STATE OF NEW HAMPSHIRE
PUBLIC UTILITIES COMMISSION

DOCKET DE 22-073

IN THE MATTER OF: Unitil Energy Systems, Incorporated

Petition for Approval of Investment in and Rate Recovery of a Distributed Energy Resource Pursuant to RSA 374-G

DIRECT TESTIMONY

OF

Mark P. Toscano, Utility Analyst
Elizabeth R. Nixon, Electric Director
New Hampshire Department of Energy

March 9, 2023

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Introduction

Q. Please state your full name.

A. My name is Mark P. Toscano.

Q. By whom are you employed, and what is your business address?

A. I am employed by the New Hampshire Department of Energy (DOE or the Department) as a Utility Analyst. My business address is 21 S. Fruit Street, Suite 10, Concord, NH 03301.

Q. Please summarize your education and professional work experience.

A. I am a licensed Professional Engineer (PE) in the State of New York and a Certified Energy Manager (CEM) through the Association of Energy Engineers (AEE). I earned a bachelor's degree in Mechanical Engineering Technology from the New York Institute of Technology in 1987 and an associate's degree in Air Conditioning and Heating Technology from Farmingdale University in 1980.

I was employed for approximately three (3) years by the Long Island Lighting Company (LILCO), an investor-owned utility, where I worked as a Project Engineer for the implementation of energy efficiency and demand-side management programs. My primary activities included advising large commercial and industrial customers on demand reduction methods and the coordination of advanced metering installations.

I was employed for approximately thirty-three (33) years at the Brookhaven National Laboratory (BNL) in various roles including as a Project Engineer, Project Manager, Energy Manager, and the Manager of Energy Management and Utilities Engineering. My tenure at BNL provided comprehensive energy and facilities management experience including

professional and technical staff supervision; project and facilities management; energy conservation; renewable energy; distributed energy; heating, ventilation, and air-conditioning (HVAC); central plant energy systems; building and process controls; advanced metering; experience in the competitive energy markets, including interaction with the Independent System Operator (ISO); energy supply negotiations and contracts; and various regulatory matters regarding the electric and gas industries.

I joined the DOE's Regulatory Support Division in March 2022 where I perform senior level analyses and provide recommendations regarding market conditions, rate structures, and policies concerning the regulation of public utilities. My responsibilities include participating in investigations and making recommendations regarding rate requests, providing engineering support for technical sessions, settlement conferences, and other settings regarding utility infrastructure projects, Distributed Energy Resources (DER), utility scale renewable projects, energy efficiency, energy storage, demand response programs, and utility storm recovery efforts.

As amplification to my background regarding this testimony, I have notable experience with DER. I was the project manager for the hosting of a 32 MW solar generation facility (the Long Island Solar Farm (LISF)) located at the BNL in Upton, New York. BNL is a United States Department of Energy (USDOE) research facility located on Long Island, New York. The 5,200-acre campus includes over 4.2 million square feet of specialized research facilities and conventional buildings.

My responsibilities included the oversight of the project siting, environmental issues, design, and day-to-day operation of the LISF, which went on-line in November 2011. My direct involvement continued until my departure from BNL in December 2021. The LISF provides renewable energy to the Long Island Power Authority (LIPA) through a 20-year Power Purchase Agreement (PPA).

As part of BNL's requirements for hosting the LISF, BNL was provided with the funding to design, construct, and operate a 1 MW solar array that provides renewable energy for on-site consumption, and additional research opportunities in renewable energy. I was also the project manager for this 1 MW research facility, called the Northeast Solar Energy Research Center (NSERC). The first phase of the NSERC was completed in 2014. My direct involvement included engineering review, financial analyses, project management, commissioning, and operations and maintenance.

Q. Have you previously submitted testimony to the Commission?

A. No.

Q. Ms. Nixon, please state your full name.

A. My name is Elizabeth R. Nixon.

Q. By whom are you employed and what is your business address?

A. I am employed by DOE as the Electric Director. My business address is 21 S. Fruit Street, Suite 10, Concord, NH 03301.

