with the overall operation of the business such as office and computer equipment, stores, tools, and other miscellaneous equipment. All General plant is used in overall operations of the business rather than with a specific Transmission or Distribution classification.

Q. HOW WERE THE RESULTS OF YOUR DEPRECIATION STUDY USED TO CALCULATE THE COMPANY'S REQUESTED DEPRECIATION EXPENSE?

A. The Company applied my recommended depreciation rates to its adjusted plant balances as of December 31, 2023 to calculate its test year depreciation expense.

Q. WHEN WERE THE COMPANY'S DEPRECIATION RATES LAST UPDATED?

A. The last change in the Company's depreciation rates occurred on April 23, 2020. The depreciation rates were established in Docket No. 49421 based on a depreciation study of plant in service at December 31, 2017.

Q. ARE YOU PROPOSING A CHANGE IN AMORTIZATION EXPENSE FOR INTANGIBLE ASSETS BASED ON YOUR STUDY?

A. Yes. Based on my study, the annual amortization expense for Intangible assets should be increased by approximately $0.5 million per year. This amount was determined by comparing the amortization expense between the current rates and the proposed rates as applied to December 31, 2022 investment for Intangible assets as shown in Exhibit DAW-1, Appendix B.

Q. ARE YOU PROPOSING A CHANGE IN DEPRECIATION EXPENSE FOR TRANSMISSION ASSETS BASED ON YOUR STUDY?

A. Yes. Based on my study, the annual depreciation expense for Transmission assets should be increased by approximately $10.2 million per year. This amount was determined by comparing the depreciation expense between the current rates and the proposed rates as applied to December 31, 2022 investment for Transmission assets as shown in Exhibit DAW-1, Appendix B.

Q. ARE YOU PROPOSING A CHANGE IN DEPRECIATION EXPENSE FOR DISTRIBUTION ASSETS, EXCLUDING CERTAIN METERS, BASED ON YOUR STUDY?

A. Yes. Based on my study, the annual depreciation expense for Distribution assets should be increased by approximately $21.9 million per year. This amount was determined by comparing the depreciation expense between the current rates and the proposed rates as applied to December 31, 2022 investment for Distribution assets as shown in Exhibit DAW-1, Appendix B.

Q. ARE YOU PROPOSING A CHANGE IN DEPRECIATION EXPENSE FOR GENERAL DEPRECIATED ASSETS, BASED ON YOUR STUDY?

A. Yes. Based on my study the annual depreciation expense for General Depreciated assets should be increased by approximately $2.8 million per year. This amount was determined by comparing the depreciation expense between the current rates and the proposed rates as applied to December 31, 2022 investment for General Depreciated assets as shown in Exhibit DAW-1, Appendix B.

Q. ARE YOU PROPOSING A CHANGE IN AMORTIZATION EXPENSE FOR GENERAL AMORTIZED ASSETS BASED ON YOUR STUDY?

A. Yes. Based on my study, the annual amortization expense for General Amortized assets should be increased by approximately $0.2 million per year. This amount was determined by comparing the amortization expense between the current rates and the proposed rates as applied to December 31, 2022 investment for General Amortized assets and an amount for the amortization of the reserve difference, as shown in Exhibit DAW-1, Appendix B.

Q. AS PART OF YOUR DEPRECIATION ANALYSIS, HAVE YOU TAKEN ANY ACTION TO PROPERLY ALIGN THE COMPANY'S DEPRECIATION RESERVE WITH THE LIFE CHARACTERISTICS OF THE TRANSMISSION, DISTRIBUTION, AND GENERAL PLANT FUNCTIONS?

A. Yes. In the process of analyzing the Company's depreciation reserve, I observed that the depreciation reserve positions of the various accounts needed to be re-balanced based on my recommended service lives and net salvage ratios. To allow the relative reserve positions of each account within a function to mirror the life characteristics of the underlying assets, I reallocated the depreciation reserves for all accounts within each function.

Q. DOES THE REALLOCATION OF THE DEPRECIATION RESERVE CHANGE THE TOTAL RESERVE?

A. No. The depreciation reserve represents the amounts that customers have contributed to the return of the investment. The reallocation process does not

change the total reserve for each function; it simply reallocates the reserve between accounts within each function.

Q. IS DEPRECIATION RESERVE REALLOCATION A SOUND DEPRECIATION PRACTICE?

A. Yes. The practice of depreciation reserve allocation is widely recognized and commonly practiced as part of a comprehensive depreciation study for the purposes of setting regulated rates where changes in services lives result in an imbalance between the theoretical and book reserve.[1] With respect to CenterPoint Houston, my depreciation study demonstrates that there have been significant changes in the life of the property since the last depreciation study.[2] These changes have created imbalances between the theoretical and the book reserve for various accounts within each function making the reallocation of the depreciation reserve appropriate in this instance.

Q. HAS THE COMMISSION APPROVED DEPRECIATION RESERVE REALLOCATION IN OTHER RATE PROCEEDINGS?

A. Yes. The Commission has regularly approved depreciation reserve reallocation. Reserve re-allocation was approved in the Company's last rate proceeding, Docket No. 49421. I am also aware that it was approved in Docket Nos. 53601, 53719, and 54634.

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[1] *Public Utility Depreciation Practices*, NARUC (1968), p. 48; *Public Utility Depreciation Practices*, NARUC (1996), p. 188.

[2] The depreciation study in Docket No. 49421 was based on plant activity through year end 2017. This study is based on plant activity through year end 2022, thus including an additional five years of data.

Q. HOW WILL THE COMPANY IMPLEMENT THE REALLOCATION OF ITS DEPRECIATION RESERVE IF ITS PROPOSED RATES ARE APPROVED?

A. Assuming the proposed depreciation rates are approved, the Company will reallocate the reserves on its books to match the allocation performed in this study.

