STATE OF NEW HAMPSHIRE
SITE EVALUATION COMMITTEE

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

PREFILED DIRECT TESTIMONY OF

DR. NICOLAS O. ROCKLER

ON BEHALF OF
COUNSEL FOR THE PUBLIC

December 30, 2016

Qualifications and Purpose of Testimony

Q. Please state your name, position and your employer.

A. My name is Nicolas O. Rockler. I am an economic consultant and Chief Executive Officer at Kavet, Rockler & Associates, LLC (Kavet Rockler). Kavet Rockler specializes in regional economics, regional econometric modeling, construction market economic analysis and forecasting, industry and regional economic impact analysis, demographic forecasting and state and local economic modeling and forecasting. Since 1996, Kavet Rockler has been the state economist and principal economic advisor to the Vermont State Legislature, providing economic and tax revenue analysis and forecasts, tax and other public policy research and analysis. Kavet Rockler has prepared the last 43 regular and interim official Vermont State economic and revenue forecasts, as well as numerous forecasts and revenue impact studies.

Q. Please summarize your education background and work experience.

A. I have a BA and an MA degree in Regional Science from the University of Pennsylvania, and a Ph.D. in Urban Studies and Planning from the Massachusetts Institute of Technology. I have 38 years of experience performing economic impact analysis and forecasting. I was a senior economist and Director of Economic Products at McGraw-Hill, Inc. – Data Resources, Inc. (DRI) for eight years, and I have been with Kavet Rockler for the past 28 years. I received a US Department of Housing and Urban Development Dissertation Fellowship, and I was a Post-Doctoral Research Fellow at MIT for four years, working on various economic research projects. I also have been a lecturer at MIT, teaching a course entitled "Analyzing and Accounting for Regional Economic Change." I have worked on several energy projects, including performing economic analysis for the New England Power Link Transmission Project that is being developed by TDI in Vermont. See my resume attached as Exhibit A.

Q. Have you testified previously before the New Hampshire Site Evaluation Committee or other regulatory bodies?

A. I have not testified before the New Hampshire Site Evaluation Committee. I have testified previously before The Public Service Board of the State of Vermont and various committees of the Vermont legislature on non-utility matters.

Q. What is the purpose of your testimony?

A. A. My testimony discusses the local and regional economic impacts associated with the proposed Northern Pass Transmission Project (the "Project") (SEC Docket No. 2015-06) proposed by Northern Pass Transmission, LLC ("NPT") and Public Service Company of New Hampshire d/b/a Eversource Energy (collectively, the "Applicants").

Q. Please describe what Kavet Rockler analyzed.

A. Kavet Rockler analyzed three primary areas: (1) a general economic impact analysis of the construction, development and operation of the Project, including integration of energy market price impacts; (2) potential property valuation effects; and (3) potential tourism industry impacts. Our analysis primarily focused on statewide New Hampshire impacts, but it also included some estimates of effects in other New England states as well as some sub-state analysis. See Exhibit B attached to the Pre-filed Testimony of Thomas E. Kavet.

Work on the Project

Q. Please summarize your work on the Project.

A. We reviewed the Application and the pre-filed testimony prepared by several of the Applicants' witnesses, including Julia Frayer, James Chalmers, Lisa Shapiro and Mitch Nichols. We attended technical sessions involving Julia Frayer, James Chalmers and Mitch Nichols. We performed our own research and collected data. We met with current and former state officials, faculty *emeritus* from Plymouth State University's Institute for New Hampshire Studies, and local town and business development officials, as well as business leaders. We participated in six regional meetings designed to provide public input and spoke with residents in many of the affected towns. We also travelled to most of the municipalities though which the Project passes. We reviewed and assessed the economic impact analysis prepared by London Economics, Inc. ("LEI") on behalf of the Applicants and prepared our own economic impact analysis using the same regional economic model developed by REMI that LEI used to prepare their analysis. We also critiqued the report by Chalmers & Associates, LLC on potential property valuation impacts and the report by the Nichols Tourism Group on potential impacts on tourism.

