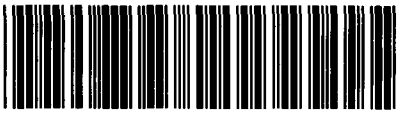

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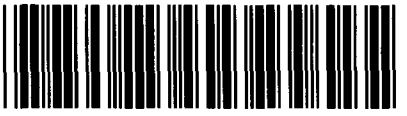

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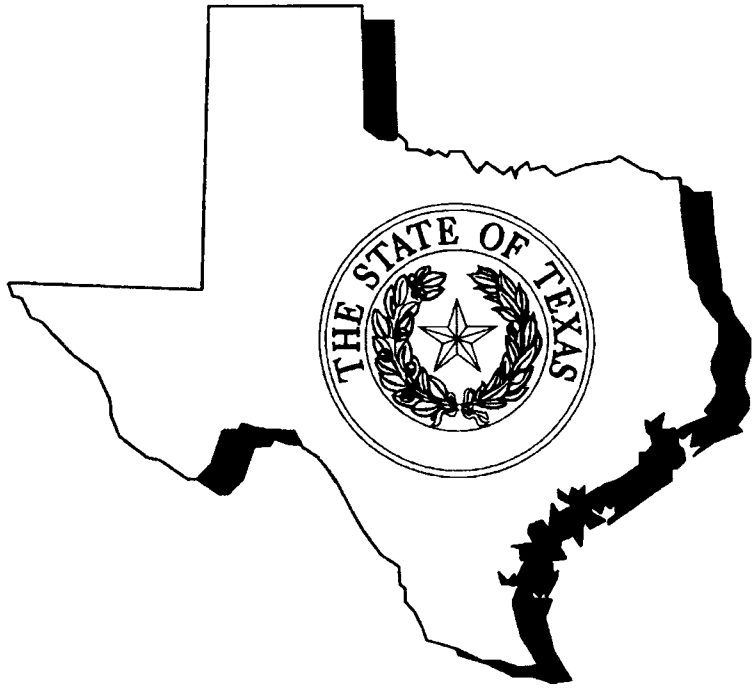
SOAH DOCKET NO. 473-19-6297.WS
PUC DOCKET NO. 49189

APPLICATION OF THE CITY OF AUSTIN DBA AUSTIN WATER FOR AUTHORITY TO CHANGE WATER AND WASTEWATER RATES	§ § § § §	**BEFORE THE STATE OFFICE OF ADMINISTRATIVE HEARINGS**



DIRECT TESTIMONY OF

BRIAN T. MURPHY

RATE REGULATION DIVISION

PUBLIC UTILITY COMMISSION OF TEXAS

NOVEMBER 15, 2019

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ATTACHMENTS:

I. PROFESSIONAL QUALIFICATIONS

Q. Please state your name and business address.

A. Brian T. Murphy, 1701 N. Congress Avenue, Austin, TX 78711-3326.

Q. By whom are you employed and in what capacity?

A. I am employed by the Public Utility Commission of Texas ("Commission") as a Senior Rate Analyst in the Tariff and Rate Analysis Section of the Rate Regulation Division.

Q. What are your principal responsibilities as a Senior Rate Analyst for the Commission?

A. My principal responsibility is to analyze utility tariff filings, cost allocation, and rate design. My responsibilities include preparing and presenting testimony as an expert witness on cost allocation, rate design, and tariff administration issues in docketed proceedings before the Commission and the State Office of Administrative Hearings ("SOAH").

Q. Please state your educational background and regulatory experience.

A. I have provided a summary of my educational background and regulatory experience, including a listing of my previously filed written testimony in Commission proceedings, in Attachment BTM-1.

II. SCOPE OF TESTIMONY

Q. What is the purpose of your testimony in this proceeding, Docket No. 49189, *Application of the City of Austin dba Austin Water for Authority to Change Water and Wastewater Rates*?

A. My testimony regarding the City of Austin dba Austin Water's ("Austin Water") application will address cost allocation issues. The scope of my review includes part or all of the following issues from the Preliminary Order (as numbered therein):

2. Does Austin Water's proposed revenue requirement include any category of cost that in Docket No. 42857 Austin Water agreed should not have been allocated to wholesale customers?
   a. If so, what are those categories?
8. What is the reasonable and necessary cost of providing water and sewer service to North Austin Municipal District No. 1, Northtown Municipal Utility District, Travis County Water Control and Improvement District No. 10, and Wells Branch Municipal Utility District ("the Districts")?
12. Is there any penalty or rate adjustment if Austin Water cannot deliver all the water or treat all the wastewater requested by the Districts?
13. What entities, if any, other than the Districts, purchase wholesale water or wastewater services from Austin Water?
   a. Under what terms, including the rate, do any such entities take water or wastewater services from Austin Water?
   b. What is the gross amount of revenues, if any, received from such entities by Austin Water on an annual basis?

...

ii. How is the revenue accounted for in determining Austin Water's rates for water and wastewater services?

iii. Is any such revenue used to offset the Districts' payments?

15. How is the cost responsibility to run, operate, and maintain Austin Water's water and wastewater system allocated, if at all:

a. Between the Districts and any other entities that purchase wholesale from Austin Water?

b. Between the Districts and retail customers of Austin Water?

16. Does Austin Water allocate between water and wastewater for each component of its cost for providing service to the Districts? If so, is the cost properly allocated?

19. What is the appropriate allocation of the revenue requirement:

a. Between Austin Water's wholesale customers?

b. Between wholesale customers and retail customers?

20. Are Austin Water's proposed wholesale water and wastewater rates based upon the actual cost of providing the water and wastewater services to each petitioner?

21. What are the just and reasonable rates that are sufficient, equitable, and consistent in application to the Districts and that are not unreasonably preferential, prejudicial, or discriminatory?

22. In establishing the proposed rates, did Austin Water design rates for the Districts consistent with ratemaking principles?

a. What is the appropriate fixed charge?

b. What is the appropriate volumetric charge?

Q. If you do not address an issue or position in your testimony, should that be interpreted as Staff supporting Austin Water's position on that issue?

A. No. The fact that I do not address an issue or position in my testimony should not be construed as agreeing with, endorsing, or consenting to any position taken by Austin Water.

III. SUMMARY OF RECOMMENDATIONS

Q. Please summarize your recommendations.

A. With respect to the *class cost allocation of water costs*, I recommend that

- The costs associated with unreported water losses be directly assigned to retail customer classes only;
- The costs of conservation programs be directly assigned to retail customer classes only. In the event Austin Water can provide the specific costs of the conservation-program services received by the Districts during the Test Year, it would be reasonable to include those costs in the cost of service to the Districts; and,
- The information technology ("IT") costs of Communications and Technology Management ("CTM") be allocated among customer classes on a customer basis. In the event Austin Water can classify portions of the total CTM costs as personnel-, demand-, and customer-related, it would be appropriate to allocate the personnel-related portion of CTM costs in proportion to personnel costs, and the demand-related portion in proportion to maximum-hour demand.

With respect to the *class cost allocation of wastewater costs*, to implement Staff witness William Abbott's recommendation that no reclaimed water costs be assigned to the Districts,[1] I recommend that volume-related wastewater costs be allocated among demand parameters in proportion to volumes, where the costs associated with reclaimed water volumes are assigned to an otherwise unused demand parameter.

With respect to *tariff issues*, in the event the Commission grants Austin Water's request to surcharge customers in order to fund a Revenue Stability Reserve, I recommend that Austin Water's request to recover the amounts through a standalone rider be disallowed, and that any approved annual amounts to fund the reserve be included in the fixed charge under base rates.

IV. STANDARD OF REVIEW

Q. What standard have you emphasized in your review of Austin Water's application?

A. I emphasized Commission precedent from Docket No. 42857, in which the Commission found:

> ... the ALJs' recommendations on all challenged reductions to the revenue requirement should be affirmed because either the city agreed or the city's evidence did not establish that these costs were reasonable and necessary to provide water or wastewater service to the petitioners.[2]

[1] Direct Testimony of William B. Abbott (Nov. 15, 2019).

[2] *Petition of the North Austin Municipal Utility District No 1, Northtown Municipal Utility District, Travis County Water Control and Improvement District No. 10, and Wells Branch Municipal Utility District from the Ratemaking Actions of the City of Austin and Request for Interim Rates in Williamson and Travis Counties*, Docket No. 42857, Order on Rehearing at 11 (Jan. 14, 2016).

