

STATE OF RHODE ISLAND
PUBLIC UTILITIES COMMISSION

IN RE: PROVIDENCE WATER SUPPLY BOARD : DOCKET No. 4994

COST OF SERVICE STUDY
POST-HEARING BRIEF OF THE
PROVIDENCE WATER SUPPLY BOARD

On December 2, 2019, Providence Water filed a request to increase its retail and wholesale rates in 3 annual steps.

Providence Water's wholesale customers are Warwick, East Providence, Kent County Water Authority (KCWA), Bristol County Water Authority (BCWA), Smithfield, Greenville, and Lincoln. With regard to the calculation of rates for our wholesale customers, Providence Water proposed uniform wholesale rates as a class so that all wholesale customers would continue to pay exactly the same rate. This was in keeping with every previous Providence Water rate filing approved by the Commission over the many decades since the Commission began regulating Providence Water's rates.

BCWA intervened and asked the Commission to establish individual wholesale rates for each of Providence Water's wholesale customers. BCWA said that the peaking factors for each wholesale customer should be used to calculate individual wholesale rates.

The Commission met on August 18 and August 28, 2020 in Open Meetings to rule on the filing. The Commission agreed with BCWA and decided that Providence Water should not use uniform wholesale rates any longer. Instead, Providence Water was ordered to calculate individual wholesale rates for step 1 of the rate increase using the peaking factors for each individual wholesale customer. However, the Commission also decided that the rate adjustments for step 1 would only reflect 1/3 of the move toward full cost of service rates as indicated by the cost of service study using the wholesale customers peaking factors.

The Commission also ordered Providence Water to perform a new allocated cost of service study (COSS). The Commission ruled that certain specific issues must be addressed in the COSS and that the new allocations must include data that supports them.

On September 23, 2020, BCWA's attorney wrote a letter to Providence Water's attorney which said in pertinent part:

“...if Providence plans to assign usage of transmission facilities to each wholesale customer, the BCWA requests that Providence run a hydraulic model. This hydraulic model could be run for average day and peak day and should be able to determine the percentage capacity of each storage tank, pump station, and section of transmission main attributable to each wholesale customer. Please let me know if Providence will agree to run such a model.” (Emphasis added).

Providence Water had already been contemplating the use of a hydraulic model and agreed to this request from BCWA, and on September 25, 2020, Providence Water confirmed in writing to BCWA that it would be utilizing a hydraulic model to calculate individual wholesale rates in order to comply with the Commission's Order to perform a new COSS.

Working with Providence Water, Pare Engineers ran a hydraulic model as requested by BCWA. This work was time-consuming and expensive. In fact, Providence Water has estimated that the final cost of the new COSS will exceed \$340,000. *See Providence Water's Record Response 1-6.*

Providence Water incorporated the results of the hydraulic study into the new COSS, which Providence Water filed with this Commission on April 1, 2021. On April 30, 2021, Providence Water filed its compliance filing for step 2 of the previously approved 3-step rate increase, with rates to be effective on July 1, 2021. However, the parties agreed that the new COSS would not be used to calculate step 2 rates because all parties had not yet had a chance to fully review and comment on the new COSS. The Commission approved this agreement.

Providence Water Exhibit 17 is Providence Water's transmission and distribution map, and it graphically illustrates the extent of the task faced by Providence Water and Pare Engineers in terms of allocating system assets.

On May 4, 2021, the Commission held a technical session at which Providence Water and its consultants, including Tim Thies of Pare Engineers, explained exactly how they determined the percentage capacity of each - section of Providence Water's transmission and distribution system that was utilized by each wholesale customer. Pare also answered all questions presented by the Commission, the Division, the intervenors, and all the participating expert witnesses regarding the details of how the hydraulic study and the new COSS were prepared.

After the technical session, extensive discovery was undertaken in the following months. Eventually, testimony regarding the new COSS was filed by Providence Water, the Division, KCWA, BCWA, Smithfield, Greenville and Lincoln. No testimony was filed by Warwick or East Providence.

On February 2, 2022, just before the evidentiary hearings, and despite the fact that BCWA had specifically asked Providence Water to utilize a hydraulic study to prepare the new COSS, BCWA filed a Motion asking this Commission to disregard the hydraulic study and the rates based on the its results. Providence Water and the Division filed written objections to BCWA's request.

At the Commission's direction, Providence Water has done its best, working with its engineers and rate consultants, and with input from all parties participating in this docket, to calculate individual wholesale rates as precisely as possible.

The testimony shows that the Division and KCWA are in full agreement with Providence Water's COSS proposal. Moreover, Warwick (Providence Water's largest wholesale customer) and East Providence have filed no testimony and therefore they have not objected to the COSS. BCWA, Smithfield, Greenville, and Lincoln are opposed to the new COSS.