Q. Ms. Nixon, please summarize your education and professional work experience.

A. I joined the New Hampshire Public Utilities Commission (PUC or Commission) in August 2012 in the Sustainable Energy Division working on renewable energy issues. In August

2016, I became a Utility Analyst in the PUC's Electric Division, which is now DOE. In January 2022, I became the Electric Director, in the Regulatory Support Division of the DOE. Prior to the PUC, I was employed at the New Hampshire Department of Environmental Services, Air Quality Division, from 1999 until 2012, in various positions. Prior to joining the State, I worked as a consultant at ICF and AER*X, Inc. Throughout my career, I have focused on energy, environmental, and economic issues and analysis. I earned a B.S. in Mathematics from the University of Vermont. Additional details on my educational and professional background are provided in Attachment MPT/ERN-1.

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of our testimony is to provide an evaluation of the Distributed Energy Resource (a 4.9 MW_{AC} solar generation facility), proposed by Unitil Energy Systems, Inc. (Unitil). Our evaluation includes a review of the proposals that were received by Unitil in response to their Request for Proposal (RFP) solicitations, the RFP, as well as the location, planned technologies, preliminary design, and estimated cost-effectiveness of the proposed project. In addition, our testimony reviews the statutory requirements applicable to the proposed project. Finally, our testimony provides DOE's conclusions and recommendation regarding Unitil's proposed project and rate recovery.

Summary

Q. Please provide a summary of your testimony.

A. This testimony reviews and critiques Unitil's proposed 4.9 MW solar generating facility to be located in Kingston, New Hampshire. It also discusses the two (2) technical sessions conducted. Unitil completed a two-step RFP process with a preliminary Engineering, Procurement and Construction (EPC) RFP, and a final EPC RFP. After evaluation of the

final RFP, Unitil selected a winning bidder. The financial and technical information from the RFP's were incorporated into Unitil's Benefit-Cost Test (BCT) model. The final RFP resulted in a slightly improved Benefit-Cost Ratio (BCR) and a larger net present value (NPV). Unitil states that their cost savings estimates are conservative in that the estimates do not include estimated indirect benefits of over $11 million[1] in the BCT models. Unitil took some of the Department's feedback from the technical sessions and incorporated the Department's suggestions into their assumptions and evaluations of the final RFP and contractor selection. The Department's feedback included getting confirmation of the estimated solar panel output over time, the suggestion for including higher Operations and Maintenance (O&M) cost assumptions, including costs for vegetation management, and including an allowance for at least some capital renewal.

This testimony will address these and other issues in more detail in the sections that follow. We commend Unitil's initiative to implement a utility-scale photovoltaic generating facility in its territory. In our view, this project is well thought-out, properly evaluated, relatively conservative in its assumptions, and in the public interest. We also are of the opinion that this project meets applicable statutory requirements of RSA 374-G:5. Finally, we recommend approval of the project as proposed in a two-staged process with initial authorization as proposed and then a second phase for review of rate recovery.

[1] The estimated indirect benefit of $11.2 million was the result of a detailed analysis conducted by Daymark Energy Advisors on the results of the first RFP with a 30-year estimated life. The Department is not aware of a 40-yr analysis of the indirect benefits.

