Price Volatility*, Infocast, October 30 - November 1, 2000.

“Option Pricing in a Price Spike World,” Presentation to *International Energy Pricing Conference*, EPRI, Washington, D.C., July 26-28, 2000.

“Applications of Portfolio Techniques to Fuel Decisions,” Presentation to *Fuel & Power Supply Seminar*, EPRI, Cleveland, November 9-11, 1998.

“Managing Nuclear Generation Assets,” Presentation to Generation Asset Management: Opportunities and *Challenges in the Electric Marketplace*, EPRI, Baltimore, July 13-15, 1998.

“Managing the Risks of Generation Assets,” Presentation to *Integrating Risk Management for Fuel Supply & Power Sales*, Center for Business Intelligence, Houston, February 5-6, 1998.

“Tactics for Matching Strategy & Market Opportunity through Hedging,” Presentation to *Fuel Management: Innovative Fuel Strategies for a Price-Competitive Power Market*, Center for Business Intelligence, Colorado Springs, August 14-15, 1997.

“Implementing Risk Management in Electric Power,” Presentation to *European Electricity Trading*, ICM Marketing Ltd., London, January 29-30, 1997.

JAMES A. READ, JR.

“Integrating Fuel & Power Price Risk Management,” Presentation to *Managing Fuel Risk*, Center for Business Intelligence, Dallas, December 12-13, 1996.

“Lessons From Deregulated Industries,” Presentation to *Workshop on New Directions in Electricity Pricing*, EPRI, Palo Alto, May 7, 1996.

“Capacity Prices in a Competitive Power Market,” Presentation to Symposium on *The Virtual Utility*, Saratoga Springs, March 31-April 2, 1996.

“Evaluating OPAs: The Art of Pricing Electricity Derivatives,” Presentation to *Resource Acquisition in a Competitive Power Market*, International Business Communications, Chicago, October 30-31, 1995.

“Basis Risk in Energy Markets,” Presentation to *Achieving Success in Evolving Electricity Markets*, EPRI, Atlanta, October 10-12, 1995.

“Risk and the Revolution in Finance: Implications for Planning,” Presentation to *Strategic Resource Planning and Asset Management Forum*, EPRI, St. Petersburg, Florida, December 8-9, 1993.

“Why Small Firms Shun Discounted Cash Flow Analysis,” Presentation to the Financial Management Association, Annual Meeting, San Francisco, October 22, 1992.

“Discount Rates in Utility Planning,” Lecture to American Gas Association/Edison Electric Institute, Chicago, May 22, 1991.

“Weighted Average Cost of Capital: Before-Tax or After-Tax?” Presentation to the Budgeting and Financial Forecasting Committee, Edison Electric Institute/American Gas Association, Denver, September 10, 1990.

“Economic Evaluation of Utility Projects and Contracts,” Seminar sponsored by the Electric Power Research Institute, San Diego, March 2-3, 1989.

“Planning for Utilities: The Value of Service,” Paper presented to the Conference of Integrated Value-Based Planning, New Orleans, December 2, 1987.

“Capital Budgeting and the Cost of Capital,” Lecture to the Marginal Cost Working Group, Boston, May 6, 1986.

“Capital Budgeting for Electric Utilities,” Seminar sponsored by the Electric Power Research Institute, New Orleans, February 26-27, 1986.

JAMES A. READ, JR.

“Risk and Capital Budgeting in the Electric Utility Industry,” Paper presented to Rutgers University Advanced Workshop in Public Utility Economics and Regulation, New Paltz, New York, May 30, 1985.

“Critique of Rate of Return Methods in Public Utility Rate Cases,” Lecture to Advanced Regulatory Studies Program, National Association of Regulatory Utility Commissioners, Williamsburg, Virginia, February 15, 1984.

“Utility Rate Shocks: The Problem and Possible Solutions,” Paper presented to the Tenth Annual Rate Symposium, Institute for the Study of Regulation, Washington, DC, February 6, 1984.

Testimony

Testimony on behalf of East Kentucky Power Cooperative before the Kentucky Public Service Commission, Case No. 2015-00267, November 2015.

Testimony on behalf of East Kentucky Power Cooperative before the Kentucky Public Service Commission, Case No. 2013-00259, January 2014.

Expert Report in *Pointe du Hoc Irrevocable Trust v. Commissioner of Internal Revenue*, Docket No. 6041-05, October 2011.

Expert Report and Testimony in *NPR Investments, LLC vs. United States of America*, Case No. 5:05-CV-219-TJW. United States District Court for the Eastern District of Texas, Texarkana Division, November 2009 and March 2010.

Expert Report in *John Campbell v. The Talbots, Inc. et al.*, Court of Chancery of the State of Delaware, C.A. No. 5199-VCS, February 2010.

Testimony on behalf of the California Department of Water Resources, *Sempra Energy Resources vs. California Department of Water Resources*, No. GIC 789291, before the Superior Court in the State of California, November 2009.

Rebuttal Testimony on behalf of National Grid, plc and Keyspan Corporation, Case 06-G-1185, State of New York Public Service Commission, March 7, 2007.

Expert Report and Testimony in *Klamath Strategic Investment Fund, LLC v. United States of America*, Civil Action No. 5:04-cv-00278-TJW (lead case). United States District Court for the Eastern District of Texas, Texarkana Division, May 2006 and October 2006.

Expert Report and Declaration in *re National Westminster Bank PLC v. The United States*. United States Court of Federal Claims, No. 95-758 T, March 4, 2005 and July 12, 2005.

JAMES A. READ, JR.

Expert Report in re Enron Corp., et al. v. Nevada Power Company and Sierra Pacific Power Company. United States Bankruptcy Court, Southern District of New York, February 23, 2005.

Expert Report in re New York Mercantile Exchange, Inc. v. IntercontinentalExchange, Inc. United States District Court, Southern District of New York, August 2004.

Prepared Direct Testimony in re Enron Power Marketing, Inc. and Enron Energy Services, Inc., Docket No. EL03-180-000 *et al.* Federal Energy Regulatory Commission, February 27, 2004 and January 31, 2005.

Expert Report in Idacorp Energy L.P. v. Overton Power District No. 5., The District Court of the Fourth Judicial District of The State of Idaho, In and For The County of Ada, CV OC 0107870D, February 28, 2003.

Prepared Direct Testimony on behalf of New York State Electric & Gas, Case 01-E-0359, State of New York Public Service Commission, August 2, 2001 and September 12, 2001.

Affidavit prepared on behalf of Tennessee Gas Pipeline Company, Docket No. RP80-97-058, Federal Energy Regulatory Commission, February 28, 1988.

Exhibit B

PROPOSAL

Analysis of the Application for The Northern Pass Transmission Project

Prepared by
The Brattle Group

May 2, 2016

I. BACKGROUND & PURPOSE

Northern Pass Transmission, LLC (NPT) has filed an application (the “Application”) with the New Hampshire Site Evaluation Committee (SEC) to build a 1,090 megawatt transmission line from Pittsburg, N.H. at the Canadian border to Deerfield, N.H. in Southern New Hampshire (the “Project”). The stated purpose of the transmission line is to import electric power produced by hydroelectric generation facilities owned and operated by Hydro Quebec (HQ) and to deliver it to the New England ISO grid. Our understanding is that the Office of the New Hampshire Attorney General (AG) will serve as Counsel for the Public (CFP) in its review of the Northern Pass application, with a mandate to ensure: (1) that there is an appropriate balance between energy needs and environmental consequences for New Hampshire; and (2) that there is “orderly development of the region.” This is The Brattle Group’s proposal to assist CFP by providing expert economic analysis of the Application and the Project. It is based on our preliminary review of a confidential report, “Cost-Benefit and Local Economic Impact Analysis of the Proposed Northern Pass Transmission Project,” prepared by London Economics International (LEI) and submitted as part of the Application (henceforth the “LEI Report” or the “Report”), and subsequent discussions with you.

II. SCOPE

Brattle proposes a two-phase effort. In Phase I, we will develop an expert report. In Phase II, we will provide procedural support in the litigation process.