B. Overview of Depreciation Study Methodology

Q. WHAT DEFINITION OF DEPRECIATION HAVE YOU USED FOR THE PURPOSES OF CONDUCTING YOUR DEPRECIATION STUDY AND PREPARING YOUR TESTIMONY?

A. From an accounting perspective, the term "depreciation," as used herein, is defined as a system that distributes the cost of assets, less net salvage (if any), over the estimated useful life of the assets in a systematic and rational manner. It is a process of allocation, not valuation. Depreciation expense is systematically allocated to accounting periods over the life of the properties. The amount allocated to any one accounting period does not necessarily represent the loss or decrease in value that will occur during that particular period. Thus, depreciation is considered an expense or cost, rather than a loss or decrease in value. The Company accrues depreciation based on the original cost of all property included in each depreciable plant account. Upon retirement, the full cost of depreciable property, less the net salvage amount, if any, is charged to the depreciation reserve.

Q. PLEASE DESCRIBE YOUR DEPRECIATION STUDY APPROACH.

A. I conducted the depreciation study in four phases as shown in my Exhibit DAW-1. The four phases are: Data Collection, Analysis, Evaluation, and Calculation. I began each of the studies by collecting the historical data to be used in the analysis. After the data had been assembled, I performed analysis to determine the life and net salvage percentage for the different property groups being studied. As part of this process, I conferred with field personnel, engineers, and managers responsible for the installation, operation, and removal of the assets to gain their input into the operation, maintenance, and salvage of the assets. The information obtained from field personnel, engineers and managerial personnel, combined with the study results, is then evaluated. This evaluation resulted in the determination of life and net salvage parameters by considering the results of the historical asset activity, the Company's current operations and asset characteristics, and the Company's future expectations for the assets. Using the appropriate life and net salvage parameters as found in the evaluation, I then calculated the depreciation rate for each function.

Q. WHAT DEPRECIATION METHODOLOGY WAS USED TO CONDUCT YOUR DEPRECIATION STUDY?

A. The straight-line, Average Life Group ("ALG") and remaining-life depreciation system were employed to calculate annual and accrued depreciation in the studies.

Q. HOW ARE THE DEPRECIATION RATES DETERMINED?

A. In the ALG procedure, the annual depreciation expense for each account is computed by dividing the original cost of the asset, less allocated depreciation

reserve, less estimated net salvage, by its respective remaining life. The resulting annual accrual amount of depreciable property within an account is divided by the original cost of the depreciable property in the account to determine the depreciation rate. The calculated remaining lives and annual depreciation accrual rates were based on attained ages of plant in service and the estimated service life and salvage characteristics of each depreciable group. The comparison of the current and recommended annual depreciation and amortization rates is shown in my Exhibit DAW-1, Appendix B. The remaining life calculations are discussed below and are shown in my Exhibit DAW-1, Appendix A.

C. Service Lives

Q. WHAT IS THE SIGNIFICANCE OF AN ASSET'S USEFUL LIFE IN YOUR DEPRECIATION STUDY?

A. An asset's useful life is used to determine the remaining life over which the remaining cost (original cost plus or minus net salvage, minus accumulated depreciation) can be allocated through future periods.

Q. HOW DID YOU DETERMINE THE AVERAGE SERVICE LIVES FOR EACH ACCOUNT?

A. The establishment of an appropriate average service life for each account within a functional group was determined by using one of two widely accepted depreciation analyses: Actuarial analysis or Simulated Plant Record ("SPR") methods. Specifically, the service life for each account within the Transmission and Distribution functional groups was determined by using the SPR method of life analysis. For General Plant Depreciated assets, average service lives were established using the Actuarial method of life analysis. Graphs and tables

supporting the actuarial or SPR analysis and the chosen Iowa Curves used to determine the average service lives for each account are found in my Exhibit DAW-1 and my depreciation study workpapers.

Q. YOU MENTIONED PREVIOUSLY THAT ASSET LIVES WERE INCREASING. WHAT IS THE GENERAL CAUSE OF THE INCREASE IN ASSET LIVES FOR THE TRANSMISSION AND DISTRIBUTION FUNCTIONAL GROUPS?

A. Generally, the lengthening of service lives for transmission assets can be attributed to improved materials and installation practices, as well as more robust maintenance practices that extend the life of the assets. Distribution plant is also experiencing longer service lives due to the implementation of aggressive preventative maintenance programs that have increased the useful lives of distribution function assets. While there are factors that have limited the increasing lives for certain types of assets—such as the use of new growth trees for poles instead of old growth trees—other programs, like physical pole inspection and treatment programs, are helping to extend the lives of the assets.

Q. WHAT LIFE INDICATIONS ARE SEEN FOR BOTH (DEPRECIATED AND AMORTIZED) GENERAL PLANT GROUPS?

A. Overall, the life indications in the General Plant Group are increasing or staying the same with the exception of three accounts: Laboratory Equipment, Power Operated Equipment, and Other Communication Equipment. These three accounts are experiencing shorter lives than were exhibited when the current rates were adopted, for the reasons explained in my study.

Q. DOES YOUR DEPRECIATION STUDY REFLECT THE CHANGES IN THE USEFUL LIVES OF THE INTANGIBLE, TRANSMISSION, DISTRIBUTION, AND GENERAL PLANT FUNCTION ASSETS?

A. It does by relying on the historical statistical indications seen in the analysis, the Company-specific expectations and experience of its operations and engineering subject matter experts, and my 39 years of depreciation experience.

Q. WHAT PROCESS HAVE YOU UNDERTAKEN TO GIVE EFFECT TO BOTH HISTORICAL DATA AND COMPANY-SPECIFIC EXPECTATIONS IN DEVELOPING YOUR SERVICE LIFE RECOMMENDATIONS?