Overview of Unitil's Proposal and DOE's Assessment

Q. Please provide a brief overview of Unitil's proposal.

A. Unitil is proposing to build, own, and operate a 4.9 MW solar generating facility located on approximately 33 acres of Unitil owned property at 2 Mill Road / 24 Towle Road in Kingston, New Hampshire. This property is adjacent to the Company's Kingston substation, making it a preferred location in terms of interconnection costs as well as general operation and maintenance over its lifetime. Further, Unitil owns additional adjacent property that could be available for a potential future energy storage project to complement the solar generation facility. Unitil is proposing to operate this facility as a "load reducer," that is, reducing the amount of electricity that needs to be imported into the Unitil electric system. The benefits of the load reducer approach include reduced transmission system imports and associated losses, and some marginally reduced distribution system losses.[2]

As previously stated, Unitil completed a two-step RFP process with a preliminary EPC RFP and a final EPC RFP. After evaluation of the final RFP, Unitil selected a winning bidder. The financial and technical information from the RFPs were incorporated into Unitil's Benefit-Cost Test (BCT) model. The initial RFP resulted in an estimated 30-year project life with a Benefit-Cost Ratio (BCR) of 1.09 and a net present value (NPV) of $1.42 million. The final RFP resulted in an estimated 40-year project life with a BCR of 1.15 and a NPV of $2.54 million. As previously stated, Unitil chose conservative cost savings estimates and thus did not include the estimated indirect benefits of over $11 million[3] in the BCT models.

[2] Exhibit JSD-1, Bates 58, 59
[3] The estimated indirect benefits are based on the Daymark Energy Advisors analysis on the results of the first RFP with a 30-year estimated life. The Department is not aware of a 2nd analysis for the final RFP.

The indirect savings include lifetime CO_2 reductions of 57,300 tons and NO_x reductions of 0.15 tons. The project is estimated to produce an estimated total of 345 million kWh of renewable energy over its anticipated 40-year life, with an average of 8.6 million kWh per year and an average annual peak-hour demand reduction of 2,112 kW or 2.1 MW.

Q. Did Unitil perform a comprehensive evaluation of the design, environmental, operational, and financial aspects of this project?

A. Yes. The Department believes the level of detail, the use of experienced contractors/consultants for site assessment, environmental, indirect benefits, engineering, and project management, experience from a similar project by a Unitil affiliate, robust financial/statistical modeling, generally conservative assumptions, and the two-step RFP process, are appropriate and consistent with the requirements of RSA 374-G:5, I and 374-G:5, II.

Consultants, Contractors and RFP process:

Unitil utilized consultants and contractors that were selected through competitive processes with Requests for Information (RFI) and Requests for Proposals (RFP) for the development of the Kingston Solar project. The RFI was used to identify qualified organizations that would be able to respond to the preliminary and final RFPs for the Engineering, Procurement and Construction (EPC) contract. The RFI process helps ensure only qualified contractors with a successful solar PV project development track record will be included in the EPC solicitations. Unitil also used the RFP process to select a contractor to perform the siting, site evaluation, and permitting requirements.

The Department evaluated Unitil's RFI and RFP documents, including the responses received, and found them to be comprehensive and appropriate for the scope of this project. This conclusion was reached based on staff direct experience with two solar PV projects, and experience with project management and execution for other similar types of facilities.

Site evaluations and environmental issues:

As previously stated, Unitil used an RFP process to select a qualified contractor to perform various preliminary siting functions including site evaluations, permitting, and site preparation functions and requirements to have the site fully prepared in advance of the construction phase of the project. The selected contractor, TF Moran, Inc. (TFM) is a New Hampshire-based firm. We believe having a contractor provide such services helps the Company reduce potential conflicts and delays with the EPC portion of the project.

Preliminary Design:

Solar PV system output is contingent upon several variables, including but not limited to: site location; solar panel orientation; solar panel efficiency and life; solar panel mounting (fixed or use of solar tracking systems); inverter type; inverter efficiency and inverter direct current (DC) capacity relative to alternating current (AC) output; and overall system design.

The results of Unitil's final EPC RFP has resulted in the following proposed design elements:

- Nameplate AC Capacity Output of 4.88 MWac
- Single-axis Tracking (SAT) system
- String-type Inverters

- First-year estimated output of 9,729 MWh
- Annual average capacity factor of 22.78%
- Peak hour demand reduction of 2.38 MWac
- Estimated system lifespan of 40 years (increased from 30 years in preliminary EPC)

Based on our experience, the proposed design (system and components) will likely result in nearly the maximum amount of solar electricity generation for this region. Additional thoughts on this subject are provided in the comments on single-axis trackers below.