The Division's expert, Mr. Mierzwa, and KCWA's expert witness, Mr. Bebyn, both testified that they believe that the evidence presented in this docket demonstrates that Providence Water (1) has complied in all respects with the Commission's Order to prepare a new COSS, and (2) that the proposed rates, which are based on the output from the hydraulic model, are just and reasonable.

In light of the differing impacts that implementing this new COSS would have on Providence Water's wholesale customers, Providence Water, the Division, and KCWA have recommended a phased in approach for the new rates. Moving 1/3 of the way to the new COSS rates while capping the rate increase to any customer at 12%, as we have jointly recommended, would result in the following approximate wholesale rate changes in Providence Water's next rate case:

BCWA	↑ 0.5%
Lincoln	↑ 4.5%
Greenville	↑ 4.9%
Smithfield	↑ 12.0%
East Providence	↓ 1.9%
Warwick	↓ 3.1%
KCWA	↓ 9.9%

Of course, if the Commission chooses to order a rate cap smaller than 12%, those numbers will change somewhat. Providence Water does not object to a cap smaller than 12%.

Only the wholesale customers whose rates would go up have challenged Providence Water's COSS. In fact, although BCWA's rate would only go up by 0.5%, BCWA has challenged the new COSS and the use of the hydraulic study, even though BCWA specifically asked Providence Water to use a hydraulic study to do this analysis.

One objection raised by the intervenors is that using a hydraulic study for allocating transmission and distribution costs by determining the pipes that are used to serve each wholesale customer should be rejected because such a study is allegedly not referenced in the AWWA M-1 water ratemaking manual. But this is not true.

Providence Water witness Harold Smith testified that such a hydraulic study is in fact referenced to in the AWWA M-1 manual. (tr. 2/15/22, at 243-44). On page 303 of the "Outside Wholesale Rates" section of the 7th edition of the M-1 manual, it states:

"Another approach to determining distribution versus transmission mains, though less common in practice and more complex to perform, is to use system hydraulic analyses to determine which water mains, by size, diameter and location, function as transmission mains. Given information on pipelines that serve transmission versus distribution functions, the associated costs of these assets may then be ascertained from the fixed asset records of the utility (if these records distinguish asset costs by pipe size). If the fixed assets are not readily available or known, "average pipe (\$/linear foot) installed costs" relationships may be employed. Alternatively, the proportionate shares of diameter-weighted lengths of pipelines may be used to estimate (and allocate costs to customer classes) the capital and O&M costs associated with the transmission main system." (Emphasis added).

Moreover, Mr. Thies also explained that the hydraulic study was performed in accordance with AWWA guidance and industry practice regarding hydraulic studies:

MR. WOLD: I think with the exception of one question, all the questions that I had have been answered. Mr. Thies, it's been alleged in this case that the Pare hydraulic model is not based on scientific, technical or specialized knowledge. Can you just provide the Commission with a brief background of how Pare constructed that model for the pending matter?

MR. THIES: Yes, I can. So the model was built through a compilation of records that we reviewed and were provided by Providence Water. So hydraulic models for a public distribution system like this are all basically built the same way.

* * *

So we bring all of this information into the hydraulic model to construct it. We bring in the operational conditions, and then we run it for certain scenarios, in this case an average day demand scenario, a max day demand scenario, a peak hour demand scenario, and we compare that data – the output from the model, we compare that data to operational records that Providence Water keeps to see how closely the model is predicting actual conditions out in the system, and in this case what we found is we had pretty good correlation between what the model predicts or what the system is actually performing or actually doing on a day-to-day basis.

It's all done in accordance with AWWA practices, specifically AWWA M-32 which is their guidance document on hydraulic model development. We follow that very closely. So like I said, it's all done based on engineering practices, standard practices across the industry really guided by AWWA, and it's been how we've been building models for years. (tr. 2/15/22, at 213-16, emphasis added).

Another objection was raised by Smithfield, whose expert witness and attorney repeatedly argued that Providence Water did not allocate a portion of the transmission and distribution system costs to fire protection. But this claim is also not true. Schedule HJS 18 attached to the testimonies of both Mr. Smith (Providence Water Exhibit 6) and Mr. Maker (BCWA Exhibit 2) clearly shows the allocation of a portion of the transmission and distribution system costs to fire protection. Importantly, those allocations have not changed from the allocations approved by the Commission in previous Providence Water rate cases. As Mr. Smith testified, “We didn’t forget about fire costs and we didn’t forget to assign a portion of the transmission and distribution system to fire costs.” (tr. 2/15/22, at 254).

