PSC DR 2-1:

Refer to the Application, Exhibit 7, Water Service Kentucky Notice. Water Service Kentucky proposes to raise its monthly water service rates by an across-the-board percentage amount.

a. Provide an explanation of how the across-the-board percentage method to increase monthly water service rates was chosen.

b. Provide a list of alternative methods Water Service Kentucky considered and an explanation as to why each alternative was not chosen to increase its monthly water service rates.

Response:

a. The Company did not perform a Cost of Service Study in the current case. Absent more detailed, current information regarding service cost levels by customer class, the Company believes an across-the-board base rate increase is appropriate. In its last base rate case, the Company proposed an across-the-board increase method was proposed and the Kentucky Public Service Commission authorized it.

b. See the response above for the Company's considerations regarding the method of determining a base rate increase.

Witness: James Kilbane

PSC DR 2-2:

Refer to Water Service Kentucky's responses to Commission Staff's First Request for Information (Staff's First Request) filed June 28, 2022, Item 27.

a. Confirm that Water Service Kentucky used its proposed Weighted Cost of Capital to calculate it forecasted Allowance for Funds Used During Construction (AFUDC).

b. Provide the calculations of Water Service Kentucky's Allowance for Funds Used During Construction for the based period and the forecited test-year.

c. Is Water Service Kentucky including AFUDC in its forecasted operating revenues.

Response:

a. No, the company used its current AFUDC rate for pro forma capital additions calculations, assuming it is the best current known measurable number.

b. See Exhibit 10-20-28 Schedule A Excel file previously provided, Pro forma UPIS-AD-ADIT tab, Rows 11 and 13.

c. No, AFUDC is NARUC account 420 which is in the Other Income and Deductions which is a non-utility income account.

Witness: James Kilbane

PSC DR 2-3:

Refer to Water Service Kentucky's response to Staff's First Request, Item 49, PSC_DR_1-49_Exhibit_31_Details_of_Dues_Contributions.xlsx, tab 629100. For each expense or credit listed, provide the vendor name, a description of the organization's purpose, and, if a credit, why Water Service Kentucky was credited.

Response:

The listed credits represent accounting accrual reversals, and the corresponding debits for the accruals and credits total zero. Accounting, at one point, used accruals to represent a charge applied to payments as they were listed on the same reference tab.

Witness: James Kilbane

PSC DR 2-4:

Refer to Water Service Kentucky's response to Staff's First Request, Item 49, PSC_DR_1-49_Exhibit_35_-_Schedule A_-_Cost_of_Capital_Summary_v2.xlsx.

a. Explain why the capital structure excludes any short-term debt.

b. Provide the amount and cost rate of any short-term debt in the base and test year.

Response:

a. The Company included notes payable and the credit revolver in the Debt category and has no debt funding sources beyond these categories.

b. Please see response to part A above.

Witness: James Kilbane

PSC DR 2-5:

Refer to the Direct Testimony of Seth Whitney (Whitney Testimony), page 10. Regarding the "good, showing improvement" areas, provide the following:

a. Driver safety issues.

b. The number of late meter reads for 2017, 2018, 2019, 2020, and 2021.

c. The number of inaccurate meter reads for 2017, 2018, 2019, 2020, and 2021.

Response:

a. WSCK utilizes a driver telematics system that monitors its vehicles, which features alerts of unsafe driving behaviors. As a result, WSCK can identify employees who have a higher-than-average alert volume and provide those individuals with additional training and coaching to improve their driving habits.

b. See response for Item PSC DR 2-19 part D.

c. See response for Item PSC DR 2-19 part D.

Witness: Seth Whitney

PSC DR 2-6:

Refer to the Whitney Testimony, page 12. Provide the NPS Survey.

Response:

See Exhibit PSC DR 2-06 - WSCK NPS Survey Results.

Witness: Seth Whitney

Sea Cliff Consulting

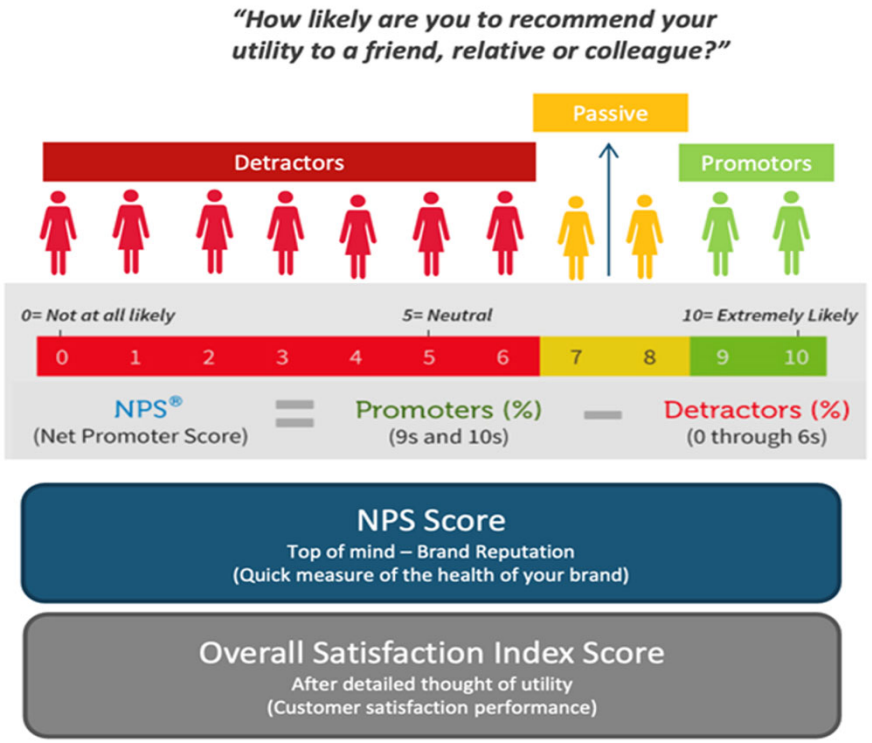
CORIX

NPS Survey Results: Kentucky

Corix Group of Companies | 8.23.2021

Why NPS® methodology?

What is NPS?



NPS Score
Top of mind – Brand Reputation
(Quick measure of the health of your brand)

Overall Satisfaction Index Score
After detailed thought of utility
(Customer satisfaction performance)

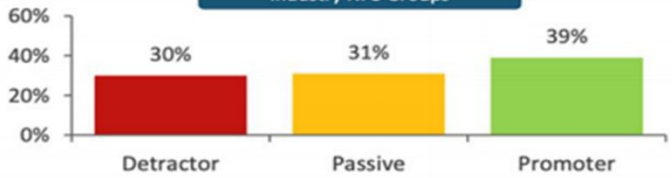
Industry Benchmarks

How to Use NPS (Net Promoter Score)

Industry Top NPS Scores

Gwinnett County	33
Monroe County Water Authority	32
Miami-Dade County	28
OUC	28
Orange County Utilities	27
Palm Beach County	27
Baton Rouge Water Company	26
City of Tampa	22
City of Dallas	21
Illinois American Water	21
Jefferson Parish	21
Las Vegas Valley Water District	21
Louisville Water	21
Overall Industry	8

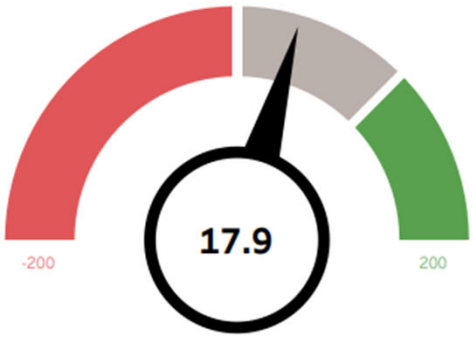
Industry NPS Groups



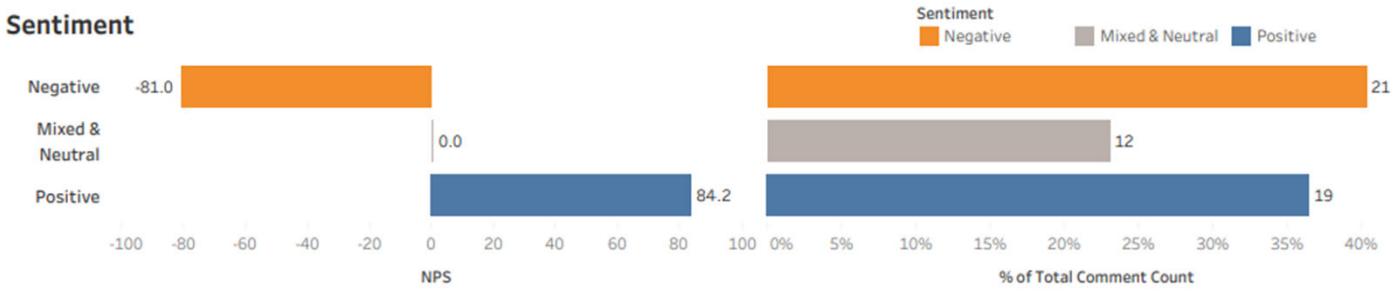
Sea Cliff Consulting

CORIX®

Water Service Corporation of Kentucky - Survey Analysis



Detract	Passive	Promote	Response Count	Response Rate
34%	15%	52%	95	4.1%



Sea Cliff Consulting

UperiX CORIX

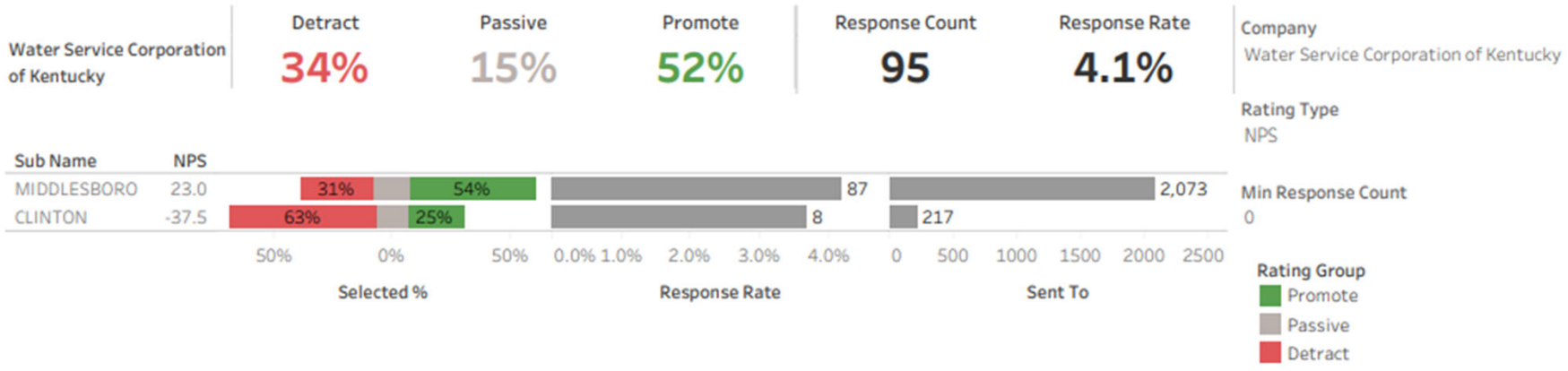
Water Service Corporation of Kentucky - Top 30 Words in each NPS Group

Sea Cliff Consulting

UperiX

CORIX

Water Service Corporation of Kentucky - NPS by Region and Subdivision



Water Service Corporation of Kentucky - What does this mean for the BU?

Concerns:

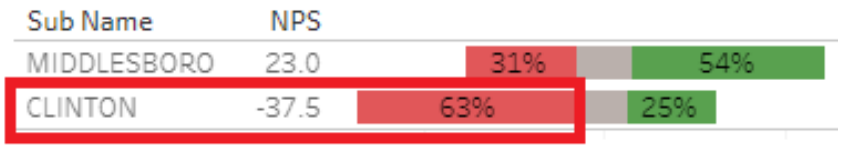
Faulty website
High Cost
Poor customer service

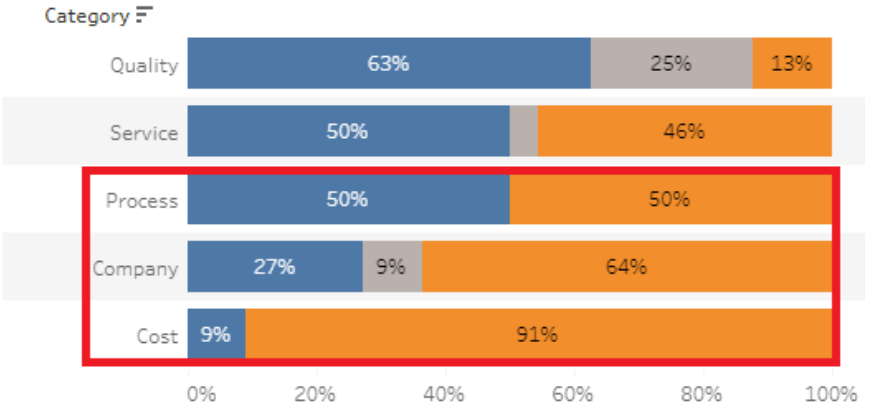
Opportunities:

Website development and enhancements
Local office and staff
Clinton Subdivision

Focus areas:

Customer Service training
Maintenance staff





What's next?

Prompt Follow-up

- Customer-centric organizations follow-up on customer feedback promptly to address concerns which helps to **Improve the NPS score**.
- Closing the feedback loop is essential and demonstrates our commitment to delivering a rich customer experience and ensuring our customers are satisfied.

Exceed Expectations

- Use the NPS score to measure the gap between customer expectations, customer service, and customer experience.
- Exceeding customer expectations will help deliver positive experiences, and helps **Improve our NPS score**, garner advocates for our brand and boost customer loyalty.

Build Communities

- Customer feedback, good or bad, is essential for our brand to improve processes, operations, and service.
- Utilizing HOAs, community forums, etc. will help obtain continuous feedback necessary to **improve our NPS score** and customer experience.

Monitor NPS

- It's not ONE AND DONE.
- Repeating the survey annually increases our percentage of promoters, decreases detractors, and helps to convert passives into promoters and **improve the NPS score**.

PSC DR 2-7:

Refer to the Whitney Testimony, page 13.

a. Provide the loss revenue from the termination of the wastewater services for Clinton.

b. Provide an itemized list of reduced expenses that resulted from the termination for the wastewater services for Clinton.

Response:

a. The total revenue WSCK received from the Clinton wastewater contract in 2021 was $137,505.

b. Please see below. WSCK incurred the below costs in 2021 but will not incur the same costs in 2022 due to the termination of the Clinton Wastewater Contract.

Maintenance	3,591
Outside services	7,200
Utilities	15,427
Testing	14,268
Chemicals	8,143
Total	48,629

Witness: James Kilbane

PSC DR 2-8:

Refer to the Direct Testimony of James Kilbane (Kilbane Testimony), page 8. Provide what the initials CAGR represent.

Response:

CAGR means Compound Annual Growth Rate.

Witness: James Kilbane

PSC DR 2-9:

Refer to the Kilbane Testimony at 10. Mr. Kilbane explains how Water Service Kentucky developed its forecasted Salaries and Wages expense.

a. Provide comparisons of the average annual raises that Water Service Kentucky budgeted and actually gave to its employees in the calendar years 2017–2021. Identify the location of each employee that received an annual raise in the calendar years listed.

b. Provide comparisons of the minimum and the maximum wage increases that Water Service Kentucky budgeted and actually gave to its employees in the calendar years 2017–2021. Identify the location of each employee that received a minimum raise and maximum raise in the calendar years listed.

c. Explain whether the annual employee raises was directly connected to an employee performance review.

d. Identify all bonuses that Water Service Kentucky provided to its employees for the calendar years 2017–2021.

e. Provide a copy of each incentive compensation plan that will be in effect during the base period and the forecasted test year. Further, provide the incentive compensation target metrics for Water Service Kentucky, and each affiliate allocating costs to Water Service Kentucky applicable to the base period and the forecasted test year. Further, describe how the incentive compensation target metrics are calculated and the source of the data used for the calculations. Also, provide Water Service Kentucky and each affiliate's projected performance against each of these metrics in the base period and the forecasted test year.

f. Provide the amount of incentive compensation expense pursuant to each incentive compensation plan included in the base period and the forecasted test year operating expenses for

each target metric used for this plan. Separately, provide the costs directly incurred by the Water Service Kentucky and the costs incurred through affiliate charges from each affiliate. In addition, provide these amounts by Operations & Maintenance (O&M) and/or Administrative & General expense account and/or capital account.

Response:

a. Please see Excel file PSC DR 2-9 Historical Increases – Confidential.xlsx.

b. Please see Excel file PSC DR 2-9 Historical Increases – Confidential.xlsx.

c. Some wage increases were based on promotions, as noted by changes in job title, while some were based on merit and/or attainment of additional certifications, which are tied to an employee performance review.

d. Please see Excel file PSC DR 2-9 Historical Increases – Confidential.xlsx.

e. Please note the Company is not requesting recovery of incentive compensation allocated for Corporate Services employees. Please see the response to AG DR 1-67.

Please see response to AG DR 1-65 for the current EIP and LTIP plans; plan documents for 2023 are not yet available.

Please see attached confidential files PSC DR 2-9 (e) - 2021 Approved YE scorecard CONFIDENTIAL.pdf and PSC DR 2-9 (e) - 2022 Approved scorecard CONFIDENTIAL.pdf for most recent completed scorecard year results and approved scorecard for 2022 for EIP.

f. Please note the Company is not requesting recovery of incentive compensation allocated for Corporate Services employees. Please see response to AG DR 1-67. Please see response to AG DR 1-66.

Witness: James Kilbane

PSC DR 2-10:

Refer to the Kilbane Testimony at 9–25. Mr. Kilbane describes the forecasting/budgeting methods used by Water Service Kentucky to develop its forecasted test year operating expenses.

a. Explain if the methods used by Water Service Kentucky to create its annual budgets is the same methodology that it used to generate the forecasted test year revenues and expenses.

b. If the response to Item 2.a, is no, explain why Water Service Kentucky used a different methodology to generate its forecasted test year operations. Provide a comparison of the two budgeting/forecasting methods used by Water Service Kentucky.

Response:

a. The methods WSCK used to create its annual budgets are the same as that used to generate forecasted test year revenues and expenses except for the timing. WSCK finalized the 2022 budget in August 2021. The 2023 budget will be finalized in the coming months, and WSCK expects it to reflect what the submitted expenses and present rate values in Application Exhibit 29.

b. Not applicable.

Witness: James Kilbane

PSC DR 2-11:

Refer to the Kilbane Testimony at 9–25. Water Service Kentucky is requesting regulatory asset treatment for costs associated with its Fusion implementation project that were not capitalized.

a. Explain if Water Service Kentucky submitted an application pursuant to KRS 278.220 requesting prior Commission authorization permitting Water Service Kentucky to establish a regulatory asset for the recovery of the Fusion implementation costs.

b. Explain if Water Service Kentucky's Fusion implementation costs meets the following long-standing Commission precedent:

(1) The Fusion implementation cost is an extraordinary, nonrecurring expense that could not have been reasonably anticipated or included in the utility's planning.

(2) Fusion implementation cost is an expense resulting from a statutory or administrative directive.

(3) The Fusion implementation cost is an expense in relation to an industry-sponsored initiative.

(4) The Fusion implementation cost is an extraordinary or nonrecurring expense that, over time, will result in a savings that fully offsets the cost.

Response:

a. The Company is asking to establish and amortize the asset in the current case not establish a regulatory asset.

b.

(1) The Fusion implementation cost is a significant, non-recurring one-time expense outside the normal course of business.

(2) As the company's previous ERP system was at end of life, the new system was necessary to continue serving customers as required by the PSC and KY statutes.

(3) The Fusion implementation cost is not an expense related to an industry-sponsored initiative.

(4) The Fusion implementation cost is significant and non-recurring, and it is reasonable and prudent to provide proper service to customers.

Witness: James Kilbane.

PSC DR 2-12:

Refer to the Kilbane Testimony, page 11. Confirm that the base period Captime amount reflects an average of 2020 and 2021.

Response:

The Kilbane testimony relating to the Base Period is incorrect. The Base Period includes the budgeted amount for 2022, which was based on the average of the 2020 capital investment activity and the forecasted 2021 capital activity as of June of 2021.

Witness: James Kilbane

PSC DR 2-13:

Refer to the Kilbane Testimony, page 14. Confirm that the base period legal expense amount reflects an average of 2020 and 2021.

Response:

The Kilbane testimony relating to the Base Period is incorrect. The Base Period actual 6 months includes higher-than-average legal expense; therefore, the Forecast Period reflects the 2020 and 2021 average, which is a more reasonable expectation.

Witness: James Kilbane

PSC DR 2-14:

Refer to the Kilbane Testimony, in general. Explain why the base period expense amounts represent a two-year average and not a five-year average.

Response:

The Company analyzed individual accounts for the Base Period and the Forecast Period and determined which are the most representative for forecasting purposes. In the areas where it used a two-year average, the Company determined that the two most recent calendar years include the most current adjusted pricing and reflect the most current operating situations. A five-year average, although including more data points, does not accurately reflect operating changes, change of vendors, or pricing changes.

Witness: James Kilbane

PSC DR 2-15:

Refer to the Kilbane Testimony, page 28.

a. State the last time Water Service Kentucky performed a cost of service study (COSS) to review the appropriateness of its current rates and rate design.

b. Explain whether Water Service Kentucky considered filing a COSS with the current rate application and the reasoning for not filing one.

c. Explain whether any material changes to Water Service Kentucky's system would cause a new COSS to be prepared since the last time it has completed one.

d. Provide a copy of the most recent COSS that has been performed for Water Service Kentucky's system in Excel spreadsheet format with all formulas, rows, and columns fully accessible and unprotected.

Response:

a. The last WSCK COSS was submitted for the Docket 2018-00208 rate case.

b. Due to the currently streamlined base tariff rates across its service areas and required consulting studies performed for the current case, the Company believes a COSS is not necessary for the current case, as the customer benefit from performing the study does not outweigh the study's costs.

c. The Company has not identified material changes in operations, customer base, or other factors that support the need for a new COSS.

d. Please see response to PSC DR 1-29, provided in the above referenced docket.

Witness: James Kilbane

PSC DR 2-16:

Refer to the Direct Testimony of Patrick L. Baryenbruch (Baryenbruch Testimony), page 16. Explain why the producer price index was used as the escalation rate for the comparison group's costs.

Response:

Please see Excel file PSC DR 1-16 Inflation Rates.

Witness: Pat Baryenbruch

PSC DR 2-17:

Refer to the Direct Testimony of Colby Wilson (Wilson Testimony), page 5. Provide the unaccounted-for-water loss for Middlesboro, Clinton, and WSKC for 2016, 2017, 2018, 2019, and 2020.

