THE STATE OF NEW HAMPSHIRE
BEFORE THE
SITE EVALUATION COMMITTEE

DOCKET NO. 2015-04

AMENDED PRE-FILED DIRECT TESTIMONY OF LISA K. SHAPIRO

APPLICATION OF PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE
D/B/A EVERSOURCE ENERGY
FOR A CERTIFICATE OF SITE AND FACILITY FOR CONSTRUCTION OF A NEW
115 kV TRANSMISSION LINE

THE SEACOAST RELIABILITY PROJECT

March 29, 2017

Qualifications and Purpose of Testimony

Q. Please state your name, title and business address for the record.

A. My name is Lisa K. Shapiro and my business address is 214 North Main Street, Concord, NH 03301. I am Chief Economist at Gallagher, Callahan & Gartrell, P.C.

Q. Please briefly summarize your relevant background and employment experience.

A. I hold a Ph.D. in Economics from Johns Hopkins University and have approximately 20 years of experience in analyzing New Hampshire property taxes as part of my job. My doctoral dissertation was on property taxes and voting behavior with a case study of New Hampshire. I was the lead author on the seminal study on the then-proposed new statewide property tax enacted in New Hampshire. I also prepared the analysis of the estimated property taxes paid by the proposed Portland Natural Gas Transmission System. I have prepared property tax analyses for a variety of private and institutional organizations. I have consulted for utilities, merchant generators, and manufactures to assist with property tax analysis, including testifying and representation before the New Hampshire Legislature on legislative proposals regarding property taxes.

I have authored a number of economic impact studies, reports, and presentations on the economic and fiscal impacts of infrastructure investments and public policies. I have provided expert economics testimony before the New Hampshire Public Utilities Commission, and I have also testified before the New Hampshire legislature on the economic and policy impacts of proposed legislation concerning electric industry restructuring, the Renewable Portfolio Standard ("RPS"), the Regional Greenhouse Gas Initiative ("RGGI"), pollution control tax exemptions, utility taxes, and other business and tax proposals.

I have also served on the boards of the New Hampshire Retirement System, the Federal Reserve Bank of Boston's New England Public Policy Center Advisory Board, Josiah Bartlett Center for Public Policy, and was a member of Governor Shaheen's New Hampshire Commission on Education Funding. For further information, please see my CV, attached hereto as Attachment A.

Q. Have you previously testified before the Site Evaluation Committee?

A. Yes, I have submitted pre-filed testimony in support of the Merrimack Valley Reliability Project and the Northern Pass Transmission Project and have testified before the Site Evaluation Committee in support of the Merrimack Valley Reliability Project.

Q. What is the purpose of your amended testimony?

A. I have been retained by Public Service Company of New Hampshire d/b/a Eversource Energy to provide information on the economic effect of the proposed Seacoast Reliability Project ("SRP" or the "Project") on host communities, nearby communities, counties, and the State. Specifically, my report provides information on the estimated property tax payments by SRP to local communities, counties, and the State, and the economic effect on in-state economic activity during the development, construction and operation of the Project. My amended testimony provides updates to the information originally filed with the SEC.

Q. Have you reviewed the amended Project Description submitted to the SEC?

A. Yes, I have.

Q. Does the amended Project Description change anything in your previously filed testimony?

A. Yes. With the amended project design, the expected total project cost for SRP is approximately $84 million, which is roughly $7 million more than the original anticipated total Project cost of $77 million. This pre-filed testimony and the revised Appendix 44(a) replaces my prior pre-filed testimony and report. The increase in Project cost changes the estimated property tax payments and the estimated impacts on the in-state economy.

Estimated Seacoast Reliability Property Tax Payments

Q. Can you please provide an overview of the sources of data and the approach and methodologies used to develop the estimated SRP property tax payments?

A. The Project team provided information on the total cost of the Project, and allocated the costs to the four host communities. This allocated cost provides the basis for estimating the taxable value in the first full year. Data on tax rates, expenditures, and tax bases were found in the New Hampshire Department of Revenue Administration reports.

Actual taxes paid by SRP would depend on the total cost and market value of the SRP property in each community, government spending, other sources of revenue, and the tax base, after construction.

