

1 STATE OF NEW HAMPSHIRE  
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3 BEFORE THE  
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5 PUBLIC UTILITIES COMMISSION  
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9 RE: PENNICHUCK EAST UTILITY, INC

10 DW 22-\_\_\_\_  
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12 PETITION FOR APPROVAL OF FINANCING UNDER THE STATE DRINKING  
13 WATER AND GROUNDWATER TRUST FUND FOR THE W&E – TOWN OF SALEM  
14 INTERCONNECTION PROJECT

15 DIRECT TESTIMONY

16 OF  
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18 JOHN J. BOISVERT  
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25  
26 March 9, 2022  
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1 **Q. What is your name and what is your position with Pennichuck Water Works, Inc.?**

2 A. My name is John J. Boisvert. I am the Chief Engineer of Pennichuck Water Works, Inc.  
3 (“PWW”), which provides services to Pennichuck East Utility, Inc. (“PEU” or the  
4 “Company”) pursuant to a management allocation agreement. I have worked for PWW  
5 since February 1, 2006. I am a licensed professional engineer in New Hampshire and  
6 Maine.

7

8 **Q. Please describe your educational background.**

9 A. I have a Bachelor of Science degree and a Master of Science degree in Civil Engineering  
10 from the University of New Hampshire in Durham, New Hampshire. I also have a  
11 Master’s degree in Environmental Law and Policy from Vermont Law School in South  
12 Royalton, Vermont.

13

14 **Q. Please describe your professional background.**

15 A. Prior to joining the Company, I served as a Team Leader for Weston & Sampson  
16 Engineers of Portsmouth, New Hampshire in their Water Practices Group from 2000 to  
17 2006. Prior to Weston & Sampson I was employed by the Layne Christensen Company  
18 of Shawnee Mission, Kansas as Regional Manager for their Geosciences Division in  
19 Dracut, Massachusetts from 1994 to 2000. I completed graduate school in 1992 and was  
20 employed by Hoyle, Tanner, & Associates of Manchester, New Hampshire as a Project  
21 Engineer from 1992 to 1994. Prior to entering full time graduate programs at the  
22 University of New Hampshire and Vermont Law School, I was employed by Civil  
23 Consultants of South Berwick, Maine as a Project Engineer from 1986 to 1989 and by

1 Underwood Engineers of Portsmouth, New Hampshire as a project Engineer from 1985  
2 to 1986.

3

4 **Q. What are your responsibilities as Chief Engineer of the Company?**

5 A. As Chief Engineer, I manage and oversee the Company’s Engineering Department. I  
6 lead the Company’s Asset Management program. I, as head of the Engineering  
7 Department, am responsible for the planning, design, permitting, construction, and  
8 startup of major capital projects, including pipelines, reservoirs/dams, building structures,  
9 pumping facilities, treatment facilities, and groundwater supplies. The Engineering  
10 Department staff provides regular technical assistance to the Company’s Water Supply  
11 Department, Distribution Department, Customer Service Department, and Senior  
12 Management.

13

14 **Q. What is the purpose of your testimony?**

15 A. I will be describing the “W&E – Town of Salem Interconnection Project,” connecting the  
16 Company’s existing W&E community water system (“CWS”) with the Town of Salem  
17 Municipal Water System, including the water main extension and treatment system  
18 upgrades required therein. The Company seeks approval to finance the work with  
19 proceeds from a loan and grant approved for issuance by the New Hampshire Drinking  
20 Water and Groundwater Trust Fund (“DWGTF”). Please see Exhibit JJB-1 for the letter  
21 offering DWGTF Loan and Grant funds for this project.

22

23 **Q. What are the terms of the DWGTF loan and grant?**

1 A. The NHDES is offering a \$493,500 loan with a 25-year term, including level monthly  
2 payments and a current interest rate of 1.57% per annum, to provide partial funding for  
3 the project. The NHDES is also offering a \$211,500 grant to provide the balance of  
4 funding for the project. Please see Exhibit JJB-1 for the confirmation of the 25-year loan  
5 term.

6  
7 **Q. Please describe the W&E – Town of Salem Interconnection Project for which the**  
8 **Company is seeking DWGTF financing and funding.**

9 A. The project is being pursued to interconnect the existing W&E system with the Town of  
10 Salem by extending a water main from Range Road to the W&E pump station and  
11 upgrading the existing treatment system in Windham, NH for: (1) the removal of  
12 chloramines and (2) rechlorination. The project will include the installation of  
13 approximately 1,255 linear feet of 4”, 6”, and 8” ductile iron pipe, of which  
14 approximately 775 feet of 8” ductile iron will be installed from Range Road to the W&E  
15 pump station. The existing treatment system will be upgraded with two new 42”  
16 fiberglass filter tanks, using catalytic carbon as the filter media. Please see Exhibit JJB-2  
17 for the project design drawings that includes a project location map.

18  
19 **Q. Please describe the new treatment system and why it was selected.**

20 A. The new treatment system utilizes catalytic carbon as the filter media to remove  
21 chloramines from the Town of Salem water (which is the disinfection treatment method  
22 used by Manchester Water Works, which is the ultimate source of this water). Initially,  
23 “break point chlorination” was also evaluated to perform the same function. Break point

1 chlorination is largely dependent on specific pH levels to be truly effective, and thus,  
2 must be monitored closely using expensive equipment and frequent operator visits to the  
3 station. This station is currently only required to be visited weekly by an operator, and  
4 the system operates with little additional intervention. Break point chlorination would  
5 mean increased monitoring by Pennichuck personnel and is dependent on the stability  
6 and consistency of the chloramine levels in the interconnection water supply, something  
7 which Pennichuck has no control over. Due to these various factors, the Company  
8 selected catalytic carbon as the preferred treatment method because it would minimize  
9 operator supervision and the integrity of the treatment system will not be compromised  
10 regardless of fluctuations in chloramine levels.