Response:

2016-	Clinton= 11.2% Middlesboro= 7.1%	2016 WSCK total= 7.4%
2017-	Clinton= 5.9% Middlesboro= 3.2%	2017 WSCK total= 3.4%
2018-	Clinton= 14.9% Middlesboro= 13.9%	2018 WSCK total= 13.9%
2019-	Clinton= 8.4% Middlesboro= 14.3%	2019 WSCK total= 14.0%
2020-	Clinton=6.7% Middlesboro= 19.6%	2020 WSCK total= 18.8%

Witness: Colby Wilson

PSC DR 2-18:

Refer to the Colby Testimony, page 8.

a. Regarding the Clinton Main Replacement.

(1) Provide the study used to support the need to this project.

(2) Explain whether Water Service Kentucky is requesting a Certificate of Public Convenience and Necessity for this project. If not, explain why.

(3) Provide the request for proposal (RFP) and the responses for this project.

b. Regarding the New Vehicles:

(1) Explain whether Water Service Kentucky examined whether it would be more beneficial to finance the two vehicles.

(2) Explain whether the vehicle Water Service Kentucky is expecting to purchase in 2022 has been purchased or not. If so, provide the purchase agreement.

(3) Provide the depreciation balance of the vehicles being replaced.

c. Provide a list of projects and the associated costs of any replacement and/or upgrading to the existing assets for years 2019, 2020, and 2021.

Response:

a.

(1) WSCK did not conduct a study for this replacement. Rather, the Company considered the history of customer complaints, for both quantity and nature, in prioritizing this project.

(2) WSCK is not requesting a CPCN since this project is less than 10% of WSCK's capital.

(3) WSCK expects to issue the RFP in late 2022.

b.

(1) Corix's fleet services department adopted the practice of purchasing rather than leasing vehicles and purchasing outright based on available capital at the CRU level for the applicable affiliates, which the credit revolver generally supports.

(2) No final purchase agreement or bill of sale exists. Please see attached order form from the dealer, file PSC DR 2-18b2 - Vehicle purchase order form.

(3) The Company is replacing one vehicle during 2022-2023, a 2011 Toyota Prius, with the forecasted vehicle purchases. This vehicle is fully depreciated with an original cost of $25,556.42.

c. The Queensbury Heights water main replacement project was placed in-service in March 2020, with a final cost of $65,548.

Witness: Colby Wilson/James Kilbane

LEGACY GMC

Date: 7/15/2022
Salesperson: Tommy Reid
Manager: Steve Farmer

FOR INTERNAL USE ONLY

BUSINESS NAME	***WATER SERVICE COR OF KY***	Home Phone : ***(606) 269-0909***
CONTACT	***COLBY WILSON***	
Address :	***102 WATER PLANT ROAD***	
	MIDDLESBORO, KY 40965	Work Phone :
	BELL	
E-Mail :	***COLBY.WILSON@WSCKY.COM***	Cell Phone : ***(606) 499-3630***

VEHICLE

Stock # : ***G4178*** New / Used : **New** VIN : ***1GCHTBEAXN1236891*** Mileage: ***2***

Vehicle : ***2022 Chevrolet Colorado*** Color : ***SUMMIT WHITE***

Type : ***WT 4x4 Extended Cab 6 ft. box 128.3*** ***12M53***

Market Value Selling Price	30,865.00
Rebate	3,900.00
Adjusted Price	26,965.00
Tax	1,617.90
Non Tax Fees	676.00
Cash Deposit	.00
Balance	29,258.90

Customer Approval: _____ Management Approval: Steve Farmer

By signing this authorization form, you certify that the above personal information is correct and accurate, and authorize the release of credit and employment information. By signing above, I provide to the dealership and its affiliates consent to communicate with me about my vehicle or any future vehicles using electronic, verbal and written communications including but not limited to eMail, text messaging, SMS, phone calls and direct mail. Terms and Conditions subject to credit approval. For Information Only. This is not an offer or contract for sale.

O: 606- 401- 2215

PSC DR 2-19:

Refer to the Wilson Testimony, pages 9–13 regarding the proposed automated meter infrastructure (AMI) project.

a. Provide the cost/benefit analysis employed in the analysis of the proposed AMI project.

b. Itemize all cost savings Water Service Kentucky expects to incur as a result of the proposed AMI implementation.

c. Refer to page 10. Explain how understanding community usage patterns benefits Water Service Kentucky and quantify any savings that could result from this understanding.

d. Refer to page 10. Regarding the meter reads,

(1) Provide the number of mis-read meters annual for the last 5 years

(2) Provide the number of re-readings for the last 5 years.

e. Provide the RFP and bids associated with the proposed AMI project.

f. Refer to page 12. Provide the tasks that current meter readers will be reassigned to do.

g. Explain whether a customer can opt out of an AMI meter.

(1) If a customer can opt out, explain whether an opt out fee will be assessed.

(2) If an opt out fee is to be assessed, provide this fee and supporting documentation.

h. Provide the depreciable life Water Service Kentucky intends to apply to the AMI meters. Provide documentation to support Water Service Kentucky's estimated depreciation life.

i. Provide the depreciable life and balance of the current meters.

Response:

a. Please see attached file PSC DR 2-19a.

b. Please see attached file PSC DR 2-19a, and the response to part C below. While the cost-benefit analysis identified potential savings, due to the phase-in process of the AMI rollout and widely varying impacts that may accrue for each customer, the Company has not yet quantified cost savings.

c. Considerable savings for customers can occur by noticing leaks around the home sooner and by implementing repairs in a more efficient manner. WSCK may see savings due to reduced pumping cost, chemical cost, and fewer truck rolls to investigate and locate customer leaks. These savings for the Company are not readily quantifiable but would accrue and accumulate during and after phased-in implementation.

d. Please refer to the chart below to answer parts 1 and 2.

YEAR	TYPE	COUNT
2016	MISS_READ	5,462
2016	REREAD	563
2017	MISS_READ	6,996
2017	REREAD	763
2018	MISS_READ	8,351
2018	REREAD	692
2019	MISS_READ	3,502
2019	REREAD	704
2020	MISS_READ	5,195
2020	REREAD	546
2021	MISS_READ	7,316
2021	REREAD	1,405

e. Through Corix, WSCK is finalizing a master agreement with Neptune which includes preferred pricing. See the following attached files for the RFP and vendor bids for the master agreement.

(1) PSC DR 2-19e RFP - Metering Reading Solution.pdf

(2) PSC DR 2-19e Bid Response #1 CONFIDENTIAL

(3) PSC DR 2-19e Bid Response #2 CONFIDENTIAL

(4) PSC DR 2-19e Bid Response #3 CONFIDENTIAL

f. Employees will be able to provide improved customer service when completing service orders, as well as support more intensive maintenance routines. For example, WSCK will be able to incorporate a more intensive leak detection system, as well as facilitate more detailed asset management and system mapping improvements. WSCK will also be able to task individuals with an intensive lead and copper control and elimination process.

g. The Company is not contemplating a customer opt-out provision at this time.

h. The Company's currently approved Meter asset depreciation rate is 2.25%, or 44.44 years.

i. The Company's Meter assets have net balance (UPIS less A/D and net CIAC) of $251,420 as of 6/30/2022.

Witness: Colby Wilson/James Kilbane

2022 AMR/AMI COST-BENEFIT ANALYSIS

FOR THE
WATER SERVICE CORPORATION OF KENTUCKY

JULY 2022

- Prepared By -

VAUGHN & MELTON CONSULTING ENGINEERS, INC.
109 S. 24th Street
Middlesboro, Kentucky 40965
Phone 606-248-6600
www.vaughnmelton.com

V&M Project No. 012254-00

This study is being conducted to evaluate the automatic meter reading/advanced meter infrastructure (AMR/AMI) technology for the areas of Middlesboro and Clinton in Eastern Kentucky by Water Service Corporation of Kentucky. The study begins by providing a basic explanation of the available technologies and concludes with a realistic cost-benefit analysis scenario.

Section 1- Technology Update:

1. **Conventional Meter Reading**

Description:

A meter reader walks to the location of a water meter and reads/records the totalized reading from the flowmeter display. The information is recorded in a notebook or computer and then taken back to the central office for recording, analysis, and billing purposes. The frequency of manual reads may be monthly, bi-monthly, or quarterly.

Main Suppliers: Neptune, Sensus, Badger, Mueller, others.

Advantages:

Basic water meter service that works in all environmental settings.

Proven technology.

Minimum number of equipment to install and maintain.

Lowest installation cost.

Typical Setup:

A water meter with a flowmeter display is placed inside a meter box or building at each residence/establishment.

2. **Automatic Meter Reading (AMR)**

Description:

It is the communication technology used by water utilities to automatically collect water consumption information and data from a water meter endpoint near the water meter installation. An external data receiver device (via walking or driving) is needed to receive and transfer the data to a central database for billing, troubleshooting, and analyzing purposes.

Information/data can be collected via Touch technology (wand/probe and handheld computer) or Radio Frequency technology (radio, handheld/walk-by, mobile/drive-by)

Main Suppliers: Sensus, Neptune, Badger, others.

Advantages:

No need to manually read the flowmeter display.

Billing is prepared using calculated values instead of estimates.

More efficient and accurate collection of data.

Reduced unknow personnel trespassing on someone's property.

Lowers meter reading costs to the provider.

Technology can be easily upgraded to include more advanced features and network services such as the AMI service option described below.

Typical Setup:

A water meter with a flowmeter display is placed inside a meter box at each residence/establishment. An encoder register translates water usage info into electronic data and places the information on an endpoint for transfer of data. A meter reader must walk or drive by to collect the system information. The data is then manually taken to a central database for processing.

3. Advanced Meter Infrastructure (AMI)

Description:

AMI systems are an advancement of the AMR technology. It is an integrated system of water meters, communication networks and data management systems that enables two-way communications between water meter endpoints and utilities. This technology uses "smart meters" to remotely collect data based on a customizable program logic. The metering devices here can be controlled remotely to capture, store, and transmit information to the main computer. AMI systems/services can be operated/provided by the Water Utility company or via a third-party provider.

Information/data is sent to utilities via a fixed network: AMR hosting (internet/web-based service using data acquisition software), radio frequency technology, satellite transmitters, Wi-Fi, and powerline communications.

Main Suppliers: Neptune AMI Services, Sensus AMI Services, Mueller AMI Services, others.

Advantages:

Better customer service.

Daily status information from each meter. No need for manual reads.

Customers can monitor their water consumption and/or set automatic notifications.

Instantaneous reading/billing when property is sold or tenant moves out.

More information available to answer customer/billing questions.

Reduction in field service calls and avoid adding staff when customer base is increased.

Saves utility the expense/labor of periodic/multiple trips to each physical location to read the meter.

Expedited dispute resolution from claims such as leaks, theft, on inaccuracies in reporting.

Saves vehicles expenses.

Billing is prepared on real time information instead of estimates or calculated values.

More efficient and accurate collection and transfer of data.

Improved billing practices.

Flexible billing and schedule cycles.

Environmentally sensitive since it reduces water consumption and prevents water abuse/leaks.

Primary tool in future growth.

Increased efficiency and potential profit for providers.

Counteracts the inaccuracies of aging technology.

Reduced reliance on personnel.

Always accessible record keeping.

Accurate/instantaneous data analysis provides informed forecasting and decision making.

Typical Setup:

A water meter with a flowmeter display and encoder register is placed inside the meter box or building. A remote transmitter is placed inside or outside the meter box at each residence/establishment to collect and transfer information on demand or on a preset schedule.

Section 2- Cost-Benefit Analysis for the AMR/AMI installation project:

The cost-benefit analysis is prepared by estimating the various capital and operating costs associated with such a project. In a similar manner, the various cost benefits are also estimated and ultimately compared to the project costs. Assessment figures were based on available information provided by the Water Service Corporation of Kentucky and based on some noted assumptions for planning purposes.

The list of the project costs is summarized in Table 1 and described below.

Net Present Values are calculated based on a 20 year term life, and a 2% inflation rate.

The proposed project involves the complete replacement of approximately 6,467 water meters in the referenced areas.

Table 1. Summary of Estimated Lifecycle Costs for Project.

Cost Category	Net Present Value	Cost
Capital Project Cost	$ 2,134,110	$ 2,134,110
Project Management Fee	$ 64,023	$ 64,023
System Integration	$ 21,341	$ 21,341
Salvage Value	$ (21,000)	$ (21,000)
Meter and MIU Maintenance	$ 79,702	$ 97,005
Integration Post-Production Support	$ 87,232	$ 106,705
Monthly Billing Operation Cost	$ 87,232	$ 106,705
20-Year Lifecycle Cost	$ 2,452,640	$ 2,508,889

Capital Project Cost For the AMR/AMI Project: This is the total cost for the new meters, meter interface units (MIU), installation fees, network configuration, software, customer web portal, data hosting, and 10% contingency. Refer to Appendix A, Exhibit A.

Project Management: This is a project management contract cost for the firm overseeing the AMI installation/implementation. Refer to Appendix A, Exhibit B.

System Integration: This is the IT cost to integrate the AMI system to the existing IT water system. Refer to Appendix A, Exhibit C.

Salvage Value: This is the estimated credit the Utility will receive from the Contractor for the salvage value of the meters being replaced. Refer to Appendix A, Table A-1.

Meter and MIU Maintenance Costs: These are the annual meter and MIU maintenance costs once the system is installed. This cost typically includes battery replacements and miscellaneous units that will fail year to year. Refer to Appendix A, Exhibit D.

Integration Post-Production Support: Annual operating cost to support the system integration between AMI and the current Utility water system. Refer to Appendix A, Exhibit E.

Monthly Billing Operating Cost: This is the increase in operating costs for the bill production, postage, and related costs. Refer to Appendix A, Exhibit F.

The list of the benefit costs is summarized in Table 2, and described below:

Table 2. Summary of Estimated Benefits for Project.

Benefit Cost	Net Present Value	Cost
Savings from Meter Turnover	$ 1,797,612	$ 1,940,100
Labor Savings	$ 198,556	$ 244,556
Carbon Footprint Savings	$ 219,365	$ 268,320
Revenue Gain from Meter Accuracy	$ 1,598,000	$ 1,954,000
Total Benefits	$ 3,813,533	$ 4,406,976

Savings of Normal Meter Turnover: Savings from normal meter turnover/replacement the Utility is already performing by staff. Refer to Appendix B, Exhibit G.

Labor Savings: Labor savings from the staff having to work less on tasks related to conventional meter reading. It is expected that all the meter reading positions will likely be eliminated. The existing staff will be re-assigned to new meter mechanic positions and/or data analysis. Refer to Appendix B, Exhibit H.

Carbon Footprint Reduction: Cost savings from the reduction in truck rolls associated with meter reading activities and an estimated 22,080 fewer miles driven per year. Refer to Appendix B, Exhibit I.

Revenue Gain from Meter Accuracy: Improved registers and meters can increase meter accuracy when comparted to aged technology and under-registered meters. A 3% accuracy improvement will be considered here. Refer to Appendix B, Exhibit J.

The payback period for this investment is 11 years. Refer to Appendix B, Exhibit K.

Table 3. Summary of AMR/AMI Project Economics

Present Value Cost	$2,452,640
Present Value Benefit	$3,813,533
Net Present Value	$1,360,893
Payback Period	11 years
Benefit/Cost Ratio	1.55

Section 3- Intangible Benefits

There are also several unquantified, intangible benefits that justify the AMR/AMI project. These benefits provide a positive outcome for which an economic value (in dollars) cannot be easily estimated. These benefits cover good public relations, resource conservation, regulatory compliance, business improvement, and resource protection.

Improved Customer Service:

Customers will have access to more information concerning their water usage.

Timely Leak Detection:

With the ability to detect large leaks in a timelier manner, field personnel can be dispatched to investigate and shut off water service to mitigate water loss and property damage.

Monthly Billing:

Monthly billing is normally utilized to provide more timely information to customers. Online billing payment may also be considered/utilized.

Claims Resolution and Billing Disputes:

Availability of water usage data on a more frequent basis will assist in the resolution of claims with the customer's property. Having time-stamped usage data will allow cross referencing with events in the water system. In addition, leak adjustments can be validated better using archived water usage data from the AMR/AMI meters.

Personnel Safety:

Minimizing driving reduces accidents and exposure to inherent dangers of working in narrow roads as meter readers get in and out of their vehicles, particularly during inclement weather. It also reduces their exposure to poison plants, insect stings and reptiles. A reduction in workers' compensation claims is also expected. As a result, the Utility's insurance premiums will be favorably affected.

Environmental Impact and Greenhouse Gas Reduction:

The Utility can potentially reduce its carbon footprint by decreasing use of fossil fuel. The AMR/AMI project is expected to lead to improved water conservation, which in turn reduces the energy used to pump water to customers.

Section 4- Conclusions

The benefits of the AMR/AMI project were found to significantly outweigh the cost due to:

- **Net Present Value Benefit-** The estimated net present value benefit is $1,360,893 over the 20-year period.
- **Addressing obsolete infrastructure and Aging Systems**- Many meters across the system are at or beyond their useful life, with consumption going unmetered due to the decreased accuracy of the older meters.
- **Operational Efficiency Gains-** With the AMR/AMI project, approximately 90% of the current truck rolls related to meter reads will no longer be needed, saving significant labor, while improving customer service and billing. Such efficiency will be possible by redeploying water meter reading services to other utility operations.
- **Payback Period**- Based on this analysis, the project will pay for itself in approximately 11 years, well ahead of the system's lifecycle estimate of 20 years.

APPENDIX A

Table A-1
Cost-Benefit Analysis.
Salvage of Old Meters
Date: 5/12/ 2022

Meter Size	Type	Count	Weight per Meter (lbs.)	Salvage Value @$1 per pound
5/8"	Displacement	6300	3	$ 18,900.00
3/4"	Displacement	90	3	$ 270.00
1"	Displacement	40	5	$ 200.00
1.5"	Displacement	7	10	$ 70.00
2"	Displacement	11	15	$ 165.00
3"	Compound	6	31	$ 186.00
4"	Compound	3	40	$ 120.00
6"	Compound	6	77	$ 462.00
8"	Compound	4	65	$ 260.00
10"	Compound		210	0
Total		6467		$ 20,633.00
Total NPV Cost				

Notes:
The existing bronze water meters typically have a salvage value for recycling meters which keeps them out of the waste stream and is normally provided as credit by the Contractor. The salvage value is carried on the cost side side as a negative cost.

Exhibit A:

Capital Project Cost Calculations

Average 5/8" AMR/AMI Cost per Meter = $ 300 per unit

Number of Customers = 6,467

Estimated Project Cost = $300 /unit x 6,467 customers =	$ 1,940,100
Contingency @10% to allow for larger size water meters in the system	$ 194,010
Estimated Total Cost=	**$ 2,134,110**
NPV of Project Cost =	**$ 2,134,110**

Exhibit B:

Project Management Contract Cost:

Project Management Cost will be assumed at the rate of 3%

Estimated Project Cost = $2,134,110

Estimated Project Management Cost = $ 2,134,110 x 0.03 =	**$ 64,023**
NPV of Project Management Cost =	**$ 64,023**

Exhibit C:

System Integration Cost:

System Integration Cost will be assumed at the rate of 1%

Estimated Project Cost = $2,134,110

Estimated Project Management Cost = $ 2,134,110 x 0.01 =	**$ 21,341**
NPV of Project Management Cost =	**$ 21,341**

Exhibit D:

Meter and MIU Maintenance Cost:

MIU Maintenance Cost = $0. No battery replacement needed.

Meter Maintenance Cost = $ 0. Assume this cost will remain the same for conventional or AMR type meters.

Assume 0.25% failure of meter, wiring and MIUs per year. Therefore, Additional Maintenance Cost = 0.0025 x 6,467 x $300/unit replacement = $ 4,850

20 year lifecycle Meter and MIU Maintenance Cost = $ $4,850 x 20 years =	**$ 97,005**
NPV of Project Management Cost =	**$79,302**

Exhibit E:

Integration Post-Production Support Cost:

The post-production fee to address changes in the AMI system configuration will be calculated based on a 0.25% of the capital cost per year. Such fees include but not limited to component upgrades, system patch, configuration changes, etc. Therefore the Integration/Support Cost = 0.0025 x 2,134,110 = $5,335 per year.

20 Year Lifecycle Integration Post-Production Cost =	**$ 5,335 x 20 years =**	**$ 106,705**
NPV of Project Management Cost =		**$ 87,232**

Exhibit F:

Monthly Billing Operating Cost:

The monthly billing preparation cost will likely remain as is during the AMI implementation project. A 0.25% cost increase per year will be assumed due to the electronic payment processing services.

Bill printing and Postage will remain the same.

Bill Production will remain the same.

Therefore, estimated billing operating cost = 0.0025 x $2,134,110 = $ 5,335/year

20 Year Lifecycle Monthly Billing Operating Cost = $ 5,335 per year x 20 years =$ 106,705

NPV of Project Management Cost = $ 87,232

APPENDIX B

Exhibit G:

Savings from normal meter turnover:

The savings will come from the deferred cost of the on-going meter replacement program, which will be superseded by the AMI replacement program. The replacement program targets 10% units every year.

Number of replacements in 20 years = 2

Assume Conventional Water Meter replacement at $100.

Assume Unit Installation Labor at $70.

Therefore total cost for meter replacement = $100 + $70 = $ 170/unit.

Annual Replacements Cost = $170/unit x 6,467 x 0.1 = $109, 939

Therefore, 20 year lifecycle replacement cost = 6,467 water meters x $170 per meter replacement x 2

= $ 1,940,100

NPV of Project Management Cost = $ 1,797,612

Exhibit H:

Labor Savings:

The two current meter reading positions will remain during the AMI implementation. The staff will transition from meter reading to other work activities such as collections, field maintenance, and data analysis.

Savings will be derived from reduction in travel costs.

Annual Reduction in Water Meter Readings= 12 months x 23 days/month x 40 miles/day x $0.55/mile x 2 staff = $12,144

20 Year Lifecycle cost = $ 12,144 x 20 years = $242,880

NPV of Project Management Cost = $ 198,566

Exhibit I:

Carbon Footprint Reduction:

Assume both trucks will be eliminated from the meter reading department.

Estimated reduction in gallons of fuel from 2 vehicles =		1,104 gallons
Annual Cost Reduction =		$4,416
Annual Reduction in Vehicle Maintenance from 2 Vehicles =		$4,000
Annual Reduction in vehicle replacement from 2 vehicles=		$5,000
Expected annual savings benefit =		$ 13,416
Total 20-year lifecycle Benefit=	**20 years x $13,416=**	**$ 268,320**

NPV of Project Management Cost = $219,365

Exhibit J:

Revenue Gain From Meter Accuracy:

Assume a conservative 3% gained revenue from improved accuracy.