Although I am not an attorney, my understanding of the Commission's decision is that Austin Water must make an affirmative showing that the costs included in the rates to be charged to the Districts are reasonable and necessary to provide water or wastewater services to them. This is also the standard included in Texas Water Code § 13.044(b).

V. CLASS COST OF SERVICE STUDY

Q. What is a class cost of service study?

A. A class cost of service study produces an approximation of the costs incurred by a utility to provide services to its different classes of customers during a test year. Operations and maintenance expenses, debt service, debt service coverage, and other items in the cost study must be allocated among customer classes consistent with cost causation.

Q. What is cost causation?

A. Cost causation is the fundamental ratemaking principle that the customers who cause the costs to be incurred by the utility should bear the costs in rates. When costs are allocated among classes consistent with cost causation, the resulting rates can be said to be "cost-based." Cost-based rates are desirable because they are fair to ratepayers and promote economic efficiency.

Q. What is the first step in Staff's review of a utility's class cost of service study?

A. Staff performs an independent reconstruction of the utility's cost of service study. In this proceeding, Austin Water produced two separate class cost of service studies, one for water and another one for wastewater.

Working independently from Austin Water's models, I reconstructed both models beginning with nothing but blank workbooks in Microsoft Excel, populating the workbooks with the hard-coded amounts and allocation data from Austin Water's application, and writing my own formulas to allocate costs and perform various other arithmetic operations until my models produced the same results as Austin Water's models, without relying on any of the formulas, macros. formatting, or calculations in Austin Water's models.

Staff's independent reconstructions of utilities' models are referred to as "zero" models, signifying zero variance from the utility's request. Staff's water and wastewater zero models can be found in my electronic workpapers.[3]

Q. What experience do you have in building class cost of service models?

A. I built the class cost of service models that are currently being used by the Commission's Rate Regulation Division to review cost allocation and rate design issues in base-rate proceedings for three of the vertically integrated investor-owned utilities in Texas: El Paso Electric Company,[4] Southwestern Public Service Company,[5] and Entergy Texas, Inc.[6]

I also built the Staff models that were used by the Commission's Rate Regulation Division to review cost allocation and rate design issues in base-rate

[3] Workpapers to the Direct Testimony of Brian T. Murphy (Nov. 15, 2019).

[4] *Application of El Paso Electric Company to Change Rates*, Docket No. 44941, Workpapers to the Direct Testimony of Brian T. Murphy (Dec. 21, 2015).

[5] *Application of Southwestern Public Service Company for Authority to Change Rates*, Docket No. 43695, Staff's Workpapers (May 26, 2015).

[6] *Application of Entergy Texas, Inc. for Authority to Change Rates and Reconcile Fuel Costs*, Docket No. 41791, Workpapers to the Direct Testimony of Brian T. Murphy (Jan. 21, 2014).

proceedings for two investor-owned transmission and distribution utilities in Texas: CenterPoint Energy Houston Electric,[7] and Sharyland Utilities, LLP.[8]

Additionally, I built the class cost of service study for Potomac Electric Power Company, an investor-owned wires and poles utility under the jurisdiction of the District of Columbia Public Services Commission.[9]

Q. Are the skills required to build an electronic model of a water utility's class cost of service generally the same as the skills required to build an electronic model of an electric utility's class cost of service?

A. Yes. In this proceeding, Austin Water's cost studies have more steps in the cost allocation process than what I have seen in the class cost of service models used by electric utilities. However, the basic purpose and design of an electronic model of a class cost of service study remains the same whether the applicant is an electric utility or a water utility. The purpose of an electronic model of a class cost of service study is to perform thousands of arithmetic operations quickly so that the class cost of service for each class can be re-calculated and updated quickly as needed to reflect changes to the model's inputs (i.e., total system amounts, allocation data, and allocation methodologies).

[7] *Application of CenterPoint Energy Houston Electric, LLC for Authority to Change Rates*, Docket No. 49421, Workpapers to the Direct Testimony of Brian T. Murphy (Jun. 13, 2019).

[8] *Review of the Rates of Sharyland Utilities, L.P., Establishment of Rates for Sharyland Distribution & Transmission Services, L.L.C., and Request for Grant of a Certificate of Convenience and Necessity and Transfer of Certificate Rights*, Docket No. 45414, Workpapers to the Direct Testimony of Brian T. Murphy (Mar. 7, 2017). Sharyland has since converted to a transmission-only utility.

[9] *In the Matter of the Application of Potomac Electric Power Company for Authority to Increase Existing Retail Rates and Charges for Electric Distribution Service*, Formal Case No. 1150, Direct Testimony of Brian T. Murphy (Dec. 19, 2017).

Q. In this proceeding, how do Staff's models compare to Austin Water's models?

A. Staff's models contain more useful information to process the cost allocation issues in this case as compared with Austin Water's models. Both cost studies contain hundreds of line items that include costs used in the determination of cost of service. Costs are then allocated first among functions, then among cost pools, demand parameters, and customer classes. In both models, the line-item detail is aggregated into broader categories of costs before the cost allocation process is fully complete. However, Austin Water's models aggregate the line-item detail after the first step in the allocation of costs, which is functionalization. In contrast, Staff's models retain the line-item detail through the allocation of costs to cost pools and demand parameters, two steps further into the process. This increases transparency and provides more granular information that might be useful in exploring alternative allocation methodologies.

Despite containing more granular information, Staff's models are more efficient as compared to Austin Water's models.[10]

VI. CLASS ALLOCATION OF WATER LOSSES

Q. What is water loss?

A. Water loss is the difference between the volume of water supplied to the system and authorized water consumption on the system. Authorized consumption is the volume of water taken by authorized customers.

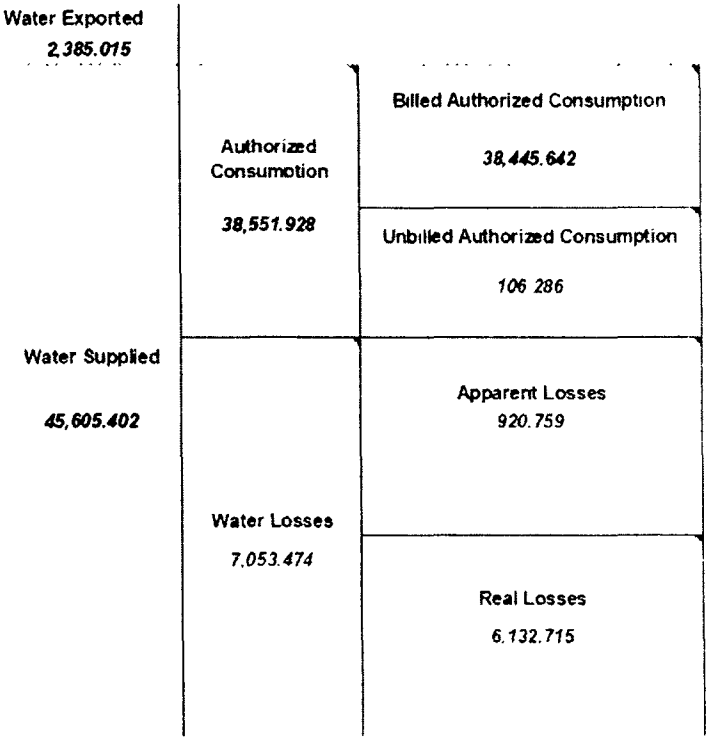
[10] Each of Austin Water's models has more than 100 worksheets, most of them densely populated with redundant information.

Water losses can be "real" or "apparent." Apparent losses include theft and data inaccuracies (e.g., differences between measured and actual consumption). Real losses represent actual physical losses of water, including leaks, bursts, and overflows.[11]

Q. Please provide a visual depiction of Austin Water's calendar year 2018[12] total system water supply, authorized consumption, and water losses.

A. The information is shown below in millions of gallons:

Figure BTM-1
System Water Supply, Authorized Consumption, and Water Losses



[11] Austin Water's Responses to Districts Ninth Set of Requests for Information at Response No. 9-26, Attachment 4 at worksheet "water balance" (Oct. 14, 2019).

[12] Although Austin Water's Test Year in this proceeding ends in September, Austin Water tracks and reports water system information on a calendar-year basis.

Q. Are you addressing all real and apparent losses?

A. No. I am only addressing the "unreported" portion of real losses, which are real losses for which the cause is unknown. In calendar year 2018, Austin Water's unreported real losses were 6,046,641,067 gallons,[13] representing 13.3% of total water system input volumes of 45,607,390,514 gallons.[14] "Reported" real losses, which are excluded from my analysis, include reported leaks and bursts.