Estimated Solar Electricity System Output:

Based on the proposed design, the Department verified the estimated annual energy production using the National Renewable Energy Laboratory's (NREL's) publicly available PVWatts® on-line solar PV estimating program.[4] The program estimated an annual production of 9.8 million kWh as compared to Unitil's first year production estimate of 9.7 million kWh. The Department also compared actual annual production of the 32 MW Long Island Solar Farm to the estimated output of PVWatts® for that facility, providing further confidence in the software model's accuracy. It should be noted Unitil's production estimate utilized a more robust, commercial software.

[4] https://pvwatts.nrel.gov/

Proposed Single-Axis Solar Tracking System:

Unitil is proposing to utilize a single-axis solar tracking system for this installation in order to increase the amount of solar electricity generation. It should be noted tracking systems are currently somewhat rare in regions such as New Hampshire that experience significant winter weather. However, they are starting to make in-roads.

While tracking systems (single-axis and two-axis) increase the annual solar generation output, as well as the peak solar output, they historically have been problematic, particularly in northern climates. These systems are relatively complicated mechanical systems, they require regular maintenance and capital renewal. There is always a trade-off for the increased output when compared to increased maintenance costs. Importantly, single-axis tracking systems are substantially less complicated and less troublesome than two-axis systems.

The Department initially had concerns with the use of the single-axis tracking systems. During one of the technical sessions, based on Unitil's initial filing, the Department noted there were no additional cost allowances for Operations and Maintenance (O&M) or capital renewal for the tracking system. Unitil's supplemental filing included the results of the final EPC RFP. The proposal now includes an enhanced tracking system warranty of 20 years, as well as assumptions for increased O&M and some capital renewal. Further, based on a high-level review of the proposed tracking system manufacturer's design, the system appears robust. The Department is reasonably confident the proposed single-axis tracking system will perform as proposed.

Solar Module (Panel) Energy Production and Degradation:

Unitil's preliminary EPC proposal and Benefit-Cost Test (BCT) included a panel degradation estimate of 0.5% per year, and an estimated project lifespan of 30 years. This degradation rate results in an output of approximately 91% at year 20, and 86% at year 30. During the technical sessions the Department indicated that the 0.5% appeared low as compared to experience and current investigation. As a sensitivity, DOE modeled the BCT using an assumed 1% annual degradation rate which results in estimated outputs of 81% and 71% for years 20 and 30 respectively. Even with this higher assumed degradation at 1%, the preliminary BCT model yields a benefit-cost ratio of 1.03 vs. the value of 1.09 derived using the original lower degradation rate.

Unitil's final EPC includes updated information from the winning bidder and now states a 1st year output degradation of 2% for the 1st year, and 0.5% per year for all remaining years. It is noted these values are identified on the proposed solar PV modules manufacturer's website. This results in an estimated output as follows: 89% for year 20, 84% for year 30, and 79% for year 40. Further, the manufacturer states a warranty period of 25 years and estimated lifespan of 40 years. These assumptions are also included in Unitil's final EPC proposal. Based on the proposed manufacturer's information, and the Department's investigation and BCT modeling, the Department is reasonably confident the proposed solar modules will perform as stated.

Inverters:

The type, capacity, and to some extent the manufacturer of the inverters, used to convert the DC output of the solar PV modules to AC have a significant impact on the efficiency, output, capital cost, and overall operation of a utility scale solar PV system. Unitil's preliminary EPC proposal included the use of central inverters. Historically, central inverters have been used for utility scale solar PV systems. However, Unitil's final EPC includes the use of string inverters. There are benefits associated with each type, and Unitil discusses these in their supplemental testimony.[5] The string inverter design requires the use of several inverters versus just one or a few for the central inverter approach. Each string inverter is responsible for a smaller portion of the DC to AC conversion process. Therefore, when there are failures of the inverter or related system, less of the overall solar system output is affected, thereby ensuring greater overall generation benefits. While capital costs are often greater with the string inverter design, there is typically an overall benefit from reduced repair and capital renewal costs and increased generation savings.