Consumption based revenue FY 2022= $3,323,343

Expected annual revenue gain = $ 3,323,343 x 0.03 = $ 97,700

Total 20-year lifecycle Benefit= 20 years x $ 97,700= $ 1,954,000

NPV of Project Management Cost = $1,597,492

Exhibit K:

Estimate Payback Period:

Payback Period = Project Cost/Annual Revenue

Estimated Annual Revenue from Savings/Benefits=

Savings from Meter Turnover	= $109,939
Labor Savings	= $12,144
Carbon Footprint	= $ 13,416
Revenue Gained from Meter Accuracy	= $97,700
Total Annual Savings/Revenue	= $233,199

Payback Period = $2,452,640/$233,199 = 10.51 years

Building a World of Sustainable Communities

REQUEST FOR PROPOSAL

Reference No.: RFP 21-004-TRC

Meter Reading System Solution

Proposal Submission Information:

Closing Time:

April 29, 2021 by 1:00 PM (PDT)

Technical Contact:

Adam Gall
Director, Operational Technology

Mobile: 587-226-3092
Email: adam.gall@corix.com

Issued On:

April 1, 20201

To Be Submitted To:

Corix Group of Companies
Suite 1160, 1188 West Georgia Street
Vancouver, BC V6E 4A2

Solicitation Contact:

Valerie Arnold, C.P.M.
Purchasing Manager

Mobile: 864-884-2461
Email: valerie.arnold@corix.com

TABLE OF CONTENTS

REQUEST FOR PROPOSAL

1 SOLICITATION SUMMARY 4
1.1 PREAMBLE 4
1.2 SUBMIT PROPOSAL TO 4
1.3 FORMAT OF SUBMITTALS 4
1.4 DEADLINE FOR PROPOSAL SUBMISSION 4
1.5 INQUIRIES/QUESTIONS AND REVISIONS 4
1.6 ADDENDA 4
2 GENERAL BACKGROUND INFORMATION 5
2.1 PURPOSE 5
2.2 ORGANIZATION BACKGROUND 5
3 PRODUCTS AND SERVICES REQUSTED 6
3.1 OBJECTIVES FOR FUTURE WATER METER READING 6
3.2 PRE-IMPLEMENTATION 6
3.3 IMPLEMENTATION 6
3.4 POST IMPLEMENTATION 6
3.5 AMI SOLUTION SCENARIO 7
3.6 AMR SOLUTION SCENARIO 9
3.7 TRAINING 9
3.8 GO-LIVE SUPPORT 10
4 TIMELINE AND SUBMISSION 10
4.1 SCHEDULE OF KEY DATES 10
4.2 USE OF SUBCONTRACTORS 10
4.3 SIGNATURE 10
4.4 PROPOSALS (RESPONSES) 11
4.5 PRICING 11
4.6 REFERENCES 11
4.7 DISCLOSURE OF CONTRACT FAILURES, LITIGATIONS 12
5 EVALUATION AND SELECTION 12
5.1 EVALUATION TEAM 12

5.2 EVALUATION CRITERIA 12

6 IDEMNIFICATION 12

7 INSURANCE 13

8 SYSTEM WARRANTY 13

9 RIGHTS AND OPTIONS RESERVED 13

10 RIGHTS AND OPTIONS RESERVED 14

11 ATTACHMENTS 14

12 DISCLAIMER 14

REQUEST FOR PROPOSAL

1 SOLICITATION SUMMARY

1.1 PREAMBLE

Corix Group of Companies (Corix) is seeking proposals for the development and implementation of an Automatic Meter Reading (AMR) / Advanced Metering Infrastructure (AMI) System Solution.

By receipt of this Request for Proposal (RFP), your organization has made it to the proposal step in the process. This RFP aims to quantify the costs associated with a typical project for Corix. It should be noted that this is indicative of a sample system that we have at Corix. It is the intent of Corix to migrate the existing meter base of ~130k meters to our preferred supplier over the course of 8 to 10 years.

1.2 SUBMIT PROPOSAL TO

Valerie Arnold, Purchasing Manager at valerie.arnold@corix.com

1.3 FORMAT OF SUBMITTALS

Respond electronically in Word (docx) or PDF format.

1.4 DEADLINE FOR PROPOSAL SUBMISSION

Proposals must be received no later than 1:00 PM (PDT) on April 29, 2021.

1.5 INQUIRIES/QUESTIONS AND REVISIONS

All inquiries and requests for clarification from Proposers will be received until 1 PM PDT on April 8, 2021. All questions pertaining to this RFP shall be in writing sent via email, addressed to:

Adam Gall
adam.gall@corix.com

Be sure to carbon copy (cc) all email inquiries to:

Valerie Arnold
valerie.arnold@corix.com

When submitting questions, specifically reference the section of the RFP in question.

Please note that all questions and answers will be shared with all Proposers.

Proposers finding discrepancies or omissions in the RFP or Contract or having doubts as to the meaning or intent of any provision, must immediately notify Corix. If Corix determines that an amendment is required to this RFP, Corix will issue an addendum in accordance with section 1.6.

1.6 ADDENDA

If Corix determines that a change is required to this RFP, Corix will issue a written addendum and email it to all Proposers. This RFP may be amended only by a formal written addendum. No other communication, written or oral, will modify or impact the terms of this RFP.

2 GENERAL BACKGROUND INFORMATION

2.1 PURPOSE

The successful proposer of this RFP must demonstrate the ability to deliver a system solution that adheres to the specifications outlined in this document, support the system on an on-going basis, and provide references of similar systems that have been successfully installed and are currently in a production environment. Corix will review each system solution and determine which meter reading system is the most advantageous to install. This document provides information to help proposers prepare their responses and to aid Corix in facilitating the subsequent evaluation and comparison thereof.

The proposals will be evaluated according to the selection criteria established in this RFP.

2.2 ORGANIZATION BACKGROUND

The scope of this project includes approximately 130,000 water meters across our entire North American organization. Corix currently has existing metering system solutions across a diverse set of states and provinces.

We operate in following states:

1. Alabama
2. Alaska
3. Arizona
4. Florida
5. Georgia
6. Illinois
7. Indiana
8. Kentucky
9. Louisiana
10. Maryland
11. Nevada
12. New Jersey
13. North Carolina
14. Ohio
15. Pennsylvania
16. South Carolina
17. Tennessee
18. Texas
19. Virginia

and in these Canadian provinces:

1. Alberta
2. British Columbia
3. Ontario

Current metering solutions consist of a mixture of manual read meters, AMR, and AMI technologies. In addition to this blend of technology types deployed across Corix locations, meters are purchased from several manufacturers including Kamstrup, Neptune, Badger, Sensus and iTron.

Lastly, Corix has a maturing ‘meter to bill’ solution in place that pulls the data together from various sources into our client portal, CMMS, and client care and billing platform.

3 PRODUCTS AND SERVICES REQUSTED

3.1 OBJECTIVES FOR FUTURE WATER METER READING

Corix seeks to standardize and integrate its metering infrastructure. Major planned changes include (a) the addition of a Meter Data Management System; (b) an update of its billing system, and (c) the development of resources that will support the Center of Excellence for Operational Technologies. Specifically, for this RFP, Corix is also looking for a standard AMR and AMI solution for their meters.

Corix is also looking for suppliers to propose an implementation plan and any phasing recommendations that are appropriate for the size and complexity envisioned for the project. Proposals shall include details on any phasing recommendations and the Proposer should show how they have been successful with this approach in the past.

3.2 PRE-IMPLEMENTATION

Before any of the scenarios defined below occur, please describe the process that Corix and our selected supplier will go through to evaluate the scope of the project and develop a solution for each and every system.

Specifically:

- Procurement and logistics plan
- Project delivery option evaluation
- Project communication plan
- Quality control plan
- Site evaluation
- Technical Evaluation
- Project Delivery plan
- Training Plan

Please provide the costs associated with each of these pre-implementation deliverables.

3.3 IMPLEMENTATION

What is the supplier involvement with the deployment of meters and infrastructure?

- Project Delivery support
- Meter deployment support
- Billing system and CMMS integration
- Training

Please provide the costs associated with each of these Implementation deliverables.

3.4 POST IMPLEMENTATION

Once the project is completed, please describe how the supplier will support the following post implementation items:

- Meter Deficiencies
- AMI Equipment and Service Deficiencies
- Firmware and software updates
- Development Requests
- Development Enhancement
- Technical and Customer Support (tiers if applicable)

Please provide the costs associated with each of these post implementation deliverables.

3.5 AMI SOLUTION SCENARIO

Scenario 1

Please formulate a response using the following scenario assumptions:

- AMI is accepted by the regulator
- 1500 Water Service Connections
- All meters must report to the AMI platform
- All meters must be ultrasonic
    - 1400 - 5/8”
    - 50 - 1”
    - 25 - 2”
    - 5 - 4”
    - 5 – 6”
    - 5 - 4” Fire flow
    - 5 – 6” fire flow
    - 5 - 8”
- 750 of the meters are mechanical manual reads with no encoders
- 750 of the meters are AMR
    - 450 mechanical
    - 100 Neptune Ultrasonic
    - 100 Badger Ultrasonic
    - 100 Kamstrup Ultrasonic
- The 1500 meters are in approximately 15 sq miles of flat and unobstructed topology spreading out in a relatively circular footprint from the community center in the center of the neighborhood
- Has a 150’ large water tower next to the community center
- Lift Stations and Pump Stations placed around the community that have power and restrictions to antenna placement to a max of 6’ above the roofline put in place by the HOA
- Of the 1500, 25 connections in a ravine have no 3/4/5G wireless coverage but straight line of site to the water tower up the ravine (Distance)
- In addition to the 1500 services, Corix purchased and connected to a water coop 2 miles away with 50 water service connection along a rural road spread out 10 miles, these are all mechanical, manual read meters

In this scenario the vendor must provide the following distinct costs.

Please include initial CapEx and annual OpEx over a 20-year lifecycle

- Meters, encoders and RF modules
- AMI Communication Infrastructure with delineation of the following elements
    - Collectors (if applicable)
    - Backhaul (if applicable)
    - Other Networking Costs (if applicable)
    - Cost Scenario for network Services (Ex NaaS, cellular) note our preference is for capex
- AMI Application Cost with delineation of the following elements
    - Analytics Package (if applicable)
    - Client Web-portal (if applicable)
    - Meter Data Management and Meter device/event Management
    - Headend and Connectivity solution
    - Other Application Costs (if applicable)
    - Cost Scenario for application services (Ex SaaS) note our preference is for capex
    - Cost options for replacement of encoders vs the entire meter

- Project management
- Technical service delivery
- Other OpEx and CapEx Cost associated with the project

Scenario 2

Please formulate a response using the following scenario assumptions:

- AMI is accepted by the regulator
- 1500 Water Service Connections
- All meters must report to the AMI platform
- All meters must be ultrasonic
    - 1400 - 5/8”
    - 50 - 1”
    - 25 - 2”
    - 5 - 4”
    - 5 – 6”
    - 5 - 4” Fire flow
    - 5 – 6” fire flow
    - 5 - 8”
- 750 of the meters are mechanical manual reads with no encoders
- 750 of the meters are AMR
    - 450 mechanical
    - 100 Neptune Ultrasonic
    - 100 Badger Ultrasonic
    - 100 Kamstrup Ultrasonic
- The 1500 meters are in approximately 4 sq miles of flat and unobstructed topology spreading out in a relatively circular footprint from the community center in the center of the neighborhood
- Has a 150’ large water tower next to the community center
- Lift Stations and Pump Stations placed around the community that have power and restrictions to antenna placement to a max of 6’ above the roofline put in place by the HOA
- Of the 1500, 25 connections in a ravine have no 3/4/5G wireless coverage but straight line of site to the water tower up the ravine
- In addition to the 1500 services, Corix purchased and connected to a water coop 2 miles away with 50 water service connection along a rural road spread out 10 miles, these are all mechanical, manual read meters

In this scenario the vendor must provide the following distinct costs.

Please include initial CapEx and annual OpEx over a 20-year lifecycle

- Meters, encoders and RF modules
- AMI Communication Infrastructure with delineation of the following elements
    - Collectors (if applicable)
    - Backhaul (if applicable)
    - Other Networking Costs (if applicable)
    - Cost Scenario for network Services (Ex NaaS, cellular) note our preference is for capex
- AMI Application Cost with delineation of the following elements
    - Analytics Package (if applicable)
    - Client Web-portal (if applicable)
    - Meter Data Management and Meter device/event Management
    - Headend and Connectivity solution
    - Other Application Costs (if applicable)
    - Cost Scenario for application services (Ex SaaS) note our preference is for capex
    - Cost options for replacement of encoders vs the entire meter

- Project management
- Technical service delivery
- Other OpEx and CapEx Cost associated with the project

3.6 AMR SOLUTION SCENARIO

Please formulate a response using the following scenario assumptions:

- AMI is not accepted by the regulator
- 1500 Water Service Connections
- All meters must be collected by the mobile collector solution
- All meters must be ultrasonic
  - 1400 - 5/8”
  - 50 - 1”
  - 25 - 2”
  - 5 - 4”
  - 5 – 6”
  - 5 - 4” Fire flow
  - 5 – 6” fire flow
  - 5 - 8”
- 750 of the meters are mechanical manual reads with no encoders
- 750 of the meters are AMR
  - 400 mechanical
  - 100 Neptune Ultrasonic
  - 100 Badger Ultrasonic
  - 100 Kamstrup Ultrasonic
- The operation team will need 3 collectors
- In addition to the 1500 service connections, Corix purchased and connected to a water coop 2 miles away with 50 water service connection along a rural road spread out 10 miles these are all mechanical, manual read meters

In this scenario the vendor must provide the following distinct costs.

Please include initial CapEx and annual Opex over a 20-year lifecycle

- Meters, encoders, and RF modules
- AMR Communication Infrastructure with delineation of the following elements
  - Collectors (if applicable)
- AMI Application Cost with delineation of the following elements
  - Analytics Package (if applicable)
  - Client Web-portal (if applicable)
  - Meter Data Management and Meter device/event Management
  - Headend and Connectivity solution
  - Other Application Costs (if applicable)
  - Cost Scenario for application services (Ex SaaS) note our preference is for capex
  - Cost options for replacement of encoders vs the entire meter
- Project management
- Technical service delivery
- Other OpEx and CapEx Cost associated with the project

3.7 TRAINING

Proposals should include a comprehensive training approach that will meet the needs of Corix and its partnering agency system users. Procedure documentation, internal control documentation, and training

manuals are expected deliverables. These materials are envisioned to support the end-user training for the new system prior to go-live and support ongoing training of new users.

3.8 GO-LIVE SUPPORT

Proposer is expected to support the go-live activities and provide a limited amount of support post go-live. The Proposal shall detail the Proposer's recommendations on post go-live support based upon their experience with utilities of similar size and complexity as Corix and its partnering agencies.

4 TIMELINE AND SUBMISSION

4.1 SCHEDULE OF KEY DATES

Below is the intended Schedule of Events. Unless otherwise instructed, proposers must adhere to the following dates when responding to this RFP:

EVENT	TIME (PDT)	DATE
Issue of RFP	4:00 p.m.	April 1, 2021
Final day to submit inquires and questions	1:00 p.m.	April 8, 2021
Respond to Respondents' inquires / questions	1:00 p.m.	April 14, 2021
Proposals Due	1:00 p.m.	April 29, 2021
Estimated Notification of Award	1:00 p.m.	August 1, 2021

4.2 USE OF SUBCONTRACTORS

Proposers may use subcontractors in their proposals. The supplier will be the prime proposer and shall be fully responsible to Corix for the acts and omissions of all subcontractors and of persons indirectly employed by them. Subcontractors will be subject to the terms and conditions of the contract and RFP, just as the prime proposer will be. All subcontractors must be identified in the proposal. These subcontractors may be evaluated under the same criteria as the prime proposer, except for cost.

4.3 SIGNATURE

Proposals must be prepared and signed by a person who has legal authority. By signing your proposal in response to this RFP, the Proposer certifies and warrants that:

A. Its Proposal is made without collusion or fraud.

B. It has not offered or received any kickbacks or inducements from any other contractor, supplier, manufacturer, or subcontractor in connection with its proposal and,

C. It has not conferred on any public employee having official responsibility for this procurement transaction any payment, loan, subscription, advance, deposit of money, services, or anything of more than nominal value was exchanged.

4.4 PROPOSALS (RESPONSES)

Proposals not containing responses to each of the requirements in sections 3.2 to 3.6 will be considered incomplete and may be rejected. Proposals must be concise in describing the Proposer's ability to meet the RFP requirements.

A. Provide a brief introduction that includes a summary of the supplier's staff—project manager or supervisor, and the number of individuals who will participate in the project work. Explain their experience, relevant certifications/licenses, and level of involvement.

B. Provide an understanding of the work (the Products and Services Requested) identified in this RFP, and the Proposer's ability, approach, and resources [staff, equipment etc.] necessary to fulfill the requirements contained in this RFP.

4.5 PRICING

A. Pricing associated with this RFP shall be a firm proposal price that must remain open and in effect for not less than 180 days after the due date and time of the proposal.

B. Pricing template is included in Attachment C.

C. Corix requires that licenses for software be paid-up, perpetual, non-exclusive, and enterprise, unless specified otherwise for a period of 20 years.

D. Corix requires that maintenance and support costs be paid for a period of five (5) years unless specified otherwise.

E. Proposers shall submit in their detailed cost proposal, license and software fees, maintenance, support cost, and all other costs for the period listed above.

4.6 REFERENCES

A. Recent AMR/AMI Projects

Use Attachment D-1 to provide information required under this section.

B. AMR/AMI System References

Proposer shall provide additional information for three (3) references for AMR and AMI systems, if available, from utilities of size and circumstances most comparable to Corix. To the greatest extent possible, cite projects using the AMR/AMI equipment, meters and installation contractors specified in this proposal, and where the implementation has been substantially completed within the last five (5) years.

Include the following contract information: project beginning and ending dates, major subcontractors and suppliers, total number of units contracted, and percentage of total units that have been installed to date. Include description of Prime Proposer's scope of work on each project.

Use Attachment D-2 to provide information required under this section.

C. Installation References

Proposer shall provide the names, titles, addresses, e-mail addresses, and telephone numbers of three (3) references, if available, from utilities of size and circumstances

most comparable to Corix where it, or its proposed installation subcontractor, if different, has installed AMR / AMI Equipment and where the installation contract has been substantially completed within the past five (5) years.

Use Attachment D-3 to provide information required under this section.

4.7 DISCLOSURE OF CONTRACT FAILURES, LITIGATIONS

Disclose any alleged significant prior or ongoing contract failures, contract breaches, any civil or criminal litigation or investigation pending within the last three (3) years and all subcontractors involved in the project. List any contracts in which your firm and any subcontractor have been found guilty or liable, or which may affect the performance of the services to be rendered herein.

5 EVALUATION AND SELECTION

5.1 EVALUATION TEAM

Proposals will be evaluated by Corix's Evaluation Team. The Evaluation Team may consult with others including other Corix Group of Companies staff members and Proposer's references, as the Evaluation Team may in its discretion decide is required.

5.2 EVALUATION CRITERIA

The Evaluation Team will compare and evaluate all Proposals to determine each Proposer's strength and ability to provide the services specified in this RFP and to determine which Proposal is most advantageous to Corix, using the following criteria:

(a) 30% - Experience and qualifications

(b) 60% - Financial (cost)

(c) 10% - References

The Evaluation Team will not be limited to the criteria referred to above and may consider other criteria that the Evaluation Team identifies as relevant during the evaluation process. All criteria considered will be applied evenly and fairly to all Proposers.

Corix is under no obligation to accept the lowest or any Proposal submitted. Corix reserves, without restriction, sole discretion in determining the best value and whether or not any Proposal received provides the necessary level of value to Proposal to result in the award of a Contract.

6 IDEMNIFICATION

The Proposer shall defend, indemnify and hold harmless Corix, its officers, directors, agents and representatives from and against any and all claims, suits, losses, penalties, damages, associated costs and expenses (including attorney's fees, expert's fees, and costs of investigation), but only to the extent caused by: (a) any breach by Proposer of this Agreement or (b) any negligent, or intentional act, or omission by Proposer, its employees, officers, or agents in the performance of this Agreement.

7 INSURANCE

The successful Proposer shall demonstrate the following coverage:

A. Workers' Compensation and Employer's Liability coverage in accordance with the statutory requirements in the jurisdiction where the Services are performed in the minimum amount of $2 million per occurrence.

B. Commercial general liability for bodily injury, death, and property damage in the minimum amount of $2 million per occurrence, naming Corix as an additional insured with respect to the Services. The policy shall also provide such insurance as primary insurance in relation to liability arising out of the Services and contain a cross liability provision and a waiver of subrogation against Corix and its officers, directors, servants, and agents.

C. Automobile liability on all vehicles used by Contractor in connection with this Agreement in the minimum amount of $2 million per occurrence in respect of bodily injury, death, and property damage.

A Certificate of Insurance shall be submitted and approved before starting any work. The Certificate shall state that a minimum fifteen (15) day written notice will be given to Corix before the policy is canceled or changed.

If a portion of the work is sublet, the Proposer shall require each subcontractor to carry insurance of the same kinds and in like amounts as carried by the primary contractor, the Proposer.

8 SYSTEM WARRANTY

Please indicate if you are able to provide a System Warranty and/or any other warranty for the software, services, integration, and total system functionality, and attach samples of any such warranties. Explain how your warranty interacts with the future maintenance and support services you propose to provide.

9 RIGHTS AND OPTIONS RESERVED

Corix reserves and may, in its sole discretion, exercise any one or more of the following rights and options with respect to this RFP if determined that doing so is in the best interest of Corix:

1. Decline to consider any Proposal from a Proposer; to cancel the RFP at any time; to elect to proceed or not to proceed with discussions or further presentations regarding its subject matter with any Proposer and with firms that do not respond to the RFP; to reissue the RFP or to issue a new RFP (with the same, similar, or different terms).

2. Waive, for any Proposal, any defect, deficiency, or failure to comply with the RFP if, in Corix's sole judgment, such defect is not material to the Proposal; to supplement, amend, substitute, or otherwise modify the RFP at any time prior to the Submission Date/Time.

3. Extend the Submission Date/Time and/or to supplement, amend, substitute, or otherwise modify the RFP at any time prior to the Submission Date/Time.

Corix is not obligated to conduct subsequent discussions with any Proposer to this RFP and reserves the right to conduct discussions regarding its subject matter with suppliers that do not respond to this RFP. This RFP and the process it describes are proprietary to Corix and are for the exclusive benefit of Corix. No other party, including any Proposer, is intended to be granted any rights hereunder.

Upon submission, Proposers to this RFP shall become the property of Corix, which shall have unrestricted use thereof. By submitting a Proposal, the Proposer agrees to the terms and conditions of this RFP.

10 RIGHTS AND OPTIONS RESERVED

Corix desires to enter into an agreement (contract) with a single supplier for a complete meter reading system solution. State your acceptance of Attachment A. Proposers are responsible for reviewing and becoming familiar with Corix's Terms and Conditions of the Contract Service Agreement. Any exceptions must be recorded on the Exception Form, Attachment B.

