

**STATE OF NEW HAMPSHIRE  
BEFORE THE  
PUBLIC UTILITIES COMMISSION**

**Pennichuck Water Works, Inc.  
Petition for Approval of  
Small-Diameter Private Fire Protection – Non-Metered Service**

**DW 18-\_\_\_\_\_**

**Direct Testimony of Donald L. Ware**

**April 27, 2018**

**Professional and Educational Background**

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**Q. What is your name and what is your position with Pennichuck Water Works, Inc.?**

**A.** My name is Donald L. Ware. I am the Chief Operating Officer of Pennichuck Water Works, Inc. (“PWW” or “Company”). I have worked for the Company since 1995.

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

**A.** I have a Bachelor of Science degree in Civil Engineering from Bucknell University in Lewisburg, Pennsylvania. I have a Master’s in Business Administration from the Whittemore Business School at the University of New Hampshire.

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

**A.** Prior to joining PWW, I served as the General Manager of the Augusta Water District in Augusta, Maine from 1986 to 1995. I served as the District’s engineer between 1982 and 1986.

**Q. What are your responsibilities as Chief Operating Officer of the Company?**

**A.** As the Chief Operating Officer I am responsible for the overall operations of the Company, including water quality and supply, distribution, engineering, customer service, and water system capital improvements.

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

**A.** The purpose of my testimony is to describe why PWW is seeking approval from the New Hampshire Public Utilities Commission (“NHPUC”) to create

2 and establish additional rate groups within PWW’s “private fire protection –  
3 non-metered rate” customer class. This class would be for residential  
4 homes constructed or retrofitted with life safety fire safety sprinkler  
5 systems, as well as a service configuration for this type of service where  
6 the service connection is 4” or less.

7 **Proposal for New Rate Groups for Private Fire Protection-Non-Metered**

8 **Q. What are life safety sprinkler systems?**

9 **A.** The life safety sprinkler systems are recommended for one- and two-  
10 family dwellings by the International Residential Code (“Code”). See,  
11 Section P2094, *Dwelling Unit Fire Sprinkler Systems*, of the International  
12 Code Council’s International Residential Code. Municipalities within  
13 PWW’s service territory are starting to adopt this Code. These sprinkler  
14 systems typically require flow rates of 34 gallons per minute (“gpm”) in  
15 addition to normal domestic flows.

16 **Q. Why is PWW seeking to establish additional rate groups and a**  
17 **service installation configuration for small diameter “private fire**  
18 **protection- non-metered service” in its tariff?**

19 **A.** PWW has started to see applications for service where home builders are  
20 either voluntarily, or are required by local, municipal building codes, to  
21 install life safety fire safety sprinkler systems. It is PWW’s view that the  
22 current PWW tariff does not provide an appropriate rate or service  
23 configuration to allow for efficient service to these systems. PWW expects  
24 the requests for this service to increase in the future.

2 **Q. How is PWW currently serving and charging this type of customer?**

3 **A.** PWW has seen two types of installations and has charged these  
4 customers the most applicable rates as follows:

5 **Option 1.** - The customer installs a single, larger service line (1-1/2" or 2"  
6 vs. a 1" service) from PWW's curbsstop to the house. The customer  
7 installs a 1" meter in the house instead of the typical 5/8" meter. This  
8 allows passage of the combined peak domestic and residential flows,  
9 which are about 40 to 50 gpm dependent upon the type of domestic water  
10 using fixtures. As a result, the customer pays a monthly minimum charge  
11 of \$52.35 for a 1" meter (as noted on page 43 of PWW's tariff) instead of  
12 the monthly minimum charge of \$22.58 for a 5/8" meter.

13 **Option 2.** - The customer installs two services into the home:

14 a. A 1" service line from the curbsstop with a 5/8" meter to provide  
15 for domestic flows; and

16 b. A 1-1/2" non-metered fire protection service line from the  
17 curbsstop to provide for the fire protection flows. This service is not  
18 metered and falls under PWW's current tariffed rate for private fire  
19 protection-non-metered service for 4" and smaller of \$62.03 per month.

20 **Q. Why doesn't PWW have a "private fire protection – non-metered"  
21 rate for 1-1/2", 2" and 3" fire services like PEU?**

22 **A.** There had been no demand for that type of service until recently.

23 **Q. Please describe the number of customer requests for this type of  
24 small diameter private fire protection service.**

2 **A.** Including the number of service requests PWW is aware of that will be in-  
3 service by the end of the year, PWW expects there will be less than 30  
4 customers by the end of the year. As stated above, PWW expects  
5 demand within this customer class to increase, especially in the smaller  
6 diameter rate groups. Because of that increase, PWW sees a benefit to  
7 its customers by establishing the proposed additional rate groups.