Phase I will start with a more thorough review of the Report and Application. We will then work with CFP to formulate discovery requests and to review responses to discovery requests, including the work papers behind the LEI report. Following that, we will identify the key issues to analyze and address in our report. These will likely include:

- Identification of “but-for” scenario(s) that is (are) likely if NPT is not approved
- Capacity market benefits
- Energy market benefits
- Environmental benefits, including emissions reductions and progress toward regional environmental goals

Next, we will conduct our economic analyses of these issues. Finally, we will document our analysis and findings in an expert report(s) to be submitted along with pre-filed testimony.

Phase II will include responding to discovery requests, reviewing other parties’ reports, attending technical conferences, preparing rebuttal testimony, and preparing for and presenting at hearing, and assisting CFP with economic aspects of its brief.

The amount of effort required of us will depend upon the requests made and the issues raised by other parties, which are out of our control and difficult to predict. We therefore provide a budget range for this Phase (see below).

III. QUALIFICATIONS OF THE BRATTLE GROUP

The Brattle Group is an independent consulting firm that provides economic analysis and expert testimony on management, regulatory, and policy issues to businesses, law firms, and public agencies in the United States and abroad. Founded in Cambridge, Massachusetts in 1990, Brattle now has offices in Washington, D.C., San Francisco, New York City, Toronto, London, Madrid, Rome, and Sydney. Our two largest practice areas are Energy & Utilities and Litigation Support. The Energy & Utilities Practice focuses on the electric power, natural gas, and petroleum industries.

Brattle advises clients in the electric power industry on a wide range of issues, including electricity market design, long-term resource planning, environmental regulation, renewable energy, dynamic

pricing, and distributed generation, among others. Our core expertise includes the disciplines of microeconomics, econometrics, financial economics, and statistics. We have exceptional experience in risk analysis and risk management, market modeling and forecasting, and energy contract and asset valuation. In addition to management consulting, we frequently provide expert testimony in regulatory proceedings and legal matters where these and other energy issues are under consideration or in dispute. Our clients include investor-owned and municipal utilities, public power agencies, and independent power producers; industry organizations, such as the Electric Power Research Institute (EPRI) and the Edison Electric Institute (EEI); and non-governmental organizations such as the Conservation Law Foundation and National Resources Defense Council. They also include regional transmission organizations, such as PJM, the New York ISO, and ISO New England, and federal regulatory bodies, including the Federal Energy Regulatory Commission (FERC).¹

The professional staff of The Brattle Group numbers approximately 200 consultants. Most of our consultants hold advanced degrees in economics, finance, business, statistics, engineering, or physical sciences. Brattle Principals include Stewart Myers, Professor of Finance at the Massachusetts Institute of Technology, who is co-author of the leading graduate-level textbook *Principles of Corporate Finance*; and Daniel McFadden, Professor Emeritus at the University of California, Berkeley, who (with James Heckman) was awarded the 2000 Nobel Memorial Prize in Economics for his contributions to econometrics.

Brattle frequently advises market participants and regulators regarding regulatory reform of electricity and natural gas markets in the United States. We analyze evolving market issues, including how power generation and transmission proposals might affect market prices, competition, and investment. In addition, we have authored expert reports on renewable energy integration, transmission services, and how associated costs should be allocated given the likely beneficiaries. Thus, we are deeply engaged in the issues surrounding the economics of proposed renewable energy and transmission projects and how various segments of the market can be affected by the tradeoffs between increasing energy market efficiency and changes in local energy prices.

¹ Additional information about The Brattle Group can be found at www.brattle.com.

Brattle has spent the last several years assisting clients in planning for meeting the challenges of reducing carbon emissions and developing low-carbon generation sources, including renewable power. For private-sector clients, we have evaluated the potential impact of policies on long-term investments and operations for existing energy-related assets and new projects. We have simulated the power generation and fuels markets on a regional basis, including New England, and evaluated the potential impact of climate change policies on the likely generation mix necessary to meet the regional emissions targets. The results of our analyses have been used by clients for investment, financial, and strategic planning purposes. In addition we have performed national and regional analyses of energy efficiency, renewable energy, and transportation issues central to meeting regional and national energy policy goals.

In the balance of this section, we describe several projects in areas germane to the proposed scope of work, with an emphasis on our work in New England. These areas include:

1. Capacity and Energy Market Analysis
2. Integrated Resource Planning
3. Gas-Electric Coordination
4. Transmission Project Evaluation
5. Carbon and Renewables Policy

CAPACITY AND ENERGY MARKET ANALYSIS AND DESIGN

- **Triennial Reviews of PJM Capacity Market and CONE Studies.** For PJM, conducted all three triennial reviews of its Reliability Pricing Model and submitted testimony before the FERC. Addressed the shape of the demand curve, the Cost of New Entry (CONE) parameter, and the methodology for estimating the energy margins and ancillary services revenues in the Net CONE calculation.
- **ISO New England Capacity Demand Curve.** For ISO New England, worked with ISO staff and stakeholders to develop a capacity demand curve for the Forward Capacity Market. Started by establishing reliability and market design objectives. Solicited stakeholder input by facilitating several meetings with the NEPOOL Markets Committee. Provided a range of candidate curves and evaluated them against reliability and market design objectives, showing tradeoffs between

reliability uncertainty and price volatility (using a probabilistic locational capacity market simulation model we developed). Worked with Sargent & Lundy to estimate the Net Cost of New Entry (Net CONE) to which the demand curve prices are indexed. Submitted testimonies before FERC, which accepted the proposed curve as supported by our analysis.

- **Offer Review Trigger Prices in ISO-NE.** For the Internal Market Monitor in ISO New England, developed offer review trigger prices for screening for uncompetitively low offers in the Forward Capacity Market. Collaborated with Sargent & Lundy to conduct a bottom-up analysis of the costs of building and operating gas-fired generation technologies and onshore wind; also estimated the costs of energy efficiency, and demand response. For each technology, estimated capacity payments needed to make the resource economically viable, given expected non-capacity revenues, a long-term market view, and a cost of capital. Recommendations were filed with and accepted by the FERC.
- **Evaluation of ISO-NE Forward Capacity Market (FCM) Results and Design Elements (2009).** With the ISO-NE market monitoring unit, reviewed the performance of the first two forward auctions in ISO-NE's FCM. Evaluated key design elements regarding demand response participation, capacity zone definition and price formation, an alternative pricing rule for mitigating the effects of buyer market power, the use of the Cost of New Entry in auction parameters, and whether to have an auction price ceiling and floor.
- **Evaluation of Tie-Benefits.** For ISO-NE, analyzed the implications of different levels of tie-benefits (i.e., assistance from neighbors, allowing reductions in installed capacity margins) on capacity costs, emergency procurement costs, capacity prices, and energy prices. Resulting whitepaper submitted by ISO-NE to the FERC in its filing on tie-benefits.
- **Evaluation of Major Initiatives.** With ISO-NE and its stakeholders, developed criteria for identifying "major" market and planning initiatives that trigger the need for the ISO to provide qualitative and quantitative information to help stakeholders evaluate the initiative, as required in ISO-NE's tariff. Also developed guidelines on the kinds of information ISO-NE should provide for major initiatives.

- **Integration of DR into ISO-NE's Energy Markets.** For ISO-NE, provided analysis and assisted with a stakeholder process to develop economic DR programs to replace the ISO's initial economic DR programs when they expired.
- **Valuation of a Coal Plant in New England.** For a utility, evaluated a coal plant's economic viability and market value. Analysis focused on projected market revenues, operating costs, and capital investments likely needed to comply with future environmental mandates.
- **Valuation of Generation Assets in New England.** To inform several potential buyers' valuations of various target assets, provided energy and capacity price forecasts and cash flows under multiple scenarios. Explained the market rules and fundamentals to assess key risks to cash flows.
- **Valuation of Generation Asset Bundle in New England.** For the lender to the potential buyer of generation assets, provided long-term energy and capacity price forecasts, with multiple scenarios to test whether the plant could be worth less than the debt. Reviewed a broad scope of documents available in the "data room" to identify market, operational, and fuel supply risks.