1 **Review of Applicants' Local Economic Impact Analysis**

2 **Q. Please summarize your review of the Applicants' economic impact analysis.**

3 A. In general, the Applicants' economic impact analysis by LEI was well performed, but it
4 contained some model specification errors that resulted in LEI overstating employment
5 impacts during construction by approximately 20%. However, LEI did not include in its
6 model estimated property tax payments, and LEI did not include estimated expenditures
7 from the proposed Forward New Hampshire Plan. We included these in our model and
8 thus for some Project components our employment and other economic impacts were
9 higher than the Applicants.

10 **Impact on Jobs During Construction**

11 **Q. Please compare your findings of the Project's impact on jobs during construction**
12 **with those of LEI.**

13 A. LEI found that construction of the Project would create 1,367 total jobs on average in
14 New Hampshire and 2,915 total jobs on average across other New England states during
15 the years of construction. We found that during construction the Project would create
16 1,050 total jobs in New Hampshire and,2,213 total jobs in the other New England states

17 **Impact on Gross State Product During Construction**

18 **Q. Please compare your findings of the Project's impact on the Gross State Product**
19 **(GSP) during construction with LEI's findings.**

20 A. LEI projected that during the three years of construction of the Project, New England's
21 GSP would increase by approximately $243 million on average per year, and that New
22 Hampshire's GSP would increase by $102 million per year.

23 We projected that during the three years of construction New England's GSP
24 would increase by approximately $191 million, and that New Hampshire's GSP would
25 increase by approximately $84 million.

26 **Impacts from Changes in Electricity Prices**

27 **Q. Please compare your findings of the Project's economic impact from potential**
28 **changes in electricity prices during its operation with those of LEI.**

29 A. The estimated economic impact from the operation of the proposed transmission line
30 depends upon the estimated impact on electricity prices from the Project.

LEI estimated that over an 11 year period (2019 to 2029), the reduction in electricity purchased by all customers in New England amounted to $6.4 billion, and for New Hampshire the total reduction was $879 million ($80 million per year), or about 14% of the regional total reduction. This reduction for New Hampshire is larger than New Hampshire's demand for overall utility services (electricity, gas and water), which is about 8%. As a result of these estimated cost savings, LEI projected that New Hampshire's GSP would increase by an average of $118 million per year.

The Brattle Group generated four scenarios for the possible impact on retail electricity prices from the operation of the Project. Those savings ranged from zero savings to $28 million per year over 11 years (2020 to 2030). The Brattle Group also performed sensitivity analyses for some scenarios to project further variants of possible electricity market outcomes. Under these sensitivity analyses, the maximum New Hampshire electricity price savings would average $62 million per year. Without presuming any probability of occurrence, we assume that the higher (more beneficial to the Applicants) of the two midpoint scenarios projected by The Brattle Group as a reasonable intermediate impact estimate, resulting in a projected reduction in electricity prices of$17 million per year, which would result in an increase in New Hampshire's GSP averaging $33 million per year from the Project.

We are of the opinion that the Brattle Group's scenarios present a more unbiased and therefore credible approach to understanding the electricity market impacts of the Project.

Operation of the Project

Q. Please compare your findings on the economic impact from ongoing operational expenditures for NPT with LEI's findings.

A The economic impact from ongoing operation expenditures for NPT is of only moderate importance with five direct jobs created in New Hampshire. When we used the LEI New Hampshire operating expenditures to the REMI model, we found that induced consumption expenditures from this increased employment would increase GSP over 11 years (2019 to 2029) by an annual average of amount of $4.8 million and result in 27

jobs. We accept these estimates, subject to the accuracy of LEI's estimated operating and maintenance expenditures provided to them by Eversource.

Impact from Property Tax Payments

Q. Did LEI consider the economic impact that would result from property tax payments by NPT?

A. LEI did not estimate this impact.

Q. Please summarize your estimate of the impacts from property tax payments NPT will make once the Project is complete.

A. We found that over 11 years (2020 to 2030) NPT's payment of property taxes would increase GSP by an annual average of $19 million and create 249 jobs.