Q. How does Austin Water request that unreported losses be treated for ratemaking purposes?

A. Austin Water's application is silent as to its requested ratemaking treatments for unreported losses. However, in response to discovery, Austin Water stated:

> ... the water cost of service (COS) model includes all operations and maintenance costs of water treatment production, inclusive of any costs associated with the eventual loss of water in the transmission and distribution systems. The cost of water loss is not separated as an individual line item cost in the COS model. It is embedded in the cost of water treatment production and allocated to all customer classes.[15]

Austin Water's discussion applies to all water losses, including the unreported losses addressed in my analysis.

[13] Austin Water's Responses to Districts Ninth Set of Requests for Information at Response No. 9-26, Attachment 7, worksheet "Report Format," at Microsoft Excel cell F64 (Oct. 14, 2019).

[14] *Id* at cell F40. It is noted that there is an immaterial variance between the "water supplied" volume in the above visual depiction and the total system input volume. Both figures come from Austin Water's water reports.

[15] Austin Water's Response to Commission Staff's Fifteenth Set of Requests for Information at Response No. 15-1 (Nov. 4, 2019).

Q. How are the costs of unreported losses allocated among classes under Austin Water's request?

A. As indicated in the above discovery response, the costs of unreported losses are not separately stated in the cost study. The full cost of water supplied to the system. including the volume-related costs to treat the water and move it through the system to locations where it may be lost before it can be consumed by the customer, are simply included within the pooled costs that are allocated among the classes. The allocation of volume-related costs is then performed using allocation proportions derived using only metered consumption, which is significantly less than the total volume of water supplied to the system. The effect of this treatment is to allocate unreported losses system-wide in proportion to metered volume, with each metered gallon consumed bearing the same level of lost-water costs, no matter where the customer is located in the system, and no matter which customer class the customer belongs in.

Q. Using actual data from Austin Water's system, please provide an example that shows how the costs of water losses are allocated system-wide under Austin Water's request.

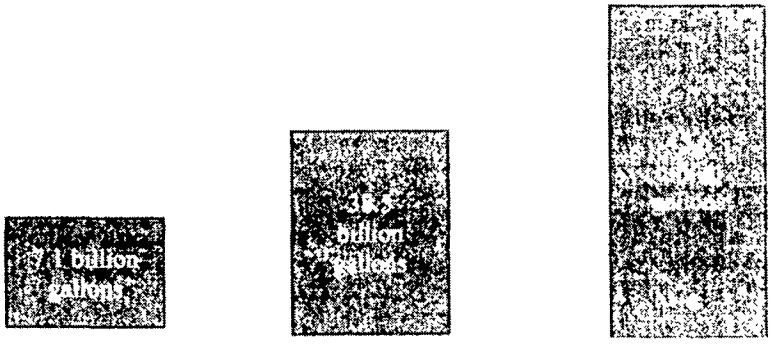
A. The table below shows the costs that are allocated on a volume basis in Austin Water's class cost of service study, which means Austin Water believes that the costs vary in proportion to volume on the system during some time period. Volume-related costs would increase in proportion to the volume of water supplied, including water that will be lost.

Table BTM-1
Water system costs that vary based on consumption during various time periods

Demand Parameter	Test Year Volume-Based Costs
Base Demand	$189,651,650
Maximum Day Demand	$57,607,744
Maximum Hour Demand	$13,152,449
	$260,411,843

The volume-related costs are driven by system volumes, which are shown in the bar-graph below broken out into consumption and losses.

Figure BTM-2

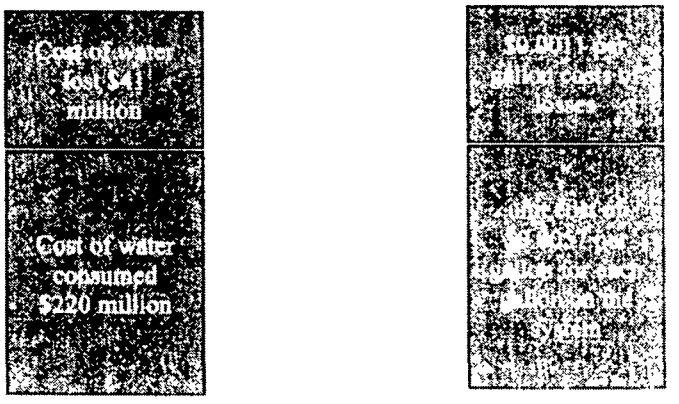


Dividing the total Test Year volume-based costs by the total system volumes shown above, each gallon supplied to the system costs Austin Water $0.0057 per gallon in volume-related costs.[16] Applying that unit cost to the loss and consumption volume blocks shown above, the 7.1 billion gallons in water losses cost Austin Water approximately $41 million in volume-related costs, and the 38.5 billion in consumption costs Austin Water $220 million in volume-related costs. The unit costs associated with each block are shown below:

[16] $260.4 million divided by 45.6 billion gallons.

Figure BTM-3

Volume-Related Costs Cost per gallon consumed



The $41 million in costs of losses must be charged to customers. In addition to the unit cost for each gallon supplied to the system of $0.0057 (large block above and to the right), customers will have to pay a system-average cost per gallon of $0.0011 to cover the costs of losses (small block above and to the right). If a flat rate were set to recover all of these volume-related costs, it would have to be set at $0.0068 per gallon,[17] which includes the system-average cost of $0.0057 per gallon supplied to the system, and the cost per gallon of losses on the system of $0.0011.

This methodology has the effect of allocating the costs of losses system-wide in proportion to consumption, while avoiding the need to show explicit line items in the cost study to state the costs of losses. Volume-related costs are incurred based on total volume supplied (45.6 billion gallons), but the costs are allocated among classes using only volumes consumed (38.5 billion gallons).

[17] $260.4 million divided by 38.5 billion gallons.

Q. Is Austin Water's methodology for the allocation of the costs of losses among classes appropriate?

A. No, it is not. Austin Water's system-wide approach is improper because it fails to account for the higher costs of water losses that are incurred by Austin Water to serve customers who take retail service. The costs of water losses are higher to serve retail customers because retail service is taken further downstream in the system as compared to wholesale service.

Q. Please explain what you mean by "downstream."

A. Customers take water service at different points in the water system. Wholesale customers take service on the transmission system, which is closer to treatment plant (upstream), on transmission mains of diameters 24" and higher.[18] Retail customers such as residential customers take service farther away from the treatment plant (downstream). In addition to traveling through transmission mains, water must also travel through distribution mains, service connections, and other system elements associated with distribution service to reach a typical residential customer.[19] More water is lost as it travels downstream. Therefore, Austin Water incurs more losses to serve retail customers.

[18] *See*, e.g., Austin Water's Responses to Commission Staff's Fourth Set of Requests for Information at Response No. 4-14 (Sep. 30, 2019): "Austin Water does not provide distribution service to wholesale customers."

[19] *Id.*, at Response No. 4-14: "The distribution system is a network of water mains, generally 24-inch diameter and smaller, that distribute water to customers throughout the system. The distribution system is generally connected to the transmission system at appropriate supply points. Direct connections for retail service to a property are generally connected to distribution mains."

Q. Has Austin Water provided any information in this proceeding about where unreported losses are occurring on the system?

A. Yes. In its 2018 water audit report, unreported losses are broken out into two categories: service connections and main lines. The relative share of each category is shown in the table below:

Table BTM-2[20]
Unreported Losses Attributed to Parts of the Water System

Category	Amount	Unit basis
Service connections	71.3 gallons	Per service connection per day
Main lines	0.0 gallons	Per mile per day

The 2018 water audit report does not attribute any unreported water losses to transmission and distribution main lines. All of the unreported losses are attributed to service connections, which are associated with serving retail customers. For general examples of residential service connections, *see* Attachment BTM-2. Wholesale customers do not take service through Austin Water's distribution mains or service connections.

Q. Did Austin Water provide any other information in this proceeding that corroborates the above evidence that no real water losses occurred upstream from the distribution system in 2018?

A. Yes. In response to discovery, Austin Water provided a file for a presentation on water loss that states on its second slide: "Real Losses = water lost from the

[20] Austin Water's Responses to Districts Tenth Set of Requests for Information at Response No. 10-14, Attachment 5 at 5 (Oct. 15, 2019).

distribution system through leakage."[21] The definition excludes the transmission system from real water losses. Additionally, Austin Water witness Stephen J. Coonan testifies, "There is also an amount of water that is lost from the distribution system before it can be delivered to customers' meters."[22]

Q. What is the significance of the unreported water loss information provided by Austin Water?

A. There is no information that indicates that any unreported water losses occurred on the parts of the system that are involved in providing wholesale services to the Districts. Consistent with the Commission's decision in Docket No. 42857,[23] no costs of unreported losses should be assigned the Districts in this proceeding because Austin Water has not shown that it incurred any costs of unreported water losses to serve the Districts during the Test Year.