INTEGRATED RESOURCE PLANNING

- **IRP in Connecticut (for the 2008, 2009, 2010, 2012, and 2014 Plans).** For the two major utilities in Connecticut and The Connecticut Department of Energy and Environmental Protection (DEEP), lead the analysis for five successive integrated resource plans. Plans included projecting 10-year Base Case outlooks for resource adequacy, customer costs, emissions, and RPS compliance; developing alternative market scenarios; and evaluating resource procurement strategies focused on energy efficiency, renewables, and traditional sources. Used an integrated modeling system that simulated the New England locational energy market (with the DAYZER model), the Forward Capacity Market, and REC markets, and suppliers' likely investment/retirement decisions. Addressed electricity supply risks, natural gas supply into New England, RPS standards, environmental regulations, transmission planning, emerging technologies, and energy security. Solicited input from stakeholders. Provided oral testimony before the DEEP.
- **Contingency Plan for Indian Point Nuclear Retirement.** For the New York Department of Public Service (DPS), assisted in developing contingency plans for maintaining reliability if the Indian

Point nuclear plant were to retire. Evaluated generation and transmission proposals along three dimensions: their reliability contribution, viability for completion by 2016, and the net present value of costs. The work involved partnering with engineering sub-contractors, running GE-MAPS and a capacity market model, and providing insights to DPS staff.

GAS-ELECTRIC COORDINATION

- **Evaluation of Electricity Customer-Supported Gas Pipeline Investment.** For the Maine Office of Public Advocate, co-sponsored testimony regarding the reliability and economic impacts if the Maine PUC signed long-term contracts for electricity customers to pay for new gas pipeline capacity into New England. Critiqued other experts' reports and provided a framework for evaluating whether such procurements would be in the public interest, considering their costs and benefits vs. alternatives. Our support is ongoing.
- **Evaluation of Electric Customer-Supported Gas Pipeline Investment.** For the Massachusetts Attorney General's office, provided input for their comments in the Massachusetts Department of Public Utilities' docket investigating whether and how new natural gas delivery capacity should be added to the New England market.

TRANSMISSION PROJECT EVALUATION

- **Benefit-Cost Analysis of Proposed New York AC Transmission Upgrades.** For the New York Department of Public Service (DPS) and NYISO, led a team to provide a cost-benefit analysis of 21 different proposed projects to increase transfer capability between Upstate and Southeast New York. We quantified a broader scope of benefits than most such studies: traditional production cost savings from reduced congestion (using GE-MAPS); additional production cost savings considering non-normal conditions; resource cost savings from being able to retire Downstate capacity, delay new entry, and shift the location of future entry Upstate; avoided costs from replacing aging transmission facilities that would have to be refurbished soon in any case; reduced costs of integrating new renewable resources Upstate in the future; and effects on tax receipts. Several projects provided positive net present value (net of the projects' revenues requirements), and we identified those with the greatest and most robust net value. DPS used our analysis to inform its recommendation to the New York Public Service Commission to declare a "Public Policy Need" to build a project such as the best ones identified.

- **Evaluation of New York Transmission Projects.** For the New York Department of Public Service (DPS), provided a cost-benefit analysis for the “TOTS” transmission projects. The work showed net production cost and capacity resource cost savings sufficient to justify the project costs, and the lines were approved. The work involved running GE-MAPS and a capacity market model, and providing insights to DPS staff.
- **Benefits of New 765kV Transmission Line.** For a utility joint venture between AEP and ComEd, analyzed renewable integration and congestion relief benefits of their proposed \$1.2 billion RITELine project in western PJM. Guided client staff to conduct simulations using PROMOD. Submitted testimony to FERC.
- **Benefit-Cost Analysis of a Major Transmission Project for Offshore Wind.** Submitted testimony on the economic benefits of the Atlantic Wind Connection Project, a proposed 2,000 MW DC offshore backbone from New Jersey to Virginia with 7 onshore landing points. Described and quantified the effects of the Project on congestion, capacity markets, CO2 emissions, system reliability and operations, jobs and economic stimulus, and the installed cost of offshore wind generation. Directed Ventyx staff to simulate the congestion, production cost, and LMP impacts using the PROMOD model.

CARBON AND RENEWABLES POLICY

- **NStar, WMECO and Unitil proposed PPAs for renewable power under Section 83.** Brattle advised the Massachusetts Attorney General’s Office in its review of the terms of all three distribution utilities’ proposed PPAs in dockets D.P.U. 11-05, 11-06, 11-07, 11-12 and 11-30. Members of Brattle worked with the Office of Ratepayer Advocacy on all aspects of the project. Brattle experts also provided independent analysis and testimony relied upon for the Attorney General’s recommendations and the DPU’s ultimate approval of the proposed terms of the PPAs between the distribution utilities and renewable energy projects.
- **National Grid’s proposed PPA with Cape Wind.** Brattle advised the Massachusetts Attorney General’s Office in its review of the terms of National Grid’s proposed PPAs with Cape Wind. Members of Brattle worked with the Office of Ratepayer Advocacy on all aspects of the project, including during the settlement discussions which resulted in amended PPAs. Brattle experts also provided independent analysis and testimony relied upon for the Attorney General’s

recommendations and the DPU's ultimate approval of the proposed terms of the amended PPAs between National Grid and Cape Wind.

- **Economics of offshore wind.** Brattle prepared a report for a number of non-governmental organizations led by the Center for American Progress assessing the economics of developing offshore wind resources in the United States to the point where the technology might reach grid parity with conventional power generation sources. The analysis included an assessment of the total "learning investment" that might be needed over time assuming that costs decline as deployed capacity increases, and an assessment of average rate impacts of making such a learning investment.
- **Long-Term Contracting and Cost of Wind in New York.** For a private renewable energy developer, Brattle analyzed the impact of long-term contracting for renewable energy projects on the levelized costs of such projects and the resulting potential resulting benefits to ratepayers from acquiring renewable energy through bundled long-term contracts rather than either contracts for only individual attributes or merchant sales.
- **New England renewable energy market.** Brattle developed an analytical framework and simulated the impact of renewable energy on the regional power market, incorporating the potential cost of transmission that enables the development of remote renewable resources.
- **Operational and cost impact of integrating wind and solar resources onto the grid.** For several utilities, members of the Brattle developed and implement methodologies to estimate the potential economic costs and benefits associated with integrating variable resources onto the grid, including the likely additional operational needs to compensate for the intermittency of these resources.
- **Long-term resource needs for a region with a high renewable energy requirement and likely future conventional generation retirement.** Members of Brattle assisted a group of resource planners in developing future scenarios of renewable energy development in a region. This effort will be used by regional transmission owners in developing future transmission development scenarios.

- **Economic impact of renewable energy development.** For a regional transmission organization, Brattle estimated the potential economic impact on various states of renewable energy development and the transmission build-out that enables those renewable energy projects. Brattle used the IMPLAN and Department of Energy’s Wind Job and Economic Development Impact models to perform the estimations.
- **Climate change impact of high-voltage transmission development in the Midwest.** For a transmission company, Brattle analyzed the potential impact of enabling the development of high efficiency renewable energy with the development of high-voltage transmission system. We measured the potential emissions reduction and examined the potential economic benefits to the region.

More information on The Brattle Group is available at our website, www.brattle.com.

IV. PROJECT TEAM

The senior members of the proposed Brattle project team are Samuel Newell, Jurgen Weiss, and James Read. All three are experts in the electric power industry and in long-term resource planning. Dr. Newell brings special expertise in the areas of electricity market design and power transmission. Dr. Weiss brings exceptional knowledge of carbon reduction policy and renewable energy resources. Mr. Read is a specialist in project evaluation, contract pricing, and risk management. Copies of their resumes are included as attachments to this proposal.

Samuel Newell is an expert in electricity wholesale markets, market design, generation asset valuation, demand response, integrated resource planning, and transmission planning. He has more than 17 years of experience supporting clients throughout the U.S. in electricity regulatory, litigation, and business strategy matters. He frequently provides testimony and expert reports to Independent System Operators (ISOs), the FERC, state regulatory commissions, and the American Arbitration Association.