11  
12 **Q. Please describe the purpose of and need for the project.**

13 A. The W&E system is a small community water system located in Windham, NH. The  
14 treatment station was purchased in 1998 by Pennichuck East Utility (“PEU”), Inc and  
15 upgraded the following year. At the time that PEU acquired the system there were 5  
16 active wells. Since the acquisition of the system one additional well was developed and  
17 two of the original 5 wells were abandoned due to loss of capacity and water quality  
18 issues. There are no other locations within close proximity to the W&E system that have  
19 sufficient undeveloped land to allow for the development of additional wells. At present  
20 the W&E system supplies water to residential customers and several businesses utilizing  
21 three bedrock wells. The well water is treated with green sand filters to remove iron and  
22 manganese, as well as treated for hardness with water softening treatment systems.  
23 Finished water from the treatment system is stored in two buried finished water tanks.

1 The system is backwashed utilizing a brine solution, and the waste from the backwash  
2 system is collected in brine tanks.

3 The current supply of water from the three wells can meet the systems base water  
4 demands but they cannot meet seasonal watering demands. Additionally, as the hardness  
5 of the water from the wells have increased and the level of hardness in the finished water  
6 resulted in an increased level of customer complaints due to premature failure of hot  
7 water heating systems, dish washers and washing machines which highlighted the need to  
8 find a supplemental supply of water to mix with and improve the quality and quantity of  
9 water being delivered from the existing wells. Over the last 20 years, the capacity of the  
10 wells has diminished as they have run longer to meet the system demand due to the loss  
11 of the two wells mentioned above. Without the addition of a supplemental source of  
12 supply, the strain on the existing wells will accelerate. This strain has caused the wells to  
13 draw down farther than sustainable levels would require, and as such, is increasing the  
14 concentration of manganese levels in the raw water and depleting the wells' capacities.

15 Though the current treatment system is still capable of producing finished water that  
16 meets the primary water treatment standards, it does not meet secondary standards due to  
17 the highest producing well containing elevated levels of manganese and hardness. The  
18 decreasing raw water quality means more frequent backwashing of the filters is required,  
19 which generates more backwash waste, and less finished water to supply into the system.

20 Decreased well capacity and increased wastewater have forced Pennichuck to implement  
21 water restrictions in recent years that have elevated from an "odd even" watering  
22 schedule to a "two times per week" schedule to a "total ban on outside usage" during

1 high flow months. To combat the water supply issues, the Company designed the W&E  
2 – Town of Salem Interconnection Project to create a second water supply.

3 This project will allow the well with elevated levels of manganese and hardness to be  
4 shut off, so that the treatment system can perform more efficiently and effectively.

5 Additionally, this interconnection will ensure there is sufficient water supply to this CWS  
6 should one of the three remaining wells, or associated pump and treatment equipment  
7 fail.

8 The proposed interconnection could supply more than enough water for the W&E  
9 system. However, the unit cost of the water that is purchased using this interconnection  
10 is greater than the water Pennichuck can currently produce from the wells in the  
11 aggregate. Additionally, Pennichuck is limited to purchase only 30,000 gallons per day  
12 from Salem, though it is attempting to negotiate an additional 50,000 gpd, which would  
13 bring the total to 80,000 gpd. The interconnection utilizes chloramination as a source of  
14 disinfection, which is a different disinfection method than what is currently utilized at  
15 W&E, where chlorine is the primary disinfectant. Pennichuck plans to blend these two  
16 sources to supplement the existing station's production in hopes of creating less strain on  
17 the wells and allowing Pennichuck to lift water restrictions going forward. As such, the  
18 Company can only accomplish this overall method of providing additional water into the  
19 system with the blended water supplies if the chloramines are removed from the  
20 interconnection supply before combining it with the chlorinated well water from the  
21 W&E system, thus requiring the new treatment system upgrades.

22  
23 **Q. Please describe the estimated timeline required to complete the project in 2022.**

1 A. The design of the W&E – Town of Salem Interconnection Project is complete, including  
2 the design of the water main extension and treatment system upgrades. NHDES  
3 approved the design and authorized the Company to competitively bid the project. Three  
4 bids were received for the W&E Water Main Improvements portion of the project on  
5 September 15, 2021. That portion of the project has a specified substantial completion  
6 date of May 15, 2022, and final completion date of June 24, 2022. Additionally, three  
7 bids were received for the W&E Station Improvements portion of the project on October  
8 5, 2021. This portion of the project has a specified substantial completion date of April  
9 30, 2022, and a final completion date of May 31, 2022. As is described in the testimony  
10 of PEU’s CEO, Larry Goodhue, for this docket, the Company already has Board of  
11 Directors approval, is concurrently seeking financing approval from the Company’s sole  
12 shareholder (City of Nashua), and is seeking approval from the Commission to approve  
13 the DWGTF loan and grant to fund and finance this project, in this docket submission.

14

15 **Q. Does this complete your testimony?**

16 A. Yes.