Q. Does that mean that Austin Water did not have any leaks or breaks on its transmission mains (which are involved in serving the Districts) during the Test Year?

A. No. Austin Water tracks and reports leaks and breaks on its transmission mains.[24] To the extent leaks and breaks occurred in the transmission system, the losses associated with those events would be "reported" losses, not "unreported" losses.

[21] Austin Water's Responses to Districts Ninth Set of Requests for Information at Response No. 9-26, Attachment 8 at 2 (Oct. 14, 2019).

[22] Direct Testimony of Stephen J. Coonan at 6 (Apr. 15, 2019).

[23] Discussed above in the Standard of Review section of my testimony.

[24] *See*, e.g., Austin Water's Responses to Districts Ninth Set of Requests for Information at Response No. 9-26, Attachment 9 at slide 3 (Oct. 14, 2019): "Two transmission main leaks discovered & repaired;" and at slide 9: "Transmission main leak detection."

and would be excluded from my analysis. Reported losses and other types of losses remain allocated system-wide under my methodology. Only unreported losses are included in my adjustments.

Q. Do the Districts incur water losses to serve their retail customers?

A. Yes. Although the levels of their systems' losses are not quantified in this proceeding, the Districts operate their own distribution systems, with distribution mains, service connections, and other distribution system elements. To the extent unreported losses are occurring on the Districts' own water systems, the costs of those losses can be charged to the Districts' retail customers under their retail rates.

Austin Water's request to assign its unreported losses to the Districts creates a situation where the retail customers of the Districts may be charged for distribution system losses twice—once for losses on Austin Water's distribution system, then again for losses on the distribution system that serves them. Obviously, this raises fairness concerns. This situation would also inflate the wholesale water charges to the District's retail customers—which would create an inappropriate incentive for a District's retail customers to accept annexation by the City of Austin. The policy regarding a District's possible annexation by the City of Austin is discussed in the testimony of Austin Water witnesses David Anders.[25]

[25] Direct Testimony of David A. Anders at 12: Q. WHAT IS THE SIGNIFICANCE OF THE CITY'S MUD POLICY TO THIS CASE? A. ... Prior to the year 2017, cities had the ability to annex areas within their extraterritorial jurisdiction (ETJ), such as the areas served by the Petitioners. Against that prior backdrop, the City's MUD policy was intended to condition AW's provision of any wholesale service to a MUD, and to incentivize development in the MUD in accordance with the City's own standards. In other words, wholesale water and/or wastewater service was a component of a broader relationship between the MUD and the City, a relationship premised upon the City's ultimate annexation of the area served by the MUD, and which included development conditions that would facilitate the incorporation of the MUD's service area into the City. Q. HAS THIS SITUATION CHANGED IN RECENT YEARS? A. Yes, significantly. In 2017, Senate Bill (SB) 6 was adopted. That legislation requires cities in Texas' largest

Q. How do you recommend that unreported losses be allocated among wholesale and retail customer classes?

A. I recommend that unreported losses be directly assigned to retail classes, and that wholesale customers be excluded entirely from any allocation of the costs of unreported water losses. As Austin Water has not presented evidence that the Districts caused any of the costs of unreported losses during the Test Year, my recommendation is consistent with cost causation. To reiterate, cost causation is the foundational ratemaking principle that the customers who cause the costs to be incurred by the utility should bear the costs in rates.

Q. How did you perform your recommended adjustment?

A. For all types of costs in Austin Water's request that are allocated among classes in proportion to some measure of metered volumes, I adjusted the allocation data that is used to develop the allocation proportions.[26] I then developed class allocation proportions based on loss-adjusted volumes and applied the proportions to allocate volume-related costs among classes.[27] This has the effect of increasing the amount of volume-related costs assigned to retail classes, and lowering the amount assigned to wholesale classes (including the Districts).

counties to obtain voter approval before annexing areas. As a result, it is now substantially more difficult to annex an area within a city's ETJ. With this new legal requirement, the broader context for the City's MUD policy no longer exists—AW's wholesale water contract with a MUD cannot be viewed as part of a larger engagement designed to facilitate annexation of the areas served by the MUD.

[26] First, I allocated unreported water losses among retail classes in proportion to unadjusted annual consumption. Next, I added each class's allocated share of unreported water losses to its unadjusted Test Year consumption.

[27] The demand parameters affected by the adjustment include base demand, maximum day demand, and maximum hour demand for the joint cost pool. The allocation data for other cost pools was unaffected.

Q. For some class allocation factors, there are various components that go into the development of the class allocation factors. Did you apply the adjustment to the "maximum day" and "maximum hour" components of the calculations?

A. No. The "maximum day" component is associated with volumes during peak days. The "maximum hour" component is associated with volumes during peak hours. Because I have no information that any unreported losses occurred during the peak days or the peak hours, I excluded the peak-day and peak-hour components from my adjustment methodology.[28] This mitigates the effects of my recommendation on certain allocation proportions, which is a conservative approach that errs on the side of minimizing impacts.

Q. Please provide the impacts of your adjustments on the class allocation proportions.

A. My adjustment affects the class allocation factors for "joint cost-base demand," "joint cost-max day," and "joint cost-max hour," as can be seen in the following table:

[28] Please note that the annual consumption that is used in the calculations to develop the max day and max hour allocation factors was still adjusted, which increases the average daily consumption and decreases the difference between average daily consumption and maximum day (or hour) consumption. Please also note that the adjustment only affects the allocation proportions for the joint cost pool.

Table BTM-3
Comparison of class allocation proportions under Austin Water's request and Staff's recommendation

	Districts	Other Customers
Joint costs – base demand		
Austin Water	.0452	.9548
Staff	.0396	.9604
Difference	*-.0056*	*+.0056*
Joint costs – max day demand		
Austin Water	.0631	.9369
Staff	.0554	.9446
Difference	*-.0077*	*+.0077*
Joint costs – max hour demand		
Austin Water	.0511	.9489
Staff	.0449	.9551
Difference	*-.0062*	*+.0062*

Detailed information can be found in my electronic workpapers.[29]

Q. Please provide a quantification of the dollar impacts of your recommended adjustments.

A. A quantification of the dollar impacts can be seen in the following table:

Table BTM-4
Comparison of joint-cost pool costs assigned to Districts and Other Customers under Austin Water's request and under Staff's recommendation

	Districts	Other Customers
Joint cost pool costs[30]		
Austin Water's Request	$9,193,016	$214,024,322
Staff's Recommendation	$8,088,064	$215,129,274
Difference	*-$1,104,952*	*+$1,104,952*

[29] Workpapers to the Direct Testimony of Brian T. Murphy (Nov. 15, 2019).

[30] Before non-rate revenue offsets.

Please note that the costs shown in the above table are stated at Austin Water's requested level of revenues, before Staff's other adjustments to Austin Water's request.

VII. CLASS ALLOCATION OF CONSERVATION PROGRAMS

Q. Austin Water's request includes line items for Water Conservation, Commercial Rebates, Multifamily Program, Municipal Program, and Conservation Marketing. What do these line items represent?

A. In response to discovery, Austin Water stated:

> Line items for commercial rebates, multifamily program, municipal program and conservation marketing are conservation related incentives to encourage customers to conserve water. Customers of the Districts and other wholesale customers are eligible for most Water Conservation programs and services. The programs are reasonable and necessary since water conservation protects Austin Water's water supply. These costs are allocated to the Districts.[31]

Austin Water also provided the costs of the conservation programs, as shown below.[32]

Table BTM-5[33]
Water Conservation Line Items in Austin Water's Request

Conservation Program Line Item	Requested Amount
Line 123: Water Conservation	$3,014,589
Line 105: Commercial Rebates	$160,552
Line 106: Multifamily Program	$0
Line 110: Municipal Program	$3,691
Line 111: Conservation Marketing	$649,540
Conservation Program Subtotal	$3,828,372

[31] Response of Austin Water to Staff's Eleventh Set of Requests for Information, at Response No. Staff 11-1a (Oct. 28, 2019).

[32] The listing includes programs for which Austin Water proposes to allocate some share of the programs to Districts.

[33] Austin Water's errata water cost of service study, worksheet 29, at table 29-1.