In order to develop an estimated range for the SRP first year annual tax payment post-construction, simulations were run using different assumptions on tax and growth rates, and the taxable value of SRP in each community.

Q. Please provide an overview of the costs of the project within each of the proposed host communities?

A. Approximately 90 percent of the total Project costs are allocated to Durham and Newington. For the other two proposed host communities, about $3.5 million in Project cost is in Madbury and about $4.5 million in Portsmouth. Appendix 44, State and Local Tax Revenue Data, shows the estimated Project allocated cost in each community, and as compared to the most recent (2015) town valuation.

Q. Can you please summarize the estimated SRP local property tax payments for the first year post-construction?

A. Actual taxes paid will depend on the value of the SRP property in the community, local spending, other sources of revenue, and the tax base. Revised Appendix 44(a), State and Local Tax Revenue Data, reports the estimated range of SRP first year local property tax payments. Ranges are based on different simulations using current and actual tax rates and spending levels, different growth rate assumptions, and a discounted simulation on SRP property value in a community to estimate a lower range of payment to provide a higher degree of confidence. Details on the specific assumptions and results for the nine different simulations run to develop the range are reported in Appendix 44, State and Local Tax Revenue Data.

Q. Can you please explain what local property taxes are referred to when estimating the SRP local property tax payments?

A. Local property taxes combine the municipal or city property tax with the local education property taxes.

Q. Are the estimated SRP first year local property tax payments to the four Seacoast communities offset by any increase in local expenditures?

A. I am not aware of any increased expenditures on local services due to the addition of approximately $84 million in taxable base in the four Seacoast communities. The Project is not expected to cause any direct increase in the number of students, nor increased need for public safety protection services, nor other infrastructure investments or expenses for roads, water, sewer or fire protection. Thus, it is not expected that the SRP estimated property tax payments are offset by any direct increased demand for and expenditures on local services.

Q. Does the addition of the approximately $84 million in taxable property in the proposed host communities provide fiscal benefit to other communities?

A. Yes, through tax base sharing. Durham and Madbury are in a cooperative school district with a third community, Lee. Because the costs for education are shared in part based on the total equalized property value in each community, the tax benefit (through tax payments and reduction of existing property owner's share of local expenditures) of the SRP property in Durham and Madbury will in part be shared with Lee. Similarly, communities throughout Strafford and Rockingham Counties and across the State will benefit fiscally.

Q. Please summarize the estimated SRP property tax payments in the first year after construction to the county and state governments.

A. The Project is proposed to be located in two different counties—Strafford and Rockingham. SRP tax payments to Strafford County are estimated at approximately between $122,000 and $135,000 and to Rockingham from between $36,000 to $40,000. County budgets to be raised from property taxes are allocated to each community in a county based on the total equalized value of property in that community. Because of this shared responsibility for county budgets, all communities within each of the two counties share in the benefit from the new SRP taxable property county tax payments.

Utility property also pays the state utility education tax directly to the state. Utility property does not pay the state property tax at the community level, but pays the state directly at a higher fixed rate of $6.60 per thousand of assessed value. The estimated first year utility education property tax SRP payment is estimated at about $500,000 to $612,000. The state uses these revenues to distribute back to communities throughout the state for state aid to education.

Q. Did you provide an estimate of SRP property taxes paid over the life of the Project?

A. No I did not. SRP will continue to pay property taxes through the life of the project. The actual payments will depend on a number of different factors—the fair market value of the SRP property over time, local and county spending levels, the total tax base, and other sources of revenue.

Estimated Seacoast Reliability Project Impact on In-State Economy During Construction

Q. Please explain what Project costs were used to estimate the in-state economic impacts of the proposed Seacoast Reliability Project.

A. The estimated cost of constructing the proposed Project from inception through 2019 is estimated at approximately $84 million, including engineering, project management, siting, material, construction, and other costs such as testing, AFUDC, and contingencies. The estimated cost of constructing the Project between 2015 and 2019 (exclusive of expenditures prior to 2015 and after 2019, and exclusive of testing, indirects, AFUDC and contingencies) is approximately $66 million. An estimated $19.1million will be spent on goods and services supplied by New Hampshire workers and businesses in the 2015 through 2019 time period. As explained below, this New Hampshire-specific spending estimate provides the basis for estimating the in-state economic impacts of the proposed Project.