A. In order to achieve a reasonable balance between these critical components of the life analysis, I evaluated the statistical historical data and then applied informed judgment to make the most appropriate service life selections. The objective in any depreciation study is to project the remaining cost (installation, material and removal cost) to be recovered and the remaining periods in which to recover the costs. This necessarily requires that the service life selections reflect both the Company's historical experience and its current expectations of asset lives. In order to understand the Company's expectations regarding asset lives, I interviewed Company engineers working in both operations and maintenance to confirm the historical activity and indications, current and future plans, and the applicability to the future surviving assets. The interview process also provides important information regarding changes in materials and operation and maintenance, as well as the Company's current expectations regarding the service

lives of the assets currently in use. This information is then considered along with the historical statistical data to develop the most reasonable and representative expected service lives for the Company's assets. The result of this analysis is reflected in the service life recommendations set forth in my depreciation study.

Q. CAN YOU PROVIDE AN EXAMPLE OF THE IMPORTANT INFORMATION YOU GLEANED FROM YOUR DISCUSSIONS WITH COMPANY PERSONNEL?

A. Yes. For instance, as part of the interview process, I interviewed Company engineers regarding the service lives for Transmission Poles and Fixtures (FERC Account 355). While the statistical analysis indicated a life in the 20-year range for these assets, my interviews with Company engineers revealed that this statistical service life indication was much shorter than the Company's actual expectations. The Company's engineers noted that the Company has changed from wood to concrete poles, which have a much longer life expectation. Consequently, Company engineers now expect poles to realize a service life of approximately 60 years. I relied on this information in order to properly evaluate the historical statistical data. Based on my interview with Company personnel and informed judgment based on my years of analyzing these types of assets, I recommended lengthening the life of Transmission Poles beyond the historical indications in order to achieve a more accurate service life that is reflective of the operational changes affecting these assets. Please see the Interview Notes provided as part of this study's workpapers and the Depreciation Study Report,

Exhibit DAW-1, for more information about this account and others that I utilized in my analysis.

Q. HAVE YOU PREPARED A SUMMARY OF THE LIFE CHANGES BY ACCOUNT?

A. Yes. Figure 1 below provides the approved and proposed life by account for all four functions: Intangible, Transmission, Distribution, and General Plant.

Figure 1

Account	Description	Approved Life	Approved Curve	Proposed Life	Proposed Curve
E30302	Software 3 year	NA	NA	3	SQ
E30302	Software 5 year	5	SQ	5	SQ
E30302	Software 7 year	7	SQ	7	SQ
E30302	Software 10 year	10	SQ	10	SQ
E30302	Software 15 Year	15	SQ	15	SQ
E35002	Land Rights	75	R1	75	R1
E35201	Structures & Improvements	60	R1.5	61	R2
E35301	Station Equipment	53	R0.5	54	R0.5
E35401	Towers & Fixtures	59	R2.5	60	R2.5
E35501	Poles and Fixtures	60	R0.5	60	R0.5
E35601	O/H Conduct/Devices	61	R1.5	60	R1.5
E35701	Underground Conduit	60	R5	75	S6
E35801	U/G Conduct/Devices	44	S6	44	S6
E35901	Roads and Trails	52	S6	45	S6
E36002	Land Rights	60	R1	65	R1
E36101	Structures. & Improvements	60	R4	60	R4
E36201	Station Equipment	48	R1	49	R1
E36301	Battery Storage Equipment	10	SQ	10	SQ
E36401	Poles, Towers & Fixtures	35	R0.5	37	R0.5
E36501	O/H Conduct Devices	38	R0.5	38	R0.5
E36601	Underground Conduit	62	R2.5	64	R2.5
E36701	U/G Conduct/Devices	38	R0.5	41	R0.5
E36801	Line Transformers	28	R1	29	R0.5
E36901	Services	46	R0.5	54	R0.5
E37001	Meters	21	R3	40	R3
E37001	AMS Meters	20	R2	20	R2
E37301	Street Light/Signal Systems	39	R1	39	R1.5

E37401	Security Lighting	39	R1	39	R1.5
E38902	Land Rights	55	R2	55	R2
E39001	Structures & Improvements	50	R4	53	R4
E39101	Office F/F	24	SQ	24	SQ
E39201	Transportation Equipment	13	L2	13	L2.5
E39301	Stores Equipment	19	SQ	19	SQ
E39401	Tools, Shop & Garage Equipment	18	SQ	18	SQ
E39501	Laboratory Equipment	25	SQ	25	SQ
E39601	Power Operated Equipment	18	L2	12	L2.5
E39701	Microwave Equipment	22	R2	22	R1
E39701.0130	Other Communication Equip	22	R2	8	S1.5
E39702	Computer Equipment	8	SQ	8	SQ
E39801	Miscellaneous. Equipment	20	SQ	20	SQ

Q. ARE THESE SERVICE LIVES REASONABLE BASED ON YOUR STUDY?

A. Yes.

D. Net Salvage

Q. WHAT IS NET SALVAGE?

A. As discussed more fully in my depreciation study, Exhibit DAW-1, net salvage is the difference between the gross salvage (what is received in scrap value for the asset when retired) and the removal cost (cost to remove and dispose of the asset). Salvage and removal cost percentages are calculated by dividing the current cost of salvage or removal by the original installed cost of the asset. When salvage exceeds removal (positive net salvage), the net salvage reduces the amount to be depreciated over time. When removal exceeds salvage (negative net salvage), the negative net salvage increases the amount to be recovered through depreciation.

Q. DOES CENTERPOINT HOUSTON HAVE ANY NET SALVAGE REFLECTED IN ITS EXISTING DEPRECIATION RATES?

A. Yes. However, the net salvage reflected in its existing depreciation rates was approved in Docket No. 49421, whereas the current study includes an additional five years of data. Both the Company's statistical data and input from Company engineers confirm that the net salvage reflected in the Company's current depreciation rates is no longer representative of the costs incurred to retire CenterPoint Houston's assets. These retirement costs have increased over the last several years and require that net salvage rates be adjusted to reflect this reality, which I have done in my study.