Unitil is also proposing to use inverters with a substantially larger total DC capacity compared to the AC output, which will be limited to the 4.9 MW. The reason for upsizing the DC capacity is to improve the AC output for more hours of the year, as well as increasing the output during the peak electric system demand periods. This is a common technique employed in PV system design.

[5] Exhibit SP-1, Bates 9.

Unitil's final EPC states the commercial lifespan of the string inverters are 20 years versus 15 years for the central inverters. However, the warranty period is 5 years with an option for 10 years. Unitil's BCT assumes the inverters will be replaced at year 20. On balance, the Department believes Unitil's use of the string inverters with the larger DC capacity versus the central inverter design is the preferred approach.

Vegetation Management:

Unitil's preliminary EPC proposal did not include an allowance for vegetation management (i.e. cutting the inevitable vegetation growth under and around the panels). During the technical sessions, the Department suggested that such an allowance should be considered. Unitil's final EPC proposal includes a reasonable allowance for vegetation management. The Department is satisfied with the level of assumed vegetation management expense.

Operating and Maintenance (O&M):

The preliminary EPC proposal included a modest Operations and Maintenance (O&M) budget. During the technical sessions, the Department noted the amount appeared minimal, based on experience. Unitil indicated the amount was based on the results of the RFP. The Department also noted that Unitil should ensure all estimated labor costs account for wage requirements of the Inflation Reduction Act (IRA) since Unitil plans to take advantage of the Investment Tax Credits or Production Tax Credits.[6] The Department investigated the rates

[6] See https://www.dol.gov/agencies/whd/IRA#:~:text=and%20hour%20laws%3F-,To%20qualify%20for%20enhanced%20tax%20benefits%20under%20the%20Inflation%20Reduction,Davis%2DBacon%20prevailing%20wage%20rate for additional detail.

currently being applied to O&M contract for similar size solar PV systems and found the rate quoted in the preliminary EPC proposal to be in-line with current pricing.

The final EPC provides for O&M included in the base contract for the first five (5) years. In year six (6) Unitil assumes a base cost of O&M that is at a lower rate (in $/kW) than the preliminary EPC. However, Unitil now includes an allocation of O&M in a new category of operational costs titled "Maintenance Capital Costs" in the BCT starting at year 26 and through to year 40 for solar PV modules, and starting at year 21 through to year 40 for the tracking system maintenance. [7] This accounts for anticipated increases in maintenance and some level of capital renewal as the system ages.

Unitil also confirmed their contractors and vendors have informed the Company they expect to comply with the Wage and Apprenticeship requirements included in the IRA.[8]
The Department is satisfied with Unitil's approach to the O&M costs included, particularly in the later years as the system ages.

Capital Renewal:

Unitil's preliminary EPC did not include an allowance for capital renewal. However, they indicated their budget included five (5) spare solar PV modules. During the technical sessions the Department indicated a capital renewal allowance should be considered, in particular for solar PV module replacement and tracking system component maintenance, repair, and replacement. The preliminary EPC only included an assumption of five (5) spare

[7] Exhibit SP-7
[8] Attachment MPT/ERN-2, which is Data Request Response DOE 1-3, dated 02/10/2023

solar PV modules, which was based on the Unitil's affiliate's experience with its 1.3 MW solar PV project and the affiliate has not needed to replace any solar PV modules. The Department noted during the technical session that five (5) spare panels would likely be inadequate based on experience. Moreover, the affiliate's 1.3 MW installation has been in operation for only a few years. Unitil's final EPC now includes fifteen (15) spare panels, as well as two (2) spare inverters. The Department supports this increase.