Q. Please describe the model you used to estimate the economic impacts of the proposed Seacoast Reliability Project.

A. Estimated expenditures for the Seacoast Reliability Project on professional and technical services, engineering, site work, materials and construction during the period 2015 through 2019 were used as inputs into a widely used economic model called the Regional Economic Models, Inc. (REMI) model. The REMI model is a sophisticated dynamic forecasting and policy analysis tool, known as an econometric model that is widely used in the public and private sectors throughout the country. The model is used in planning studies conducted by federal, regional, state and local government planning agencies; consultants; universities; non-profit research institutions; and project developers. In New Hampshire, the REMI model was used for example by the University of New Hampshire, on behalf of the Department of

Environmental Services, to estimate the economic benefits of enacting legislation to join the Regional Greenhouse Gas Initiative ("RGGI"), and by the New Hampshire Economic and Labor Market Information Bureau ("ELMI") to estimate the economic impacts from closures of large pulp and paper mills in the North Country, construction of a new federal prison in Berlin, and a potential closure of the Portsmouth Naval Shipyard. The REMI model simulates the dynamic, interactive effects over time and across industries that result from a change in the economy, such as a large investment in an energy infrastructure project. The model used in this study was a twenty-three sector New Hampshire-specific REMI model.

Q. Did you model different scenarios using the REMI model?

A. Yes, I did. I modeled base case scenarios using several different policy variables that can be used to account for in-state expenditures in the areas of construction; professional and technical services; power and communication structures; and equipment products. The results of the base case scenarios provide the basis for the ranges of results reported here. I also looked at sensitivity scenarios that assumed that some of the workers involved in the construction of the proposed Project would be paid at higher rates than workers in the power and communications structures sector. Higher rates of pay would have the effect of reducing the estimated number of jobs that will result from a fixed construction budget. Some of the electrical line workers who work on the proposed Project may experience higher pay because, according to the US Bureau of Labor Statistics, these types of workers can encounter serious hazards on the job, including working with high-voltage electricity, often at great heights; the work can be physically demanding; if needed, some work can occur during irregular hours (evenings, weekends, and holidays); and to become proficient, most line installers and repairers require technical instruction and long-term on-the-job training.

Q. What types of economic impacts is the Seacoast Reliability Project expected to have in New Hampshire?

A. The Project will create economic benefits locally and statewide by increasing jobs, economic output (sales), gross state product ("GSP"), and personal income during the construction phase of the proposed project, 2015 through 2019. The Project will also add additional taxable property in the four host communities, and SRP will pay property taxes

locally, and to two counties and the State over the life of the Project. The estimated benefits associated with the construction of the proposed Project are explained below.

Q. How much will be spent during the construction phase of the proposed Seacoast Reliability Project and what types of goods and services will be purchased?

A. The estimated cost of constructing the proposed Project between 2015 and 2019 is approximately $66 million. Additional Project costs for financing, other indirect expenses, the remaining contingences, and expenses incurred prior to 2015 and after 2019, bring the total Project cost estimate to approximately $84 million. Of this total, an estimated $19.1 million will be spent on New Hampshire workers and businesses. Construction of a large energy facility typically utilizes a mix of in-state as well as out-of-state vendors and workers including those in specialized fields. Expenditures will be made on local goods and services related to civil engineering, project management, site work, general construction, crane services, electrical services, steel work, welding, and other high-value construction-related work.

Q. What is the estimated number of direct construction jobs associated with the construction of the proposed Project?

A. The REMI model estimates that the direct construction work force will be approximately 31 workers or fewer in the non-peak years of construction (2015, 2016, and 2018) and 24 to 52 construction workers during the peak year of construction, 2017. PSNH has indicated it will work to maximize the use of construction-related workers from New Hampshire to the extent they are available. To the extent workers do not live in the area and come here to work, demand could increase for lodging, food and sundries. Those purchases are not estimated nor included in the model.

Q. What does the REMI model estimate for the total number of New Hampshire jobs, broken out by direct, indirect, and induced, resulting from the construction of the proposed Project?