Acceptance of exceptions is within the sole discretion of Corix's legal team.

11 ATTACHMENTS

The following attachments are considered part of the solicitation:

i. Attachment A – Term and Conditions of the Contract Service Agreement

ii. Attachment B - Exception Form

iii. Attachment C – Pricing Worksheet

iv. Attachment D – References

12 DISCLAIMER

Corix will not disclose proprietary information obtained as a result of this RFP. Information identified by a Proposer as proprietary or confidential will be kept confidential. Firms are cautioned to clearly label as proprietary and confidential any specific information or other material that is confidential.

PSC DR 2-20:

Refer to the Direct Testimony of Dylan W. D'Ascendis (D'Ascendis Testimony). Provide all exhibits and work papers in Excel spreadsheet format with all rows and columns accessible and unprotected.

Response:

Please see Zip files PSC DR 2-20 - D'Ascendis Workpapers 1-9.zip and PSC DR 2-20 - D'Ascendis Workpapers 10-27.zip.

Witness: Dylan D'Ascendis

PSC DR 2-21:

Refer to the D'Ascendis Testimony, page 10, lines 1-5.

a. Explain whether Water Service Kentucky's depreciation rates are low.

b. Explain whether coming in for more frequent rate cases compensates for low depreciation rates, keeps the company's rates more in line with its capital spending, and helps keep pace with any inflationary pressure.

Response:

a. Mr. D'Ascendis' discussion of business risk in the section referenced by this request is meant to be general in nature (i.e., depreciation rates for water/wastewater utilities are low), and as such, Mr. D'Ascendis did calculate Water Service of Kentucky's depreciation rate.

b. Mr. D'Ascendis does not address the drivers of why utilities file rate cases in his Direct Testimony. Generally, utilities file rate cases when there is a significant difference (shortfall) between the rate of return on their rate base under present rates and the rate of return on their rate base as may be authorized in a regulatory proceeding.

Witness: Dylan D'Ascendis

PSC DR 2-22:

Refer to the D'Ascendis Testimony, page 12, lines 3–5. Provide a list of Water Service regulated affiliates, the state where located and explain whether any have size adjustments approved by the associated regulatory authority and, if so, what the adjustment was.

Response: Please see response to PSC DR 2-23 part A below for regulated affiliates. The Florida Public Service Commission allows for a small-utility risk premium of 50 basis points as of 2022, please see attached order, PDF file SDR 2-22 FL ROE Order.pdf. The Nevada Public Utilities Commission also utilizes an upward adjustment for small utilities of 80 basis points as of 2022, please see attached order, PDF file PSC DR 2-22 NV ROE Order.pdf.

State	Entity	Gas	Reuse	Water	Sewer	Total
AL	Community Utilities of Alabama	-	-	-	2,643	2,643
AZ	Bermuda Water Company	-	-	9,456	-	9,456
FL	Sunshine Water Services	-	882	34,166	24,803	59,851
IL	Prairie Path Water Company	-	-	12,733	3,468	16,201
IN	Community Utilities of Indiana	-	-	5,166	3,451	8,617
KY	Water Service Corporation of Kentucky	-	-	6,138	-	6,138
LA	Utilities Inc. Of Louisiana	-	-	10,982	14,851	25,833
MD	Maryland Water Service	-	-	3,385	942	4,327
NC	Montague Water and Sewer Companies	-	-	35,221	21,342	56,563
NJ	Great Basin Water Company	-	-	769	263	1,032
NV	Carolina Water Service of NC	-	-	15,645	4,483	20,128
PA	Community Utilities of Pennsylvania	-	-	3,276	3,847	7,123
SC	Blue Granite Water Company	-	-	17,200	12,022	29,222
TN	Tennessee Water Service	-	-	378	-	378
TX	Corix Texas	148	-	5,288	930	6,366
VA	Massanutten Public Service Corporation	-	-	2,366	2,201	4,567
Total		148	882	162,169	95,246	258,445

Witness: Dylan D'Ascendis.

FILED 6/15/2022
DOCUMENT NO. 03939-2022
FPSC - COMMISSION CLERK

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Water and wastewater industry annual reestablishment of authorized range of return on common equity for water and wastewater utilities pursuant to Section 367.081(4)(f), F.S.	DOCKET NO. 20220006-WS ORDER NO. PSC-2022-0208-PAA-WS ISSUED: June 15, 2022

The following Commissioners participated in the disposition of this matter:

ANDREW GILES FAY, Chairman
ART GRAHAM
GARY F. CLARK
MIKE LA ROSA
GABRIELLA PASSIDOMO

NOTICE OF PROPOSED AGENCY ACTION ORDER ESTABLISHING AUTHORIZED RANGE OF RETURN ON COMMON EQUITY FOR WATER AND WASTEWATER UTILITIES

BY THE COMMISSION:

NOTICE is hereby given by the Florida Public Service Commission that the action discussed herein is preliminary in nature and will become final unless a person whose interests are substantially affected files a petition for a formal proceeding, pursuant to Rule 25-22.029, Florida Administrative Code.

Background

Section 367.081(4)(f), Florida Statutes (F.S.), authorizes us to establish, not less than once each year, a leverage formula to calculate a reasonable range of returns on equity (ROE) for water and wastewater (WAW) utilities. The original version of the current leverage formula methodology was established in Order No. PSC-2001-2514-FOF-WS.[1] On October 23, 2008, we held a formal hearing in Docket No. 20080006-WS to allow interested parties to provide testimony regarding the validity of the leverage formula.[2] Based on the record in that proceeding, we approved the 2008 leverage formula in Order No. PSC-2008-0846-FOF-WS.[3] By

[1]Order No. PSC-2001-2514-FOF-WS, issued December 24, 2001, in Docket No. 20010006-WS, *In re: Water and wastewater industry annual reestablishment of authorized range of return on common equity of water and wastewater utilities pursuant to Section 367.081(4)(f), F.S.*

[2]At our May 20, 2008, Agenda Conference, upon request of the Office of Public Counsel, we voted to set the establishment of the appropriate leverage formula directly for hearing.

[3]Order No. PSC-2008-0846-FOF-WS, issued December 31, 2008, in Docket No. 20080006-WS, *In re: Water and wastewater industry annual reestablishment of authorized range of return on common equity for water and wastewater utilities pursuant to Section 367.081(4)(f), F.S.*

that order, we reaffirmed the methodology that was previously approved in Order No. PSC-2001-2514-FOF-WS.[4]

From 2012 through 2017, we found that the range of returns on equity derived from the annual leverage formulas were not optimal for determining the appropriate authorized ROE for WAW utilities due to Federal Reserve monetary policies that resulted in historically low interest rates. Consequently, we decided it was reasonable to continue using the range of returns on equity of 8.74 percent to 11.16 percent from the 2011 leverage formula approved by Order No. PSC-2011-0287-PAA-WS until 2018.[5]

On November 8, 2017, Commission staff held a workshop to solicit input from interested persons regarding potential changes to the current leverage formula methodology. The only stakeholders that filed comments in the docket were the Office of Public Counsel and Utilities, Inc. of Florida. The Office of Public Counsel also filed post-workshop comments on January 31, 2018. On June 26, 2018, we approved the current leverage formula by Order No. PSC-2018-0327-PAA-WS.[6] The June 2018 Order approving the current leverage formula provided necessary and timely updates to the leverage formula methodology.

Section 367.081(4)(f), F.S., authorizes us to establish a leverage formula to calculate a reasonable range of returns on common equity for WAW utilities. We must establish this leverage formula not less than once a year. For administrative efficiency, the leverage formula is used to determine the appropriate return on equity for an average Florida WAW utility. However, use of the leverage formula by utilities is discretionary and a utility can file cost of equity testimony in lieu of using the leverage formula. As is the case with other regulated companies under our jurisdiction, we have discretion in the determination of the appropriate ROE based on the evidentiary record in a proceeding. If one or more parties in a rate case or limited proceeding file testimony in lieu of using of the leverage formula, we will determine the appropriate ROE based on the evidentiary record in that proceeding.

We have jurisdiction pursuant to Section 367.081, F.S.

Decision

Methodology

In the instant docket, we updated the current leverage formula using the most recent financial data applied to the methodology approved in Order No. PSC-2001-2514-FOF-WS,

[4]Order No. PSC-2001-2514-FOF-WS, issued December 24, 2001, in Docket No. 20010006-WS, *In re: Water and wastewater industry annual reestablishment of authorized range of return on common equity for water and wastewater utilities pursuant to Section 367.081(4)(f), F.S.*

[5]Order No. PSC-2011-0287-PAA-WS, issued July 5, 2011, in Docket No. 20110006-WS, *In re: Water and wastewater industry annual reestablishment of authorized range of return on common equity for water and wastewater utilities pursuant to Section 367.081(4)(f), F.S.*

[6]Order No. PSC-2018-0327-PAA-WS, issued June 26, 2018, in Docket No. 20180006-WS, *In re: Water and wastewater industry annual reestablishment of authorized range of return on common equity for water and wastewater utilities pursuant to Section 367.081(4)(f), F.S.*

reaffirmed in Order No. PSC-2008-0846-FOF-WS and modified in Order No. PSC-2018-0327-PAA-WS. The methodology uses ROEs derived from widely accepted financial models applied to an index of natural gas and WAW companies that have actively traded stock and forecasted financial data. To establish the proxy group, we selected 5 natural gas companies and 7 WAW companies that derive at least 50 percent of their total revenue from regulated operations and have a Standard and Poor's credit rating. These selected companies have market power and are influenced significantly by economic regulation and have an average Standard and Poor's bond rating of "A."

Consistent with the approved methodology, we used a market capitalization weighted average for: (1) the Discounted Cash Flow (DCF) model results, (2) the Beta values in the Capital Asset Pricing Model (CAPM), and (3) the equity ratio of the proxy group.

Assumed Cost Of Debt

We used a projected yield on Baa2 rated public utility bonds to estimate the bond yield of an average Florida WAW utility in the calculation of the weighted average cost of capital of the proxy group. A projected yield is used because required returns are forward looking and based on projections.

Consistent with the methodology approved by Order No. PSC-2018-0327-PAA-WS, we used the projected Baa2 rated utility bond yield for the upcoming four quarters as published in the April 2022 Blue Chip Financial Forecast (Blue Chip). We then added the 120-month historical average spread between the Baa and A Corporate Utility Bond yields to the projected Baa2 rated utility bond yield to estimate a projected Baa3 rated utility bond yield of 6.10 percent.

The projected assumed Baa3 bond rate of 6.10 percent used in the updated leverage formula calculation includes a 50 basis point adjustment for small-company risk and a 50 basis point adjustment for a private placement premium.

Estimated Cost Of Equity

The current leverage formula relies on two ROE models described below. We adjusted the results of these models to reflect differences in risk and debt cost between the proxy group and the average Florida WAW utility. The ROE models include a four percent adjustment for flotation costs.

The first ROE model is a multistage Discounted Cash Flow (DCF) model applied to an index of natural gas and WAW utilities that have publicly traded stock and are followed by Value Line. This DCF model is an annually compounded model and uses prospective dividend growth rates as published by Value Line.

The second ROE model is a Capital Asset Pricing Model (CAPM) that relies on a market return for companies followed by Value Line, the average projected yield on the U.S. Treasury's 30-year bonds as of April 1, 2022, published by Blue Chip Financial Forecasts, and the weighted

average beta for the index of natural gas and WAW utilities. The market return for the CAPM was calculated using a quarterly DCF model with stock prices as of May 17, 2022.

Consistent with Order No. PSC-2018-0327-PAA-WS, we averaged the results of the DCF and CAPM models and adjusted the result of 8.50 percent as follows:

A bond yield differential of 49 basis points was added to reflect the difference in yields between an A/A2 rated bond, which is the median bond rating for the combined utility index, and a BBB-/Baa3 rated bond. Florida WAW utilities are assumed to be comparable to companies with the lowest investment grade bond rating which is Baa3. This adjustment compensates for the difference between the credit quality of 'A' rated debt and the assumed credit quality of a typical Florida WAW utility.

A private placement premium of 50 basis points was added to reflect the difference in yields on publicly traded debt and privately placed debt, which is illiquid. Investors require a premium for the lack of liquidity of privately placed debt.

A small-utility risk premium of 50 basis points was added because the average Florida WAW utility is too small to qualify for privately placed debt and smaller companies are considered by investors to be more risky than larger companies.

After the above adjustments, the resulting cost of equity estimate of 9.99 percent is included in the weighted average capital structure of the proxy group to derive the leverage formula. The derivation resulted in an adjustment of 46 basis points to reflect an estimated required return of 10.45 percent at an equity ratio of 40 percent. Table 1 shows the components that comprise the upper range of the leverage formula.

Table 1
Adjusted ROE

DCF Model	6.65%
CAPM	10.35%
Average	8.50%
Bond Yield Differential	0.49%
Private Placement Premium	0.50%
Small Utility Risk Premium	0.50%
Adjusted ROE Average	9.99%
Adj. To Reflect Required Equity Return at a 40% Equity Ratio	0.46%
Upper Range of ROE	10.45%

Source: Commission staff worksheets

Leverage Formula

The updated leverage formula is: ROE = 6.10 % + (1.74 ÷ Equity Ratio). The resulting range of returns is 7.84 percent at 100 percent equity to 10.45 percent at 40 percent equity.

Using the most recent financial data in the leverage formula decreases the lower end of the current allowed ROE range by 1 basis point and decreases the upper end of the range by 10 basis points. Overall, the spread between the range of returns on equity based on the updated leverage formula is 261 basis points (7.84 percent to 10.45 percent). In comparison, the range of returns on equity for the existing leverage formula from 2019 is 270 basis points (7.85 percent to 10.55 percent).

In developing the updated leverage formula, we acknowledge that the leverage formula depends on four basic assumptions:

1) Business risk is similar for all WAW utilities;

2) The cost of equity is an exponential function of the equity ratio but a linear function of the debt to equity ratio over the relevant range;

3) The marginal weighted average cost of investor capital is constant over the equity ratio range of 40 percent to 100 percent; and

4) The debt cost rate at an assumed Moody's Baa3 bond rating, plus a 50 basis point private placement premium and a 50 basis point small-utility risk premium, represents the average marginal cost of debt to an average Florida WAW utility over an equity ratio range of 40 percent to 100 percent.

For these reasons, the leverage formula is assumed to be appropriate for the average Florida WAW utility.

Based on the aforementioned, we find that the revised leverage formula methodology applied to a proxy group of natural gas and WAW utilities with updated financial data based on market-capitalization weighted averages produces a reasonable range of ROEs for WAW utilities and reflects current financial markets. As such, the following leverage formula shall be used until a new leverage formula is determined in 2023:

ROE = 6.10% + (1.74 ÷ Equity Ratio)

Where the Equity Ratio = Common Equity ÷ (Common Equity + Preferred Equity + Long-Term and Short-Term Debt).

The appropriate range of returns on equity is 7.84% at 100% equity to 10.45% at 40% equity.

Additionally, we find it appropriate to cap returns on common equity at 10.45 percent for all WAW utilities with equity ratios less than 40 percent, to discourage imprudent financial risk. This cap is consistent with the methodology approved by Order No. PSC-2018-0327-PAA-WS.

Based on the foregoing, it is

ORDERED by the Florida Public Service Commission that the appropriate range of returns on common equity for water and wastewater utilities pursuant to Section 367.081(4)(f), Florida Statutes is the leverage formula methodology approved by Order No. PSC-2018-0327-PAA-WS, using a proxy group comprised of natural gas and WAW utilities and updated financial data. Accordingly, the following leverage formula shall be used until the leverage formula is addressed again in 2023:

ROE = 6.10 + (1.74 ÷ Equity Ratio)

Where the Equity Ratio = Common Equity ÷ (Common Equity + Preferred Equity + Long-Term and Short-Term Debt)

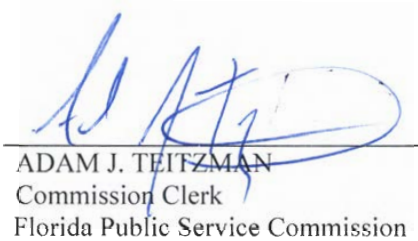
Range: 7.84% at 100% equity to 10.45% at 40% equity

Returns on common equity shall be capped at 10.45 percent for all WAW utilities with equity ratios less than 40 percent. It is further

ORDERED that the provisions of this Order, issued as proposed agency action, shall become final and effective upon the issuance of a Consummating Order unless an appropriate petition, in the form provided by Rule 28-106.201, Florida Administrative Code, is received by the Commission Clerk, 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850, by the close of business on the date set forth in the "Notice of Further Proceedings" attached hereto. It is further

ORDERED that this docket shall remain open to allow us to monitor changes in capital market conditions and to readdress the reasonableness of the leverage formula as conditions warrant.

By ORDER of the Florida Public Service Commission this 15th day of June, 2022.



ADAM J. TEITZMAN
Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399
(850) 413-6770
www.floridapsc.com

Copies furnished: A copy of this document is provided to the parties of record at the time of issuance and, if applicable, interested persons.

JSC

NOTICE OF FURTHER PROCEEDINGS OR JUDICIAL REVIEW

The Florida Public Service Commission is required by Section 120.569(1), Florida Statutes, to notify parties of any administrative hearing that is available under Section 120.57, Florida Statutes, as well as the procedures and time limits that apply. This notice should not be construed to mean all requests for an administrative hearing will be granted or result in the relief sought.

Mediation may be available on a case-by-case basis. If mediation is conducted, it does not affect a substantially interested person's right to a hearing.

The action proposed herein is preliminary in nature. Any person whose substantial interests are affected by the action proposed by this order may file a petition for a formal proceeding, in the form provided by Rule 28-106.201, Florida Administrative Code. This petition must be received by the Office of Commission Clerk, 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850, by the close of business on July 6, 2022.

In the absence of such a petition, this order shall become final and effective upon the issuance of a Consummating Order.

Any objection or protest filed in this/these docket(s) before the issuance date of this order is considered abandoned unless it satisfies the foregoing conditions and is renewed within the specified protest period.

SUMMARY OF RESULTS
2022 Water and Wastewater Leverage Formula

	Updated Results
(1) DCF ROE for Proxy Group	6.65%
(2) CAPM ROE for Proxy Group	10.35%
AVERAGE	8.50%
Bond Yield Differential	0.49%
Private Placement Premium	0.50%
Small-Utility Risk Premium	0.50%
Adjustment to Reflect Required Equity Return at a 40% Equity Ratio	0.46%
Cost of Equity for Average Florida WAW Utility at 40% Equity Ratio	10.45%

2022 Leverage Formula
Return on Common Equity = 6.10% + (1.74 ÷ Equity Ratio)
Range of Returns on Equity = 7.84% to 10.45%

Marginal Cost of Investor Capital
Average Water and Wastewater Utility

Capital Component	Ratio	Marginal Cost Rate	Weighted Marginal Cost Rate
Common Equity	44.62%	9.99%	4.46%
Total Debt	55.38%	6.10%*	3.38%
	100.00%		7.84%

A 40% equity ratio is the floor for calculating the required return on common equity.
The return on equity at a 40% equity ratio: 6.10% + (1.74 ÷ 0.40) = 10.45%

Marginal Cost of Investor Capital
Average Water and Wastewater Utility at 40% Equity Ratio

Capital Component	Ratio	Marginal Cost Rate	Weighted Marginal Cost Rate
Common Equity	40.00	10.45%	4.18%
Total Debt	60.00	6.10%*	3.66%
	100.00%		7.84%

Where: ER = Equity Ratio = CE ÷ (CE + Pref. Equity + LTD + STD)
*Assumed Baa3 rate for April 2022 plus a 50 basis point private placement premium and a 50 basis point small utility risk premium.

Sources:
Value Line Selection and Opinion
Company 10-K Filings

Discounted Cash Flow Model Results
April 1, 2022 – April 30, 2022

COMPANY	STOCK PRICE High	Low	Avg.	DCF Results	Weight	DCF Weighted Results
Atmos Energy Corporation	122.96	113.01	117.99	7.29%	16.54%	1.21%
NiSource, Inc.	32.59	29.07	30.83	8.17%	12.86%	1.05%
Northwest Natural Holding	52.29	47.69	49.99	6.98%	1.61%	0.11%
ONE Gas, Inc.	92.26	84.09	88.18	6.37%	4.59%	0.29%
Spire, Inc.	79.24	70.67	74.96	7.28%	3.79%	0.28%
American States Water	92.80	78.35	85.58	6.77%	3.67%	0.25%
American Water Works	173.87	153.73	163.80	5.96%	33.65%	2.00%
Essential Utilities, Inc.	52.62	44.66	48.64	5.63%	14.59%	0.82%
California Water Services	61.75	51.62	56.69	7.49%	3.67%	0.28%
Middlesex Water	109.51	87.70	98.61	7.32%	2.07%	0.15%
SJW Group	71.70	58.50	65.10	7.05%	2.30%	0.16%
York Water	44.39	38.58	41.49	7.21%	0.66%	0.05%
			Average Weighted DCF Result:			**6.65%**

The ROE of 6.65% represents the expected cost of equity required to match the average stock price, less 4% flotation costs, with the present value of expected cash flows.

Sources:

- Stock prices obtained from Yahoo Finance for the 30-day period April 1, 2022 through April 30, 2022.
- Natural Gas company dividends, earnings, and ROE obtained from Value Line Ratings & Reports issued February 25, 2022.
- Water and Wastewater company dividends, earnings, and ROE obtained from Value Line Ratings & Reports issued April 8, 2022.

Capital Asset Pricing Model Cost of Equity for
Water and Wastewater Industry

CAPM analysis formula

K = RF + Beta (MR – RF) + 0.20%

K = Investor's required rate of return

RF = Risk-free rate
(April 2022 Blue Chip forecast for 30-year U.S. Treasury Bond Yield)

3Q 2022	4Q 2022	1Q 2023	2Q 2023	3Q 2023
2.80%	3.00%	3.20%	3.30%	3.30%

Average = 3.12%

Beta = Measure of industry-specific risk (market cap weighted average for the proxy group of natural gas and WAW utilities)

MR = Market Return (Value Line Investment Analyzer Web Browser)

10.35% = 3.12% + 0.834 (11.55% – 3.12%) + 0.20%

Note:
We calculated the market return using a quarterly DCF model for a large number of dividend paying stocks followed by Value Line. As of May 17, 2021, the result was 11.55%. We added 20 basis points to the CAPM result to account for a flotation cost of four percent.