As previously stated, Unitil now includes a category of Maintenance Capital Costs in the BCT starting at year 21 for the racking system, and year 26 for the solar PV modules. These new categories appear to account for anticipated increases in maintenance as well as some capital renewal. The Department is generally satisfied with Unitil's capital renewal and O&M approach, particularly regarding the capital renewal and maintenance costs anticipated with the solar tracking system.

Renewable Energy Credits (RECs):

Unitil assumed that the project would be eligible to be certified to generate NH Class II RECs and included an estimate of the value of those RECs in its BCT (which DOE notes can also be used as NH Class I RECs). Based on current market prices and the uncertainty of future markets, the REC price assumptions[9] seem reasonable.

[9] Exhibit SP-1 (Supplemental Testimony)(CONFIDENTIAL), Line 21, Bates 20

Energy and Capacity Costs:

Unitil based its estimate of the value of energy to be produced by the system on the ISO New England energy rate futures which seems reasonable, especially given the recent volatility of the market. Unitil based the capacity rates on those included in the "Avoided Energy Supply Component in New England 2021 Report."[10] Given that energy prices have been volatile recently and this study was done prior to the increase in prices, these estimates are reasonable and probably conservative.

Local and Regional Transmission Costs:

Unitil based the local transmission cost benefits on the local network service (LNS) rate and ancillary service charges based on a recent bill from Eversource Energy which is Unitil's transmission service provider. Unitil based the regional transmission rates on the regional network service (RNS) and open access transmission tariff rates. DOE believes that these assumptions are reasonable.

Inflation Reduction Act (IRA):

During the technical sessions the Department inquired if Unitil was evaluating and incorporating the latest information regarding the Inflation Reduction Act (IRA). As previously discussed in the O&M comments, the Department wanted to ensure the IRA's wage rate requirements were included in labor cost estimates. Further, the Department wanted to know if Unitil was evaluating the project with the most advantageous provisions

[10] See item 155 available at https://www.puc.nh.gov/Electric/Monitoring_Evaluation_Report_List.htm

for investment tax credits. In data request response DOE 1-3, Unitil stated that their vendors expect to comply with the Wage and Apprenticeship requirements of the IRA.[11]

Regarding the Investment Tax Credit (ITC), in their Supplemental Exhibit SP-1 Unitil states they evaluated both the ITC and the Production Tax Credit (PTC) options and determined that under current rules, the PTC is expected to better improve the overall economics of the project. They further stated they will continue to evaluate the project once the final IRS guidance is published. The Department is satisfied Unitil is continuing to evaluate the most current guidance with regard to the IRA and application of tax credits.

Stress Test and Statistical Modeling:

Given the long-term duration of the project, initially proposed for 30-years, and now proposed as a 40-year life project, the Department realizes that assumptions can change over time, particularly energy price estimates, solar system output, REC prices, O&M costs, and other factors. During the first technical session the Department suggested Unitil consider perform basic sensitivity analyses to better understand the impact to the project economics.

Included with Unitil's supplemental documents were the results of both a Stress Test Analysis and a Simulation Analysis. The Stress Test varied basic BCT input assumptions including REC prices, capacity factor (system output), direct benefit escalation assumptions, and ISO-NE energy price futures. The purpose of this analysis is to determine how much the value of each variable must change before the project no longer has positive net benefits.

[11] Attachment MPT/ERN-2, which is Data Request Response DOE 1-3, dated 02/10/2023

The Simulation Analysis provides a more robust evaluation, modeling and simulating a multitude of scenarios. The Department believes that the application of these analyses to this project provides a greater degree of confidence in the project's long-term success. We also note this kind of rigor is relatively unusual for a project of this relatively small size.