A. Based on the input data that $19.1 million will be spent in New Hampshire during the years 2015 through 2019, the REMI model estimates that the annual average total number of New Hampshire jobs during the SRP construction period is between 30 and 46 depending on the assumptions and modeling specifics. The peak number of total jobs in 2017 is estimated to be between 54 and 97, depending on the assumptions and modeling specifics. These estimated

employment impacts reflect direct New Hampshire employment in occupations tied directly to the construction of the Project, as well as indirect and induced in-state employment through the multiplier effect. Indirect and induced jobs reflect New Hampshire jobs at companies supplying goods and services to the proposed Project and its workforce, as well as jobs resulting from spending in the local economy by direct and indirect workers employed due to the Project. In general, a little more than half of the estimated jobs are considered direct jobs, and a little less than half are indirect and induced jobs.

Q. What does the REMI model estimate for the annual average total number of New Hampshire jobs, broken out by key industries?

A. The REMI model estimates that the annual average total number of New Hampshire jobs (direct, indirect, and induced) in the construction industry will range from 13 to 24 , with a peak of approximately 28 to 58 in 2017, the peak year of construction. The annual average total number of New Hampshire jobs in the professional and technical services industry will range from 6 to 7, with a peak of approximately 7 to 9 in 2017. The annual average total number of New Hampshire jobs in the retail trade industry will range from 2 to 4, with a peak of approximately 3 to 7 in 2017. And the annual average total number of New Hampshire jobs in all other industries (for example, manufacturing, wholesale trade, finance and real estate) will range from 7 to 10, with a peak of approximately 13 to 20 in 2017.

Q. What estimates does the REMI model produce for economic output (sales) and Gross State Product as a result of Project construction?

A. Economic output, or sales, captures all of the intermediate goods purchased as well as all of the final goods and services that are captured in Gross State Product. Based on the assumption that $19.1 million will be spent during the four-year period 2015 through 2019, the REMI model estimates New Hampshire's average annual sales to increase by about $6.7 million to $7.1 million per year and average annual Gross State Product to increase by about $4.3 million to $5.0 million per year during the four-year period. In 2017, the peak year of construction, sales will increase by $13.9 million to $14 million and GSP will increase by $8.8 million to $9.8 million. On a cumulative basis over the construction phase, the state's economic output will be an estimated $26.9 million to $28.3 million higher and GSP an estimated $17.3 million to $19.9 million higher than they would be in the absence of constructing the proposed Project. To the

extent that less than $19.1 million is spent locally, or there are greater leakages from New Hampshire for a project built on the seacoast than there are on average statewide, these estimates would be somewhat reduced. To the extent that project expenditures in New Hampshire are greater than $19.1 million, the REMI estimates for economic impacts would likely also be somewhat higher.

Q. What estimates does the REMI model produce for personal income as a result of Project construction?

A. The estimated employment impacts and economic activity associated with construction of the proposed Project will in turn lead to greater personal income for New Hampshire workers. Based on the REMI model, and as a result of the direct, indirect, and induced economic activity, personal income in New Hampshire is estimated to increase by a total of $8.1 million to $12.3 million on a cumulative basis over the construction period, averaging an annual increase of about $2.0 million to $3.1 million during the construction period 2015-2019. Personal income is estimated to peak in 2017 within the range of $3.5 million to $6.1 million.

Q. Please summarize the results of your analysis.

A. The results of simulation analyses estimate that in the first year of operation, the Project will pay between $1.6 to $2.2 million in total property taxes. This overall estimate can be broken down into the following categories:

* $982,000 to $1.4 million to the four local communities
* $158,000 to $175,000 to the two counties
* $500,000 to $612,000 to the State for redistribution to local school districts through state aid.

The Project will also pay property taxes during the construction based on what is completed each year and will continue to pay property taxes throughout the life of the Project.

PSNH estimates that of the approximately $84 million total budget, approximately $19.1 million is expected to be spent directly on materials and services supplied by New Hampshire companies and workers. Using the standard basic REMI economic model for New Hampshire, the economic impact of the construction of the SRP project on New Hampshire is estimated to support 54 to 97 total New Hampshire jobs during the peak year of construction, and about a $27 million to $28 million cumulative increase in New Hampshire's economic output.

Q. In light of these changes, do the conclusions in your pre-filed testimony of April 12, 2016 remain the same?

A. Yes, they do.

Q. Does that conclude your amended testimony?

A. Yes.