Q. WERE THE INCREASES IN RETIREMENT COST DRIVEN BY ANY CHANGE IN WORK PROCESS OR ALLOCATION METHODOLOGY?

A. No. The allocation process was set based on a Removal Cost Study performed in 2018 and has been consistent since that time. These same allocations were used to set net salvage factors in the last depreciation study. The Removal Cost Study results were reevaluated as part of this study and found to be materially the same as found in the previous study. The increases in removal cost are primarily due to increases in the cost of construction and removal activity through time.

Q. HOW DID YOU DETERMINE THE NET SALVAGE PERCENTAGE FOR EACH ACCOUNT?

A. I examined the experience realized by the Company by observing the average net salvage for various bands (or combinations) of years. Using averages (such as the 5-year and 10-year average bands) allows the smoothing of the timing differences

between when retirements, removal cost, and salvage are booked. By looking at successive average bands ("rolling bands"), an analyst can see trends in the data that would indicate the future net salvage in the account. This examination, in combination with the feedback of Company engineers related to any changes in operations or maintenance that would affect the future net salvage of the asset, allowed the selection of the best estimate of future net salvage for each account. The net salvage as a percentage of retirements for various bands (i.e., groupings of years such as the five-year average) for each account are shown in my Exhibit DAW-1, Appendix D. As with any analysis of this type, expert judgment was also applied in order to select a net salvage percentage reflective of the future expectations for each account.

Q. IS THIS A REASONABLE METHOD FOR DETERMINING NET SALVAGE RATES?

A. Yes. The method used to establish appropriate net salvage percentages for each account was determined by using the same methodology that was approved in prior cases before the Commission in Docket Nos. 38339 and 49421. It is also the methodology commonly employed before this Commission and throughout the industry and is the method recommended in authoritative texts on the topic of depreciation.[3]

[3] See *Depreciation Systems*, by Drs. W. C. Fitch and F.K. Wolf, Iowa State Press, 1994, pp. 51-68 and 260-273; *Public Utility Depreciation Practices*, NARUC, 1996, pp. 157-164; or *Introduction to Depreciation and Net Salvage*, EEI AGA, 2013, pp. 75-100.

Q. CAN YOU ELABORATE FURTHER ON YOUR RECOMMENDED CHANGES TO THE COMPANY'S CURRENT NET SALVAGE RATIOS?

A. Yes. The primary reason for the significant change in net salvage rates is that the Company has experienced a significant increase in removal cost for Transmission and Distribution functions while gross salvage proceeds have declined for those functions. For Transmission, Distribution, and General Property, there has been only one account with increases (more positive/less negative) in net salvage and 13 accounts with decreases (less positive/more negative) in net salvage, while the remaining 20 accounts were unchanged. Figure 2 below provides the approved and proposed net salvage percentages for each account. More detail can be found in the Salvage Analysis section of my depreciation study in Exhibit DAW-1 and in Appendix D of Exhibit DAW-1, as well as in my workpapers.

Figure 2

Account	Description	Approved Net Salvage	Proposed Net Salvage
E30302	Software 3 year	NA	0%
E30302	Software 5 year	0%	0%
E30302	Software 7 year	0%	0%
E30302	Software 10 year	0%	0%
E30302	Software 15 year	0%	0%
E35002	Land Rights	0%	0%
E35201	Structures. & Improvements	-5%	-5%
E35301	Station Equipment	-10%	-15%
E35401	Towers & Fixtures	-30%	-40%
E35501	Poles and Fixtures	-50%	-60%
E35601	O/H Conduct/Devices	-100%	-100%
E35701	Underground Conduit	-5%	-5%
E35801	U/G Conduct/Devices	-5%	-5%
E35901	Roads and Trails	0%	0%
E36002	Land Rights	0%	0%
E36101	Structures & Improvements	-10%	-15%
E36201	Station Equipment	-10%	-15%

E36301	Battery Storage Equipment	0%	0%
E36401	Poles, Towers & Fixtures	-45%	-60%
E36501	O/H Conduct Devices	-30%	-40%
E36601	Underground Conduit	-30%	-35%
E36701	U/G Conduct/Devices	-35%	-45%
E36801	Line Transformers	-15%	-25%
E36901	Services	-60%	-60%
E37001	Meters	0%	0%
E37003	AMS Meters	0%	0%
E37301	Street Lighting/Signal Systems	-30%	-40%
E37401	Security Lighting	-30%	-40%
E38902	Land Rights	0%	0%
E39001	Structures. & Improvements	-5%	-5%
E39101	Office F/F	0%	0%
E39201	Transportation Equipment	10%	10%
E39301	Stores Equipment	0%	0%
E39401	Tools, Shop & Garage Equipment	0%	0%
E39501	Laboratory Equipment	0%	0%
E39601	Power Operated Equipment	6%	10%
E39701	Microwave Equipment	2%	0%
E39701.0130	Other Communication Equip	2%	0%
E39702	Computer Equipment	0%	0%
E39801	Miscellaneous. Equipment	0%	0%

Q. ARE YOUR RECOMMENDED NET SALVAGE RATIOS REASONABLE?

A. Yes.

IV. CONCLUSION

Q. PLEASE SUMMARIZE THE CONCLUSIONS YOU HAVE REACHED AS A RESULT OF YOUR ANALYSIS.

A. The depreciation study and analysis performed under my supervision fully support setting depreciation rates for CenterPoint Houston at the level I have indicated in my testimony and exhibits. The depreciation study describes the extensive analysis performed and the resulting rates are reasonable and appropriate for its respective property classes. CenterPoint Houston's depreciation rates should be set at my recommended amounts in order to recover the Company's total investment in property over the estimated remaining life of the assets.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.

STATE OF TEXAS §
§
COUNTY OF COLLIN §

AFFIDAVIT OF DANE A. WATSON

BEFORE ME, the undersigned authority, on this day personally appeared Dane A. Watson who having been placed under oath by me did depose as follows:

1. "My name is Dane A. Watson. I am of sound mind and capable of making this affidavit. The facts stated herein are true and correct based upon my personal knowledge.