Review of Applicable Statutory Requirements

Q. Please summarize the statutory requirements applicable to Unitil's proposed project.

A. As explained in Unitil's testimony, mainly in Mr. Sprague's testimony, RSA 374-G is the statute that pertains to electric utility investment in DERs. RSA 374-G:4, I states that, "[…] a New Hampshire electric public utility may invest in or own distributed energy resources, located on or inter-connected to the local electric distribution system." RSA 374-G:4, II limits the capacity of, "Distributed electric generation owned by or receiving investment from an electric utility…[to] a cumulative maximum in megawatts of 6 percent of the utility's total distribution peak load in megawatts." Furthermore, RSA 374-G:2, II(a), in the definition of DERs, limits this statute to electric generation equipment less than or equal to 5 megawatts.

RSA 374-G:5, I lists the minimum requirements that must be included in the filing. RSA 374-G:5, II requires the investment (and rate recovery) to be in the public interest, which is determined by, "[…] giving a balanced consideration and proportional weight […]" to several factors. RSA 374-G:5, IV allows the New Hampshire Public Utilities Commission to, "[…] add an incentive to the return on equity component as it deems appropriate to

encourage investments in distributed energy resources." Finally, RSA 374-G-5, V provides the timeline for approval of the filing.

Q. Does the proposed project meet the capacity limitations under RSA 374-G:2, II(a) and RSA 374-G:4, II?

A. Yes. The proposed project is 4.99 MW_{AC} which is less than 5 MW limit, and the proposed project is also less than 6 percent of Unitil's total distribution peak load of approximately 300 MW.

Q. Does the filing for the proposed project meet the minimum filing requirements under RSA 374-G:5, I?

A. Yes. DOE believes the proposed filing meets the following requirements, if applicable, as described in detail in Mr. Sprague's testimony, and as highlighted above:

(a) A detailed description and economic and environmental evaluation of the proposed investment.
(b) A discussion of the costs, benefits, and risks of the proposal with specific reference to the factors listed in paragraph II, including an analysis of the costs, benefits, and rate implications to the participating customers, to the company's default service customers, and to the utility's distribution customers.
(c) A description of any equipment or installation specifications, solicitations, and procurements it has or intends to implement.
(d) A showing that the utility has used a competitive bidding process to reasonably minimize the costs of the project to its customers.
(e) A showing that it has made reasonable efforts to involve local businesses in its program.
(f) Evidence of compliance with any applicable emission limitations.
(g) A copy of any customer contracts or agreements to be executed as part of the program.

Note that RSA 374-G:5, I(f) is not applicable, and in reference to RSA 374-G:5, I(g), no customer contracts will be executed.

Q. Based upon the consideration of and balancing of factors in RSA 374-G:5, II is the proposed DER project in the public interest?

A. Yes. DOE believes the proposed DER is in the public interest as described in detail in Mr. Sprague's testimony and as discussed above for selected factors.

(a) The effect on the reliability, safety, and efficiency of electric service.
(b) The efficient and cost-effective realization of the purposes of the renewable portfolio standards of RSA 362-F and the restructuring policy principles of RSA 374-F:3.
(c) The energy security benefits of the investment to the state of New Hampshire.
(d) The environmental benefits of the investment to the state of New Hampshire.
(e) The economic development benefits and liabilities of the investment to the state of New Hampshire.
(f) The effect on competition within the region's electricity markets and the state's energy services market.
(g) The costs and benefits to the utility's customers, including but not limited to a demonstration that the company has exercised competitive processes to reasonably minimize costs of the project to ratepayers and to maximize private investment in the project.
(h) Whether the expected value of the economic benefits of the investment to the utility's ratepayers over the life of the investment outweigh the economic costs to the utility's ratepayers.
(i) The costs and benefits to any participating customer or customers.

Q. What is the statutory timeline for approval for the proposed project?

A. RSA 374-G:5, V states that the Commission must "approve, disapprove, or approve with conditions" the filing within 90 days of the filing, but can extend the deadline to 6 months if the investment exceeds $1 million.