Q. How does Austin Water propose that conservation program costs be allocated among customer classes in this proceeding?

A. The Water Conservation line item is directly assigned to the "treatment average day" function. The costs in the other line items shown above are broadly allocated among functions. Within each function, the costs are then assigned principally to the "joint" cost pool, and thereafter allocated principally among retail and wholesale customers in proportion to some measure of volume of water consumed.

Under Austin Water's approach, the Districts would bear the following conservation program costs in rates:

Table BTM-6
Conservation Program Costs Assigned to Districts Under Austin Water's Allocation Methodology

District	Assigned Conservation Program Costs[34]
North Austin MUD	$27,197
Northtown MUD	$24,170
WCID #10	$69,057
Wells Branch MUD	$39,867
Total	$160,291

Q. Is Austin Water's allocation approach appropriate?

A. No. The costs of Austin Water's conservation programs do not vary in proportion to volumes on the system. The costs vary in proportion to participation in the programs. For example, if a customer participates in the program for a free toilet, Austin Water incurs the costs to provide a free toilet. If a customer applies for a

[34] Response of Austin Water to Staff's Eleventh Set of Requests for Information, at Response No. Staff 11-2 (Oct. 28, 2019).

rebate on a toilet that qualifies for a rebate, Austin Water incurs the costs to provide a rebate to the customer.

In my experience, utilities may seek to allocate efficiency programs, like water conservation programs, on a volume basis because one benefit of the programs may be to lower volumes that would otherwise occur on the system. This is inappropriate because the principle of cost causation requires that costs be allocated in accordance with what causes the costs to be incurred, not in accordance with benefits received, real or perceived.

Allocation in proportion to volumes is inconsistent with cost causation. Volumes do not cause the costs of the conservation programs. Program costs are caused by participation in the programs.

Q. Has the Commission considered the question of the proper allocation of water conservation programs among customer classes?

A. To my knowledge, it has not. However, the proper methodology for the class allocation of the costs of electric utilities' energy-efficiency programs has been extensively litigated before the Commission. By Commission rule, to the maximum extent possible energy efficiency costs must be directly assigned to the classes who received services under energy efficiency programs.[35]

[35] 16 Tex. Admin. Code § 25.182(d)(2): The costs shall be directly assigned to each rate class that received services under the programs to the maximum extent reasonably possible.

Q. Has Austin Water provided information regarding the Districts' level of participation in its conservation programs?

A. Yes. During calendar year 2018, the Districts' customers participated in six programs. However, Austin Water did not provide information about which 2018 programs the Districts participated in, or the costs of the services received by them in 2018. Austin Water did provide summary information for the time period 2003-2019. During that time, the Districts' customers mostly participated in the Free Toilet, Toilet Rebate, and Washwise programs.[36]

Q. At the level of program costs Austin Water seeks to assign to Districts, what would be the average cost of a program?

A. Using the total conservation program costs assigned to the Districts divided by the number of programs in which the Districts' customers participated, the average cost of a program would be $26,715 per program.[37]

Q. Would $26,715 be a reasonable cost for a free toilet or a rebate for a water-efficient toilet—the programs Districts participated in to the greatest extent from 2003-2019?

A. No. It appears that Austin Water's allocation methodology has resulted in an assignment of conservation program costs to the Districts that is out of proportion with the costs of the services received by the Districts.

[36] Response of Austin Water to Staff's Eleventh Set of Requests for Information at Response No. Staff 11-1 (Oct. 28, 2019). Based on information on Austin Water's website, Washwise was a program for more water-efficient appliances that was discontinued in 2014: https://www.facebook.com/AustinWater/posts/commercialmulti-family-washwise-rebate-programafter-16-years-austin-water-will-e/762898630397522/.

[37] $160,291 ÷ 6.

Q. Did Austin Water provide the costs of the conservation programs received by the Districts during the Test Year?

A. No.

Q. What do you recommend?

A. I recommend that no conservation program costs be assigned to the Districts. In the absence of specific program-cost information, the most likely scenario is that Austin Water provided six toilets or toilet rebates to District customers during the Test Year at a somewhat immaterial cost to the City, because the Districts' historical participation, referenced above, was almost exclusively in those two programs.[38] If Austin Water does not keep records adequate to show what the costs were for the specific services received by the Districts during the Test Year, Austin Water should absorb the costs. In the event Austin Water does have the specific cost information, it would be appropriate to directly assign the costs to the Districts.

Q. How did you implement your recommendation?

A. I have re-assigned the conservation program costs shown above from the "joint" cost pool to the "retail only" cost pool in Staff's cost study. For each District, the dollar impact is to remove the costs shown above in Table BTM-6 from the cost of service.

[38] Disregarding the Washwise program, which appears to have been discontinued.

VIII. CLASS ALLOCATION OF CTM COSTS

Q. What are "CTM costs" and where can they be found in Austin Water's cost study?

A. In response to discovery, Austin Water stated:

> The Communications and Technology Management (CTM) Department provides information technology (IT) services to City departments and regional partners, including application delivery, web and mobile technologies, data center computers, reliable infrastructure, storage, technical support, project management, and secure, interoperable communication systems. As stated in response to Staff RFI No. 6-13, "[t]hese are shared costs allocated to all customers and is a cost of providing service to all of our customers." The Adjusted Test Year amount for Water is $2,415,274 and Wastewater is $2,394,314, which is included in G/L account 9999, account number 6240.[39]

Q. How does Austin Water propose to allocate CTM costs among classes?

A. The CTM costs are functionalized broadly in proportion to total operations & maintenance ("O&M") expenses. Within each function, the CTM costs are aggregated with other O&M costs and allocated among cost pools, demand parameters, and customer classes following the same methodology as for other O&M costs. For the majority of CTM costs, these treatments result in a volume-based allocation among classes.

Q. Do you support Austin Water's class allocation methodology for CTM costs?

A. No. In my experience, IT costs such as CTM costs do not vary in proportion to volumes on the system. In other words, IT costs generally do not increase as the

[39] Response of Austin Water to Staff's Ninth Set of Requests for Information, at Response No. Staff 9-14 (Oct. 25, 2019).

amount of water delivered to the system increases or decrease as the amount of water delivered to the system decreases.

In my experience, IT costs are typically classified as personnel-related. customer-related, or demand-related. Personnel-related IT systems would be those that are needed to support City employees and Austin Water employees in the course of operating the Austin Water utility, including administrative support from the City of Austin. Customer-related IT systems would be those required to serve Austin Water's customers, including billing systems, data centers, customer relationship management, and other IT systems that track customer usage information, billing information, and customer services. Demand-related would include operational systems to move water through the system.

In my experience, the costs of customer-related IT systems have been greater than the costs of other types of IT systems. Also in my experience. there have not been IT systems where the costs of the IT systems vary in proportion to volumes on the utility system.

Q. To your knowledge, has Austin Water provided any information that could be used to classify portions of CTM costs as customer-related, personnel-related, or demand-related costs?

A. No.

Q. What do you recommend?

A. In the absence of information to perform a more granular classification of CTM costs, I recommend that all of the CTM costs be classified as customer-related and allocated among classes on a customer basis. I implemented this adjustment by

assigning all CTM costs in account 9999-6240 to the "customer" demand parameters.

Q. Please provide a quantification of the dollar impacts of your recommendation on Austin Water's request in this proceeding.

A. My recommendation results in a downward adjustment to the CTM costs assigned to the Districts as follows:

Table BTM-7
Assignment of CTM costs to Districts under Austin Water's Proposal and Staff's Recommendation

District	Austin Water proposed[40]	Staff adjustment	Steff-recommended
North Austin MUD	$23,397	-$21,693	$1,704
Northtown MUD	$22,405	-$20,882	$1,523
WCID No.10	$27,991	-$24,522	$3,469
Wells Branch MUD	$35,864	-$33,463	$2,401
Total	$109,657	-$100,560	$9,097

Q. Do you have an alternative recommendation?

A. Yes. In the event Austin Water can provide information to facilitate a more granular classification of CTM costs into personnel-, customer-. and demand-related, I recommend that the personnel-related portion be allocated among classes on the basis of personnel costs and the demand-related portion be allocated among classes on the basis of maximum-hour demands. The customer-related portion of CTM costs would continue to be allocated the same way as under my primary recommendation.

[40] Response of Austin Water to Staff's Ninth Set of Requests for Information, at Response No. Staff 9-14 (Oct. 25, 2019).