Bond Yield for Water and Wastewater Industry

Credit Rating	(A)	Spread	(A-)	Spread	(BBB+)	Spread	(BBB)	Spread	(BBB-)
		0.1228		0.1228		0.1228		0.1228	

120-Month Avg. Spread: 0.1228%

Total Equity Bond
Yield Differential 0.1228% x 4 = 0.4913%

	2Q 2022	3Q 2022	4Q 2022	1Q 2023
Forecast Corporate Baa Bond	4.60	4.90	5.10	5.30

Average Forecasted Corporate
Baa Bond Rate 4.9750%

Assumed Bond Yield for Baa3 Utilities: 0.1228% + 4.9750% = 5.0978%

	Updated Results
Private Placement Premium	0.50%
Small-Utility Risk Premium	0.50%
Assumed Bond Yield for Baa3 Utilities	5.10%
Assumed Bond Yield for Florida WAW Utilities	6.10%

Sources:
Value Line Selection and Opinion

- Blue Chip Financial Forecast issued April 2022

2022 Leverage Formula Proxy Group

Company	S&P Bond Rating	Regulated Revenue	V/L Market Capital (Millions)	Equity Ratio	Equity Ratio (Weighted)	Value Line Beta	Value Line Beta (Weighted)
Atmos Energy Corporation	A-	95.14%	$14,400	51.89%	8.58%	0.80	0.132
NiSource, Inc.	BBB+	96.57%	$11,200	42.60%	5.48%	0.85	0.109
Northwest Natural Holding	A+	96.25%	$1,400	39.46%	0.63%	0.80	0.013
One Gas, Inc.	BBB+	98.85%	$4,000	35.93%	1.65%	0.80	0.037
Spire Inc.	A-	94.80%	$3,300	42.03%	1.59%	0.85	0.032
American States Water	A+	69.58%	$3,200	60.73%	2.23%	0.65	0.024
American Water Works	A	85.67%	$29,300	39.92%	13.43%	0.85	0.286
Essential Utilities, Inc.	A	97.26%	$12,700	46.45%	6.77%	0.95	0.139
Cal. Water Serv. Group	A+	96.81%	$3,200	51.91%	1.91%	0.65	0.024
Middlesex Water	A	91.89%	$1,800	53.13%	1.10%	0.70	0.014
SJW Group	A-	97.54%	$2,000	39.34%	0.90%	0.80	0.018
York Water	A-	99.00%	$575	51.05%	0.34%	0.85	0.006
Average	**A**	**93.28%**	**$7,256.25**	**46.20%**	**44.62%**	**0.800**	**0.834**

Original Filing

Public Utilities Commission of Nevada

Electronic Filing

Submitted: 2/10/2022 12:11:43 PM

Reference: aea4d335-5914-44ba-80ed-0fdb72449418

Reference:

Filed For: Staff Counsel Division

In accordance with NRS Chapter 719,
this filing has been electronically signed and filed
by: /s Michelle Jackson

By electronically filing the document(s),
the filer attests to the authenticity of the electronic signature(s) contained therein.

This filing has been electronically filed and deemed to be signed by an authorized agent or
representative of the signer(s) and
Staff Counsel Division

FILED WITH THE PUBLIC UTILITIES COMMISSION OF NEVADA - 2/10/2022

February 10, 2022

Trisha Osborne, Assistant Commission Secretary
Public Utilities Commission of Nevada
1150 East William Street
Carson City, Nevada 89701

RE: 2022 Range of Reasonable Returns on Equity for Water and Sewer Utilities

Dear Ms. Osborne:

Nevada Administrative Code ("NAC") 704.582 requires the Regulatory Operations Staff ("Staff") of the Public Utilities Commission of Nevada ("Commission") to file, on or before February 15 of each year, a range of reasonable returns on equity ("ROE") that may be used by water and/or sewer utilities when filing an application for adjustments in rates. This letter serves to comply with that requirement.

For water and/or sewer utilities, the reasonable ROE is determined using the following formula:

$$ROE = X + (Y / ER)$$

As used in the formula, X and Y values are constants for which values are chosen to reflect current financial conditions, and ER is the decimal equity ratio in the specific utility's capital structure.[1] NAC 704.582(2) specifically states that the ROE applicable to a water and/or sewer utility can be based upon the size of the public utility and whether the public utility is a subsidiary of a holding company. Given the regulation and Staff's ROE analysis of water and sewer companies, Staff has determined a formula by which the resulting ROE would apply to utilities in Nevada that are a subsidiary of a larger parent but would also include a size premium for all other smaller water and/or sewer companies. Currently, the resulting formula ROE applies only to Great Basin Water Company ("GBWC"), a subsidiary of Corix Regulated Utilities (US) Inc. ("CRU").[2] All other non-CRU water and/or sewer companies will receive the size premium in addition to the ROE resulting from the formula.

[1] The formula assumes that ER ranges between 0.4 (40%) to 1.0 (100%). The ROE is capped at the ROE value resulting from using ER = 0.4 (40%) in the formula.
[2] GBWC has four divisions: Cold Springs, Spring Creek, Spanish Springs, and Pahrump.

Staff has determined that the X value should be set at 6.5 and Y value remain at 1.6, which increases the ROE from 2021 by 10 basis points at every equity ratio. Specifically, these values, as used in the ROE formula above, yield the following ROEs for GBWC: 8.10% for a 100% equity ratio, 9.70% for a 50% equity ratio and 10.50% for a 40% equity ratio. Staff chose the above values of X and Y based on the results of two analyses Staff has conducted and its review of the current capital market conditions.

First, Staff conducted an ROE analysis using the constant growth discounted cash flow model ("DCF"), capital asset pricing model ("CAPM") and allowed ROE model for gas and electric companies.[3] This is the same methodology that Staff has been using since 2016. For its first analysis, Staff considers the results and trends from each utility proxy group and the overall results for all utility proxy groups. The results show from last year: (1) an increase in the ROE estimate from the DCF model; (2) a significant increase in the ROE estimate in the CAPM model; (3) a slight increase in the ROE estimate in the Allowed ROE model; and (4) an increase in the average results from all models and midpoint of the range of results. Though the trends in the results are the same for each utility group and all utility groups combined, the magnitude of the changes vary across each utility group. The changes since last year appear to be the smallest for the water utility group and the largest for the gas utility group. The analysis for all utility sectors is included in Workpaper No. 1.

Staff's second analysis includes only water utilities and examines trends in the underlying key factors going back to 2018 to glean additional information specific to water utilities and over a longer time period. This is the same methodology used in 2019, when this analysis was introduced. The results for water utilities show from last year: (1) a small increase in the ROE estimate from the DCF model;[4] (2) a significant increase in the ROE estimate in the CAPM model; (3) an increase of the ROE estimate in the Allowed ROE model for electric utilities; and (4) an increase in the average result from all three methods.

The results of Staff's second analysis also show some significant changes in the underlying key factors, especially inputs to the CAPM model, since 2018. First, while the 20-year Treasury bond yield is lower than it was in 2018, it has increased by 70 basis points since 2020 – increasing the ROE estimates in the CAPM model. The ROE estimates in the CAPM model have been further increased by an increase in beta and the market risk premium. Second, the projected earnings growth rates for water utilities increased which was partially offset by a decrease in the first-year dividend yield, leading to a slight increase in the ROE estimates from the DCF model. Overall, Staff concludes that there is sufficient evidence to increase the 2022 range of reasonable ROE for water and sewer utilities. This analysis is provided in Workpaper No. 2.

---

3 For a description of these models, see the Direct Testimony of Swetha Venkat in Docket No. 20-06003.

4 While the DCF result using the average first year dividend yield and average projected growth rate has decreased since 2021, the DCF result using the average of the mean and median first year dividend yield and the average of the mean and median projected growth rate increased since 2020.

Third, Staff has also reviewed the current capital market conditions to determine if any additional modification is warranted to the range of ROEs resulting from the formula and the X and Y values of 6.5 and 1.6, respectively. While the Federal Reserve's target for the federal funds rate remains near zero, the Fed is expected to continue to reduce its net asset purchases and increase the federal funds rate this year.[5] Long-term Treasury yields have increased from the historic lows reached in 2020 but are lower than the highs reached earlier in mid-2021.[6] However, such information is already reflected in Staff's ROE estimation models and therefore, there is no need to make an additional change. Staff concludes that there is no additional modification necessary and that current capital market conditions supports the analysis above to increase the 2022 range of reasonable ROE from the 2021 range for water and sewer utilities.

Staff has determined the size premium for non-CRU companies should remain 80 basis points. The size premium is added to compensate for the significantly smaller size of the non-CRU companies,[7] lack of support from a parent company backed by a private equity owner, and general financing difficulties that very small water companies face (e.g., lack of financial flexibility, lack of access to the financial markets, and the inability to qualify for privately placed debt).[8] With the addition of the size premium, the formula yields a ROE of 8.90% for a 100% equity ratio, 10.50% for a 50% equity ratio, and 11.30% for a 40% equity ratio.

Pursuant to NAC 704.582(1), this letter will also be served upon all public utilities that furnish water or services for the disposal of sewage, or both.

Sincerely,

/s/ Don Lomoljo
Don Lomoljo
Staff Counsel

DL/tmr
cc/Ernest Figueroa, Consumer Advocate

---

5 The current target range for the federal funds rate is 0% to 0.25%.

6 For example, the 20-year Treasury bond yield declined to 1.09% in July 2020, increased to 2.23% in March 2021, and was at about 1.9% at the end of 2021. The yield on the 20-year Treasury bond continued to rise to about 2.15% in January 2022.

7 Excluding GBWC, all other water companies jurisdictional to the Commission have 500 or fewer connections.

8 In determining the size premium, Staff also considered the fact that small water and/or sewer utilities, which are largely non-CRU companies, can take advantage of simplified procedures or methodologies for changing rates pursuant to NRS 704.095 and NAC 704.570 to 704.628, including the ability to adjust rates consistent with the most recent GDP deflator on an annual basis.

Summary of Staff's ROE Analysis

	Water	Gas	Electric	Overall
CAPM 1.97 risk-free rate	7.66%	8.39%	8.40%	8.28%
CAPM 2.71 risk-free rate	8.41%	9.13%	9.14%	9.03%
ECAPM 1.97 risk-free rate	8.05%	8.59%	8.60%	8.51%
ECAPM 2.71 risk-free rate	8.79%	9.34%	9.35%	9.26%
Average CAPM	**8.23%**	**8.86%**	**8.87%**	**8.77%**
DCF [(1)]	**9.15%**	**10.19%**	**9.10%**	**9.28%**
Allowed ROE [(2)]	**n/a**	**9.30%**	**9.42%**	**9.36%**
Range	**8.2-9.5**	**8.8-10.2**	**8.8-9.5**	**8.7-9.4**
Average (All Models)	**8.69%**	**9.45%**	**9.13%**	**9.13%**
Midpoint of Range	**8.85%**	**9.50%**	**9.15%**	**9.05%**

Notes:

(1) The DCF results reported use a 60-day average stock price between November 1, 2021 and December 31, 2021 and an estimated growth rate that is the average of the 5-year growth rates reported by Value Line, Yahoo! Finance, and Zack's Investment Research.

(2) The Allowed ROE results are based on a regression analysis that uses data for both gas and electric utilities going back over 20 years to estimate a ROE for a given time period. Such data is not available for water utilities, thus a ROE using the Allowed ROE model cannot be reliably estimated for water utilities.

Capital Asset Pricing Model (CAPM) Analysis

		Value Line		Morningstar		Value Line		
			Risk-free Rate	Market Risk Premium	Market Risk Premium	Beta	Return on Equity	Return on Equity
Company	Ticker	Industry	90-Day Average 20-Year T-Bond Yield	Average Annual Total Return, Long-Term Government Bond	Average Annual Income Return, Long-Term Government Bond		Annual Total Returns	Annual Income Returns
		[a]	[b]	[c]	[d]	[e]	[f] = [b] + [c]*[e]	[g] = [b] + [d]*[e]
American States Water Co.	AWR	Water	1.97%	6.07%	7.25%	0.65	5.91%	6.68%
American Water Works Co.	AWK	Water	1.97%	6.07%	7.25%	0.85	7.12%	8.13%
Essential Utilities	WTRG	Water	1.97%	6.07%	7.25%	0.95	7.73%	8.85%
California Water Service	CWT	Water	1.97%	6.07%	7.25%	0.70	6.21%	7.04%
Middlesex Water Company	MSEX	Water	1.97%	6.07%	7.25%	0.70	6.21%	7.04%
SJW Group	SJW	Water	1.97%	6.07%	7.25%	0.80	6.82%	7.77%
York Water Company	YORW	Water	1.97%	6.07%	7.25%	0.85	7.12%	8.13%
Water Group Average						*0.79*	*6.73%*	*7.66%*
Atmos Energy Corp.	ATO	Natural Gas	1.97%	6.07%	7.25%	0.80	6.82%	7.77%
New Jersey Resources	NJR	Natural Gas	1.97%	6.07%	7.25%	1.00	8.04%	9.22%
Nisource	NI	Natural Gas	1.97%	6.07%	7.25%	0.85	7.12%	8.13%
Northwest Natural Gas	NWN	Natural Gas	1.97%	6.07%	7.25%	0.85	7.12%	8.13%
One Gas, Inc	OGS	Natural Gas	1.97%	6.07%	7.25%	0.80	6.82%	7.77%
South Jersey Industries	SJI	Natural Gas	1.97%	6.07%	7.25%	1.05	8.34%	9.58%
Spire, Inc.	SR	Natural Gas	1.97%	6.07%	7.25%	0.85	7.12%	8.13%
Gas Group Average						*0.89*	*7.34%*	*8.39%*
Allete	ALE	Electric	1.97%	6.07%	7.25%	0.90	7.43%	8.49%
Alliant Energy	LNT	Electric	1.97%	6.07%	7.25%	0.85	7.12%	8.13%
Ameren	AEE	Electric	1.97%	6.07%	7.25%	0.80	6.82%	7.77%
American Electric Power	AEP	Electric	1.97%	6.07%	7.25%	0.75	6.52%	7.40%
Avista	AVA	Electric	1.97%	6.07%	7.25%	0.95	7.73%	8.85%
Black Hills Corp.	BKH	Electric	1.97%	6.07%	7.25%	1.00	8.04%	9.22%
CMS Energy Corp.	CMS	Electric	1.97%	6.07%	7.25%	0.80	6.82%	7.77%
Consolidated Edison	ED	Electric	1.97%	6.07%	7.25%	0.75	6.52%	7.40%
DTE Energy Co.	DTE	Electric	1.97%	6.07%	7.25%	0.95	7.73%	8.85%
Duke Energy Corp.	DUK	Electric	1.97%	6.07%	7.25%	0.85	7.12%	8.13%
Edison International	EIX	Electric	1.97%	6.07%	7.25%	1.00	8.04%	9.22%
Entergy Corp.	ETR	Electric	1.97%	6.07%	7.25%	0.95	7.73%	8.85%
Evergy Inc.	EVRG	Electric	1.97%	6.07%	7.25%	0.95	7.73%	8.85%
Eversource Energy	ES	Electric	1.97%	6.07%	7.25%	0.90	7.43%	8.49%
Exelon	EXC	Electric	1.97%	6.07%	7.25%	0.95	7.73%	8.85%
FirstEnergy Corp.	FE	Electric	1.97%	6.07%	7.25%	0.85	7.12%	8.13%
Fortis	FTS	Electric	1.97%	6.07%	7.25%	0.75	6.52%	7.40%
Hawaiian Electric	HE	Electric	1.97%	6.07%	7.25%	0.85	7.12%	8.13%
IDACorp, Inc.	IDA	Electric	1.97%	6.07%	7.25%	0.85	7.12%	8.13%
MGE Energy Inc.	MGEE	Electric	1.97%	6.07%	7.25%	0.75	6.52%	7.40%
NextEra Energy, Inc.	NEE	Electric	1.97%	6.07%	7.25%	0.90	7.43%	8.49%
NorthWestern Corp.	NWE	Electric	1.97%	6.07%	7.25%	0.95	7.73%	8.85%
OGE Energy Corp.	OGE	Electric	1.97%	6.07%	7.25%	1.05	8.34%	9.58%
Otter Tail Corp.	OTTR	Electric	1.97%	6.07%	7.25%	0.90	7.43%	8.49%
Pinnacle West Capital	PNW	Electric	1.97%	6.07%	7.25%	0.95	7.73%	8.85%
Portland General Electric	POR	Electric	1.97%	6.07%	7.25%	0.90	7.43%	8.49%
Public Service Enterprise Group	PEG	Electric	1.97%	6.07%	7.25%	0.90	7.43%	8.49%
Sempra Energy	SRE	Electric	1.97%	6.07%	7.25%	1.00	8.04%	9.22%
Southern Co.	SO	Electric	1.97%	6.07%	7.25%	0.95	7.73%	8.85%
WEC Energy Group	WEC	Electric	1.97%	6.07%	7.25%	0.80	6.82%	7.77%
Xcel Energy, Inc.	XEL	Electric	1.97%	6.07%	7.25%	0.80	6.82%	7.77%
Electric Group Average						*0.89*	*7.35%*	*8.40%*
AVERAGE (All Groups)						**0.87**	**7.25%**	**8.28%**

Notes:
[a] Industry is based on Value Line's industry classification of each company. Some electric companies also have natural gas utility operations.
[2] 90-Day Average 20-year Treasury Bond Yield is the average of 20-year Treasury Bond yields from October 1, 2021 to December 31, 2021.

Sources:
[a] The Value Line Investment Survey various publications October 2021-January 2022.
[b] Federal Reserve Board (downloaded January 19, 2021)
[c]-[d] Morningstar *Ibbotson SBBI 2021*
[e] The Value Line Investment Survey various publications October 2021-January 2022.

Capital Asset Pricing Model (CAPM) Analysis

		Value Line	Blue Chip	Morningstar		Value Line		
			Risk-free Rate	Market Risk Premium	Market Risk Premium	Beta	Return on Equity	Return on Equity
Company	Ticker	Industry	Projected	Average Annual Total Return, Long-Term Government Bond	Average Annual Income Return, Long-Term Government Bond		Annual Total Returns	Annual Income Returns
		[a]	[b]	[c]	[d]	[e]	[f] = [b] + [c]*[e]	[g] = [b] + [d]*[e]
American States Water Co.	AWR	Water	2.71%	6.07%	7.25%	0.65	6.66%	7.42%
American Water Works Co.	AWK	Water	2.71%	6.07%	7.25%	0.85	7.87%	8.87%
Essential Utilities	WTRG	Water	2.71%	6.07%	7.25%	0.95	8.48%	9.60%
California Water Service	CWT	Water	2.71%	6.07%	7.25%	0.70	6.96%	7.79%
Middlesex Water Company	MSEX	Water	2.71%	6.07%	7.25%	0.70	6.96%	7.79%
SJW Group	SJW	Water	2.71%	6.07%	7.25%	0.80	7.57%	8.51%
York Water Company	YORW	Water	2.71%	6.07%	7.25%	0.85	7.87%	8.87%
Water Group Average						*0.79*	*7.48%*	*8.41%*
Atmos Energy Corp.	ATO	Natural Gas	2.71%	6.07%	7.25%	0.80	7.57%	8.51%
New Jersey Resources	NJR	Natural Gas	2.71%	6.07%	7.25%	1.00	8.78%	9.96%
Nisource	NI	Natural Gas	2.71%	6.07%	7.25%	0.85	7.87%	8.87%
Northwest Natural Gas	NWN	Natural Gas	2.71%	6.07%	7.25%	0.85	7.87%	8.87%
One Gas, Inc	OGS	Natural Gas	2.71%	6.07%	7.25%	0.80	7.57%	8.51%
South Jersey Industries	SJI	Natural Gas	2.71%	6.07%	7.25%	1.05	9.08%	10.32%
Spire, Inc.	SR	Natural Gas	2.71%	6.07%	7.25%	0.85	7.87%	8.87%
Gas Group Average						*0.89*	*8.09%*	*9.13%*
Allete	ALE	Electric	2.71%	6.07%	7.25%	0.90	8.17%	9.24%
Alliant Energy	LNT	Electric	2.71%	6.07%	7.25%	0.85	7.87%	8.87%
Ameren	AEE	Electric	2.71%	6.07%	7.25%	0.80	7.57%	8.51%
American Electric Power	AEP	Electric	2.71%	6.07%	7.25%	0.75	7.26%	8.15%
Avista	AVA	Electric	2.71%	6.07%	7.25%	0.95	8.48%	9.60%
Black Hills Corp.	BKH	Electric	2.71%	6.07%	7.25%	1.00	8.78%	9.96%
CMS Energy Corp.	CMS	Electric	2.71%	6.07%	7.25%	0.80	7.57%	8.51%
Consolidated Edison	ED	Electric	2.71%	6.07%	7.25%	0.75	7.26%	8.15%
DTE Energy Co.	DTE	Electric	2.71%	6.07%	7.25%	0.95	8.48%	9.60%
Duke Energy Corp.	DUK	Electric	2.71%	6.07%	7.25%	0.85	7.87%	8.87%
Edison International	EIX	Electric	2.71%	6.07%	7.25%	1.00	8.78%	9.96%
Entergy Corp.	ETR	Electric	2.71%	6.07%	7.25%	0.95	8.48%	9.60%
Evergy Inc.	EVRG	Electric	2.71%	6.07%	7.25%	0.95	8.48%	9.60%
Eversource Energy	ES	Electric	2.71%	6.07%	7.25%	0.90	8.17%	9.24%
Exelon	EXC	Electric	2.71%	6.07%	7.25%	0.95	8.48%	9.60%
FirstEnergy Corp.	FE	Electric	2.71%	6.07%	7.25%	0.85	7.87%	8.87%
Fortis	FTS	Electric	2.71%	6.07%	7.25%	0.75	7.26%	8.15%
Hawaiian Electric	HE	Electric	2.71%	6.07%	7.25%	0.85	7.87%	8.87%
IDACorp, Inc.	IDA	Electric	2.71%	6.07%	7.25%	0.85	7.87%	8.87%
MGE Energy Inc.	MGEE	Electric	2.71%	6.07%	7.25%	0.75	7.26%	8.15%
NextEra Energy, Inc.	NEE	Electric	2.71%	6.07%	7.25%	0.90	8.17%	9.24%
NorthWestern Corp.	NWE	Electric	2.71%	6.07%	7.25%	0.95	8.48%	9.60%
OGE Energy Corp.	OGE	Electric	2.71%	6.07%	7.25%	1.05	9.08%	10.32%
Otter Tail Corp.	OTTR	Electric	2.71%	6.07%	7.25%	0.90	8.17%	9.24%
Pinnacle West Capital	PNW	Electric	2.71%	6.07%	7.25%	0.95	8.48%	9.60%
Portland General Electric	POR	Electric	2.71%	6.07%	7.25%	0.90	8.17%	9.24%
Public Service Enterprise Group	PEG	Electric	2.71%	6.07%	7.25%	0.90	8.17%	9.24%
Sempra Energy	SRE	Electric	2.71%	6.07%	7.25%	1.00	8.78%	9.96%
Southern Co.	SO	Electric	2.71%	6.07%	7.25%	0.95	8.48%	9.60%
WEC Energy Group	WEC	Electric	2.71%	6.07%	7.25%	0.80	7.57%	8.51%
Xcel Energy, Inc.	XEL	Electric	2.71%	6.07%	7.25%	0.80	7.57%	8.51%
Electric Group Average						*0.89*	*8.09%*	*9.14%*
AVERAGE (All Groups)						**0.87**	**8.00%**	**9.03%**

Notes:
[a] Industry is based on Value Line's industry classification of each company. Some electric companies also have natural gas utility operations.