2. I have prepared the foregoing Direct Testimony and the information contained in this document is true and correct to the best of my knowledge."

Further affiant sayeth not.

Dane A. Watson

SUBSCRIBED AND SWORN TO BEFORE ME on this 14th day of February, 2024.

Notary Public in and for the State of TX

My commission expires: Dec 6 2027

TERESA STEWART
Notary ID #132275553
My Commission Expires
December 6, 2027

EXHIBIT DAW-1

TO

DIRECT TESTIMONY

OF

Dane A. Watson

Exhibit-DAW-1 to Direct Testimony of Dane A. Watson is voluminous and will be provided in electronic format.

Asset Location	Commission	Docket No. (if applicable)	Company	Year	Description
Missouri	Missouri Public Service Commission	GR-2024-0106	Liberty Utilities Mid States Gas	2024	Gas Depreciation Study
Pennsylvania	Pennsylvnia Public Utility Commission	R-2024-3045193	Veolia Pennsylvania	2024	WasteWater Depreciation Study
Pennsylvania	Pennsylvnia Public Utility Commission	R-2024-3045192	Veolia Pennsylvania	2024	Water Depreciation Study
Arkansas	Arkansas Public Service Commission	23-079-U	Summit Utilities Arkansas	2024	Gas Depreciation Study
Colorado	Colorado Public Utilities Commission	23A-0632G	Atmos Energy	2023	Gas Clean Heat Plan
Oklahoma	Oklahoma Corporation Commission	2023-00087	Oklahoma Gas & Electric	2023	Electric Depreciation Study
Illinois	Illinois Commerce Commission	24-0043	Liberty Mid States Gas-Illinois	2023	Gas Depreciation Study
Michigan	Michigan Public Service Commission	U-21513	Upper Peninsula Power Company	2023	Electric Depreciation Study
Texas	Public Utility Commission of Texas	55867	Lower Colorado River Authority	2023	Electric Depreciation Study
Texas	Railroad Commission of Texas	Case No. OS-23-00015513	CenterPoint Texas Gas	2023	Gas Depreciation Study
Nevada	Public Utility Commission of Nevada	23-090-12	Southwest Gas	2023	Gas Depreciation Study - Nevada Division
Louisiana	Public Service Commission of Louisiana	36959	Entergy Louisiana	2023	Electric Depreciation Study
Texas	Railroad Commission of Texas	13758	Atmos Energy - APT	2023	Gas Depreciation Study
Florida	Florida Public Service Commission	20230023	People Gas System	2023	Gas Depreciation Study
Texas	Public Utility Commission of Texas	54565	Central States Water Resources (CSWR Texas)	2023	Water Depreciation Study
Louisiana	Louisiana Public Service Commission	U-36923	Cleco	2023	Electric Depreciation study
New York	New York State Public Service Commission	23-W-0111	Veolia New York	2023	Water Depreciation Study
Arkansas	Arkansas Public Service Commission	22-085-U	Empire District Electric Company	2023	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	TA50-733 (U-21-058)	Cook Inlet Natural Gas Storage Alaska	2023	Focused Study - Communication Equipment
Manitoba Canada	Manitoba Public Utilities Board		Manitoba Hydro Electric	2022	Electric Depreciation Study
Tennessee	Tennessee Public Utility Commission	20-00086	Piedmont Natural Gas	2022	Gas Depreciation Study - 3 State
Texas	Public Utility Commission of Texas	54634	Southwestern Public Service Company	2023	Electric Technical Update
Arkansas	Arkansas Public Service Commission	22-085-U	Liberty Empire Electric Arkansas	2023	Electric Depreciation Study
Florida	Florida Public Service Commission	20220219	People Gas System	2022	Gas Depreciation Study
Michigan	Michigan Public Service Commission	U-21329	Michigan Gas Utilities Corporation	2022	Gas Depreciation Study
Dominica	Independent Regulatory Commission		Dominica Electricity Services LTD	2022	Electric Depreciation Study
New Mexico	New Mexico Public Regulation Commission	22-00270-UT	Public Service of New Mexico	2022	Electric Depreciation Study
New Mexico	New Mexico Public Regulation Commission	22-00286-UT	Southwestern Public Service Company	2022	Electric Technical Update