IX. RECLAIMED WATER

Q. Do you sponsor any of Staff's recommendations regarding the reclaimed water system?

A. No, I do not. Staff witness Debi Loockerman reviewed the total system amounts for the transfer payments from the water and wastewater systems to reclaimed water.[41] Staff witness William Abbott sponsors Staff's position on whether any reclaimed water system costs should be allocated to the Districts.[42]

Q. What is your role with respect to reclaimed water issues?

A. I implement Mr. Abbott's recommendation in the wastewater cost of service study.

Q. How did you implement Mr. Abbott's recommended adjustment?

A. I adjusted the allocation of costs to the flow, biological oxygen demand (BOD), and total suspended solids (TSS) demand parameters to exclude system volumes associated with reclaimed water. The reclaimed water and total system volumes were provided by Austin Water in response to discovery.[43]

Q. What is the effect of your implementation of Mr. Abbott's recommendation on the costs assigned to the Districts?

A. The implementation of Mr. Abbott's recommendation results in the following downward adjustments to the Districts' wastewater cost of service:[44]

[41] Direct Testimony of Debi Loockerman on behalf of Commission Staff (Nov. 15, 2019).

[42] Direct Testimony of William Abbott on behalf of Commission Staff (Nov. 15, 2019).

[43] Response of Austin Water to Staff's Tenth Set of Requests for Information at Response No. Staff 10-4 (Oct. 25, 2019).

[44] The adjustment amounts were determined by comparing the total costs assigned to the Districts before and after the adjustments to allocations to the flow, BOD, and TSS demand parameters.

Table BTM-8
Staff's Reclaimed Water Cost of Service Adjustments

District	Staff Adjustment
North Austin MUD	-$29,292
Northtown MUD	-$30,617
Wells Branch MUD	-$47,954
Total	-$107,864

X. COST OF SERVICE SUMMARY

Q. Please summarize Austin Water's costs to provide water services to the Districts, consistent with Staff's adjustments.

A. Staff recommends that the Commission set the Districts' water cost of service at $6,583,250, which represents a downward adjustment in the amount of $2,318,631 to the $8,901,881 cost of service requested in Austin Water's errata water cost of service. For each District, the water cost of service requested in Austin Water's errata and Staff's recommended water cost of service can be seen in the following table:

Table BTM-9
Staff-Recommended Water Cost of Service for Each District (in dollars)

District	Austin Water's Requested Errata Water Cost of Service	Staff Adjustment	Staff-adjusted Water Cost of Service
North Austin MUD	1,524,057	-392,627	1,131,430
Northtown MUD	1,256,716	-321,629	935,087
WCID No. 10	4,024,313	-1,057,994	2,966,319
Wells Branch MUD	2,096,795	-546,381	1,550,414
Total	8,901,881	-2,318,631	6,583,250

Q. Please summarize Austin Water's costs to provide wastewater services to Districts, consistent with Staff's adjustments.

A. Staff recommends that the Commission set the Districts' cost of wastewater service at $3,672,221, which represents a downward adjustment in the amount of $844,010 to the $4,516,231 wastewater cost of service requested in Austin Water's application. For each District, the wastewater cost of service requested in Austin Water's application and Staff's recommended wastewater cost of service can be seen in the following table:

Table BTM-10
Staff-Recommended Wastewater Cost of Service for Each District (in dollars)

District	Austin Water's Requested Wastewater Cost of Service	Staff Adjustment	Staff-adjusted Wastewater Cost of Service
North Austin MUD	1,226,475	-229,174	997,301
Northtown MUD	1,281,932	-239,545	1,042,387
Wells Branch MUD	2,007,825	-375,293	1,632,532
Total	4,516,231	-844,010	3,672,221

Q. What overall change in revenues to be collected from Districts, including water and wastewater, does Staff recommend for Austin Water in proceeding?

A. On a combined water and wastewater basis, Staff recommends that Austin Water's wholesale rates be set to collect $10,255,471 in revenues, which represents an increase of $16,835, or 0.2% on a percentage basis, over present water and wastewater revenues collected from Districts of $10,238,636.

XI. REVENUE STABILITY RESERVE FUND

Q. What is Austin Water's request for a Revenue Stability Reserve Fund?

A. Austin Water currently charges customers other than the Districts to fund a reserve that Austin Water can draw from under certain conditions when actual consumption on the system is lower than budgeted. Austin Water's requested mechanism to fund the reserve would be a standalone rate rider under which Districts would be charged five cents per 1,000 gallons.[45]

Q. Which Staff witness addresses the various aspects of Austin Water's request for a Revenue Stability Reserve Fund?

A. Staff witness Emily Sears addresses the need to fund the reserve, recommending rejection of the requested surcharge.[46] To implement Ms. Sears recommended disallowance, I recommend that Austin Water's request to assess a revenue stability fund surcharge to the Districts on a volumetric basis under a standalone rate rider be rejected.

Q. In the event the Commission adopts some form of a Revenue Stability Fund surcharge over and above the level of funding that can be accomplished through debt service coverage revenues (i.e., consistent with Ms. Sears's recommendation), what do you recommend as the appropriate method of recovery of the costs?

A. I recommend that any Commission-approved funding amounts be included in base rates and loaded into the fixed charge component of the rate structure.

[45] Direct Testimony of David A. Anders at 33.

[46] Direct Testimony of Emily Sears on behalf of Commission Staff (Nov. 15, 2019).

Austin Water requested a volumetric rate design for the surcharge set to five cents per 1,000 gallons. A volumetric rate design runs counter to the stated purpose of the Revenue Stability Reserve Fund.

Q. How does a volumetric rate design run counter to the purpose of the Revenue Stability Reserve Fund?

A. Under Austin Water's proposed rate design for the surcharge, collections under the surcharge would fluctuate based on volumes, creating new volume-based fluctuations in revenues for Austin Water to contend with. Because the purpose of the fund is to stabilize revenues, a volume-based rate design that will induce volume-based fluctuations in revenues is not appropriate. Any funding amounts should be loaded into the fixed charge component of base rates. Collections under fixed charges do not vary based on volumes.

Q. Is Austin Water's request to assess the funding surcharge under a standalone rider appropriate?

A. No. I also recommend rejection of Austin Water's proposal to create a standalone rate rider to recover any approved amounts. Commission precedent indicates a preference for express statutory authorization for the creation of a standalone rate rider. Although I am not an attorney, it is my understanding that no express statutory authorization exists for the creation of a revenue stability fund rider.

The default method of recovery is base rates. Base rates are preferred because base rates incentivize the utility to control costs and economize operations. Any annual amounts approved by the Commission to fund any revenue stability fund should be included in base rates, not assessed under a standalone rider.

XII. CONCLUSION

Q. Does this conclude your direct testimony?

A. Yes.

Brian T. Murphy

Public Utility Commission of Texas
1701 North Congress Avenue
Austin, TX 78711-3326

REGULATORY EXPERIENCE:

Public Utility Commission of Texas, Rate Regulation Division
Senior Rate Analyst, Tariff and Rate Analysis Section
Employed: February, 2019 to present.

ReSolved Energy Consulting
Management Consultant
Employed: May, 2018 to January, 2019.

Potomac Electric Power Company
Senior Rate Analyst
Employed: March, 2017 to April, 2018

Public Utility Commission of Texas, Rate Regulation Division
Senior Rate Analyst, Tariff and Rate Analysis Section
Employed: October, 2010 to March, 2017.

Perform analysis of tariff filings, cost allocation, and rate design. Review tariffs of regulated utilities to determine compliance with Commission requirements. Analyze cost allocation studies and rate design issues for regulated electric utilities. Analyze policy issues associated with the regulation of the electric industry. Work on or lead teams in contested cases, reports. the development of market rules, and research concerning pricing and related issues. Prepare and present testimony as an expert witness on rate and related issues in docketed proceedings before the Commission and the State Office of Administrative Hearings.

EDUCATION:

1998	Baylor University, Waco, TX Master of Business Administration, concentration in finance.
1996	George Mason University, Fairfax, VA Bachelor of Science.
1989-91	University of Chicago, Chicago, IL Core Curriculum.

BUSINESS SKILLS:

1999	St. Charles Training Center, St. Charles, IL. Financial Modeling.

List of Testimony Filed at the Public Utility Commission of Texas:

Docket No. 49421—*Application of CenterPoint Energy Houston Electric, LLC for Authority to Change Rates*—June 12, 2019 (direct), and June 19, 2019 (rebuttal).

Docket No. 49148—*Application of El Paso Electric Company for a Transmission Cost Recovery Factor*—April 23, 2019.

Docket No. 48439—*Review of Rate Case Expenses Incurred in Docket 48371*—April 15, 2019.