Sources:
[a] The Value Line Investment Survey various publications October 2021-January 2022.
[b] Blue Chip Financial Forecasts (January 1, 2022)
[c]-[d] Morningstar *Ibbotson SBBI 2021*
[e] The Value Line Investment Survey various publications October 2021-January 2022.

Empirical Capital Asset Pricing Model (ECAPM) Analysis

		Value Line		Morningstar		Value Line		
			Risk-free Rate	Market Risk Premium	Market Risk Premium	Beta	Return on Equity	Return on Equity
Company	Ticker	Industry	90-Day Average 20-Year T-Bond Yield	Average Annual Total Return, Long-Term Government Bond	Average Annual Income Return, Long-Term Government Bond		Annual Total Returns	Annual Income Returns
		[a]	[b]	[c]	[d]	[e]	[f]= [b]+(.25*[c])+(.75*[c]*[e])	[g]= [b]+(.25*[d])+(.75*[c]*[d])
American States Water Co.	AWR	Water	1.97%	6.07%	7.25%	0.65	6.44%	7.31%
American Water Works Co.	AWK	Water	1.97%	6.07%	7.25%	0.85	7.35%	8.40%
Essential Utilities	WTRG	Water	1.97%	6.07%	7.25%	0.95	7.81%	8.94%
California Water Service	CWT	Water	1.97%	6.07%	7.25%	0.70	6.67%	7.58%
Middlesex Water Company	MSEX	Water	1.97%	6.07%	7.25%	0.70	6.67%	7.58%
SJW Group	SJW	Water	1.97%	6.07%	7.25%	0.80	7.12%	8.13%
York Water Company	YORW	Water	1.97%	6.07%	7.25%	0.85	7.35%	8.40%
Water Group Average						*0.79*	*7.06%*	*8.05%*
Atmos Energy Corp.	ATO	Natural Gas	1.97%	6.07%	7.25%	0.80	7.12%	8.13%
New Jersey Resources	NJR	Natural Gas	1.97%	6.07%	7.25%	1.00	8.04%	9.22%
Nisource	NI	Natural Gas	1.97%	6.07%	7.25%	0.85	7.35%	8.40%
Northwest Natural Gas	NWN	Natural Gas	1.97%	6.07%	7.25%	0.85	7.35%	8.40%
One Gas, Inc	OGS	Natural Gas	1.97%	6.07%	7.25%	0.80	7.12%	8.13%
South Jersey Industries	SJI	Natural Gas	1.97%	6.07%	7.25%	1.05	8.26%	9.49%
Spire, Inc.	SR	Natural Gas	1.97%	6.07%	7.25%	0.85	7.35%	8.40%
Gas Group Average						*0.89*	*7.51%*	*8.59%*
Allete	ALE	Electric	1.97%	6.07%	7.25%	0.90	7.58%	8.67%
Alliant Energy	LNT	Electric	1.97%	6.07%	7.25%	0.85	7.35%	8.40%
Ameren	AEE	Electric	1.97%	6.07%	7.25%	0.80	7.12%	8.13%
American Electric Power	AEP	Electric	1.97%	6.07%	7.25%	0.75	6.90%	7.86%
Avista	AVA	Electric	1.97%	6.07%	7.25%	0.95	7.81%	8.94%
Black Hills Corp.	BKH	Electric	1.97%	6.07%	7.25%	1.00	8.04%	9.22%
CMS Energy Corp.	CMS	Electric	1.97%	6.07%	7.25%	0.80	7.12%	8.13%
Consolidated Edison	ED	Electric	1.97%	6.07%	7.25%	0.75	6.90%	7.86%
DTE Energy Co.	DTE	Electric	1.97%	6.07%	7.25%	0.95	7.81%	8.94%
Duke Energy Corp.	DUK	Electric	1.97%	6.07%	7.25%	0.85	7.35%	8.40%
Edison International	EIX	Electric	1.97%	6.07%	7.25%	1.00	8.04%	9.22%
Entergy Corp.	ETR	Electric	1.97%	6.07%	7.25%	0.95	7.81%	8.94%
Evergy Inc.	EVRG	Electric	1.97%	6.07%	7.25%	0.95	7.81%	8.94%
Eversource Energy	ES	Electric	1.97%	6.07%	7.25%	0.90	7.58%	8.67%
Exelon	EXC	Electric	1.97%	6.07%	7.25%	0.95	7.81%	8.94%
FirstEnergy Corp.	FE	Electric	1.97%	6.07%	7.25%	0.85	7.35%	8.40%
Fortis	FTS	Electric	1.97%	6.07%	7.25%	0.75	6.90%	7.86%
Hawaiian Electric	HE	Electric	1.97%	6.07%	7.25%	0.85	7.35%	8.40%
IDACorp, Inc.	IDA	Electric	1.97%	6.07%	7.25%	0.85	7.35%	8.40%
MGE Energy Inc.	MGEE	Electric	1.97%	6.07%	7.25%	0.75	6.90%	7.86%
NextEra Energy, Inc.	NEE	Electric	1.97%	6.07%	7.25%	0.90	7.58%	8.67%
NorthWestern Corp.	NWE	Electric	1.97%	6.07%	7.25%	0.95	7.81%	8.94%
OGE Energy Corp.	OGE	Electric	1.97%	6.07%	7.25%	1.05	8.26%	9.49%
Otter Tail Corp.	OTTR	Electric	1.97%	6.07%	7.25%	0.90	7.58%	8.67%
Pinnacle West Capital	PNW	Electric	1.97%	6.07%	7.25%	0.95	7.81%	8.94%
Portland General Electric	POR	Electric	1.97%	6.07%	7.25%	0.90	7.58%	8.67%
Public Service Enterprise Group	PEG	Electric	1.97%	6.07%	7.25%	0.90	7.58%	8.67%
Sempra Energy	SRE	Electric	1.97%	6.07%	7.25%	1.00	8.04%	9.22%
Southern Co.	SO	Electric	1.97%	6.07%	7.25%	0.95	7.81%	8.94%
WEC Energy Group	WEC	Electric	1.97%	6.07%	7.25%	0.80	7.12%	8.13%
Xcel Energy, Inc.	XEL	Electric	1.97%	6.07%	7.25%	0.80	7.12%	8.13%
Electric Group Average						*0.89*	*7.52%*	*8.60%*
AVERAGE (All Groups)						**0.87**	**7.45%**	**8.51%**

Notes:
[a] Industry is based on Value Line's industry classification of each company. Some electric companies also have natural gas utility operations.
[b] 90-Day Average 20-year Treasury Bond Yield is the average of 20-year Treasury Bond yields from October 1, 2021 to December 31, 2021.

Sources:
[a] The Value Line Investment Survey various publications October 2021-January 2022.
[b] Federal Reserve Board (downloaded January 19, 2021)
[c]-[d] Morningstar *Ibbotson SBBI 2021*
[e] The Value Line Investment Survey various publications October 2021-January 2022.

Empirical Capital Asset Pricing Model (CAPM) Analysis

		Value Line	Blue Chip	Morningstar		Value Line		
			Risk-free Rate	Market Risk Premium	Market Risk Premium	Beta	Return on Equity	Return on Equity
Company	Ticker	Industry	Projected	Average Annual Total Return, Long-Term Government Bond	Average Annual Income Return, Long-Term Government Bond		Annual Total Returns	Annual Income Returns
		[a]	[b]	[c]	[d]	[e]	[f]= [b]+(.25*[c])+(.75*[c]*[e])	[g]= [b]+(.25*[d])+(.75*[c]*[d])
American States Water Co.	AWR	Water	2.71%	6.07%	7.25%	0.65	7.19%	8.06%
American Water Works Co.	AWK	Water	2.71%	6.07%	7.25%	0.85	8.10%	9.14%
Essential Utilities	WTRG	Water	2.71%	6.07%	7.25%	0.95	8.55%	9.69%
California Water Service	CWT	Water	2.71%	6.07%	7.25%	0.70	7.41%	8.33%
Middlesex Water Company	MSEX	Water	2.71%	6.07%	7.25%	0.70	7.41%	8.33%
SJW Group	SJW	Water	2.71%	6.07%	7.25%	0.80	7.87%	8.87%
York Water Company	YORW	Water	2.71%	6.07%	7.25%	0.85	8.10%	9.14%
Water Group Average						*0.79*	*7.80%*	*8.79%*
Atmos Energy Corp.	ATO	Natural Gas	2.71%	6.07%	7.25%	0.80	7.87%	8.87%
New Jersey Resources	NJR	Natural Gas	2.71%	6.07%	7.25%	1.00	8.78%	9.96%
Nisource	NI	Natural Gas	2.71%	6.07%	7.25%	0.85	8.10%	9.14%
Northwest Natural Gas	NWN	Natural Gas	2.71%	6.07%	7.25%	0.85	8.10%	9.14%
One Gas, Inc	OGS	Natural Gas	2.71%	6.07%	7.25%	0.80	7.87%	8.87%
South Jersey Industries	SJI	Natural Gas	2.71%	6.07%	7.25%	1.05	9.01%	10.23%
Spire, Inc.	SR	Natural Gas	2.71%	6.07%	7.25%	0.85	8.10%	9.14%
Gas Group Average						*0.89*	*8.26%*	*9.34%*
Allete	ALE	Electric	2.71%	6.07%	7.25%	0.90	8.32%	9.42%
Alliant Energy	LNT	Electric	2.71%	6.07%	7.25%	0.85	8.10%	9.14%
Ameren	AEE	Electric	2.71%	6.07%	7.25%	0.80	7.87%	8.87%
American Electric Power	AEP	Electric	2.71%	6.07%	7.25%	0.75	7.64%	8.60%
Avista	AVA	Electric	2.71%	6.07%	7.25%	0.95	8.55%	9.69%
Black Hills Corp.	BKH	Electric	2.71%	6.07%	7.25%	1.00	8.78%	9.96%
CMS Energy Corp.	CMS	Electric	2.71%	6.07%	7.25%	0.80	7.87%	8.87%
Consolidated Edison	ED	Electric	2.71%	6.07%	7.25%	0.75	7.64%	8.60%
DTE Energy Co.	DTE	Electric	2.71%	6.07%	7.25%	0.95	8.55%	9.69%
Duke Energy Corp.	DUK	Electric	2.71%	6.07%	7.25%	0.85	8.10%	9.14%
Edison International	EIX	Electric	2.71%	6.07%	7.25%	1.00	8.78%	9.96%
Entergy Corp.	ETR	Electric	2.71%	6.07%	7.25%	0.95	8.55%	9.69%
Evergy Inc.	EVRG	Electric	2.71%	6.07%	7.25%	0.95	8.55%	9.69%
Eversource Energy	ES	Electric	2.71%	6.07%	7.25%	0.90	8.32%	9.42%
Exelon	EXC	Electric	2.71%	6.07%	7.25%	0.95	8.55%	9.69%
FirstEnergy Corp.	FE	Electric	2.71%	6.07%	7.25%	0.85	8.10%	9.14%
Fortis	FTS	Electric	2.71%	6.07%	7.25%	0.75	7.64%	8.60%
Hawaiian Electric	HE	Electric	2.71%	6.07%	7.25%	0.85	8.10%	9.14%
IDACorp, Inc.	IDA	Electric	2.71%	6.07%	7.25%	0.85	8.10%	9.14%
MGE Energy Inc.	MGEE	Electric	2.71%	6.07%	7.25%	0.75	7.64%	8.60%
NextEra Energy, Inc.	NEE	Electric	2.71%	6.07%	7.25%	0.90	8.32%	9.42%
NorthWestern Corp.	NWE	Electric	2.71%	6.07%	7.25%	0.95	8.55%	9.69%
OGE Energy Corp.	OGE	Electric	2.71%	6.07%	7.25%	1.05	9.01%	10.23%
Otter Tail Corp.	OTTR	Electric	2.71%	6.07%	7.25%	0.90	8.32%	9.42%
Pinnacle West Capital	PNW	Electric	2.71%	6.07%	7.25%	0.95	8.55%	9.69%
Portland General Electric	POR	Electric	2.71%	6.07%	7.25%	0.90	8.32%	9.42%
Public Service Enterprise Group	PEG	Electric	2.71%	6.07%	7.25%	0.90	8.32%	9.42%
Sempra Energy	SRE	Electric	2.71%	6.07%	7.25%	1.00	8.78%	9.96%
Southern Co.	SO	Electric	2.71%	6.07%	7.25%	0.95	8.55%	9.69%
WEC Energy Group	WEC	Electric	2.71%	6.07%	7.25%	0.80	7.87%	8.87%
Xcel Energy, Inc.	XEL	Electric	2.71%	6.07%	7.25%	0.80	7.87%	8.87%
Electric Group Average						*0.89*	*8.27%*	*9.35%*
AVERAGE (All Groups)						**0.87**	**8.19%**	**9.26%**

Notes:
[a] Industry is based on Value Line's industry classification of each company. Some electric companies also have natural gas utility operations.

Sources:
[a] The Value Line Investment Survey various publications October 2021-January 2022.
[b] Blue Chip Financial Forecasts (January 1, 2022)
[c]-[d] Morningstar *Ibbotson SBBI 2021*
[e] The Value Line Investment Survey various publications October 2021-January 2022.

Constant Growth Discounted Cash Flow (DCF) Analysis

Company	Ticker	Value Line		Expected Dividend	Yahoo! Finance		Value Line	ROE - 60-Day Stock Price	ROE - 90-Day Stock Price
		Industry	Annual Dividend		60-Day Average Stock Price	90-Day Average Stock Price	Est. Growth Rate ("g"), Next 5 years		
		[a]	[b]	[c]= [b]*1+[f]	[d]	[e]	[f]	[g] = [c]/[d] + [f]	[h] = [c]/[e] + [f]
American States Water Co.	AWR	Water	1.40	1.49	96.40	94.03	6.50%	8.05%	8.09%
American Water Works Co.	AWK	Water	2.36	2.56	175.55	174.46	8.50%	9.96%	9.97%
Essential Utilities	WTRG	Water	1.04	1.14	49.29	48.47	10.00%	12.32%	12.36%
California Water Service	CWT	Water	0.92	1.00	66.21	64.17	8.50%	10.01%	10.06%
Middlesex Water Company	MSEX	Water	1.11	1.16	105.96	106.01	5.00%	6.10%	6.10%
SJW Group	SJW	Water	1.36	1.56	70.21	69.47	15.00%	17.23%	17.25%
York Water Company	YORW	Water	0.76	0.81	48.19	47.67	6.50%	8.17%	8.19%
Water Group Average							*8.57%*	*10.26%*	*10.29%*
Atmos Energy Corp.	ATO	Natural Gas	2.56	2.73	96.05	94.63	7.00%	9.85%	9.89%
New Jersey Resources	NJR	Natural Gas	1.39	1.41	39.24	38.66	1.50%	5.10%	5.15%
Nisource	NI	Natural Gas	0.88	0.95	25.76	25.40	8.50%	12.21%	12.26%
Northwest Natural Gas	NWN	Natural Gas	1.92	2.03	46.34	46.49	5.50%	9.88%	9.86%
One Gas, Inc	OGS	Natural Gas	2.32	2.47	70.40	69.49	6.50%	10.01%	10.06%
South Jersey Industries	SJI	Natural Gas	1.22	1.36	24.37	23.73	11.50%	17.08%	17.23%
Spire, Inc.	SR	Natural Gas	2.64	2.90	62.85	63.21	10.00%	14.61%	14.59%
Gas Group Average							*7.21%*	*11.25%*	*11.29%*
Allete	ALE	Electric	2.52	2.65	63.33	62.59	5.00%	9.18%	9.23%
Alliant Energy	LNT	Electric	1.61	1.70	57.72	57.22	5.50%	8.45%	8.47%
Ameren	AEE	Electric	2.20	2.34	85.74	84.91	6.50%	9.23%	9.26%
American Electric Power	AEP	Electric	3.00	3.20	84.49	84.28	6.50%	10.28%	10.29%
Avista	AVA	Electric	1.69	1.74	40.32	40.19	3.00%	7.32%	7.34%
Black Hills Corp.	BKH	Electric	2.29	2.40	66.88	66.26	5.00%	8.60%	8.63%
CMS Energy Corp.	CMS	Electric	1.74	1.84	61.80	61.33	6.00%	8.98%	9.01%
Consolidated Edison	ED	Electric	3.10	3.19	80.33	78.47	3.00%	6.98%	7.07%
DTE Energy Co.	DTE	Electric	3.56	3.59	114.24	114.27	1.00%	4.14%	4.14%
Duke Energy Corp.	DUK	Electric	3.90	4.17	101.31	101.32	7.00%	11.12%	11.12%
Edison International	EIX	Electric	2.69	n/a	65.85	63.33	NMF	n/a	n/a
Entergy Corp.	ETR	Electric	3.86	3.98	105.97	104.92	3.00%	6.75%	6.79%
Evergy Inc.	EVRG	Electric	2.18	2.35	65.78	64.96	8.00%	11.58%	11.62%
Eversource Energy	ES	Electric	2.41	2.57	86.10	85.94	6.50%	9.48%	9.49%
Exelon	EXC	Electric	1.53	1.62	54.06	52.72	5.50%	8.49%	8.57%
FirstEnergy Corp.	FE	Electric	1.56	1.74	39.38	38.51	11.50%	15.92%	16.02%
Fortis	FTS	Electric	2.05	2.13	45.43	45.22	4.00%	8.69%	8.72%
Hawaiian Electric	HE	Electric	1.36	1.40	40.34	40.57	3.00%	6.47%	6.45%
IDACorp, Inc.	IDA	Electric	2.88	3.00	107.67	106.34	4.00%	6.78%	6.82%
MGE Energy Inc.	MGEE	Electric	1.52	1.60	77.36	76.70	5.50%	7.57%	7.59%
NextEra Energy, Inc.	NEE	Electric	1.54	1.70	88.47	86.31	10.50%	12.42%	12.47%
NorthWestern Corp.	NWE	Electric	2.48	2.55	56.37	56.83	3.00%	7.53%	7.49%
OGE Energy Corp.	OGE	Electric	1.63	1.69	35.67	34.99	4.00%	8.74%	8.83%
Otter Tail Corp.	OTTR	Electric	1.56	1.68	67.24	64.47	8.00%	10.51%	10.61%
Pinnacle West Capital	PNW	Electric	3.34	n/a	66.51	67.10	n/a	n/a	n/a
Portland General Electric	POR	Electric	1.70	1.82	50.59	49.86	7.00%	10.59%	10.64%
Public Service Enterprise Group	PEG	Electric	2.04	2.11	63.85	63.23	3.50%	6.81%	6.84%
Sempra Energy	SRE	Electric	4.40	4.84	126.01	126.64	10.00%	13.84%	13.82%
Southern Co.	SO	Electric	2.62	2.78	64.15	63.67	6.00%	10.33%	10.36%
WEC Energy Group	WEC	Electric	2.71	2.89	92.14	91.32	6.50%	9.63%	9.66%
Xcel Energy, Inc.	XEL	Electric	1.83	1.94	65.58	65.15	6.00%	8.96%	8.98%
Electric Group Average							*5.66%*	*9.15%*	*9.18%*
AVERAGE (All Groups)							**6.38%**	**9.67%**	**9.71%**

Notes:
[a] Industry is based on Value Line's industry classification of each company. Some electric companies also have natural gas utility operations.
[d] 60-Day average stock price is the average of the closing stock prices between November 1, 2021 to December 31, 2021.
[e] 90-Day average stock price is the average of the closing stock prices between October 1, 2021 to December 31, 2021.