Asset Location	Commission	Docket No. (if applicable)	Company	Year	Description
Minnesota	Minnesota Public Utilities Commission	22-299	Northern States Power-Minnesota	2022	Electric Gas and Common Depreciation Study
California	California Public Utilities Commission	A.22-08-010	Bear Valley Electric	2022	Electric Depreciation Study
Michigan	Michigan Public Service Commission	U-21294	SEMCO Gas	2022	Gas Depreciation Study
Arkansas	Arkansas Public Service Commission	22-064-U	Liberty Pine Bluff Water	2022	Water Depreciation Study
Colorado	Colorado Public Utilities Commission	22AL-0348G	Atmos Energy	2022	**Gas Depreciation Study**
New York	FERC	ER22-2581-000	New York Power Authority	2022	Transmission and General Depreciation Study
South Carolina	South Carolina Public Service Commission	2022-89-G	Piedmont Natural Gas	2022	Natural Gas Depreciation Study
California	California Public Utilities Commission	A.22-007-001	California American Water	2022	Water and Waste Water Depreciation Study
Alaska	Regulatory Commission of Alaska	U-22-034	Chugach Electric Association	2022	Electric Depreciation Study
Georgia	Georgia Public Service Commission	44280	Georgia Power Company	2022	Electric Depreciation Study
Texas	Public Utility Commission of Texas	53719	Entergy Texas	2022	Electric Depreciation Study
California	California Public Utilities Commission	22-005-xxx	San Diego Gas and Electric	2022	Electric Gas and Common Depreciation Study
California	California Public Utilities Commission	22-005-xxx	Southern California Gas	2022	Gas Depreciation Study
Colorado	Colorado Public Utilities Commission	22AL-0046G	Public Service of Colorado	2022	Gas Depreciation given potential for climate change
Texas	Public Utility Commission of Texas	53601	Oncor Electric Delivery	2022	Electric Depreciation Study
New Jersey	New Jersey Board of Public Utilities	GR2222040253	South Jersey Gas	2022	Gas Depreciation Study
Oklahoma	Corporation Commission of Oklahoma	PUD 202100163	Empire District Electric Company	2022	Electric Depreciation Study
Michigan	Michigan Public Service Commission	U-21176	Consumers Gas	2021	Gas Depreciation Study
New Jersey	New Jersey Board of Public Utilities	GR21121254	Elizabethtown Natural Gas	2021	Gas Depreciation Study
Ontario Canada	Ontario Energy Board	EB-2021-0110	Hydro One	2021	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	TA116-118, TA115-97, TA160-37 and TA110-290	Fairbanks Water and Wastewater	2021	Water and Waste Water Depreciation Study
Colorado	Public Utilities Commission of Colorado	21AL-0317E	Public Service of Colorado	2021	Electric and Common Depreciation Study
Alaska	Regulatory Commission of Alaska	U-21-025	Golden Valley Electric Association	2021	Electric Depreciation Study
Wisconsin	Public Service Commission of Wisconsin	5-DU-103	WE Energies	2021	Electric and Gas Depreciation Study
Kentucky	Public Service Commission of Kentucky	2021-00214	Atmos Kentucky	2021	Gas Depreciation Study
Missouri	Missouri Public Service Commission	ER-2021-0312	Empire District Electric Company	2021	Electric Depreciation Study
Wisconsin	Public Service Commission of Wisconsin	4220-DU-111	Northern States Power Wisconsin	2021	Transmission, Distribution General and Common Depreciation Study

Asset Location	Commission	Docket No. (if applicable)	Company	Year	Description
Louisiana	Louisiana Public Service Commission	U-35951	Atmos Energy	2021	Statewide Gas Depreciation Study
Minnesota	Minnesota Public Utilities Commission	E015-D-21-229	Allete Minnesota Power	2021	Intangible, Transmission, Distribution, and General Depreciation Study
Michigan	Michigan Public Service Commission	U-20849	Consumers Energy	2021	Electric and Common Depreciation Study
Texas	Texas Public Utility Commission	51802	Southwestern Public Service Company	2021	Electric Technical Update
MultiState	FERC	RP21-441-000	Florida Gas Transmission	2021	Gas Depreciation Study
New Mexico	New Mexico Public Regulation Commission	20-00238-UT	Southwestern Public Service Company	2021	Electric Technical Update
Yukon Territory Canada	Yukon Energy Board	2021 General Rate Application	Yukon Energy	2020	Electric Depreciation Study
MultiState	FERC	ER21-709-000	American Transmission Company	2020	Electric Depreciation Study
Texas	Texas Public Utility Commission	51611	Sharyland Utilities	2020	Electric Depreciation Study
Texas	Texas Public Utility Commission	51536	Brownsville Public Utilities Board	2020	Electric Depreciation Study
New Jersey	New Jersey Board of Public Utilities	WR20110729	Suez Water New Jersey	2020	Water and Waste Water Depreciation Study
Idaho	Idaho Public Service Commission	SUZ-W-20-02	Suez Water Idaho	2020	Water Depreciation Study
Texas	Texas Public Utility Commission	50944	Monarch Utilities	2020	Water and Waste Water Depreciation Study
Michigan	Michigan Public Service Commission	U-20844	Consumers Energy/DTE Electric	2020	Ludington Pumped Storage Depreciation Study
Mexico	Comision Reguladora de Energia	G/352/TRA/2015 UH-250/125738/2019	Arguelles Depreciation Study	2020	Gas Depreciation Study
Tennessee	Tennessee Public Utility Commission	2000086	Piedmont Natural Gas	2020	Gas Depreciation Study
Texas	Railroad Commission of Texas	OS-00005136	CoServ Gas	2020	Gas Depreciation Study
Texas	Railroad Commission of Texas	GUD 10988	EPCOR Gas Texas	2020	Gas Depreciation Study
Florida	Florida Public Service Commission	20200166-GU	People Gas System	2020	Gas Depreciation Study
Mississippi	Federal Energy Regulatory Commission	ER20-1660-000	Mississippi Power Company	2020	Electric Depreciation Study
Texas	Public Utility Commission of Texas	50557	Corix Utilities	2020	Water and Waste Water Depreciation Study
Georgia	Georgia Public Service Commission	42959	Liberty Utilities Peach State Natural Gas	2020	Gas Depreciation Study
Texas	Public Utility Commission of Texas	50734	Oncor Electric Delivery	2020	Life of Intangible Plant
New Jersey	New Jersey Board of Public Utilities	GR20030243	South Jersey Gas	2020	Gas Depreciation Study
Kentucky	Kentucky Public Service Commission	2020-00064	Big Rivers	2020	Electric Depreciation Study
Colorado	Colorado Public Utilities Commission	20AL-0049G	Public Service of Colorado	2020	Gas Depreciation Study
Texas	NA	NA	Pedernales Electric Coop	2019	Electric Depreciation Study