Docket No. 48401—*Application of Texas-New Mexico Power Company for Authority to Change Rates*—August 13, 2018 (direct) and August 28, 2018 (rebuttal).

Docket No. 48371—*Entergy Texas, Inc.'s Statement of Intent and Application for Authority to Change Rates*—August 1, 2018.

Docket No. 48322—*Application of El Paso Electric Company to Adjust its Energy Efficiency Cost Recovery Factor and Establish Revised Cost Cap*—July 27, 2018.

Docket No. 48422—*Application of AEP Texas, Inc. to Adjust its Energy Efficiency Cost Recovery Factor and Related Relief*—July 17, 2018.

Docket No. 48421—*Application of Oncor Electric Delivery Company LLC to Adjust its Energy Efficiency Cost Recovery Factor*—July 12, 2018.

Docket No. 45414—*Review of the Rates of Sharyland Utilities, L.P., Establishment of Rates for Sharyland Distribution & Transmission Services, L.L.C., and Request for Grant of a Certificate of Convenience and Necessity and Transfer of Certificate Rights*—March 7, 2017 (Direct), and March 16, 2017 (Cross-Rebuttal).

Docket No. 45524—*Application of Southwestern Public Service Company for Authority to Change Rates*—August 23, 2016 (Direct), September 7, 2016 (Cross-Rebuttal), and December 8 (Settlement).

Docket No. 46014—*Application of CenterPoint Energy Houston Electric, LLC to Adjust Its Energy Efficiency Cost Recovery Factor*—August 8, 2016.

Docket No. 45691—*Application of Southwestern Electric Power Company for Approval to Amend Transmission Cost Recovery Factor*—June 9, 2016.

Docket No. 44498—*Review of Rate Case Expenses Incurred by Southwestern Public Service Company and Municipalities in Docket No. 43695*—May 9, 2016.

Docket No. 44941—*Application of El Paso Electric Company to Change Rates*—December 18. 2015 (Direct) and January 15, 2016 (Cross-Rebuttal).

Docket No. 45084—*Application of Entergy Texas, Inc. for Approval of a Transmission Cost Recovery Factor*—November 24, 2015.

Docket No. 44698—*Application of Southwestern Public Service Company to Adjust its Energy Efficiency Cost Recovery Factor*— July 31, 2015 (Direct); and August 11, 2015 (Cross-Rebuttal).

Docket No. 43695—*Application of Southwestern Public Service Company for Authority to Change Rates*— May 22, 2015 (Direct); and June 8, 2015 (Cross-Rebuttal).

Docket No. 44496—*Application of Southwestern Electric Power Company for Approval to Amend its Transmission Cost Recovery Factor*— May 22, 2015.

Docket No. 42560—*Application of CenterPoint Energy Houston Electric, LLC for Approval of an Adjustment to its Energy Efficiency Cost Recovery Factor*—August 7, 2014.

Docket No. 42448 -*Application of Southwestern Electric Power Company for Approval of a Transmission Cost Recovery Factor*—July 31, 2014.

Docket No. 42454—*Application of Southwestern Public Service Company to Adjust its Energy Efficiency Cost Recovery Factor*—July 11, 2014.

Docket No. 42042—*Application of Southwestern Public Service Company for Approval of a Transmission Cost Recovery Factor*—May 1, 2014.

Docket No. 41791--*Application of Entergy Texas, Inc. for Authority to Change Rates and Reconcile Fuel Costs*--January 17 (Direct), January 31 (Cross-Rebuttal), and April 4 (Supplemental), 2014.

Docket No. 41474—*Application of Sharyland Utilities, L.P. to Establish Retail Delivery Rates, Approve Tariff for Retail Delivery Service, and Adjust Wholesale Transmission Rate*—October 28 (Direct) and December 20, 2013 (Settlement).

Docket No. 41444—*Application of Entergy Texas, Inc. for Authority to Redetermine Rates for Energy Efficiency Cost Recovery Factor* –July 26, 2013.

Docket No. 40627—*Petition by Homeowners United for Rate Fairness to Review Austin Rate Ordinance No. 20120607-05*—February 14, 2013.

Docket No. 40443—*Application of Southwestern Electric Power Company for Authority to Change Rates and Reconcile Fuel Costs* December 17, 2012.

Docket No. 40295—*Application of Entergy Texas, Inc., for Rate Case Expenses Severed from PUC Docket No. 39896; SOAH Docket No. 473-12-2979* - November 6, 2012.

Docket No. 40020—*Application of Lone Star Transmission, LLC for Authority to Establish Interim and Final Rates and Tariffs*—June 28, 2012.

Docket No. 39590—*Petition of El Paso Electric Company for Approval to Revise Military Base Discount Recovery Factor Tariff, Pursuant to PURA § 36.354* October 26, 2011.

Docket No. 39361—*Application of AEP Texas North Company to Adjust Energy Efficiency Cost Recovery Factor and Related Relief*—August 2, 2011.

Docket No. 39359—*Application of Southwestern Electric Power Company to Adjust Energy Efficiency Cost Recovery Factor and Related Relief* - July 29, 2011.

Docket No. 39360—*Application of AEP Texas Central Company to Adjust Energy Efficiency Cost Recovery Factor and Related Relief*—July 27, 2011.

List of Testimony filed at the Maryland Public Service Commission

Case No. 9472—*In the Matter of the Application of Potomac Electric Power Company for Adjustments to its Retail Rates for the Distribution of Electric Energy*—January 2, 2018 (Direct), February 5, 2018 (Supplemental Direct), and March 8, 2018 (Additional Supplemental Direct).

List of Testimony filed at the District of Columbia Public Service Commission

Formal Case No. 1150—*In the Matter of the Application of Potomac Electric Power Company for Authority to Increase Existing Retail Rates and Charges for Electric Distribution Service*—December 19, 2017 (Direct), and February 9, 2018 (Supplemental Direct).

Residential Service Connection Configurations[47]

Average Length of Customer Service Line

The three figures shown on this worksheet display the assignment of the Average Length of Customer Service Line, Lp for the three most common piping configurations

Figure 1 shows the configuration of the water meter outside of the customer building next to the curb stop valve In this configuration Lp = 0 since the distance between the curb stop and the customer metering point is essentially zero

Figure 2 shows the configuration of the customer water meter located inside the customer building where Lp is the distance from the curb stop to the water meter

Figure 3 shows the configuration of an unmetered customer building where Lp is the distance from the curb stop to the first point of customer water consumption or more simply the building line

In any water system the Lp will vary notably in a community of different structures, therefore the average Lp value is used and this should be approximated or calculated if a sample of service line measurements has been gathered