Recent relevant engagements include a series of testimonies for ISO-NE regarding its Forward Capacity Market: establishing Offer Review Trigger Prices (ORTP), defining a system demand curve, and setting benchmark “Net CONE” prices; similar assignments for PJM, having conducted all three of PJM’s triennial reviews to evaluate the performance of its capacity market and to testify before FERC on necessary adjustments; a benefit-cost analysis of major AC transmission upgrades between Upstate NY

and Southeast NY on behalf of the NY Department of Public Service and NYISO; led the energy and capacity market analysis and overall analytical effort to support the Connecticut Department of Energy and Environmental Protection in developing its 2014 Integrated Resource Plan; frequent assignments for investors in generation to analyze the market value of target assets; ongoing work with the Maine Office of Ratepayer Advocate evaluating whether Maine should enter into long-term contracts for new gas pipeline capacity on behalf of electric ratepayers. The Maine project has involved reviewing LEI's work in detail, and the NYISO project involved LEI reviewing our work and our reviewing theirs.

Dr. Newell earned a Ph.D. in technology management and policy from the Massachusetts Institute of Technology, an M.S. in materials science and engineering from Stanford University, and a B.A. in chemistry and physics from Harvard College. Prior to joining The Brattle Group in 2004, Dr. Newell was the Director of the Transmission Service at Cambridge Energy Research Associates. Before that, he was a Manager in the Utilities Practice at A.T. Kearney.

Jürgen Weiss is an energy economist with approximately 20 years of experience in electricity markets and renewable energy. He testified before the Massachusetts DPU on behalf of the Attorney General's Office in the Cape Wind proceeding and was an expert in the other Section 83 proceedings. He has also testified: on behalf of interveners in the sale of Vermont Yankee and the associated PPA; in federal court involving a PPA between a power marketer and a large utility; and in litigation involving several international PPAs. Prior to joining Brattle, he co-founded Watermark Economics, led Point Carbon's global advisory group, and was a director at LECG. He holds an MBA from Columbia University and a PhD in Business Economics from Harvard University.

James Read is an expert in valuation, risk management, and capital budgeting. He has 30 years of research and consulting experience in the electric power industry. His consulting engagements have involved energy trading and contract valuation; market and credit risk management; power and fuel procurement; valuation of generation, storage and transmission assets; analysis, modeling and forecasting energy market prices and volatility; and hedging retail service obligations. He directed numerous studies for the Electric Power Research Institute (EPRI) on the application of financial economics to energy valuation, risk management, and investment decision making. He also developed and taught several professional training courses on these topics. In addition to his management consulting, Mr. Read has served as a consulting and testifying expert in litigation and regulatory matters involving cost of capital, valuation, commercial damages, securities, taxes, and energy trading. He holds a B.A. in economics from

Princeton University and an M.S. in finance from the Sloan School of Management at the Massachusetts Institute of Technology.

The senior members of the project team, all of whom are Principals at The Brattle Group, will utilize other Brattle staff as appropriate to provide high-quality, cost effective consulting services. Our consulting staff in the Energy Practice includes Research Analysts, Associates, and Senior Associates in addition to Principals. Our support staff includes Administrative Assistants.

V. BUDGET ESTIMATE

The Brattle Group provides consulting services on a time-and-materials basis. Out-of-pocket expenses for activities such as travel or communications are billed at our cost. If requested, we can agree not to exceed predefined budget amounts without obtaining prior consent in writing. Also, we can report our progress and fees to a designated client contact as often as weekly.

Brattle will change its current standard billing rates for the range of staff that may work on this assignment. Brattle ordinarily revises its billing rates on an annual basis. However, we can agree to keep these rates fixed during the 2017 calendar year if Brattle starts work on this assignment in 2016.

For this assignment, we can agree to a not-to-exceed budget of 458,000 for Phase I, which includes work up through submission of our expert report. For litigation support in Phase II, we present a range, since the demands that will be placed on us are beyond our control and thus particularly difficult to predict. The low end of the range is \$137,000, assuming a moderate level of demands, as shown in Table 2. The higher end of the range is \$293,000, assuming a greater level, as shown in Table 3.

Table 2: Budget with moderate demands in Phase II

Table 1: Budget with moderate demands in Phase II

Task	Fees
<u>Phase I: Develop Expert Report</u>	
1 Review application materials	\$24,900
2 Help CFP formulate discovery requests	11,100
3 Analyze discovery responses	37,000
4 Formulate approach and report outline; meet w/CFP	68,600
5 Analysis: Energy Market	25,300
6 Analysis: Capacity Market	106,750
7 Analysis: Environmental	29,150
8 Analysis: Other issues	52,800
9 Meet w/CFP	13,200
10 Draft report for review	58,680
11 Finalize report	30,080
<i>Phase I Total</i>	\$457,560
<u>Phase II: Procedural Support after Filing Report</u>	
12 Respond to discovery from other parties	\$16,500
13 Review other parties' submissions; file discovery requests, analyze responses	16,500
14 Attend technical conferences	13,200
15 Prepare rebuttal testimony and review others' rebuttals	22,380
16 Prepare for / present testimony at hearings, assist with cross-examination	44,000
17 Assist CFP in preparation of brief	11,000
18 Meetings	13,200
<i>Phase II Total</i>	\$136,780
<u>GRAND TOTAL</u>	\$594,340

Table 2: Budget with greater demands in Phase II

Task	Fees
<u>Phase I: Develop Expert Report</u>	
1 Review application materials	\$24,900
2 Help CFP formulate discovery requests	11,100
3 Analyze discovery responses	37,000
4 Formulate approach and report outline; meet w/CFP	68,600
5 Analysis: Energy Market	25,300
6 Analysis: Capacity Market	106,750
7 Analysis: Environmental	29,150
8 Analysis: Other issues	52,800
9 Meet w/CFP	13,200
10 Draft report for review	58,680
11 Finalize report	30,080
<i>Phase I Total</i>	\$457,560
<u>Phase II: Procedural Support after Filing Report</u>	
12 Respond to discovery from other parties	\$48,400
13 Review other parties' submissions; file discovery requests, analyze responses	39,600
14 Attend technical conferences	30,800
15 Prepare rebuttal testimony and review others' rebuttals	64,180
16 Prepare for / present testimony at hearings, assist with cross-examination	59,400
17 Assist CFP in preparation of brief	11,000
18 Meetings	39,600
<i>Phase II Total</i>	\$292,980
<u>GRAND TOTAL</u>	\$750,540

**Northern Pass Transmission LLC and Public Service Company of New Hampshire dba
Eversource Energy
SEC 2015-06
Distribution List**

Subcommittee Members

Chairman, Public Utilities Commission Martin Honigberg, Chairman 21 South Fruit St., Suite 10 Concord, NH 03301 Martin.honigberg@puc.nh.gov	Dept of Environmental Services Craig Wright, Director, Designee 29 Hazen Dr., P.O. Box 95 Concord, NH 03302-0095 Craig.Wright@des.nh.gov
Commissioner, Public Utilities Commission Kathryn M. Bailey 21 S. Fruit St., Suite 10 Concord, NH 03301 kate.bailey@puc.nh.gov	Commissioner, Dept of Resources & Economic Development Christopher Way, Deputy Director, Designee 172 Pembroke Rd., Concord, NH 03302-1856 christopher.way@dred.state.nh.us
Commissioner, Department of Transportation William Oldenburg, Designee Assistant Director of Project Development 7 Hazen Dr. Concord, NH 03302-0483 woldenburg@dot.state.nh.us	Public Member Patricia Weathersby Weathersby Law PLLC P.O. Box 685 Rye, NH 03870 weathersbylawpllc@gmail.com
Alternate Public Member Rachel Whitaker 22 Fogg Road Stark, NH 03583 rwhitaker@ccsnh.edu	

Committee Staff

Administrator, Site Evaluation Committee Pamela Monroe 21 S. Fruit St., Suite 10 Concord, NH 03301 Pamela.monroe@sec.nh.gov Jody Carmody jody.carmody@puc.nh.gov	Brennan, Caron, Lenehan & Iacopino SEC Counsel Michael J. Iacopino, Esq. 85 Brook St. Manchester, NH 03104 miacopino@brennanlenehan.com Iryna Dore Idore@brennanlenehan.com Tina Munroe cmunroe@brennanlenehan.com
Assistant Attorney General, Department of Justice Brian Buonamano, Counsel 33 Capitol St. Concord, NH 03301 Brian.buonamano@doj.nh.gov	