Potential Impact from the Forward New Hampshire Plan

Q. Did LEI analyze the economic impact from proposed expenditures by the Forward New Hampshire Plan?

A. LEI did not.

Q. Please summarize your estimate of the potential impact from spending by the proposed Forward New Hampshire Plan.

A. If the Forward New Hampshire Fund and the North Country Job Creation Fund (NCJCF) are managed and administered by independent economic development professionals following best practices for rural economic development, it is possible to create 150 jobs in New Hampshire per year on average over the 20 year program life and result in about $15 million per year in additional annual net economic output while the program is operational. However, to date the small grants awarded by the NCJCF have seemed haphazard and poorly targeted for achievement of meaningful economic development outcomes.

Review of Applicants' Property Valuation Impact Analysis

Q. Please summarize your review of the Applicants' assessment of potential property value impacts from the Project.

A. We found that the analysis provided by the Applicants' expert, Chalmers & Associates, LLC, and its conclusion that the Project will result in "no consistent measurable effects … on the market value of residential real estate" was not credible. Their review of existing literature was selective and incomplete. Their local market review and case studies were flawed and unreliable. Perhaps most importantly the Chalmers' analysis failed to examine the most important conduit for potential property valuation diminution in New Hampshire's area of high recreational and scenic amenity values – visual property degradation. And the Chalmers' analysis did not consider the impact on multi-family structures, such as the 148 townhouses in McKenna's Purchase in Concord, commercial properties such as the Sherburne Woods Senior Living facility in Deerfield, or the impact on hotels, motels, resorts, campgrounds, restaurants, etc. that rely on tourists.

Q. How did you analyze the Project's potential impact on property values?

A. There is a paucity of relevant studies in the academic literature comparable to the subject area, and the time and cost to properly perform statistically based research is beyond the scope of our assignment. Consequently, we utilized viewshed data prepared by T.J. Boyle Associates to estimate how much residential property may have a view of the transmission line and its structures and then we estimated the loss or gain in the value of that property using values from existing literature that were most relevant to the affected New Hampshire area. We then transformed the value of a one-percent change in the assessed value of that property into a flow of income by using the historical ratio of New Hampshire imputed rent income to assessed residential property value.

Q. What did your analysis show?

A. Every 1% decline in assessed property value potentially within the viewshed represents $11,628,154 in lost wealth by affected residential property owners. This, in turn, is the equivalent annual loss in imputed rent income of $202,671 for 2015. This annual income decline would continue for as long as the market deemed that residential properties had lost value. The loss rate would be likely to change over time. The loss in wealth is a "paper loss" until affected properties are sold, but could ultimately reduce assessed values and related tax revenues.

Although the exact percentage loss that may be experienced in a region such as New Hampshire, with high recreational and scenic amenity values is difficult to estimate, the few applicable studies found impacts that were higher than in urban and suburban areas – ranging from 15% to as much as 34%, with "view lots" experiencing even more significant losses. However, there were no studies in comparable areas with high levels of tourism visitation and second home ownership levels characteristic of the subject area.

We also applied a distance-based analysis to the same viewshed-based property tax base valuations and found possible impacts to be at least $15 million.

Q. Did you look at the potential impact on some commercial properties?

A. Yes, we assessed the impact on restaurants within the viewshed of the Project in the context of our evaluation of tourism impact.

Q. What did your analysis of the impact on restaurant properties show?

A. Most of the potential impacts in this sector were included in our analysis of tourism effects. Based on the Plymouth State University estimates of New Hampshire Meals and Rooms tax revenue data and county-level viewshed data for the Project provided by T.J. Boyle Associates, approximately $10.4 million in restaurant expenditures are made in the viewshed area. Some percentage decline in sales based on view encumbrance would represent the loss in gross income to those properties. Although loss rates for tourism could be in the 3% to 15% amount, it is possible that local demand for restaurants could be less affected by visual encumbrance than tourist demand, so we used a 5% loss rate, which would result in an additional loss of approximately $500,000 per year in restaurant sales.