Sources:
[a] The Value Line Investment Survey various publications October 2021-January 2022
[b], [d]-[e] Yahoo! Finance (accessed January 21, 2021)
[f] The Value Line Investment Survey various publications October 2021-January 2022

Constant Growth Discounted Cash Flow (DCF) Analysis

		Value Line			Yahoo! Finance				
Company	Ticker	Industry	Annual Dividend	Expected Dividend	60-Day Average Stock Price	90-Day Average Stock Price	Est. Growth Rate ("g"), Next 5 years	ROE - 60-Day Stock Price	ROE - 90-Day Stock Price
		[a]	[b]	[c]= [b]*1+[f]	[d]	[e]	[f]	[g] = [c]/[d] + [f]	[h] = [c]/[e] + [f]
American States Water Co.	AWR	Water	1.40	1.49	96.40	94.03	6.70%	8.25%	8.29%
American Water Works Co.	AWK	Water	2.36	2.55	175.55	174.46	8.20%	9.65%	9.66%
Essential Utilities	WTRG	Water	1.04	1.10	49.29	48.47	6.40%	8.64%	8.68%
California Water Service	CWT	Water	0.92	1.03	66.21	64.17	11.70%	13.25%	13.30%
Middlesex Water Company	MSEX	Water	1.11	1.14	105.96	106.01	2.70%	3.77%	3.77%
SJW Group	SJW	Water	1.36	1.44	70.21	69.47	5.70%	7.75%	7.77%
York Water Company	YORW	Water	0.76	0.79	48.19	47.67	4.90%	6.55%	6.56%
Water Group Average							*6.61%*	*8.27%*	*8.29%*
Atmos Energy Corp.	ATO	Natural Gas	2.56	2.74	96.05	94.63	7.20%	10.05%	10.09%
New Jersey Resources	NJR	Natural Gas	1.39	1.48	39.24	38.66	6.00%	9.76%	9.82%
Nisource	NI	Natural Gas	0.88	0.91	25.76	25.40	3.52%	7.06%	7.11%
Northwest Natural Gas	NWN	Natural Gas	1.92	2.03	46.34	46.49	5.70%	10.09%	10.07%
One Gas, Inc	OGS	Natural Gas	2.32	2.39	70.40	69.49	2.90%	6.29%	6.34%
South Jersey Industries	SJI	Natural Gas	1.22	1.28	24.37	23.73	5.20%	10.46%	10.61%
Spire, Inc.	SR	Natural Gas	2.64	2.83	62.85	63.21	7.31%	11.81%	11.78%
Gas Group Average							*5.40%*	*9.36%*	*9.40%*
Allete	ALE	Electric	2.52	2.66	63.33	62.59	5.67%	9.87%	9.92%
Alliant Energy	LNT	Electric	1.61	1.71	57.72	57.22	6.10%	9.06%	9.09%
Ameren	AEE	Electric	2.20	2.37	85.74	84.91	7.90%	10.67%	10.70%
American Electric Power	AEP	Electric	3.00	3.17	84.49	84.28	5.50%	9.25%	9.26%
Avista	AVA	Electric	1.69	1.80	40.32	40.19	6.20%	10.66%	10.67%
Black Hills Corp.	BKH	Electric	2.29	2.40	66.88	66.26	4.67%	8.25%	8.29%
CMS Energy Corp.	CMS	Electric	1.74	1.84	61.80	61.33	5.62%	8.59%	8.62%
Consolidated Edison	ED	Electric	3.10	3.16	80.33	78.47	2.00%	5.94%	6.03%
DTE Energy Co.	DTE	Electric	3.56	3.80	114.24	114.27	6.72%	10.04%	10.04%
Duke Energy Corp.	DUK	Electric	3.90	4.00	101.31	101.32	2.50%	6.45%	6.45%
Edison International	EIX	Electric	2.69	2.84	65.85	63.33	5.80%	10.12%	10.29%
Entergy Corp.	ETR	Electric	3.86	4.09	105.97	104.92	6.00%	9.86%	9.90%
Evergy Inc.	EVRG	Electric	2.18	2.29	65.78	64.96	5.12%	8.60%	8.64%
Eversource Energy	ES	Electric	2.41	2.57	86.10	85.94	6.70%	9.69%	9.69%
Exelon	EXC	Electric	1.53	n/a	54.06	52.72	n/a	n/a	n/a
FirstEnergy Corp.	FE	Electric	1.56	n/a	39.38	38.51	n/a	n/a	n/a
Fortis	FTS	Electric	2.05	2.14	45.43	45.22	4.42%	9.13%	9.15%
Hawaiian Electric	HE	Electric	1.36	1.38	40.34	40.57	1.30%	4.71%	4.70%
IDACorp, Inc.	IDA	Electric	2.88	3.01	107.67	106.34	4.40%	7.19%	7.23%
MGE Energy Inc.	MGEE	Electric	1.52	1.61	77.36	76.70	5.90%	7.98%	7.99%
NextEra Energy, Inc.	NEE	Electric	1.54	1.69	88.47	86.31	9.95%	11.86%	11.91%
NorthWestern Corp.	NWE	Electric	2.48	2.59	56.37	56.83	4.50%	9.10%	9.06%
OGE Energy Corp.	OGE	Electric	1.63	1.69	35.67	34.99	3.90%	8.64%	8.73%
Otter Tail Corp.	OTTR	Electric	1.56	1.70	67.24	64.47	9.00%	11.53%	11.64%
Pinnacle West Capital	PNW	Electric	3.34	3.34	66.51	67.10	0.10%	5.13%	5.08%
Portland General Electric	POR	Electric	1.70	1.82	50.59	49.86	7.15%	10.75%	10.80%
Public Service Enterprise Group	PEG	Electric	2.04	2.11	63.85	63.23	3.27%	6.57%	6.60%
Sempra Energy	SRE	Electric	4.40	4.59	126.01	126.64	4.30%	7.94%	7.92%
Southern Co.	SO	Electric	2.62	2.78	64.15	63.67	6.20%	10.54%	10.57%
WEC Energy Group	WEC	Electric	2.71	2.89	92.14	91.32	6.60%	9.74%	9.77%
Xcel Energy, Inc.	XEL	Electric	1.83	1.96	65.58	65.15	6.90%	9.89%	9.91%
Electric Group Average							*5.32%*	*8.89%*	*8.92%*
AVERAGE (All Groups)							**5.55%**	**8.86%**	**8.90%**

Notes:
[a] Industry is based on Value Line's industry classification of each company. Some electric companies also have natural gas utility operations.
[d] 60-Day average stock price is the average of the closing stock prices between November 1, 2021 to December 31, 2021.
[e] 90-Day average stock price is the average of the closing stock prices between October 1, 2021 to December 31, 2021.

Sources:
[a] The Value Line Investment Survey various publications October 2021-January 2022
[b], [d]-[f] Yahoo! Finance (accessed January 5, 2022)

Constant Growth Discounted Cash Flow (DCF) Analysis

Company	Ticker	Value Line		Expected Dividend	Yahoo! Finance		Zacks	ROE - 60-Day Stock Price	ROE - 90-Day Stock Price
		Industry	Annual Dividend		60-Day Average Stock Price	90-Day Average Stock Price	Est. Growth Rate ("g"), Next 5 years		
		[a]	[b]	[c]= [b]*1+[f]	[d]	[e]	[f]	[g] = [c]/[d] + [f]	[h] = [c]/[e] + [f]
American States Water Co.	AWR	Water	1.40	n/a	96.40	94.03	n/a	n/a	n/a
American Water Works Co.	AWK	Water	2.36	2.55	175.55	174.46	8.08%	9.53%	9.54%
Essential Utilities	WTRG	Water	1.04	1.10	49.29	48.47	6.22%	8.46%	8.49%
California Water Service	CWT	Water	0.92	n/a	66.21	64.17	n/a	n/a	n/a
Middlesex Water Company	MSEX	Water	1.11	n/a	105.96	106.01	n/a	n/a	n/a
SJW Group	SJW	Water	1.36	n/a	70.21	69.47	n/a	n/a	n/a
York Water Company	YORW	Water	0.76	n/a	48.19	47.67	n/a	n/a	n/a
Water Group Average							*7.15%*	*8.99%*	*9.02%*
Atmos Energy Corp.	ATO	Natural Gas	2.56	2.74	96.05	94.63	7.27%	10.12%	10.17%
New Jersey Resources	NJR	Natural Gas	1.39	1.49	39.24	38.66	7.10%	10.90%	10.96%
Nisource	NI	Natural Gas	0.88	0.94	25.76	25.40	6.66%	10.30%	10.36%
Northwest Natural Gas	NWN	Natural Gas	1.92	2.02	46.34	46.49	5.03%	9.39%	9.37%
One Gas, Inc	OGS	Natural Gas	2.32	2.44	70.40	69.49	5.00%	8.46%	8.51%
South Jersey Industries	SJI	Natural Gas	1.22	1.29	24.37	23.73	5.63%	10.91%	11.06%
Spire, Inc.	SR	Natural Gas	2.64	2.77	62.85	63.21	5.30%	9.71%	9.69%
Gas Group Average							*6.00%*	*9.97%*	*10.01%*
Allete	ALE	Electric	2.52	2.67	63.33	62.59	6.00%	10.22%	10.27%
Alliant Energy	LNT	Electric	1.61	1.71	57.72	57.22	6.06%	9.02%	9.05%
Ameren	AEE	Electric	2.20	2.36	85.74	84.91	7.45%	10.21%	10.23%
American Electric Power	AEP	Electric	3.00	3.17	84.49	84.28	5.66%	9.41%	9.42%
Avista	AVA	Electric	1.69	1.78	40.32	40.19	5.11%	9.52%	9.53%
Black Hills Corp.	BKH	Electric	2.29	2.41	66.88	66.26	5.09%	8.69%	8.72%
CMS Energy Corp.	CMS	Electric	1.74	1.86	61.80	61.33	6.97%	9.98%	10.00%
Consolidated Edison	ED	Electric	3.10	3.16	80.33	78.47	2.00%	5.94%	6.03%
DTE Energy Co.	DTE	Electric	3.56	3.77	114.24	114.27	6.00%	9.30%	9.30%
Duke Energy Corp.	DUK	Electric	3.90	4.11	101.31	101.32	5.29%	9.34%	9.34%
Edison International	EIX	Electric	2.69	2.80	65.85	63.33	4.13%	8.38%	8.55%
Entergy Corp.	ETR	Electric	3.86	n/a	105.97	104.92	n/a	n/a	n/a
Evergy Inc.	EVRG	Electric	2.18	2.31	65.78	64.96	6.11%	9.62%	9.67%
Eversource Energy	ES	Electric	2.41	2.56	86.10	85.94	6.15%	9.12%	9.13%
Exelon	EXC	Electric	1.53	1.59	54.06	52.72	3.80%	6.74%	6.82%
FirstEnergy Corp.	FE	Electric	1.56	1.67	39.38	38.51	7.31%	11.56%	11.66%
Fortis	FTS	Electric	2.05	2.17	45.43	45.22	5.82%	10.60%	10.62%
Hawaiian Electric	HE	Electric	1.36	1.46	40.34	40.57	7.35%	10.97%	10.95%
IDACorp, Inc.	IDA	Electric	2.88	3.01	107.67	106.34	4.44%	7.23%	7.27%
MGE Energy Inc.	MGEE	Electric	1.52	1.61	77.36	76.70	6.49%	8.58%	8.59%
NextEra Energy, Inc.	NEE	Electric	1.54	1.68	88.47	86.31	8.94%	10.84%	10.88%
NorthWestern Corp.	NWE	Electric	2.48	2.58	56.37	56.83	4.12%	8.70%	8.66%
OGE Energy Corp.	OGE	Electric	1.63	1.70	35.67	34.99	4.45%	9.21%	9.30%
Otter Tail Corp.	OTTR	Electric	1.56	1.63	67.24	64.47	4.70%	7.13%	7.23%
Pinnacle West Capital	PNW	Electric	3.34	3.51	66.51	67.10	5.00%	10.27%	10.23%
Portland General Electric	POR	Electric	1.70	1.84	50.59	49.86	8.64%	12.29%	12.34%
Public Service Enterprise Group	PEG	Electric	2.04	2.11	63.85	63.23	3.54%	6.85%	6.88%
Sempra Energy	SRE	Electric	4.40	4.62	126.01	126.64	4.89%	8.55%	8.53%
Southern Co.	SO	Electric	2.62	2.75	64.15	63.67	4.93%	9.22%	9.25%
WEC Energy Group	WEC	Electric	2.71	2.88	92.14	91.32	6.30%	9.43%	9.46%
Xcel Energy, Inc.	XEL	Electric	1.83	1.95	65.58	65.15	6.36%	9.33%	9.35%
Electric Group Average							*5.64%*	*9.21%*	*9.24%*
AVERAGE (All Groups)							**5.78%**	**9.33%**	**9.37%**

Notes:
[a] Industry is based on Value Line's industry classification of each company. Some electric companies also have natural gas utility operations.
[d] 60-Day average stock price is the average of the closing stock prices between November 1, 2021 to December 31, 2021.
[e] 90-Day average stock price is the average of the closing stock prices between October 1, 2021 to December 31, 2021.

Sources:
[a] The Value Line Investment Survey various publications October 2021-January 2022
[b], [d]-[e] Yahoo! Finance (accessed January 21, 2021)
[f] Zacks Investment Research (accessed January 6, 2022)

Constant Growth Discounted Cash Flow (DCF) Analysis

		Value Line			Yahoo! Finance		Average		
Company	Ticker	Industry	Annual Dividend	Expected Dividend	60-Day Average Stock Price	90-Day Average Stock Price	Est. Growth Rate ("g"), Next 5 years	ROE - 60-Day Stock Price	ROE - 90-Day Stock Price
		[a]	[b]	[c]= [b]*1+[f]	[d]	[e]	[f]	[g] = [c]/[d] + [f]	[h] = [c]/[e] + [f]
American States Water Co.	AWR	Water	1.40	1.49	96.40	94.03	6.60%	8.15%	8.19%
American Water Works Co.	AWK	Water	2.36	2.55	175.55	174.46	8.26%	9.71%	9.72%
Essential Utilities	WTRG	Water	1.04	1.12	49.29	48.47	7.54%	9.80%	9.84%
California Water Service	CWT	Water	0.92	1.01	66.21	64.17	10.10%	11.63%	11.68%
Middlesex Water Company	MSEX	Water	1.11	1.15	105.96	106.01	3.85%	4.94%	4.94%
SJW Group	SJW	Water	1.36	1.50	70.21	69.47	10.35%	12.49%	12.51%
York Water Company	YORW	Water	0.76	0.80	48.19	47.67	5.70%	7.36%	7.38%
Water Group Average							*7.49%*	*9.15%*	*9.18%*
Atmos Energy Corp.	ATO	Natural Gas	2.56	2.74	96.05	94.63	7.16%	10.01%	10.05%
New Jersey Resources	NJR	Natural Gas	1.39	1.46	39.24	38.66	4.87%	8.59%	8.64%
Nisource	NI	Natural Gas	0.88	0.93	25.76	25.40	6.23%	9.85%	9.91%
Northwest Natural Gas	NWN	Natural Gas	1.92	2.03	46.34	46.49	5.41%	9.78%	9.77%
One Gas, Inc	OGS	Natural Gas	2.32	2.43	70.40	69.49	4.80%	8.25%	8.30%
South Jersey Industries	SJI	Natural Gas	1.22	1.31	24.37	23.73	7.44%	12.82%	12.96%
Spire, Inc.	SR	Natural Gas	2.64	2.83	62.85	63.21	7.54%	12.04%	12.02%
Gas Group Average							*6.21%*	*10.19%*	*10.24%*
Allete	ALE	Electric	2.52	2.66	63.33	62.59	5.56%	9.76%	9.81%
Alliant Energy	LNT	Electric	1.61	1.71	57.72	57.22	5.89%	8.84%	8.87%
Ameren	AEE	Electric	2.20	2.36	85.74	84.91	7.28%	10.04%	10.06%
American Electric Power	AEP	Electric	3.00	3.18	84.49	84.28	5.89%	9.65%	9.66%
Avista	AVA	Electric	1.69	1.77	40.32	40.19	4.77%	9.17%	9.18%
Black Hills Corp.	BKH	Electric	2.29	2.40	66.88	66.26	4.92%	8.51%	8.55%
CMS Energy Corp.	CMS	Electric	1.74	1.85	61.80	61.33	6.20%	9.19%	9.21%
Consolidated Edison	ED	Electric	3.10	3.17	80.33	78.47	2.33%	6.28%	6.38%
DTE Energy Co.	DTE	Electric	3.56	3.72	114.24	114.27	4.57%	7.83%	7.83%
Duke Energy Corp.	DUK	Electric	3.90	4.09	101.31	101.32	4.93%	8.97%	8.97%
Edison International	EIX	Electric	2.69	2.82	65.85	63.33	4.97%	9.25%	9.42%
Entergy Corp.	ETR	Electric	3.86	4.03	105.97	104.92	4.50%	8.31%	8.34%
Evergy Inc.	EVRG	Electric	2.18	2.32	65.78	64.96	6.41%	9.93%	9.98%
Eversource Energy	ES	Electric	2.41	2.57	86.10	85.94	6.45%	9.43%	9.44%
Exelon	EXC	Electric	1.53	1.60	54.06	52.72	4.65%	7.62%	7.69%
FirstEnergy Corp.	FE	Electric	1.56	1.71	39.38	38.51	9.41%	13.74%	13.84%
Fortis	FTS	Electric	2.05	2.15	45.43	45.22	4.75%	9.47%	9.50%
Hawaiian Electric	HE	Electric	1.36	1.41	40.34	40.57	3.88%	7.39%	7.37%
IDACorp, Inc.	IDA	Electric	2.88	3.00	107.67	106.34	4.28%	7.07%	7.10%
MGE Energy Inc.	MGEE	Electric	1.52	1.61	77.36	76.70	5.96%	8.04%	8.06%
NextEra Energy, Inc.	NEE	Electric	1.54	1.69	88.47	86.31	9.80%	11.71%	11.76%
NorthWestern Corp.	NWE	Electric	2.48	2.58	56.37	56.83	3.87%	8.44%	8.41%
OGE Energy Corp.	OGE	Electric	1.63	1.69	35.67	34.99	4.12%	8.86%	8.96%
Otter Tail Corp.	OTTR	Electric	1.56	1.67	67.24	64.47	7.23%	9.72%	9.83%
Pinnacle West Capital	PNW	Electric	3.34	3.43	66.51	67.10	2.55%	7.70%	7.65%
Portland General Electric	POR	Electric	1.70	1.83	50.59	49.86	7.60%	11.21%	11.26%
Public Service Enterprise Group	PEG	Electric	2.04	2.11	63.85	63.23	3.44%	6.74%	6.77%
Sempra Energy	SRE	Electric	4.40	4.68	126.01	126.64	6.40%	10.11%	10.09%
Southern Co.	SO	Electric	2.62	2.77	64.15	63.67	5.71%	10.03%	10.06%
WEC Energy Group	WEC	Electric	2.71	2.89	92.14	91.32	6.47%	9.60%	9.63%
Xcel Energy, Inc.	XEL	Electric	1.83	1.95	65.58	65.15	6.42%	9.39%	9.41%
Electric Group Average							*5.52%*	*9.10%*	*9.13%*
AVERAGE (All Groups)							**5.93%**	**9.28%**	**9.31%**

Notes:
[1] Industry is based on Value Line's industry classification of each company. Some electric companies also have natural gas utility operations.
[2] 60-Day average stock price is the average of the closing stock prices between November 1, 2021 to December 31, 2021.
[3] 90-Day average stock price is the average of the closing stock prices between October 1, 2021 to December 31, 2021.

Sources:
[a] The Value Line Investment Survey various publications October 2021-January 2022
[b], [d]-[e] Yahoo! Finance (accessed January 21, 2021)
[f] The Value Line Investment Survey various publications October 2021-January 2022

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.884784762
R Square	0.782844075
Adjusted R Square	0.780496443
Standard Error	0.307392543
Observations	188

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	2	63.01761587	31.50881	333.4612076	4.48106E-62
Residual	185	17.48068242	0.09449		
Total	187	80.49829829			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*
Intercept	8.688800227	0.071653304	121.2617	3.1096E-178	8.547437577
Yield - 2Q lag	0.396207478	0.015450571	25.64355	8.21766E-63	0.36572551
GAS Dummy	-0.122905447	0.044843703	-2.740752	0.006730884	-0.21137624

Upper 95%	*Lower 95.0%*	*Upper 95.0%*	2022	
8.830162876	8.547437577	8.830162876	9.418813	electric
0.426689446	0.36572551	0.426689446	9.295907	gas
-0.034434654	-0.21137624	-0.034434654		

Workpaper No. 2

[Analysis of Water ROE and Key Determinants over 2018-2022]

Sheet No.

1 Summary-1 (Comparison of Water ROE Estimates)
2 Summary-2 (Changes of ROE Estimates over 2018-2022)
3 Summary-3 (Changes in Key Determinants over 2018-2022)
4 CAPM/ECAPM Inputs & ROE Estimates
5 DCF Inputs & ROE Estimates
6 Electric Allowed ROE & ROE Estimates
7 DCF 1st Year Yield Calculations

1. Comparison of Water ROE Estimates: 2018 - 2022

	2018	2019	2020	2021	2022
CAPM & ECAPM					
Mean	8.25%	8.34%	7.09%	7.30%	8.77%
Average of Mean&Median	8.34%	8.36%	7.06%	7.39%	8.28%
DCF					
Mean	9.08%	9.08%	8.99%	9.43%	9.15%
Average of Mean&Median	8.86%	8.77%	8.92%	8.92%	9.12%
Electric Allowed ROE	9.78%	9.87%	9.77%	9.25%	9.42%
ROE (per the 3 methods above)					
Mean	9.03%	9.10%	8.62%	8.66%	9.11%
Average of Mean & Median	8.99%	9.00%	8.58%	8.52%	8.94%

	2018	2019	2020 through 2021	2022
ROE Formula Adopted (Proposed for 2022)	**ROE = 6.4 + (1.6 / ES)**	**ROE = 6.5 + (1.6 /ES)**	**ROE=6.4 + (1.6/ES)**	**ROE = 6.5 + (1.6 /ES)**
ROE per Formula (w/ 50% ER)	**9.60%**	**9.70%**	**9.60%**	**9.70%**
ROE per Formula (w/ 40% ER)	10.40%	10.50%	10.40%	10.50%
ROE per Formula (w/ 60% ER)	9.07%	9.17%	9.07%	9.17%

Source: Water ROE Workpapers 2018-2022

2. Changes in Water ROE Estimates: 2018 - 2022

	Changes in ROE Estimates (in basis points)			
	2018 - 2022	2019 - 2022	2020-2022	2021-2022
CAPM & ECAPM (Average)				
Mean	52	43	167	147
Average of Mean&Median	(6)	(9)	121	89
DCF				
Mean	8	7	17	(28)
Average of Mean&Median	26	35	21	20
Electric Allowed ROE	(36)	(45)	(35)	17
ROE (per the 3 methods above)				
Mean	8	2	50	45
Average of Mean & Median	(5)	(6)	36	42

3. Changes in Key Determinants: 2018 - 2022

	2018 - 2022	2019 - 2022	2020-2022	2021-2022
(A) CAPM Model				
20-year Treasury Bond Yield*	(67)	(98)	9	70
Market Risk Premium	50	37	52	29
Beta				
Mean	13	18	19	8
Average of Mean&Median	3	10	12	(1)
(B) DCF Model				
Ist Year Dividend Yield				
Mean	(31)	(39)	5	(15)
Average of Mean&Median	(36)	(41)	1	(19)
Projected Earnings Growth				
Mean	39	46	12	(13)
Average of Mean&Median	62	76	20	38
(C) Allowed ROE Model**				
20-year Treasury bond Yield	(79)	(118)	(84)	32

* The changes in 20-year Treasury bond yields were calculated at the average of the actual and projected rates for each year.

** No significant changes were observed in the constant and the coefficient of 20-year Treasury bond yield.

4. CAPM & ECAPM Inputs & Results

(CAPM_ROE = RFR + (β * MRP)
(ECAPM_ROE = (RFP + .25*MRP) + (.75 * β * MRP)

(1) CAPM/ECAPM ROE Estimates (where Beta (β) is the mean for each year)

Year	Risk-Free Rate (20-yr T-bond Yield)*			Market Risk Premium	Beta (β): Mean	Industry Risk Premium	CAPM Estimate	ECAPM Estimate	CAPM & ECAPM Average ROE
	[a]			[b]	[c]	[d] = [b]*[c]	[e]= [a]+[d]	=[a]+.25*[b]+.75*|	[g] = ([e]+[f])/2**
	Actual	Projected	Average						
2018	2.62%	3.40%	3.01%	6.75%	0.74	5.02%	8.03%	8.46%	8.25%
2019	3.18%	3.45%	3.32%	6.88%	0.69	4.76%	8.07%	8.60%	8.34%
2020	2.09%	2.40%	2.25%	6.73%	0.68	4.58%	6.82%	7.36%	7.09%
2021	1.40%	1.89%	1.65%	6.96%	0.79	5.47%	7.11%	7.49%	7.30%
2022	1.97%	2.71%	2.34%	7.25%	0.87	6.31%	8.65%	8.88%	8.77%

(2) CAPM/ECAPM ROE Estimates (where Beta (β) is the average of mean and median for each year)

Year	Risk-Free Rate (20-yr T-bond Yield)*			Market Risk Premium	Beta (β): Average of Mean & Median	Industry Risk Premium	CAPM Estimate	ECAPM Estimate	CAPM & ECAPM Average ROE
	[a]			[b]	[c]	[d] = [b]*[c]	[e]= [a]+[d]	=[a]+.25*[b]+.75*|	[g] = ([e]+[f])/2**
	Actual	Projected	Average						
2018	2.62%	3.40%	3.01%	6.75%	0.76	5.13%	8.14%	8.54%	8.34%
2019	3.18%	3.45%	3.32%	6.88%	0.70	4.79%	8.10%	8.63%	8.36%
2020	2.09%	2.40%	2.25%	6.73%	0.68	4.54%	6.79%	7.33%	7.06%
2021	1.40%	1.89%	1.65%	6.96%	0.80	5.57%	7.21%	7.56%	7.39%
2022	1.97%	2.71%	2.34%	7.25%	0.79	5.75%	8.09%	8.46%	8.28%

* The average of the actual and projected risk free rates are used in each year's CAPM/ECAPM calculations. The actual risk-free rate is the average 20-year Treasury bond yield for Q4 of each year.
** The figure provided for each year is the average of a CAPM ROE estimate and a ECAPM ROE estimate.