**Northern Pass Transmission LLC and Public Service Company of New Hampshire dba
Eversource Energy
SEC 2015-06
Distribution List**

Parties

<p>Counsel for the Applicant McLane, Middleton, Professional Association Barry Needleman 11 South Main St., Suite 500 Concord, NH 03301 Barry.needleman@mclane.com</p>	<p>McLane, Middleton, Professional Association Jeremy T. Walker 900 Elm St., P.O. Box 326 Manchester, NH 03105 Jeremy.walker@mclane.com</p>
<p>McLane, Middleton, Professional Association Adam Dumville 11 South Main St., Suite 500 Concord, NH 03301 Adam.dumville@mclane.com</p>	<p>McLane, Middleton, Professional Association Rebecca S. Walkley 900 Elm St., P.O. Box 326 Manchester, NH 03105 Rebecca.walkley@mclane.com</p>
<p>McLane Middleton, Professional Association Thomas B. Getz 11 South Main St., Suite 500 Concord, NH 03301 Thomas.getz@mclane.com</p>	<p>Devine Millimet George Dana Bisbee 111 Amherst St. Manchester, NH 03101 dbisbee@devinemillimet.com</p>
<p>Senior Counsel Public Service Company of New Hampshire d/b/a/ Eversource Energy Christopher J. Allwarden 780 North Commercial St. Manchester, NH 03101 Christopher.allwarden@eversource.com</p>	<p>Senior Counsel Eversource Energy Marvin Paul Bellis 107 Selden Street Berlin, Connecticut 06037 Email: marvin.bellis@eversource.com</p>
<p>Northern Pass Transmission, LLC Elizabeth Maldonado 56 Prospect St. Hartford, CT 06103 Elizabeth.maldonado@eversource.com</p>	<p>Director, Transmission Business Operations Eversource Energy Robert P. Clarke 107 Selden Street Berlin, Connecticut 06037 Robert.clarke@eversource.com</p>
<p>Counsel for the Public NH Department of Justice Peter C.L. Roth, Senior Assistant Attorney General 33 Capitol St. Concord, NH 03301 Peter.roth@doj.nh.gov</p>	<p>Laura Maynard NH Department of Justice 33 Capitol St. Concord, NH 03301 Laura.maynard@doj.nh.gov</p>
<p>Dawn Gagnon McLane Middleton, Professional Association 900 Elm St., P.O. Box 326 Manchester, NH 03105 dawn.gagnon@mclane.com</p>	<p>Denise Frazier McLane Middleton, Professional Association 900 Elm St., P.O. Box 326 Manchester, NH 03105 denise.frazier@mclane.com</p>
<p>Primmer Piper Eggleston & Cramer Thomas Pappas 900 Elm Street Manchester, NH tpappas@primmer.com</p>	<p>Primmer Piper Eggleston & Cramer Eli Emerson 106 Main Street Littleton, NH eemerson@primmer.com</p>

**Northern Pass Transmission LLC and Public Service Company of New Hampshire dba
Eversource Energy
SEC 2015-06
Distribution List**

<p>Communications Manager Eversource Energy Russ Kelly 780 N. Commercial Street Manchester, NH 03101 russ.kelly@eversource.com</p>	<p>McLane Middleton Viggo Fish 11 South Main St., Suite 500 Concord, NH 03301 Viggo.fish@mcclane.com</p>
---	--

Interested Persons

<p>New Hampshire Public Radio Environment Reports Sam Evans-Brown 2 Pillsbury St., 6th floor Concord, NH 03301 Sevans-brown@nhpr.org</p>	<p>NH Department of Environmental Services Land Resources Management Collis G. Adams, Wetlands Bureau Administrator 29 Hazen Dr. Concord, NH 03302 Collis.adams@des.nh.gov</p>
<p>Carol Henderson Environmental Review Coordinator NH Fish and Game 11 hazen Drive Concord, NH Carol.henderson@wildlife.nh.gov</p>	
<p>Cindy Kudlik Grafton, NH cindykudlik@hotmail.com</p>	<p>NH Association of Conservation Commissions Elaine Planchet 54 Portsmouth St. Concord, NH 03301 elaineplanchet@nhacc.org</p>
<p>Dr. Deborah Warner 135 Rock Strain Dr. Littleton, NH 03561 drwarner@ncia.net</p>	<p>North Country Council Mt. Eustis Commons Tara Bamford 262 Cottage St., Suite 246 Littleton, NH 03561 tbamford@nccouncil.org</p>
<p>Susan Schibanoff P.O. Box 59 Franconia, NH 03580 Susan.schibanoff@unh.edu</p>	<p>Dept of Resources and Economic Development Division of Parks and Recreation Eric Feldbaum 172 Pembroke Rd. Concord, NH 03301 Eric.feldbaum@dred.nh.gov</p>
<p>Thomas Masland Ransmeier & Spellman PC One Capitol Street Concord, NH 03302 tmasland@ranspell.com</p>	<p>Caroline V. Bone, CFA US Electric Utilities & Power Equity Research Deutsche Bank Securities, Inc. 60 Wall Street, New York, NY 10005 Caroline.bone@db.com</p>

**Northern Pass Transmission LLC and Public Service Company of New Hampshire dba
Eversource Energy
SEC 2015-06
Distribution List**

<p>Dept of Resources and Economic Development Division of Parks and Recreation Bill Gegas 172 Pembroke Rd. Concord, NH 03301 bill.gegas@dred.nh.gov</p>	<p>BCM Environmental & Land Law, PLLC Amy Manzelli 3 Maple Street Concord, NH 03301 manzelli@nhlandlaw.com</p>
<p>Deputy City Solicitor Danielle L. Pacik 41 Green Street Concord, NH 03301 dpacik@concordnh.gov</p>	<p>BCM Environmental & Land Law, PLLC Jason Reimers 3 Maple Street Concord, NH 03301 reimers@nhlandlaw.com</p>
<p>Allison Morris Concord Monitor amorris@cmonitor.com</p>	<p>Coos County Commissioner District Three Rick Samson 804 Piper Hill Road Stewartstown NH. 03576 higherground@wildblue.net</p>
<p>Gregory Reiss Millennium Management LLC 666 Fifth Avenue, 8th Floor New York, NY 10103 Gregory.Reiss@mlp.com</p>	<p>Stanley Holz Town of Whitefield saholz@myfairpoint.net</p>
<p>C. Christine Fillmore Gardner Fulton & Waugh PLLC 78 Bank Street Lebanon, NH 03766 cfillmore@townandcitylaw.com</p>	<p>Deborah Stever Town of Easton steverselectperson@gmail.com</p>
<p>Meredith Hatfield NH Office of Energy and Planning 107 Pleasant Street, Johnson Hall Concord, NH 03301 Meredith.hatfield@nh.gov</p>	<p>Margo Connors Town of Sugar Hill connorsmargo@gmail.com</p>
<p>Chris Jensen NH Public Radio cjensen@nhpr.org</p>	<p>Tracey Boisvert NH Office of Energy and Planning 107 Pleasant Street, Johnson Hall Concord, NH 03301 Tracey.boisvert@nh.gov</p>
<p>Shawn M. Tanguay Gardner Fulton & Waugh PLLC 78 Bank Street Lebanon, NH 03766 stanguay@townandcitylaw.com</p>	<p>Bill Carpenter NH Dept. of Resources and Econ. Development Land Management Administrator william.carpenter@dred.nh.gov</p>

**Northern Pass Transmission LLC and Public Service Company of New Hampshire dba
Eversource Energy
SEC 2015-06
Distribution List**