The Division’s job in this docket is to advise the Commission regarding whether Providence Water’s allocation approach is just and reasonable. The Division has agreed that

Providence Water's proposal complies in all respects with the Commission's Order and is just and reasonable. KCWA has also agreed.

Providence Water has invested hundreds of hours of staff time and hundreds of thousands of dollars for experts in order to develop a new COSS that complies with the Commission's Order. Providence Water used the traditional base extra capacity method to allocate almost all of its costs, except that transmission and distribution costs were allocated with the help of the sophisticated hydraulic study done by Pare Engineers. This was done because the allocation of costs using output from the hydraulic model results in rates that more accurately reflect the way in which each of Providence Water's wholesale customers use the transmission and distribution system to receive their water.

Providence Water is not arguing that its new COSS is perfect in every way, or that using a hydraulic study was the only possible way to perform the new COSS. It has been argued that our hydraulic study did not go far enough because it is a Steady State analysis and that an Extended Period Simulation (EPS) would provide even more detailed data. While that may be true, what is undisputed is that an EPS would be more expensive, time consuming, and technically challenging than the COSS we have submitted. And it would likely provide essentially the same results as the Steady State analysis. *See* tr. 2/15/22, at 245-49.

Moreover, the Pare Steady State analysis has been mischaracterized by some of the intervenors as having utilized just two days of data. This is incorrect. The Steady State analysis was based on three years' worth of data. As Mr. Thies testified:

MR. THIES: . . . I've heard it said a couple of times that we ran the model on just two days. So what we did is we constructed demand scenarios for the model that were based on a review of three years worth of data.

So we constructed an average day demand scenario that reflects . . . a time when Providence Water, all of their customers, both wholesale and retail, are

consuming their average amount of water that they consume over the course of a year. It's not intended to reflect any one specific date. I want to make that clear. We said May 24th was a date that we reviewed records for. We actually reviewed records for three years, but it happened to be that on May 24th, Providence customers consumed an amount of water that was very, very close to the average amount that they consumed.

So what we did is we looked at customer records, we looked at wholesale customer records for that day and the day preceding it and the day after that. We did the same for the max day. We looked at the max day, the day before, the day after, and then we looked at a number of other dates over the course of that three years to get an understanding of how each of the wholesalers are actually drawing water through the system. So we did use a steady-state analysis, but it was very carefully constructed to reflect sort of a normal operating condition for Providence Water.

* * *

MR. RAMOS: The only data that was input into the model was the data from the May 24th and July 13th dates.

MR. THIES: No. So again, the average day wasn't based on the May 24th day. The average day was based on a review of three years worth of data. We compiled three years worth of data, looked at the total consumption over those three years, divided it by the amount of days in those three years and that is their average demand, that is what they used on average. So we constructed a scenario that represents their average demand. It doesn't represent any specific date. It's not that we said all right, we're going to make a scenario that represents May 24th very specifically. We constructed a scenario that looks like an average for them. It happened to be that May 24 was a day where they used nearly the average amount of water that they used over the course of those three years. (tr 2/15/22, at 155-60, emphasis added).

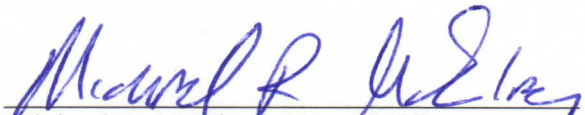
Providence Water believes that it has presented a just and reasonable approach to meeting the Commission's directive to perform a new COSS and establish individual wholesale rates that are more precise than simply using peaking factors. Mr. Thies of Pare Engineers, Mr. Smith of Raftelis Financial Consulting, and Mr. Giasson of Providence Water have fully, fairly and satisfactorily answered all questions presented to them by the Commission, the Division, staff, and the intervenors.

The new COSS Providence Water has proposed is fully supported by the weight of the evidence in the record. We therefore ask that the new COSS as set forth in the schedules

attached to Mr. Smith's Supplemental Rebuttal Testimony dated December 17, 2021
(Providence Water Exhibit 6) be approved.

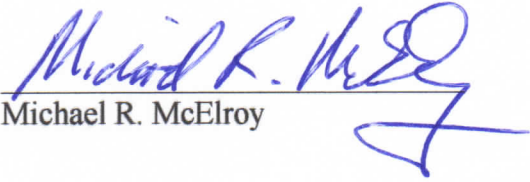
Respectfully submitted,
PROVIDENCE WATER SUPPLY BOARD
By its attorneys

Dated: March 7, 2022


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CERTIFICATE OF SERVICE

I hereby certify that, on the 7th day of March, 2022, I served this document on the attached service list.


Michael R. McElroy

**Docket No. 4994 - Providence Water Supply Board – General Rate Filing
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