Asset Location	Commission	Docket No. (if applicable)	Company	Year	Description
New York	Federal Energy Regulatory Commission	ER20-716-000	LS Power Grid New York, Corp.	2019	Electric Transmission Depreciation Study
Mississippi	Mississippi Public Service Commission	2019-UN-219	Mississippi Power Company	2019	Electric Depreciation Study
Texas	Public Utility Commission of Texas	50288	Kerrville Public Utility District	2019	Electric Depreciation Study
Texas	Railroad Commission of Texas	GUD 10920	CenterPoint Gas	2019	Gas Depreciation Study and Propane Air Study
Texas, New Mexico	Federal Energy Regulatory Commission	ER20-277-000	Southwestern Public Service Company	2019	Electric Production and General Plant Depreciation Study
New Mexico	New Mexico Public Regulation Commission		New Mexico Gas	2019	Gas Depreciation Study
Alaska	Regulatory Commission of Alaska	U-19-086	Alaska Electric Light and Power	2019	Electric Depreciation Study
Texas	Railroad Commission of Texas	GUD 10900	Atmos Energy West Texas Division - Triangle	2019	Depreciation Rates for Natural Gas Property
Delaware	Delaware Public Service Commission	19-0615	Suez Water Delaware	2019	Water Depreciation Study
California	California Public Utilities Commission	A.19-08-015	Southwest Gas Northern California	2019	Gas Depreciation Study
California	California Public Utilities Commission	A.19-08-015	Southwest Gas Southern California	2019	Gas Depreciation Study
Texas	Railroad Commission of Texas	GUD 10895	CenterPoint Propane Air	2019	Depreciation Rates for Propane Air Assets
Texas	Public Utility Commission of Texas	49831	Southwestern Public Service Company	2019	Electric Depreciation Study
New Mexico	New Mexico Public Regulation Commission	19-00170-UT	Southwestern Public Service Company	2019	Electric Depreciation Study
Georgia	Georgia Public Service Commission	42516	Georgia Power Company	2019	Electric Depreciation Study
Georgia	Georgia Public Service Commission	42315	Atlanta Gas Light	2019	Gas Depreciation Study
Arizona	Arizona Corporation Commission	G-01551A-19-0055	Southwest Gas Corporation	2019	Gas Removal Cost Study
New Hampshire	New Hampshire Public Service Commission	DE 19-064	Liberty Utilities	2019	Electric Distribution and General
New Jersey	New Jersey Board of Public Utilities	GR19040486	Elizabethtown Natural Gas	2019	Gas Depreciation Study
Texas	Public Utility Commission of Texas	49421	CenterPoint Houston Electric LLC	2019	Electric Depreciation Study
North Carolina	North Carolina Utilities Commission	Docket No. G-9, Sub 743	Piedmont Natural Gas	2019	Gas Depreciation Study
Minnesota	Minnesota Public Utilities Commission	E-015/D-18-226	Allete Minnesota Power	2018	Electric Compliance Filing
Colorado	Colorado Public Utilities Commission	19AL-0063ST	Public Service of Colorado	2019	Steam Depreciation Study
Texas	NA	NA	CenterPoint Texas	2019	Propane Air Depreciation Study
Various	NA	NA	Enable Midstream Partners	2019	Gas Depreciation Study
Alaska	Regulatory Commission of Alaska	U-18-121	Municipal Power and Light City of Anchorage	2018	Electric Depreciation Study

Asset Location	Commission	Docket No. (if applicable)	Company	Year	Description
Various	NA	NA	Pattern Energy	2018	Renewable Asset Capital Accounting
New York	NA	NA	Long Island Electric Utility Servco LLC	2018	Electric Depreciation Study
Various	FERC	RP19-352-000	Sea Robin	2018	Gas Depreciation Study
Texas New Mexico	Federal Energy Regulatory Commission	ER19-404-000	Southwestern Public Service Company	2018	Electric Transmission Depreciation Study
California	Federal Energy Regulatory Commission	ER19-221-000	San Diego Gas and Electric	2018	Electric Transmission Depreciation Study
Kentucky	Kentucky Public Service Commission	2018-00281	Atmos Kentucky	2018	Gas Depreciation Study
Texas	Public Utility Commission of Texas	48500	Golden Spread Electric Coop	2018	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-18-054	Matanuska Electric Coop	2018	Electric Generation Depreciation Study
California	California Public Utilities Commission	A17-10-007	San Diego Gas and Electric	2018	Electric and Gas Depreciation Study
Texas	NA	NA	Lower Colorado River Authority	2018	Electric Transmission and General Study
Texas	Public Utility Commission of Texas	48401	Texas New Mexico Power	2018	Electric Depreciation Study
Nevada	Public Utility Commission of Nevada	18-05031	Southwest Gas	2018	Gas Depreciation Study
Texas	Public Utility Commission of Texas	48231	Oncor Electric Delivery	2018	Depreciation Rates
Texas	Public Utility Commission of Texas	48371	Entergy Texas	2018	Electric Depreciation Study
Kansas	Kansas Corporation Commission	18-KCPE-480-RTS	Kansas City Power and Light	2018	Electric Depreciation Study
Louisiana	Louisiana Public Service Commission	U-34803	Atmos LGS	2018	Gas Depreciation Study
Arkansas	Arkansas Public Service Commission	18-027-U	Liberty Pine Bluff Water	2018	Water Depreciation Study
Minnesota	Minnesota Public Utilities Commission	E-015/D-18-226	Allete Minnesota Power	2018	Electric Depreciation Rate
Kentucky	Kentucky Public Service Commission	2017-00349	Atmos KY	2018	Gas Depreciation Rates
Tennessee	Tennessee Public Utility Commission	18-00017	Chattanooga Gas	2018	Gas Depreciation Study
Texas	Railroad Commission of Texas	10679	Si Energy	2018	Gas Depreciation Study
Texas	City of Dallas Statement of Intent	NA	Atmos Mid-Tex	2017-2018	Gas Depreciation Study
Alaska	Regulatory Commission of Alaska	U-17-104	Anchorage Water and Wastewater	2017	Water and Waste Water Depreciation Study
Michigan	Michigan Public Service Commission	U-18488	Michigan Gas Utilities Corporation	2017	Gas Depreciation Study
New Mexico	FERC	ER18-228-000	Southwestern Public Service Company	2017	Electric Production Depreciation Study
Texas	Railroad Commission of Texas	10669	CenterPoint South Texas	2017	Gas Depreciation Study
New Mexico	New Mexico Public Regulation Commission	17-00255-UT	Southwestern Public Service Company	2017	Electric Production Depreciation Study
Arkansas	Arkansas Public Service Commission	17-061-U	Empire District Electric Company	2017	Depreciation Rates for New Wind Generation
Kansas	Kansas Corporation Commission	18-EPDE-184-PRE	Empire District Electric Company	2017	Depreciation Rates for New Wind Generation