Dorene Hartford Conservation Law Foundation dhartford@clf.org	Melissa Birchard Conservation Law Foundation mbirchard@clf.org
Maggie Stier, Field Service Representative NH Preservation Alliance PO Box 268 Concord, NH 03302 ms@nhpreservation.org	Rebecca Harris, Nat'l Trust for Historic Preservation Boston Field Office 7 Faneuil Hall Marketplace, 4th Floor Boston, MA 02109 rharris@savingplaces.org
Sharon Penney Plymouth Town Planner 6 Post Office Square Plymouth, NH 03264 spenney@plymouth-nh.org	Jeanette Foisy Town Administrator Town of Deerfield PO Box 159 Deerfield, NH bos@townofdeerfieldnh.com
Nancy Martland 16 Post Road Sugar Hill, NH nancy.martland@gmail.com	Erick Berglund, Jr. Deerfield Conservation Comm. 23 Nottingham Rd. Deerfield, NH 03037 erickb@metrocast.net
Alexandra and James Dannis 117 McGinty Road Dalton, NH sandydannis@gmail.com	Nik Coates, Town Administrator Town of Bristol 230 Lake Street Bristol, NH 03222 townadmin@townofbristolnh.org
Alan Robert Baker Attorney at Law 481 Meriden Hill Rd. Columbia NH 03590 abobbaker@aol.com	Michelle Kleindienst Association Manager McKenna's Purchase Unit Owner's Assoc. kleindienstm@gmail.com
Bruce Ahern 503 Daniel Webster Highway Plymouth, NH bruceahern@roadrunner.com	R. Eric & Margaret J. Jones John Silver Road Northumberland, NH legacyforest@gmail.com

**Northern Pass Transmission LLC and Public Service Company of New Hampshire dba
Eversource Energy
SEC 2015-06
Distribution List**

<p>Atty. Arthur Cunningham, Representing Kevin Spencer PO Box 511 Hopkinton, NH 03229 gilfavor@comcast.net</p> <p>Kevin Spencer 161 Sullivan Road Stark, NH 03582-6451 Kkspencerbwi161@gmail.com</p>	<p>Laurence M Rappaport NH State Representative Coos District One lmrapp@lmrapp.com</p>
<p>Ashland Conservation Commission PO Box 517 Ashland, NH 03217 ashlandconcom@gmail.com</p>	<p>Franconia Planning Board Thaddeus D. Presby Franconia, NH 03580 Thad.presby@presbyc.com</p>
<p>Donald & Betty Gooden 76 Lancaster Rd. Whitefield, NH 03598 dbklogging@myfairpoint.net</p>	<p>Elisha Gray 809 Blake Hill Road New Hampton, NH 03256 yarge@comcast.net</p>
<p>Holderness Conservation Commission Larry Spencer PO Box 203 Holderness, NH 03245 landuse@holderness-nh.gov</p>	<p>Robert Heath PO Box 144 76 Potter Road Stark, NH</p>
<p>Barbara Tetreault Managing Editor Berlin Daily Sun barbara@berlindailysun.com</p>	<p>Frank Pinter 32 Academy Street Unit 14 PO Box 498 Franconia, NH fpinter@gmail.com</p>
<p>White Mountains School Administrative Unit #35 Pierre Couture, Superintendent 260 Cottage Street Littleton, NH 03561 p.couture@sau35.org</p>	<p>City of Manchester Thomas I. Arnold Deputy City Solicitor One City Hall Plaza Manchester, NH 03101 tarnold@manchesternh.gov</p>
<p>Richard M. McGinnis 352 North Road Lancaster, NH peter@pwpre.com</p>	<p>Gerald and Vivian Roy 178 Forest Lake Road Whitefield, NH 03598 swobbyjrroy@hotmail.com</p>

**Northern Pass Transmission LLC and Public Service Company of New Hampshire dba
Eversource Energy
SEC 2015-06
Distribution List**

<p>New Hampshire Preservation Alliance and National Trust for Historic Preservation The Watergate Office Building 2600 Virginia Avenue NW Suite 1100 Washington, DC 20037 SWilliamson@savingplaces.org emerritt@savingplaces.org</p>	<p>Peter and Mary Grote 1437 Easton Road Franconia, NH petergrote@mac.com</p>
<p>Bruce and Sondra Brekke 99 Ramble On Road Whitefield NH 03598 straynge.bru@gmail.com</p>	<p>Mark Belliveau, representing Dixville Capital, LLC and Balsams Resort Holdings, LLC Pierce Atwood Pease International Tradeport One New Hampshire Ave., 350 Portsmouth, NH 03801 mbeliveau@pierceatwood.com</p>
<p>Sandra and Paul Kamins 429 North Road Lancaster, NH 03584 skamins3@myfairpoint.net</p>	<p>City of Nashua Celia Leonard Associate Corporation Counsel Manuela Perry, Legal Assistant 229 Main Street-P.O. Box 2019 Nashua, NH 03061 PerryM@nashuanh.gov Leoardc@nashuanh.gov</p>
<p>Walter Palmer and Kathryn Ting 1900 Easton Rd. Franconia, NH 03580 waltpalmer1@gmail.com</p>	<p>Barbara G. Mathews and Robert G. Mathews 47 Candia Road Deerfield, NH 03037 bmathews@metrocast.net</p>
<p>Catherine M. Corkery, Chapter Director Field Organizer New Hampshire Sierra Club 40 North Main St., 2nd Floor Concord, NH 03301 catherine.corkery@sierraclub.org</p>	<p>Mary A. Lee 93 Fiddler's Choice Rd Northfield NH 03276 Sukkha@metrocast.net</p>
<p>Sally Zankowski Creampoke Road Stewartstown, NH szankowski@ucvh.org</p>	<p>Ellen Faran for the Webster Family 1868 River Road Bridgewater, NH 03264 ewfaran@gmail.com</p>
<p>Charles and Donna Jordan 647 West Road Clarksville, NH 03592 donna@colebrookchronicle.com</p>	<p>Joint Petition by Representative Susan Ford and other State Legislators 557 Sugar Hill Road Easton, NH 03580 nh.leg.np.sec.intervene@gmail.com</p>

**Northern Pass Transmission LLC and Public Service Company of New Hampshire dba
Eversource Energy
SEC 2015-06
Distribution List**

<p>Leigh S. Willey, Esq. and James Bianco on behalf of Coos County Business and Employers Group Bianco Professional Association Attorneys at Law 18 Centre St. Concord, NH 03301 lwilley@biancopa.com jbianco@biancopa.com</p>	<p>Peter W. Powell 311 Martin Meadow Pond Road, Lancaster, NH peter@pwpre.com</p>
	<p>Robert B. Craven 777 Paine Rd. Franconia, NH 03580 rcraven@together.net</p>
<p>Laura Ring, President/CEO Greater Rochester Chamber of Commerce 18 South Main Street Rochester, NH 03867 lring@rochesternh.org</p>	<p>Laura M. Bonk 21 Tahanto St. Concord, NH 03301 laurambonk@gmail.com</p>
<p>Kelly Normandeau Concord Equestrian Center 56 Sanborn Rd Concord, NH 03301 knorm2012@gmail.com</p>	<p>Madelyn and Thomas Foulkes 26 Nottingham Road Deerfield, NH 03037 tfoulkes9@gmail.com</p>
<p>Atty Paul Fitzgerald representing the City of Franklin Wescott Law 28 Bowman Street Laconia, NH 03246 pfitzgerald@wescottlawnh.com</p>	<p>Maureen Quinn 47A Nottingham Road Deerfield, NH 03037 fmquinn59@gmail.com</p>
<p>Tracy Hatch, President and CEO Greater Nashua Chamber of Commerce 142 Main Street, First Floor Nashua, NH 03060 thatch@nashuachamber.com</p>	<p>Robert R. Martin Emergency Management Director, Clarksville, NH; Emergency Coordinator, Coos County New Hampshire, ARES 14 Tower Road Clarksville, NH 03592 ibis@pipeline.com</p>
<p>Lisa Wolford and Pamela Hanglin 14 Church Street (formerly Old Center Road South) Deerfield, NH 03037 wolfordnh@gmail.com</p>	<p>Nigel Manley and Judy Ratzel The Rocks Estate 2 Christmas Lane Bethlehem, NH 03574 manley1515@gmail.com</p>

**Northern Pass Transmission LLC and Public Service Company of New Hampshire dba
Eversource Energy
SEC 2015-06
Distribution List**