Review of Applicants' Tourism Impact Analysis

Q. Please summarize your review of the Applicants' assessment of the Project's potential impact on tourism.

A. We did not find the Applicants' analysis by Nichols Tourism Group to be a reasonable or credible assessment of the Project's potential impact on tourism. The Applicants' assessment was based on faulty logic, methodological errors in the analysis of tourism data, four listening sessions with limited participants some of whose views were unreported and largely ignored, an attempt to examine two "similar" transmission

projects by the use of flawed methodology that renders the analysis meaningless, and a web-based survey of paid respondents that failed to ask a single question that mentioned, provided a visual simulation, or described a high voltage transmission line, and whose results, when considered with Nichols' earlier survey on behalf of the State of New Hampshire, supports negative impacts on tourism.

Q. Please summarize your assessment of the Project's potential impact on tourism.

A. Based upon our review of relevant literature, data on New Hampshire tourism and our conversations with New Hampshire tourism experts, we concluded that the Project could have a measurable negative tourism impact in New Hampshire, especially in the great North Woods region.

Q. Please describe your approach to assessing the Project's potential impact on tourism.

A. Based upon analyses of limited available relevant data and expert local opinion, we constructed several alternative possible impact ranges, based upon estimates of current direct tourism spending and the degree to which the transmission line visibility may affect the region. The impacts would be lower in earlier years, but would increase over time as return visits and visitor recommendations, which are routinely reported in social media, are affected by actual experience. Impacts could be greater if visitors encounter the transmission line multiple times as they travel through the region or if there are particularly prominent views of the transmission line on high-volume traffic arteries such as I-93 and Route 3 or where tourists congregate.

Although it is difficult to quantify potential negative tourism impacts from the Project, there is ample evidence that scenic beauty and a pristine wilderness experience is a primary destination attribute affecting tourist visitation to New Hampshire. Scenic beauty repeatedly arises as a critical visitation draw in surveys, and the New Hampshire Division of Travel and Tourism and private businesses have spent tens of millions of dollars promoting and maintaining this brand.

Q. What do you estimate to be the Project's impact on tourism?

A. Using a midpoint between 3% and 15%, and a phased-in direct tourism spending reduction over time of 9% scaled to assess the tourism dollars in the area within the

Project viewshed, we projected direct spending losses of approximately $10 million per year (in current dollars) and total economic impacts, including secondary effects, of average annual losses of more than $13 million in Gross State Product and the loss of nearly 190 jobs over the 11 year period from 2020 to 2030.

Specific Areas Impacted by the Project's Construction

Q. Will construction activity for the Project have any negative economic impacts?

A. Yes.

Q. What areas will be the most impacted?

A. While many areas and businesses along the route will be impacted by traffic delays and other effects of construction activity, the Town of Plymouth is particularly vulnerable to disruption and economic loss because the underground transmission line will be constructed through Main Street in downtown Plymouth. Construction through Plymouth could last from 70 to 130 days and extend into the summer months when tourism visitations, upon which Plymouth relies, are at their peak. The elimination of parking, the closure of travel lanes and roads, and detours around downtown Plymouth will be very disruptive to businesses on Main Street, which includes approximately 75% of the town's total business sector.

Q. What will be the economic impact to businesses in Plymouth?

A. In a "best case" construction period of about 70 days, which would include road closures and a total loss of parking spaces, a 30% reduction in business during this period could lead to direct income reductions of $1.2 million and the loss of more than 50 direct jobs. Secondary impacts could result in more than 80 lost jobs. In a "worst-case" construction period of about 100 days, which would include lane closures and the loss of parking but no road closures, a 30% reduction in business could lead to direct income reductions of nearly $1.8 million and the loss of 80 jobs. If the construction period extends to 130 days and business activity drops by 50%, economic losses could exceed $3.8 million in personal income and more than 175 direct jobs. Secondary effects would amplify those losses, causing total one-year New Hampshire job losses of between about 120 to 250 jobs and income losses between $4.5 to $9.6 million. The possible closure of some downtown businesses could tarnish what is now a thriving downtown tourist destination,

and adversely affect future tourism visitation. While these jobs would eventually return, the economic hardship on the affected business owners could be more lasting.