8 **Q. Please describe some of the policy reasons driving PWW's request.**

9 **A.** The current tariff, in Option 1 above (single service, single shut off, and  
10 oversized meter) is not fair to the customer or PWW for the following  
11 reasons:

12 1. A 1" meter only registers low flows down to  $\frac{3}{4}$  gpm as opposed to a  
13  $\frac{5}{8}$ " meter that registers flows as low as  $\frac{1}{4}$  gpm. Upsizing the meter from  
14 a  $\frac{5}{8}$ " to a 1" meter to pass the required fire protection flow results in  
15 usage between  $\frac{1}{4}$  and  $\frac{3}{4}$  gpm being unregistered or under registered,  
16 which adversely affects PWW's unaccounted for or lost water.

17 2. A 1" meter requires periodic testing every 4 years as opposed to a  
18  $\frac{5}{8}$ " meter which only requires periodic testing every 10 years, resulting in  
19 meter testing expenses to PWW that are 2.5 times those normally  
20 required for a single-family home.

21 3. PWW's tariffed rate for a 1" meter is \$52.35 per month, which is  
22 substantially greater than that of a  $\frac{5}{8}$ " meter of \$22.58 per month.

23 Therefore, the customer pays more for the service. The greater monthly  
24 rate for a 1" meter is based on PWW's most recent cost of service study

2 (“COSS”) that based the rate on factors such as the fact that a 1” meter is  
3 sized to pass larger flows which in turn results in the need to build water  
4 supply facilities that are sized to accommodate the peak flows allowed  
5 through this meter, on top of the peak flows created by PWW’s other  
6 customers. In cases where the flow through the 1” meter does not involve  
7 the passage of single-family life safety sprinkler flows, the flows are  
8 typically daily peaks, as opposed to the flow to a life safety sprinkler  
9 system that may only be once in a lifetime. The rate also reflects the  
10 additional cost of performing periodic meter testing on a 1” meter.

11 For these reasons, PWW believes the current 1” meter charge for homes  
12 with single-family residential fire protection results in those customers  
13 being overcharged for their service and PWW under-collecting for the  
14 actual water used.

15 **Q. Please describe the policy concerns relating to Option 2.**

16 **A.** While Option 2 eliminates the concerns of the oversized meter under-  
17 registering flows and the additional cost associated with more frequent  
18 periodic meter tests, it results in a higher monthly charge to the customer.  
19 For example, under the current tariff, the customer pays \$84.61 per month  
20 versus the cost of Option 1 of \$52.35 per month. This difference in price  
21 is because PWW’s tariff does not have a rate group for customers desiring  
22 “private – non-metered fire services” using service connections of less  
23 than 4”. Given the increase in the number of customers requesting this  
24 service, PWW believes it is appropriate to create a rate group that reflects

2 the actual cost of service for services less than 4” (such as a 1-1/2”, 2”, or  
3 3” service).

4 **Proposed Fire Protection Rates**

5 **Q. What does PWW propose for rates for “Private Fire Protection – Non-**  
6 **Metered” services that are less than 4” diameter private?**

7 **A.** As noted in Attachment DLW-A, page 1, PWW proposes the following  
8 rates for small diameter “private fire protection – non-metered” services:

9 1-1/2” FP-NM rate of \$6.51 per month

10 2” FP-NM rate of \$15.50 per month

11 3” FP-NM rate of \$26.02 per month

12 4” FP-NM rate of \$62.03 per month (this rate replaces the current  
13 tariff rate for 4” or smaller connection)

14 **Q. Has PWW had a COSS completed to support the proposed rates?**

15 **A.** PWW last conducted a cost of service study in April 2010. This COSS  
16 was filed in PWW’s general rate case, Docket No. DW 10-091. Since that  
17 time, the relative proportion of PWW’s customer groups has remained the  
18 same. PWW drew upon elements of that COSS to develop the proposed  
19 fire protection rates.

20 **Q. Please describe.**

21 **A.** The costs assigned to “Private Fire Protection – Non-Metered” rates in the  
22 COSS are based on: 1) the requirement for PWW’s water mains and  
23 storage to be upsized to allow for the passage of greater flow rates; 2) the  
24 need for more storage to accommodate the required fire flows; and 3) the

2 size of the service and amount of flow the service can deliver. The  
3 amount of flow is also limited by the available head-loss to drive the flow  
4 through the service. The head-loss in a service is directly proportional to  
5 the velocity in the service which, in turn, is a function of the area of the  
6 service per the following formula:

$$7 \quad \text{Flow} = \text{Velocity} \times \text{Area of Service}$$

8 The area of a service is a function of the service radius, therefore, the flow  
9 is a function of the service radius per the following formula:

$$10 \quad \text{Flow} = \text{Velocity} \times 3.141 \times \text{the radius squared}$$

11 The result is that a 4” service will carry four times as much flow as a 2”  
12 service at the same velocity.

13 PWW used the flow capacity to interpolate from its current rates to the the  
14 proposed rates for the smaller diameter services are  $\frac{1}{4}$  of those of the  
15 services that are two times larger in diameter. This  $\frac{1}{4}$  factor is the same  
16 one used in Pennichuck East Utility’s (“PEU”) current private fire  
17 protection rates for service 4” and larger. Please see Attachment DLW-A,  
18 page 2.