<p>Bruce A. Adami and Robert J. Cote 32 Mountain Road PO Box 507 Deerfield, NH 03037 baamntnrd@yahoo.com</p>	<p>Eric and Sandra Lahr 11 North Rd. Deerfield NH 03037 mormonmama@msn.com</p>
<p>Lee Sullivan & Stephen Buzzell 10 Burnham School Road Arundel Maine 04046 leesullivan@stevebuzzell.com</p>	<p>Tim and Brigitte White brigwhite1@gmail.com</p>
<p>Jon and Lori Levesque 107 Oak Street Gonic, NH 03839 lorilevesqu@yahoo.com</p>	<p>Timothy T. More, Esq., on behalf of Weeks Lancaster Trust 50 South Main St., Providence, RI 02903 timmore@tmorelaw.com rsmore47@gmail.com</p>
<p>North Country Scenic Byways Council Carl D. Martland, Chair 16 Post Road Sugar Hill, NH, 03586 martlan@mit.edu</p>	<p>Virginia Jeffryes 92 Church St PO Box 577 Franconia, NH 03580 vjeffryes@hotmail.com</p>
<p>Carol L. Currier 70 Cedar Lane P.O. Box 34 Ashland, NH 03217 Clcurrier65@gmail.com</p>	<p>Lee Ann Moulder 37 Birch Lane Holderness, NH 03245 marinolee@aol.com</p>
<p>Globe Manufacturing Don Welch donw@globefiresuits.com</p>	<p>John Davidge Prospect Farm-Lancaster LLC 56 Mt. Prospect Road Lancaster, NH 03584-3304 JWD@DavidgeCo.com</p>
<p>BAE Systems Mark Bailey David.cuzzi@prospecthillstrategies.com</p>	<p>Wilcox Industries Corp. Jim Teetzel Jim.teetzel@wilcoxind.com</p>
<p>Dyn, Inc. David Allen dallen@dyn.com</p>	<p>Nancy L. Dodge 157 Creampoke Rd. Stewartstown NH 03576 nfrench@together.net</p>

**Northern Pass Transmission LLC and Public Service Company of New Hampshire dba
Eversource Energy
SEC 2015-06
Distribution List**

<p>Town of Bethlehem Planning Board 2155 Main Street Bethlehem, NH 03574 Planning@BethlehemNH.org</p>	<p>No Northern Pass Coalition Board of Directors Peter E. Martin, President Robert Tuveson, Chairman of the Board Gail Beaulieu, Treasurer Martha Richards, Secretary Elizabeth Terp martinp003@gmail.com</p>
<p>E Martin Kaufman, M.D., Janice Kaufman, Herman Lerner, M.D., Arthur Weinstein BEAR ROCK Stewartstown, NH mvpetrofsky@gmail.com</p>	<p>Carol J. Holahan, Esq. New England Power Generators Association 141 Tremont Street Boston, MA 02111 cholahan@nepga.org</p>
<p>Carl and Barbara Lakes 18 Loop Road Easton, NH carllakes4@yahoo.com</p>	<p>Timothy and Rebecca Burbank, Edward Cenerizio, Deborah Corey and Matthew Steele 41 Dyke Road LLC, a 113 acre parcel located in Sugar Hill NH and Easton NH northpack99@yahoo.com</p>
<p>Mark W. Orzeck and Susan Orzeck 90 Ridgeline Drive Westport, MA 02790 morzeck@charter.net</p>	<p>Andrew D. Dodge, Esq. 2 Central Green Winchester, MA 01890 andrew-dodge@verizon.net</p>
<p>David Van Houten 649 Cherry Valley Rd Bethlehem, NH 03574 davidgvanhouten@gmail.com</p>	<p>Susan E Percy 275 Summer Club Road Stark, NH 03582 Susanenderspercy@gmail.com</p>
<p>Selectmen, Town of Clarksville Helene L. Dionne Town Clerk Administrative Assistant Clarksville, NH twnc Clark@yahoo.com</p>	<p>Rita M. Hibbard Town Clerk Stewartstown, NH townofstewartstown@hotmail.com</p>
<p>Campbell McLaren 50 Gibson Road Easton, NH 03580 gpcmlaren@gmail.com</p>	<p>Eric and Barbara Meyer 791 Easton Valley Road Easton NH 03580 bnmeyer7@gmail.com</p>
<p>Britni White, Executive Director North Country Chamber of Commerce P.O. Box 1 104 Main Street, Suite 206 Colebrook, NH 03576 info@chamberofthenorthcountry.com</p>	<p>Susan E Percy 275 Summer Club Road Stark, NH 03582 susanenderspercy@gmail.com</p>

**Northern Pass Transmission LLC and Public Service Company of New Hampshire dba
Eversource Energy
SEC 2015-06
Distribution List**

Bradley J. and Daryl D. Thompson 599 Noyes Road Stewartstown, NH 03576 bjtddt@gmail.com	Steven Whitley, Esq. Mitchell Municipal Group, P.A. 25 Beacon Street East Laconia, NH 03246 steven@mitchellmunigroup.com
J David West 15 Forbes Hill Road Colebrook, NH heywoodwest7@gmail.com	Ben Southworth Garland Mill Timberframes 273 Garland Road Lancaster, NH 03584 ben@garlandmill.com
Taras W. and Marta M. Kucman 12 Brookwood Drive Concord, NH tkucman@gmail.com	Dixville Notch—Harvey Swell Location Marty Kaufman, John Petrofsky and Bradley J. Thompson 599 Noyes Road Stewartstown, NH 03576 bjtddt@gmail.com
Lucille Wolf 30 Mullin Hill Rd Little Compton, RI 02837 lwolf4613@gmail.com	Dennis Ford PO Box 544 1544 Easton Valley Road Easton NH 03580 daford65@yahoo.com
Deerfield Conservation Commission Judy Marshall, Clerk PO Box 159 Deerfield, NH 03037 marshallgj@metrocast.net	Joanna and Robert Tuveson 105 Sargent Road Holderness, NH 03245 roberttuveson@hotmail.com
Whitefield Planning Board 56 Littleton Road Whitefield, NH 03598 whitefieldtax@ne.rr.com	Paul and Dana O'Hara 68 Church Street Franconia, NH 03580 dohara@littletonschools.org
Kevin Cini 20 Mountain Road Deerfield NH, 03037 keliscini@gmail.com	Erick and Kathleen Berglund 23 Nottingham Road Deerfield, NH 03037 erickb@metrocast.net
Ammy Heiser Chairman of the Pembroke Conservation Commission 604 Buck Street Pembroke, NH, 03275 harunga1@msn.com	Robert W. Thibault Rt. 116 Easton, NH rwtbo@yahoo.com

**Northern Pass Transmission LLC and Public Service Company of New Hampshire dba
Eversource Energy
SEC 2015-06
Distribution List**

<p>Town of Ashland 20 Highland Street Ashland, NH 03217 pcrowell@ashland.nh.gov</p>	<p>Holly Galietta, Administrative Assistant Town of Pittsburg 1526 Main Street Pittsburg, NH 03592 townofficepittsburg@gmail.com</p>
<p>Kris Pastoriza 294 Gibson Road Easton, NH 03580 krispastoriza@gmail.com</p>	<p>Roy R. Stever, Chair Easton Conversation Commission 1060 Easton Valley Road Easton, NH 03580 Roy.stever@gmail.com</p>
<p>Pemigewasset River Local Advisory Committee Max E. Stamp, Chair 2110 Summer St Bristol, NH 03222 hmstamp@metrocast.net</p> <p>Barry & Gretchen Draper bgd@metrocast.net</p>	<p>Thomas N.T. Mullen 9 Deacon Willey Road Campton, NH 03223 tntmullen@gmail.com</p>
<p>Carol Dwyer 100 Church Street Franconia, NH cdwyergo@gmail.com</p>	<p>Alan Raff, Attorney at Law For the IBEW Primary Legal Solutions 4 Park Street, Suite # 201 Concord, NH 03301 araff@primarylegalsolutions.com</p>
<p>Charles and Cynthia Hatfield 41 Hatfield Drive Whitefield, NH 03598 c1oldhat@yahoo.com</p>	<p>Wendy Doran 91 Twin Mountain Rd Whitefield NH 03598 poboxshay@gmail.com</p>

**Northern Pass Transmission LLC and Public Service Company of New Hampshire dba
Eversource Energy
SEC 2015-06
Distribution List**