<u>Two-Stage Approval Approach</u>

Q. Please explain the two-staged approval requested by Unitil for this proposed project.

A. As noted in their filings, Unitil is requesting the following findings:

1) That the filing meets the minimum requirements of RSA 374-G:5, I;

2) That the proposed project is in the public interest pursuant to RSA 374-G:5, II; and

3) That the two-stage approval process is in the public interest.

Unitil is requesting the two-stage process because RSA 374-G:5, III states the following:

> Authorized and prudently incurred investments shall be recovered under this section in a utility's base distribution rates as a component of rate base, and cost recovery shall include the recovery of depreciation, a return on investment, taxes, and other operating and maintenance expenses directly associated with the investment, net of any offsetting revenues received by the utility directly attributable to the investment. The utility may recover all reasonable costs associated with the filing, whether or not the application is approved by the commission.

Q. Does DOE support this two-staged approach?

A. Yes. In order for the investments to be authorized when requesting rate recovery, Unitil must first gain the authorization prior to making the investment. DOE notes Unitil used the same two-staged approach in a previous filing related to DER investments in Docket No. DE 09-137. Similarly, Liberty Utilities first gained approval for its battery storage pilot project in DE 17-189, then later requested rate recovery.

Conclusion

Q. Please summarize your recommendation regarding Unitil's DER proposal.

A. As discussed above, DOE supports Unitil's proposal for the 4.99 MW_{AC} solar system to be located in Kingston, NH. DOE believes that Unitil has met the statutory requirements of RSA 374-G and believes that the proposed DER investment is in the public interest. DOE also supports a two-staged approval process so that Unitil will first gain authorization to proceed with the project. After the project is finalized, Unitil may then file for rate recovery and which will involve a determination of whether the investment is prudent and used and useful, and whether the resulting rates are just and reasonable.

Q. Does this conclude your testimony?

A. Yes, it does.

Education and Professional Background

Elizabeth R. Nixon

My name is Elizabeth R. Nixon. I am employed as the Electric Director in the Regulatory Support Division at the New Hampshire Department of Energy (DOE). My business address is 21 S. Fruit St., Suite 10, Concord, NH 03301.

I earned a B.S. in Mathematics from the University of Vermont in 1985. I worked for ICF, a consulting firm, where we estimated, modeled, and analyzed the energy, environmental and economic impacts of various emission reduction strategies at electric utilities. At ICF and AER*X, Inc., I assisted companies in implementing market-based emissions trading programs. I provided comments on various air quality programs affecting the electric utilities and other industries in the Northeast and other states. I also worked for the Center for Clean Air Policy where we coordinated a dialogue of states and electric utilities to discuss energy efficiency and other emission control strategies to reduce acid rain and greenhouse gases at electric utilities.

At the New Hampshire Department of Environmental Services, I wrote the air quality permits for Eversource's electric generating facilities as well as other electric generating facilities and manufacturing facilities in NH. I testified before the NH Air Resources Council regarding the determination of the baseline mercury emissions for Eversource's coal-fired electric generating facilities.

I joined the New Hampshire Public Utilities Commission, which is now DOE, in August 2012. I started in the Sustainable Energy Division where I managed renewable energy incentive programs, determined compliance with the renewable portfolio standard (RPS) program, and conducted analysis of and provided testimony and presentations on the RPS program and rebate

programs. In August 2016, I joined the Electric Division. I completed electric utility rate training at New Mexico State University's Center for Public Utilities. As of July 1, 2021, I was a Utility Analyst in the Regulatory Support Division at DOE. In January 2022, I became the Electric Director in the Regulatory Support Division at DOE.

I have testified in the energy efficiency program dockets (DE 17-136 and DE 20-092), Liberty Utility's battery storage pilot docket (DE 17-189), Unitil Energy System's distribution rate case (DE 21-030), and Eversource Energy's proposal for electric vehicle make-ready and demand charge alternatives (DE 21-078). In addition, I have provided Staff recommendations in the grid modernization docket (IR 15-296) and electric vehicle rate design docket (IR 20-004).