19 **Q. If the Commission accepts PWW’s proposed small diameter “private**  
20 **fire protection – non-metered” rates, is PWW willing to complete a**  
21 **COSS as part of PWW’s next rate filing?**

22 **A.** Yes. Although PWW’s relative proportion of customer groups has  
23 remained fairly constant since its last COSS, PWW would be willing to  
24 complete a COSS as part of its next rate filing if the Commission requests

2 one to be completed.

3 **Other Tariff Revisions**

4 **Q. Did PWW make any other changes to page 45 of the tariff?**

5 **A.** Yes. There was a typographical error in the reference to paragraph 13, it  
6 should be paragraph 31. As with the other changes to page 45, this  
7 change has been made in Track-Change to denote the change on  
8 Attachment DLW-A, page 1.

9 **Q. Are there other parts of PWW’s tariff that PWW believes should be**  
10 **changed as a result of the installation of single-family residential fire**  
11 **protection service?**

12 **A.** Yes. PWW believes that it is essential that when a single-family  
13 residential home is provided with private fire protection service that the  
14 home have two services, both with outside shutoffs, as illustrated on  
15 Attachment DLW-B. It is important that a contractor or developer not  
16 install a single, combined domestic and fire protection service.

17 **Q. Please explain.**

18 **A.** It is less expensive to install one service as oppose to two services. If a  
19 contractor/developer has the option of not paying the higher monthly  
20 charge for a 1” meter (\$52.35 per month), as opposed to the proposed  
21 monthly charge of \$29.09 (\$22.58 per month for the 5/8” meter and \$6.51  
22 per month for the 1-1/2” “private fire protection – non-metered” service)  
23 they will usually elect to avoid the higher up-front cost of completing the  
24 dual service installation. The result is the customer ends up paying a

2 higher monthly service rate. PWW also opposes the single service,  
3 upsized meter option because of the higher cost to PWW of purchasing  
4 and maintaining the 1” meter, as well as the potential for under-registration  
5 of water. In addition, if there is a problem with or non-payment of fire  
6 protection service, PWW would be left with only one shut-off valve. It  
7 would be difficult to shut one service off without adversely affecting the  
8 other. To address these problems, PWW proposes to add paragraph “c”  
9 to tariff page 32 found in Attachment DLW- C.

10 **Q. Is PWW seeking any other changes to its tariff in relation to the**  
11 **provision of small diameter “private fire protection – non-metered”**  
12 **service to its customers?**

13 A. Yes. PWW seeks to establish a grandfathered rate for services that were  
14 established under Option 1 above, where a home has a single service and  
15 a 1” meter that has been installed to pass the higher flows required by a  
16 residential life safety sprinkler system. PWW does not believe a customer  
17 should be penalized on account of the contractor or developer saving  
18 costs up-front by installing one service line for both types of service.  
19 PWW proposes to charge those customers the approved monthly charge  
20 for a 5/8” meter plus the charge for a 1-1/2” “private fire service – non-  
21 metered” service. PWW proposes a rate of \$29.09 per month (\$22.58 per  
22 month for the 5/8” meter and \$6.51 per month for the 1-1/2” “private fire  
23 protection – non-metered” service). This rate would only apply to those  
24 customers with this type of service and meter set-up installed and placed

2 in service on or before 12/31/2018. Please see Attachment DLW-D for the  
3 revision to Page 43 of PWW's existing tariff to see the desired tariff  
4 change.

5 **Q. About how many grandfather services of the type detailed above**  
6 **currently exist in PWW?**

7 **A.** PWW believes that less than 30 services exist or will be placed into  
8 service before the end of 2018.

9 **Q Why should the Commission approve grandfathering these**  
10 **services? Didn't the customers take service knowing the cost of that**  
11 **service?**

12 **A.** In most, if not all of the cases, the service was applied for by the  
13 developer who chose to install a single service through an upsized meter  
14 as that was the least expensive tarified option available to the developer  
15 and the customer under PWW's tariff. Had PWW's tariff had the additional  
16 smaller diameter fire protection rate groups at the time the service was  
17 installed, the customer would not be stuck paying the higher monthly fee  
18 for a 1" meter, which as stated above, exists due to a higher consistent  
19 demand for water, as opposed to a rare, high demand resulting from a fire  
20 event. PWW believes it is fair and appropriate to grandfather these  
21 existing customers, and to provide them a rate that is more commensurate  
22 with the demand on PWW's system, by those customers, over and above  
23 the typical customer who needs a 1" meter for domestic or commercial  
24 purposes only.

2 **Q. Do you have an opinion as to whether the proposed PWW Tariff**  
3 **changes are in the public interest?**

4 **A.** Yes. I believe that the proposed PWW tariff changes provide a  
5 reasonable approach to providing fire protection service to residential life  
6 safety sprinkler systems and that the rates, which are based on PWW's  
7 most recent COSS and similar factor of  $\frac{1}{4}$  used by PEU, are just and  
8 reasonable.

9 **Q. Does that complete your testimony?**

10 **A.** Yes.