<p>Mike Novello Wagner Forest 150 Orford Road, PO Box 160 Lyme, NH 03768 mnovello@wagnerforest.com</p>	<p>Bradley J. Thompson 599 Noyes Road Stewartstown, NH 03576 JJV@NDPrecast.com</p> <p>Lynne Placey 1043 South Hill Road Stewartstown, NH JJV@NDPrecast.com</p> <p>Arlene Placey 944 Bear Rock Road Stewartstown, NH JJV@NDPrecast.com</p> <p>Roderick and Donna McAllaster 380 McAllister Road Stewartstown, NH JJV@NDPrecast.com</p>
<p>Jeanne Menard 36 Mountain Road Deerfield, NH 03037 Jeanne@paradeproperties.net</p>	<p>Michael Skelton, President & CEO Greater Manchester Chamber of Commerce 54 Hanover Street Manchester, NH 03101 mikes@manchester-chamber.org</p>
<p>James and Judy Ramsdell 1049 Whitefield Road Dalton, NH jamesramsdell@yahoo.com</p>	<p>Jo Anne Bradbury 30 Thurston Pond Road Deerfield, NH 03037 jabradbury@myfairpoint.net</p>
<p>Grafton County Commissioners 3855 Dartmouth College Highway Box 1 North Haverhill, NH 03774 cmsroffice@co.grafton.nh.us</p>	<p>James H Page Jr. 67 South Rd. Deerfield, NH 03037 jpge@metrocast.net</p>
<p>Russell and Lydia Cumbee 1719 Easton Road Franconia, NH 03580 russlydia@myfairpoint.net</p>	<p>Atty. Chris Boldt on behalf of the City of Berlin Donahue, Tucker & Ciandella, PLLC 164 NH Rt. 25 The Towle House, Unit 2 Meredith, NH 03253 cboldt@dtclawyers.com</p>
<p>Ken & Linda Ford 257 Main Street, PO Box 728 Franconia, NH 03580</p>	<p>Conservation Commission Town of Franconia drginnyjeff@hotmail.com</p>

**Northern Pass Transmission LLC and Public Service Company of New Hampshire dba
Eversource Energy
SEC 2015-06
Distribution List**

<p>Mary Boone Wellington mary@rosecottagenorth.com</p>	<p>Easton Planning Board James Collier, Chair 1060 Easton Valley Road Easton, NH 03580</p>
<p>Craig and Corinne Pullen Windswept Farm, LLC 63 Old Schoolhouse Road Canterbury, NH 03224 corinne.pullen@yahoo.com</p>	<p>Torin and Brian Judd 96-A Mount Delight Road Deerfield, NH Torin.judd@gmail.com</p>
<p>Rebecca Hutchinson 30 Lang Road Deerfield, NH rebec47@gmail.com</p>	<p>Edward Piatek 129 Elm Street Whitefield snowghost54@gmail.com</p>
<p>Frank and Kate Lombardi 101 Elm St. Whitefield, NH fmlombardi5@hotmail.com</p>	<p>Rodney and Laura Felgate 766 Blake Hill Road New Hampton, NH 03256 rodneyfelgate@gmail.com</p>
<p>Frederic P. Fitts 22 Knothole Rd. Whitefield, NH 03598 tfitts@bu.edu</p>	<p>Marsha Lombardi 111 Elm Street Whitefield, NH 03598 fmlombardi5@hotmail.com</p>
<p>New England Ratepayers Association Marc Brown, Executive Director PO Box 542 Concord, NH 03302 marc@neratepayers.org</p>	<p>Wagner Forest Management, LTD Mike Novello 150 Orford Road, PO Box 160 Lyme, NH 03768 mnovello@wagnerforest.com</p>
<p>Town of Bethlehem Michael Culver, Chair PO Box 189 Bethlehem NH 03574 Admin@BethlehemNH.org</p>	<p>Philip H. Bilodeau Joan C. Bilodeau 140 Nottingham Road Deerfield, NH 03037 jbminey@gmail.com</p> <p>Scott E. Hogan The Law Office of Scott E. Hogan P.O. Box 33 Durham, NH 03824 hoganlaw@comcast.net</p>

**Northern Pass Transmission LLC and Public Service Company of New Hampshire dba
Eversource Energy
SEC 2015-06
Distribution List**

<p>Cate Street Capital, Inc. Alexandra Ritchie, Sr. VP One Cate Street, Suite 100 Portsmouth, NH aritchie@catecapital.com</p>	<p>Bethlehem Conservation Commission PO Box 189 Bethlehem, NH 03574 CherylKJensen@aol.com</p>
<p>Ashland Water & Sewer Department Ellison Badger, Chair 6 Collins Street Ashland, NH 03217 waterandsewer@ashland.nh.gov</p>	<p>Elmer and Claire Lupton 75 Newell Lane Whitefield, NH 03598 neillup@aol.com</p>
<p>Ken Folsom, Town Administrator Town of Canterbury PO Box 500 Canterbury, NH 03224 kfolsom@canterbury-nh.org</p>	<p>Lawrence and Maxine Phillips 23 Mountain View Drive Canterbury, NH 03224 Grampe3@aol.com</p>
<p>Elizabeth Terp 55 Birch Bend Dr. #5 Thornton, NH 03285 elizabethterp@yahoo.com</p>	<p>Gail Beaulieu CGSB Mortgage Specialist PO Box 996 Plymouth, NH 03264 gailbeaulieu@msn.com</p>
<p>Dalton Selectboard Nancy McVetty, Chair admin-assistant@townofdalton.com</p>	<p>Kathryn Lowe Executive Assistant/Assessing Supervisor Town of Plymouth 6 Post Office Square Plymouth, NH 03264 klowe@plymouth-nh.org</p>

**Northern Pass Transmission LLC and Public Service Company of New Hampshire dba
Eversource Energy
SEC 2015-06
Distribution List**

<p>Ammonoosuc Conservation Trust Douglas Evelyn, Secretary, ACT Board of Trustees 53 Post Road Sugar Hill, NH 03586 develyn1@myfairpoint.net</p> <p>Dalton Conservation Commission Christine Rouillard nadiapeanut@yahoo.com</p>	<p>Appalachian Mountain Club Susan Arnold, VP for Conservation 5 Joy Street Boston, MA 02108 sarnold@outdoors.org</p> <p>William L. Plouffe DrummondWoodsum 84 Marginal Way Portland, ME 04101-2480 wplouffe@dwmlaw.com</p> <p>Dr. Kenneth Kimball Director of Research, AMC kkimball@outdoors.org</p> <p>Aladdine Joroff Harvard Law School ajoroff@law.harvard.edu</p>
<p>Dorothy Uran Assessing Clerk Town of Colebrook colebrookassessing@myfairpoint.net</p>	<p>Linda Upham-Bornstein 185 Mount Prospect Rd. Lancaster, NH 03584 lubornstein@gmail.com</p>
<p>Ellen Schaffer ellen726@hotmail.com</p>	<p>Edward Craxton Dalton Select Board and the Dalton Conservation Commission ecraxton@yahoo.com.</p>
<p>Martha Richards, Grafton County Commissioner 3785 Dartmouth College Highway North Haverhill NH 03774 maplerichards@gmail.com</p>	<p>Lara Saffo Grafton County Commissioners lsaffo@co.grafton.nh.us</p>
<p>Andrew Coffman Smith Energy Reporter S&P Global Market Intelligence Arlington, VA amsmith@snl.com</p>	<p>Nancy West nancywestnews@gmail.com</p>

**Northern Pass Transmission LLC and Public Service Company of New Hampshire dba
Eversource Energy
SEC 2015-06
Distribution List**

<p>Susan Woodard SMWoodard14@gmail.com</p>	<p>The Wind Action Group Lisa Linowes, Executive Director 286 Parker Hill Rd. Lyman, NH 03585 lisa@linowes.com</p>
<p>Craig Rennie, NH Department of Environmental Services Land Resources Management Craig.Rennie@des.nh.gov</p>	<p>Feliks Kerman Visum Asset Management Fkerman@visiumfunds.com</p>
<p>Ivana Ergovic Nexus Capital Group 666 5th Ave, 9th Floor New York, NY 10103 ivana@nexus-cap.com</p>	<p>Michael Capone Holderness Town Administrator administrator@holderness-nh.gov</p>