		Beta (β)				
Company	**Ticker**	**2018**	**2019**	**2020**	**2021**	**2022**
American States Water Co.	AWR	0.80	0.70	0.65	0.85	0.65
American Water Works Co.	AWK	0.65	0.55	0.60	0.65	0.85
Essential Utilities (Aqua America)	WTRG	0.75	0.70	0.65	0.95	0.95
California Water Service	CWT	0.80	0.70	0.70	0.65	0.7
Connecticut Water Service	CTWS	0.65	na	na	na	na
Middlesex Water Company	MSEX	0.80	0.75	0.70	0.75	0.7
SJW Corp.	SJW	0.70	na	na	0.85	0.8
York Water Company	YORW	0.80	0.75	0.75	0.80	0.85
	Mean	0.744	0.692	0.675	0.786	0.786
	Median	0.775	0.700	0.675	0.800	0.800
	Average of Mean and Median	0.759	0.696	0.675	0.793	0.793

5. DCF Inputs & Results

(DCF_ROE = 1st Year Yield + Earnings Growth Rate)

(1) DCF ROEs based on the Mean of "1st Year Yield" and the Mean of "Projected Growth Rate" for each year.

Year	Ist Year Yield [a]	Projected Growth [b]	ROE Estimate [c]=[a]+[b]
2018	1.98%	7.10%	9.08%
2019	2.05%	7.03%	9.08%
2020	1.62%	7.37%	8.99%
2021	1.82%	7.61%	9.43%
2022	1.67%	7.49%	9.15%

(2) DCF ROEs based on the Average of Mean and Median for both "1st Year Yield" and "Projected Growth Rate" for each year.

Year	Ist Year Yield [a]	Projected Growth [b]	ROE Estimate [c]=[a]+[b]
2018	1.97%	6.89%	8.86%
2019	2.02%	6.75%	8.77%
2020	1.60%	7.32%	8.92%
2021	1.79%	7.13%	8.92%
2022	1.61%	7.51%	9.12%

		1st Year Dividend Yield (Dividend / Stock Price)					Projected Growth (Next 5 years)				
Company	Ticker	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
American States Water Co.	AWR	1.87%	1.69%	1.34%	1.77%	1.55%	4.83%	6.00%	7.33%	5.42%	8.26%
American Water Works Co.	AWK	1.95%	2.09%	1.63%	1.51%	1.45%	7.82%	8.67%	8.59%	8.33%	6.60%
Aqua America	WTR	2.25%	2.66%	2.03%	2.27%	2.26%	5.83%	5.93%	6.72%	6.64%	10.10%
California Water Service	CWT	1.78%	1.80%	1.54%	1.83%	1.53%	8.60%	8.77%	9.27%	9.38%	3.85%
Connecticut Water Service	CTWS	2.07%	na	na	na	na	6.17%	na	na	na	na
Middlesex Water Company	MSEX	2.12%	1.88%	1.57%	1.54%	1.09%	5.85%	5.85%	5.10%	4.85%	10.35%
SJW Corp.	SJW	1.79%	na	na	2.17%	2.14%	10.50%	na	na	12.73%	7.54%
York Water Company	YORW	1.97%	2.21%	1.59%	1.66%	1.66%	7.20%	6.95%	7.20%	5.95%	5.70%
Mean		1.98%	2.05%	1.62%	1.82%	1.67%	7.10%	7.03%	7.37%	7.61%	7.49%
Median		1.96%	1.98%	1.58%	1.77%	1.55%	6.69%	6.48%	7.27%	6.64%	7.54%
Average of Mean and Median		1.97%	2.02%	1.60%	1.79%	1.61%	6.89%	6.75%	7.32%	7.13%	7.51%

6. Electric Allowed ROE Inputs & Results

Regression Analysis Results

Year	Constant* [a]	Coefficient of Risk-Free Rate** [b]	Risk-Free Rate Applied [c]	Electric Allowed ROE Estimate [d] = [a] + [b]*[c]
2018	8.780146	0.380239	2.63%	9.78%
2019	8.762432	0.383496	3.02%	9.87%
2020	8.721010	0.391010	2.68%	9.77%
2021	8.619446	0.411563	1.52%	9.25%
2022	8.688800	0.396207	1.84%	9.42%

* The intercept term in a regression analysis.

** The slope term for Risk-Free Rate in a regression analysis.

7. DCF 1st Year Yield Calculation

		2018			2019			2020			2021			2022		
Company	Ticker	1st Year Expected Dividend*	60-Day Average Stock Price	Dividend Yield (%)	1st Year Expected Dividend*	60-Day Average Stock Price	Dividend Yield (%)	1st Year Expected Dividend*	60-Day Average Stock Price	Dividend Yield (%)	1st Year Expected Dividend*	60-Day Average Stock Price	Dividend Yield (%)	1st Year Expected Dividend*	60-Day Average Stock Price	Dividend Yield (%)
		[a]	[b]	[c]=[a]/[b]	[a]	[b]	[c]=[a]/[b]	[a]	[b]	[c]=[a]/[b]	[a]	[b]	[c]=[a]/[b]			
American States Water Co.	AWR	1.04	55.55	1.87%	1.12	66.15	1.69%	1.16	86.31	1.34%	1.35	76.28	1.77%	1.49	96.40	1.55%
American Water Works Co.	AWK	1.75	89.97	1.95%	1.93	92.38	2.09%	1.96	120.35	1.63%	2.33	154.07	1.51%	2.55	175.55	1.45%
Essential Utilities	WTRG	0.84	37.27	2.25%	0.9	33.88	2.66%	0.91	44.72	2.03%	1.03	45.59	2.27%	1.12	49.29	2.26%
California Water Service	CWT	0.78	43.80	1.78%	0.82	45.61	1.80%	0.79	51.22	1.54%	0.93	50.99	1.83%	1.01	66.21	1.53%
Connecticut Water Service	CTWS	1.25	60.50	2.07%	na	na	na	na	na	na	na	na	na	na	na	na
Middlesex Water Company	MSEX	0.91	42.83	2.12%	0.96	51.20	1.88%	0.98	62.47	1.57%	1.09	70.83	1.54%	1.15	105.96	1.09%
SJW Corp.	SJW	1.15	64.36	1.79%	na	na	na	na	na	na	1.44	66.60	2.17%	1.50	70.21	2.14%
York Water Company	YORW	0.69	34.98	1.97%	0.72	32.54	2.21%	0.7	44.07	1.59%	0.77	46.53	1.66%	0.80	48.19	1.66%

* 1st year Expected Dividend is the sum of the previous year's annual dividend payment and the expected increase in the dividend payment in the first year (Previous Year's Dividend Payment * (1 + Estimated Earning Growth Rate).

PSC DR 2-23:

Refer to the D'Ascendis Testimony, page 12, lines 9–11.

a. Provide a customer count for Corix Regulated Utilities, Inc's. (Corix) regulated utilities and identify whether the type of regulated industry in which each subsidiary participates.

b. Explain whether any Corix subsidiaries are non-regulated and, if so, the nature of those businesses and the percentage of total operating income or total assets is attributable to non-regulated utilities.

Response:

a. Please see below, as of June 30, 2022.

State	Entity	Gas	Reuse	Water	Sewer	Total
AL	Community Utilities of Alabama	-	-	-	2,643	2,643
AZ	Bermuda Water Company	-	-	9,456	-	9,456
FL	Sunshine Water Services	-	882	34,166	24,803	59,851
IL	Prairie Path Water Company	-	-	12,733	3,468	16,201
IN	Community Utilities of Indiana	-	-	5,166	3,451	8,617
KY	Water Service Corporation of Kentucky	-	-	6,138	-	6,138
LA	Utilities Inc. Of Louisiana	-	-	10,982	14,851	25,833
MD	Maryland Water Service	-	-	3,385	942	4,327
NC	Montague Water and Sewer Companies	-	-	35,221	21,342	56,563
NJ	Great Basin Water Company	-	-	769	263	1,032
NV	Carolina Water Service of NC	-	-	15,645	4,483	20,128
PA	Community Utilities of Pennsylvania	-	-	3,276	3,847	7,123
SC	Blue Granite Water Company	-	-	17,200	12,022	29,222
TN	Tennessee Water Service	-	-	378	-	378
TX	Corix Texas	148	-	5,288	930	6,366
VA	Massanutten Public Service Corporation	-	-	2,366	2,201	4,567
Total		148	882	162,169	95,246	258,445

b. Please see below total assets, as of June 30, 2022. GA is comprised of several non-regulated water and wastewater systems. Colchester is a non-regulated wastewater system in VA. ACME is a retail irrigation business in FL. Total regulated assets are 92.2% in the table below.

State	Regulated	Non-Reg: GA	Non-Reg: Colchester	Non-Reg: ACME	Total
AL	1,671,280				1,671,280
AZ	20,439,450				20,439,450
FL	266,116,032			2,758,500	268,874,533
GA		68,712,714			68,712,714
IL	43,941,068				43,941,068
IN	26,924,609				26,924,609
KY	9,078,182				9,078,182
LA	82,690,079				82,690,079
MD	5,812,948				5,812,948
NC	176,653,364				176,653,364
NJ	2,737,300				2,737,300
NV	102,856,738				102,856,738
PA	13,979,465				13,979,465
SC	87,803,976				87,803,976
TN	1,493,989				1,493,989
TX	28,095,543				28,095,543
VA	27,992,146		4,570,012		32,562,157
	898,286,169	68,712,714	4,570,012	2,758,500	974,327,395

Witness: James Kilbane.

PSC DR 2-24:

Refer to the D'Ascendis Testimony, page 12, lines 17–18. Explain Water Service Kentucky's percentage of total operating income and total assets attributable to regulated water operations.

Response:

WSCK is a pure-play water utility. As such, 100% of its operating income and assets are attributable to regulated water operations.

Witness: Dylan D'Ascendis

PSC DR 2-25:

Refer to the D'Ascendis Testimony, Table 1, page 3 and Table 3, page 25.

a. Explain how often Corix / Water Service Kentucky goes to the market for additional long term debt, when Corix / Water Service Kentucky incurred its long term debt at a rate of 4.71 percent and when it expects to go back to the market for additional long term debt.

b. Explain what cost of long-term debt Water Service Kentucky's other regulated affiliates have incurred and when that debt was incurred.

c. Since 4.71 percent is Corix's and hence Water Service Kentucky's actual cost of long-term debt, explain why that could not be used in the risk premium model instead of the 4.85 percent.

Response:

a. Please see Excel file PSC DR 1-49 Exhibit 35 - Schedule A - Cost of Capital Summary v2.xlsx, Notes tab, for details of the various historical and forecasted issuances. The applicable credit agreement determines the variable credit revolver cost of debt.

Please note that CRU entered into a new debt agreement effective June 27, 2022, for $75 million, at a variable rate, which is currently set at 3.07532%. Only $50 million of the total issuance has been drawn to-date with the remainder to be drawn within 12 months.

b. All regulated utilities that are subsidiaries of CRU, such as WSCK, use CRU's debt for ratemaking.

c. The goal of a cost of equity study is to ascertain the marginal cost of equity (i.e., cost of equity at the time of the study). Since the Company's long-term debt cost rate is an embedded

cost (i.e., a weighted average cost over time), it would not be an accurate representation of expected debt costs.

Witness: James Kilbane/Dylan D'Ascendis

PSC DR 2-26:

Refer to the D'Ascendis Testimony, pages 28–29 and Exhibit DWD-4, page 9, footnotes 4–6.

a. Explain for the total market approach, why narrowing the analysis from the group of companies used in the analysis in footnote 4 (1,700 companies) to the much smaller S&P 500 companies used in the analyses in footnotes 5 and 6 is appropriate. Include in the response an explanation of the added value to the overall analysis of narrowing the companies down to the S&P 500.

b. On page 28, lines 17–21 and Exhibit 9.5 Schedule DWD-3, page 4, shows the calculation for California Water. For the calculation explained on lines 17–21, explain why median values, as opposed to average values were used.

Response:

a. The S&P 500 index is comprised of 500 of the largest U.S. publicly traded companies, which account for approximately 80% of the overall U.S. equity market. The index is commonly used as a proxy for the entire U.S. equity market by investors, as the index components cover all sectors of the market. Additionally, the SBBI – 2022 market return values used are based on S&P 500 returns and Bloomberg betas are calculated using the S&P 500 as the market index.

b. Exhibit 9.5, Schedule DWD-3, page 4 shows the Value Line sheet for California Water Service Corp., but not any calculation for any measure consistent with the calculation described on page 28, lines 17-21 of Mr. D'Ascendis' Direct Testimony. The use of median values in the

cited calculation are consistent with the presentation of the data as provided by Value Line Summary & Index (provided in Workpaper 27 to Mr. D'Ascendis' Direct Testimony).

Witness: Dylan D'Ascendis

PSC DR 2-27:

Refer to the D'Ascendis Testimony, pages 30, lines 7-9, page 36, lines 2–5 and Exhibit 9.5, Schedule DWD-5, page 1.

a. Explain the difference, if any, between Value Line and Bloomberg Betas other than the time periods used in their respective derivation.

b. Explain why the use of the 2-year Bloomberg Beta does not reflect short-term volatility that is avoided in the use of the Value Line Beta.

Response:

a. In addition to the time periods used to calculate the Value Line and Bloomberg betas, 5 years and 2 years, respectively, Value Line betas use the New York Stock Exchange as its proxy for the market and Bloomberg uses the S&P 500.

b. Mr. D'Ascendis does not agree with the above statement, and it is not in his Direct Testimony. Generally, betas calculated using a two-year horizon (Bloomberg "default" beta) may more readily reflect significant changes in risk that occur over a short period than a beta coefficient calculated over a five-year horizon the Value Line calculation. Given that both two-year and five-year Beta coefficients are considered by investors (Bloomberg and Value Line), including both sources provide valid measures of the systematic risk of a firm and reflects the nuances of different investors' expectations.

Witness: Dylan D'Ascendis

PSC DR 2-28:

Refer to the D'Ascendis Testimony, page 36, lines 7–11. If markets are efficient, explain why the current 30-year treasury is not used in the analysis.

Response:

The cost of capital, including the cost of common equity, reflects investors' expectations of future capital markets, including an expectation of interest rate levels and future risks. Ratemaking is also prospective in that the rates set in this proceeding will be in effect for a period in the future. As this is the case, projected interest rates, not current interest rates, are appropriate for ratemaking purposes.

Witness: Dylan D'Ascendis

PSC DR 2-29:

Explain whether there is a representative for Water Service Kentucky who understands the allocation of expenses, is familiar with profit and loss, and is familiar with the cost allocations that Corix has approved and if so, whether this representative thoroughly reviews costs allocated to Water Service Kentucky on a recurring basis.

Response:

The FP&A Manager for WSCK understands and reviews the costs allocated on a recurring basis.

Witness: James Kilbane

PSC DR 2-30:

Provide Water Service Kentucky's nonrecurring charges, a schedule listing the number of occurrences during the test year for each of the charges, and the total dollar amount billed and the total dollar amount collected during the test year.

Response:

The Company projects no non-recurring charges in the Forecast Period. For the Base Period actuals, from October 1, 2021, to June 30, 2022, please see attached Excel file PSC DR 2-30.xlsx. The Company's NSF fee has been charging a prior rate of $2 instead of the authorized $50 since the last rate order. The Company has made the adjustment to correct the NSF charge to $50.

Witness: James Kilbane

PSC DR 2-31:

Provide revised cost justification sheets to support any changes to the Meter/Connect/Tap-on Fee.

Response:

WSCK has not projected or requested changes for the Meter/connect/tap-on fees.

Witness: James Kilbane

PSC DR 2-32:

Provide cost justification sheets for each nonrecurring charge.

Response:

Please see PSC DR 2-32 WSCK Nonrecurring Charge Justification, which was filed with the Commission following WSCK's last rate case. WSCK is not proposing changes to any of the nonrecurring charges in this case.

Witness: James Kilbane

NONRECURRING CHARGE COST JUSTIFICATION

Type of Charge:__ Non-Sufficient Funds "NSF" Charge_____

1. Field Expense:

   A. Materials (Itemize)

   _____ $_____
   _____ _____
   _____ _____

   B. Labor (Time and Wage)

   _____ _____

   Total Field Expense **$**_____

2. Clerical and Office Expense

   A. Supplies $_____

   B. Labor _____

   Total Clerical and Office Expense **$**_____

3. Miscellaneous Expense

   A. Transportation $_____

   B. Other (Itemize)

   ___Chase NSF Fee_____ $ ___50.00__
   _____ _____
   _____ _____

   Total Miscellaneous Expense **$**_____

Total Non-Recurring Charge Expense **$____50.00__**

From: Todd Osterloh
Sent: Thursday, January 14, 2021 4:40 PM
To: Todd Osterloh
Subject: RE: NSF Fees

From: Vignati, Cameron <cameron.vignati@chase.com>
Sent: Thursday, January 14, 2021 10:53 AM
To: Christine Kim <Christine.Kim@corix.com>; McDevitt, Sharlene <sharlene.mcdevitt@Jpmorgan.com>
Cc: Robert A. Guttormsen <Robert.Guttormsen@uiwater.com>; Jared McNamee <Jared.McNamee@corix.com>; Pat Sampsell <Pat.Sampsell@corix.com>
Subject: RE: NSF Fees

Hello Christine,

All of your billing pricing is on your statements available in Access under Reports and Statements.

NSF's are set to charge $50 per item. I have also included Sharlene on here if you have any specific follow up questions.

I wanted to point out you are not currently entitled to view your billing statements.

You can set that up with the following steps.

- Click Administration
- Search your user name
- Click edit custom user
- Next – Entitlement
- Click Statements
- Check Billing Statements
- Add-Edit Product
- Next to Account Name check the box to select all
- Add accounts to functions
- Save account selections
- Next – Review
- Submit for approval
- Another SA will need to go in and approve this

You can entitle anybody else to this access as needed.

Thanks,

Cameron Vignati

Looking to track an electronic payment status? Get it faster by visiting Payment Tracker.

We aim to exceed your expectations. Tell us how we are doing @ better together.

Cameron Vignati | Client Service Associate | Commercial Client Service | Commercial Banking | **Chase** | T: 602 221 3456 | F: 844 659 6988 | cameron.vignati@chase.com | chase.com/commercialbanking

Alternate contact: Marnita Finch | T: 602 221 6105 | marnita.finch@chase.com
Alternate contact: Commercial Bank Service Center | T: 866 954 3718

Upcoming Out of Office |

From: Christine Kim < @corix.com>
Sent: Thursday, January 14, 2021 8:08 AM
To: Vignati, Cameron (CB, USA) < @chase.com>
Cc: Robert A. Guttormsen < @uiwater.com>; Jared McNamee < @corix.com>; Pat Sampsell < @corix.com>
Subject: FW: NSF Fees
Importance: High

Cameron, do you have know how much JPMorgan charges for NSF? Would you pleas also provide supporting document? Thanks.

From: Robert A. Guttormsen < @uiwater.com>
Sent: Thursday, January 14, 2021 7:55 AM
To: Jared McNamee < @corix.com>; Christine Kim < @corix.com>; Pat Sampsell < @corix.com>
Subject: NSF Fees
Importance: High

Can you please let me know what our bank charges for NSF fees and provide supporting documentation for the amount?

Rob Guttormsen | FP&A Manager
Midwest & Mid-Atlantic Operations - Corix Group of Companies | 500 W. Monroe, Suite 3600, Chicago, IL 60661-3779
Office (847) 897-6472 | Cell (262) 945-5868
robert.guttormsen@uiwater.com | uiwater.com

NONRECURRING CHARGE COST JUSTIFICATION

Type of Charge:__ Meter Testing Fee_____

1. Field Expense:

   A. Materials (Itemize)

____Meter Gaskets & Water Usage_	$____1.25___
_____	_____
_____	_____

   B. Labor (Time and Wage)

_____	_____
Total Field Expense	**$_____1.25__**

2. Clerical and Office Expense

A. Supplies	$_____
B. Labor	_____
Total Clerical and Office Expense	**$**_____

3. Miscellaneous Expense

A. Transportation	$_____
B. Other (Itemize)	
_____	_____
_____	_____
_____	_____
Total Miscellaneous Expense	**$**_____

Total Non-Recurring Charge Expense	**$____1.25___**

PSC DR 2-33:

Describe the procedures used by Water Service Kentucky in planning and approving construction projects. Provide the long-term construction planning program.

Response:

See response to PSC DR 1-29. Construction projects are built into annually prepared budgets that receive review at the business unit, corporate, executive, and Board levels. Each review occurs under the framework that all costs incurred must be necessary, prudent, and reasonable.

Witness: Seth Whitney

PSC DR 2-34:

For each operating expense category listed below, provide comparisons of the annual budgeted amounts to actual results for the period 2017–2021. Include detailed explanations for all variances between the actual and budgeted amounts.

a. Fuel and Utility

b. Chemicals

c. Employee Benefits

d. Insurance

e. Miscellaneous Expense

f. Office Expense

g. Consulting/Outside Services

h. Travel

i. Fleet/Vehicles

j. Testing

k. Regulatory Expenses

l. Rent

m. Salaries & Wages

n. Capitalized Time

o. Plant & System Maintenance.

Response:

Please see Excel file PSC DR 2-34 historical income statement data.xlsx. Please see PSC DR 2-34 tab.

Witness: James Kilbane

PSC DR 2-35:

Identify the salary allocation for the Vice President of Regulatory Affairs & Business Development employee included in Water Service Kentucky's base year and forecasted test year operating expenses. Include the allocated benefits and payroll taxes for the Vice President of Regulatory Affairs & Business Development employee.

Response:

This is not applicable because the filing makes no reference to this position.

Witness: James Kilbane

PSC DR 2-36:

Provide the specific service that will be provided to Water Service Kentucky by the Vice President of Regulatory Affairs & Business Development employee during the base year and the forecasted test-year.

Response:

This is not applicable because the filing makes no reference to this position.

Witness: James Kilbane