Aggregate Economic Impacts Over Time

Q. Your report addresses potential economic impacts on several components. Did you consider how these components combine over time?

A. Yes. These various components will have a net combined economic impact on New Hampshire, and that combined economic impact will change over time.

Q. Please describe what you considered.

A. In our report we presented ranges of impacts for the various components assessed, in recognition of the uncertainty of possible outcomes and the absence of relevant data and historical experience with which to evaluate potential impacts to some components. Some economic impacts are more certain and thus have a narrower range of possible outcomes than other impacts. But all of the various economic impacts will have combined economic impacts over time, and the impacts will change over time. The two tables below outline net economic impacts from the components we reviewed based upon the following assumptions: (1) Kavet Rockler Project construction and development expenditure estimates; (2) Kavet Rockler property tax payments that are distributed equally for the purpose of retiring debt and increasing state and local government spending; (3) The Brattle Group's "Scenario 2" energy market assumptions, with 500 MW of terminated generation capacity and 500 MW of mothballed capacity distributed throughout the New England region; (4) Kavet Rockler "conservative" viewshed-limited tourism loss assumptions; (5) no negative property valuation impacts; (6) Forward New Hampshire Fund expenditures that assume independent management and administration of the various funds; and (7) a "best-case" traffic disruption scenario including "best-case" downtown Plymouth disruptions and/or other possible areas of traffic delay.

Aggregate Model Impacts: Selected Project Components
(Annual Averages - Millions of 2016 Dollars)

Gross State Product					
		Near-Term	Mid-Term	Late-Term	Long-Term
	Construction Period	Operational Period	Operational Period	Operational Period	Operational Peri
Impact Element	2016-2019	2020-2030	2030-2040	2040-2050	2050-2060
Construction & Development	85	-5	0	2	2
Electricity Market Effects	4	10	-30	-40	-54
Operations & Maintenance	0	2	2	2	2
Property Tax Effects	5	19	10	6	3
Forward NH Plan	8	10	5	0	0
Tourism Effects	-5	-14	-18	-24	-33
Construction Disruptions	-1	0	0	0	0
TOTAL	**96**	**22**	**-31**	**-54**	**-80**

Aggregate Model Impacts: Selected Project Components
(Annual Averages - Number of Jobs)

Employment Impacts					
	Construction Period	Near-Term Operational Period	Mid-Term Operational Period	Late-Term Operational Period	Long-Term Operational Period
Impact Element	**2016-2019**	**2020-2030**	**2030-2040**	**2040-2050**	**2050-2060**
Construction & Development	1050	-53	-2	13	14
Electricity Market Effects	40	131	-192	-183	-198
Operations & Maintenance	2	13	8	6	4
Property Tax Effects	66	249	122	64	27
Forward NH Plan	147	170	87	0	0
Tourism Effects	-80	-189	-214	-260	-320
Construction Disruptions	-17	0	0	0	0
TOTAL	**1208**	**321**	**-191**	**-360**	**-473**

The net economic impacts of the Project will vary depending upon the assessments of the various individual components. Based upon the assessment of these individual components, there can be a wide range of possible net economic impacts of the Project.

Does this conclude your testimony?