Click for more information

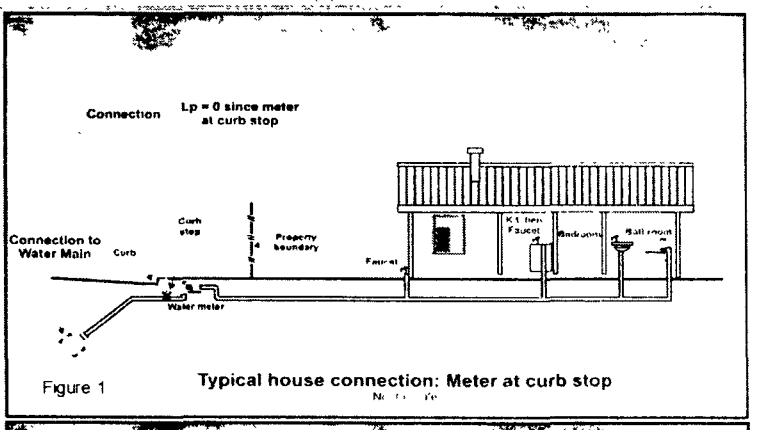


Figure 1 **Typical house connection: Meter at curb stop**

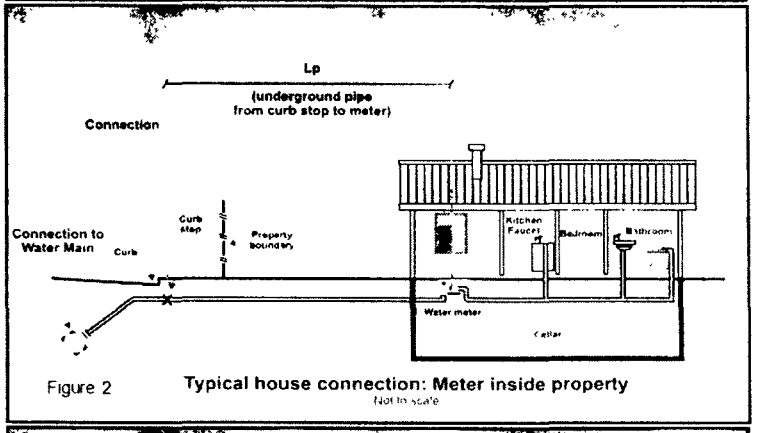


Figure 2 **Typical house connection: Meter inside property**

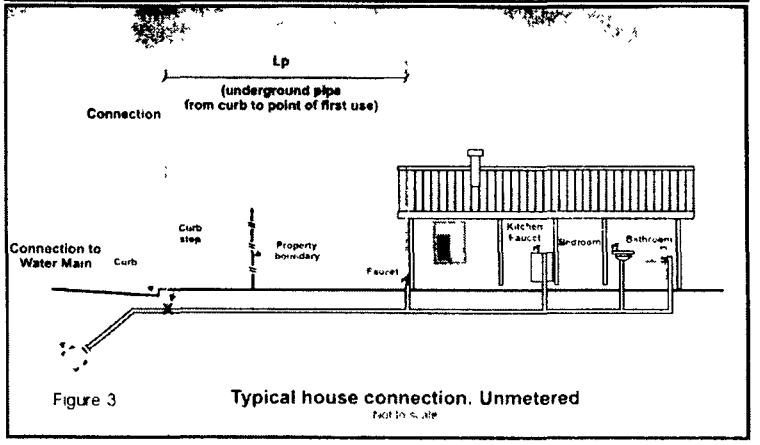


Figure 3 **Typical house connection. Unmetered**

[47] Source: Austin Water's Responses to Districts' Ninth Set of Requests for Information at Response No. 9-26, Workbook "AW Districts 9-26, Attachment 4 AWWA water loss audit Austin 2018," at Worksheet "Service Connection Diagram" (Oct 14, 2019)

Discovery Responses Referenced in Testimony

SOAH DOCKET NO. 473-19-6297.WS
PUC DOCKET NO. 49189

AUSTIN WATER'S RESPONSE TO DISTRICTS' NINTH RFI

DISTRICTS 9-26: Please provide all reports, studies, or presentations on total water system lost and unaccounted for water in 2017, 2018, and 2019.

RESPONSE: Please see AW Districts 9-26, Attachment Nos. 1-9 for studies and presentations on water loss for 2017 and 2018. Water loss calculations for 2019 have not been completed at this time. The responsive documents are voluminous.

Prepared by: Robert Rowan
Sponsored by: David Anders and Joseph Gonzalez

SOAH DOCKET NO. 473-19-6297.WS
PUC DOCKET NO. 49189

AUSTIN WATER'S RESPONSE TO
COMMISSION STAFF'S 15th RFI

STAFF 15-1 Please refer to AW's response to Districts 10-14 at Attachment 5. Please identify by G/L account the dollar amounts for the costs of water losses that AW requests in this proceeding to be included in (a) total water system cost of service, and (b) cost of service to Districts. Please explain the requested methodologies to allocate the costs of losses between wholesale and retail and provide the data that is used to perform the allocations. Put differently, explain how the total costs of losses flow through to wholesale cost of service and retail cost of service. Please provide a narrative explanation of the rationale for the requested allocation basis, including an explanation as to how the request is consistent with cost causation.

RESPONSE: Austin Water's Texas Water Development Board 2018 Water Audit Report (AW Districts 10-14, Attachment No. 5) provides the calculation of the State mandated water loss identification of total water losses, apparent losses, and real losses. The report also provides financial performance indicators, which estimate the cost of water losses.

However, the water cost of service (COS) model includes all operations and maintenance costs of water treatment production, inclusive of any costs associated with the eventual loss of water in the transmission and distribution systems. The cost of water loss is not separated as an individual line item cost in the COS model. It is embedded in the cost of water treatment production and allocated to all customer classes.

Prepared by: Robert Rowan
Sponsored by: David Anders and Joseph Gonzales

SOAH DOCKET NO. 473-19-6297.WS
PUC DOCKET NO. 49189

AUSTIN WATER'S RESPONSE TO
COMMISSION STAFF'S FOURTH RFI

Staff 4-14 For each wholesale water customer, please provide the diameters of the distribution mains that serve that customer (if any).

RESPONSE: Each of the wholesale water customers own and operate their distribution systems within their boundaries. Austin Water does not provide distribution service to the wholesale customers.

Prepared by: David Anders
Sponsored by: David Anders and Joseph Gonzales

SOAH DOCKET NO. 473-19-6297.WS
PUC DOCKET NO. 49189

AUSTIN WATER'S RESPONSE TO DISTRICTS' TENTH RFI

DISTRICTS 10-14: What was the City's annual water loss for each of the past five fiscal years?

RESPONSE: Please see AW Districts 10-14. Attachments 1-5 for the City's annual water loss for the past five fiscal years.

Prepared by: Robert Rowan
Sponsored by: David Anders and Joseph Gonzales

SOAH DOCKET NO. 473-19-6297.WS
PUC DOCKET NO. 49189

AUSTIN WATER'S RESPONSE TO
COMMISSION STAFF'S ELEVENTH RFI

STAFF 11-1 Please refer to Austin Water's response to Staff 7-9a. Did any customers in any Districts participate in Austin Water's conservation programs during the Test Year? Have any District customers ever participated in Austin Water's conservation programs (while still receiving retail service from Austin Water's wholesale customer)?

RESPONSE: Customers in all four districts participated in Austin Water's conservation programs. Below includes the conservation program activity per year, and by District

	2019	2018	2017	2016
North Austin #1	4	1	2	5
Northtown	2	2	0	1
WC #10	0	2	2	7
Wells Branch	1	1	2	2
Total	7	6	6	15

The following table provides the total historical Conservation program activity for each District since 2003.

	Drought Stage	Irrigation Audit	Irrigation Rebate	Free Toilet	Toilet Rebate	Rainwater	WW Landscape	Washwise	Other	Total programs utilized
North Austin MUD	16	8	0	155	83	26	2	194	0	484
Northtown MUD	6	0	1	23	7	10	2	23	0	72
WCID #10	8	5	1	37	79	62	0	235	3	430
Wells Branch	7	11	1	164	85	59	1	168	0	496
	37	24	3	379	254	157	5	620	3	1482

Prepared by: Robert Rowan
Sponsored by: David Anders and Joseph Gonzales

SOAH DOCKET NO. 473-19-6297.WS
PUC DOCKET NO. 49189

AUSTIN WATER'S RESPONSE TO
COMMISSION STAFF'S NINTH RFI

STAFF 9-14 Please refer to AW's response to Staff 6-13. Please provide a detailed description of what services the Communications Technology Management Department provides for AW's customers. Please identify which of the Department's services are received by retail customers and which services (if any) are received by wholesale customers. Please also provide by G/L account the amounts proposed to be included in the revenue requirements used to set charges for wholesale petitioners.

RESPONSE: The Communications and Technology Management (CTM) Department provides information technology (IT) services to City departments and regional partners, including application delivery, web and mobile technologies, data center computers, reliable infrastructure, storage, technical support, project management, and secure, interoperable communication systems. As stated in response to Staff RFI No. 6-13, "[t]hese are shared costs allocated to all customers and is a cost of providing service to all of our customers."[3] The Adjusted Test Year amount for Water is $2,415,274 and Wastewater is $2,394,314, which is included in G/L account 9999, account number 6240.

The amounts proposed to be included in the revenue requirements used to set charges for wholesale petitioners are the following:

Combined Water & Wastewater	North Austin MUD	Northtown MUD	WCID #10	Wells Branch MUD
Totals	$23,397	$22,405	$27,991	$35,864

Prepared by: Songli Floyd
Sponsored by: David Anders and Joseph Gonzales

SOAH DOCKET NO. 473-19-6297.WS
PUC DOCKET NO. 49189

AUSTIN WATER'S RESPONSE TO
COMMISSION STAFF'S TENTH RFI

STAFF 10-4 Please provide the Test Year reclaimed water flows and provide the flows as a percentage of total wastewater flows during the Test Year.

RESPONSE: The table below provides the Test Year reclaimed water flows as a percentage of total wastewater flows.

Reclaimed Water (Gallons)	1,134,011,800
Total Wastewater Effluent (Gallons)	32,722,693,000
Reclaimed as a % of WW	3.46%

Prepared by: Robert Rowan
Sponsored by: David Anders and Joseph Gonzales