A. Yes.

1 **Exhibits**

2 A. Resume of Dr. Nicolas O. Rockler

3

Kavet, Rockler & Associates, LLC
242 Payson Road
Belmont, Massachusetts 02478 U.S.A.
Telephone, MA: 617-395-8021
Telephone, VT: 802-472-1199
Cellular: 617-571-9163
E-Mail: Nrockler@kavetrockler.com

NICOLAS O. ROCKLER
RESUME AND BACKGROUND INFORMATION

- **1988-present, Belmont, MA and Cabot, VT,** Economic Consultant, Chief Executive Officer, Kavet, Rockler & Associates, LLC, specializing in regional economics, regional econometric modeling, input/output economics, construction market economic analysis and forecasting, industry and regional economic impact analysis, demographic forecasting, state and local economic modeling and forecasting and state and local public finance.

- **2008, Cambridge, MA,** Lecturer, Massachusetts Institute of Technology, Department of Urban Studies and Planning. Course title: *Analyzing and Accounting for Regional Economic Change.* The course surveys theories of regional growth, factor mobility, clustering, industrial restructuring, learning regions, and global supply chains from a political-economy perspective. It examines and critiques accounting frameworks, including accounting for the underground economy, multipliers, linkages, and supply chains used to assess infrastructure investments, employment and environmental impacts. It covers price indices, industrial location and employment measures, shift-share analyses, and discusses US and foreign applications.

- **1999-2003, Cambridge, MA**, Post-Doctoral Research Fellow, Massachusetts Institute of Technology, Department of Urban Studies and Planning. Participation in various economic research projects, including: Design and management of empirical economic analyses of advanced technology investment by the federal National Institute for Standards and Technology on behalf of U.S. automobile manufacturers using case studies and macro-economic models to estimate value of technological change; Estimation of regional and state-wide economic impacts of New York State housing trust fund construction program using regional econometric and I/O model.

- **1981-1988, Lexington, MA**, Director, Economic Products, Senior Economist, McGraw-Hill, Inc. - Data Resources, Inc.(DRI), F.W. Dodge. Responsible for analyses and forecasts of economic activity in U.S., regions and states, including development of state level macro-economic models and forecasts. Managed team which developed the Data Resources, Inc. (DRI) metropolitan area forecast service. Responsible for product development, project management and contract research services related to U.S. construction and real estate markets. Managed several economists and database specialists in maintaining extensive economic databases and preparation of monthly analysis of economic and market conditions.

- **1978-1981, Cambridge, MA**, Analyst, Abt Associates, Inc. Various contract research projects, including: local/regional economic impact estimation and evaluation of federal public works programs, economic development research, and survey questionnaire design. Produced reports for the U.S. EDA, DOL and DHUD concerning the economic impacts of federal construction activity and employment development programs.

EDUCATIONAL BACKGROUND

- Ph. D, Massachusetts Institute of Technology, Department of Urban Studies and Planning, Cambridge, MA. Dissertation Title: *Regional Economic Performance and Public Infrastructure Investment.* Teaching Assistant: Regional Economic Analysis and Modeling and Quantitative Research Methods Courses.
- M.A., University of Pennsylvania, Regional Science, Philadelphia, PA
- B.A., University of Pennsylvania, Regional Science, Philadelphia, PA

FOREIGN LANGUAGES

- Fluent Dutch, Fair German and French

REFERENCES

- Dr. Karen R. Polenske, Professor, Regional Economics, Massachusetts Institute of Technology, Cambridge, MA 02139, W. (617) 253-6881, e-mail: krp@mit.edu
- Dr. Stephanie Shipp, Director, Economic Assessment Office, National Institute of Standards and Technology, 100 Bureau Drive, M.S. 4710, Gaithersburg, MD 20899, W. (301) 975-8978
- Dr. Robert C. Douglas, Assistant Dean of Computing and Professor of Regional Science (retired), University of Pennsylvania, Philadelphia, PA, e-mail: rcdoug@dca.net
- Additional references available upon request.

AWARDS

- U.S. Dept. of Housing and Urban Development Dissertation Fellowship, 1994
- Volvo Research and Education Foundations, Research Planning Grant (Team Member), 2011

PERSONAL

- Born 04-16-54
- Married, Two children, son, age 24, son, age 22