Asset Location	Commission	Docket No. (if applicable)	Company	Year	Description
Oklahoma	Oklahoma Corporation Commission	PUD 201700471	Empire District Electric Company	2017	Depreciation Rates for New Wind Generation
Missouri	Missouri Public Service Commission	EO-2018-0092	Empire District Electric Company	2017	Depreciation Rates for New Wind Generation
Michigan	Michigan Public Service Commission	U-18457	Upper Peninsula Power Company	2017	Electric Depreciation Study
Florida	Florida Public Service Commission	20170179-GU	Florida City Gas	2017	Gas Depreciation Study
Iowa	NA		Cedar Falls Utility	2017	Telecommunications, Water, and Cable Utility
Michigan	FERC	ER18-56-000	Consumers Energy	2017	Electric Depreciation Study
Missouri	Missouri Public Service Commission	GR-2018-0013	Liberty Utilities	2017	Gas Depreciation Study
Michigan	Michigan Public Service Commission	U-18452	SEMCO	2017	Gas Depreciation Study
Texas	Public Utility Commission of Texas	47527	Southwestern Public Service Company	2017	Electric Production Depreciation Study
Minnesota	Minnesota Public Utilities Commission	17-581	Minnesota Northern States Power	2017	Electric, Gas and Common Transmission, Distribution and General
Colorado	Colorado Public Utilities Commission	17AL-0363G	Public Service of Colorado-Gas	2017	Gas Depreciation Study
MultiState	FERC	ER17-1664	American Transmission Company	2017	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-17-008	Municipal Power and Light City of Anchorage	2017	Generating Unit Depreciation Study
Louisiana	Louisiana Public Service Commission	U-34343	Atmos Trans Louisiana	2017	Gas Depreciation Study
Mississippi	Mississippi Public Service Commission	2017-UN-041	Atmos Energy	2017	Gas Depreciation Study
New York	FERC	ER17-1010-000	New York Power Authority	2017	Electric Depreciation Study
Oklahoma	Oklahoma Corporation Commission	PUD 201700078	CenterPoint Oklahoma	2017	Gas Depreciation Study
Texas	Railroad Commission of Texas	GUD 10580	Atmos Pipeline Texas	2017	Gas Depreciation Study
Texas	Public Utility Commission of Texas	46957	Oncor Electric Delivery	2017	Electric Depreciation Study
Alabama	FERC	ER16-2312-000	Alabama Power Company	2016	Electric Depreciation Study
Alabama	FERC	ER16-2313-000	SEGCO	2016	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-16-067	Alaska Electric Light and Power	2016	Generating Unit Depreciation Study
Arizona	Arizona Corporation Commission	G-01551A-16-0107	Southwest Gas	2016	Gas Depreciation Study
California	California Public Utilities Commission	A 16-07-002	California American Water	2016	Water and Waste Water Depreciation Study
Colorado	Colorado Public Utilities Commission	16A-0231E	Public Service Company of Colorado	2016	Electric Depreciation Study
Mississippi	Mississippi Public Service Commission	2016 UN 267	Willmut Gas	2016	Gas Depreciation Study
Florida	Florida Public Service Commission	160170-EI	Gulf Power	2016	Electric Depreciation Study

Asset Location	Commission	Docket No. (if applicable)	Company	Year	Description
Georgia	N/A	N/A	Dalton Utilities	2016	Electric, Gas, Water, Wastewater & Fiber Depreciation Study
Georgia	NA	NA	Oglethorpe Power	2016	Electric Depreciation Study
Illinois	Illinois Commerce Commission	GRM #16-208	Liberty-Illinois	2016	Natural Gas Depreciation Study
Iowa	Iowa Utilities Board	RPU-2016-0003	Liberty-Iowa	2016	Natural Gas Depreciation Study
Kentucky	FERC	RP16-097-000	KOT	2016	Natural Gas Depreciation Study
Michigan	Michigan Public Service Commission	U-18195	Consumers Energy/DTE Electric	2016	Ludington Pumped Storage Depreciation Study
Michigan	Michigan Public Service Commission	U-18127	Consumers Energy	2016	Natural Gas Depreciation Study
MultiState	FERC	ER17-191-000	American Transmission Company	2016	Electric Depreciation Study
Hawaii			Hawaii American Water	2015	Wastewater and Water Depreciation Study
New Jersey	New Jersey Board of Public Utilities	GR16090826	Elizabethtown Natural Gas	2016	Gas Depreciation Study
New York	NA		New York Power Authority	2016	Electric Transmission and General Study
North Carolina	North Carolina Utilities Commission	Docket G-9 Sub 77H	Piedmont Natural Gas	2016	Gas Depreciation Study
Texas	Railroad Commission of Texas	GUD 10567	CenterPoint Texas	2016	Gas Depreciation Study
Texas	Public Utility Commission of Texas	45414	Sharyland	2016	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-15-089	Fairbanks Water and Wastewater	2015	Water and Waste Water Depreciation Study
Arkansas	Arkansas Public Service Commission	15-098-U	CenterPoint Arkansas	2015	Gas Depreciation Study and Cost of Removal Study
Arkansas	Arkansas Public Service Commission	15-031-U	Source Gas Arkansas	2015	Underground Storage Gas Depreciation Study
Hawaii			Hawaii American Water	2015	Wastewater and Water Depreciation Study
Arkansas	Arkansas Public Service Commission	15-011-U	Source Gas Arkansas	2015	Gas Depreciation Study
Atmos Energy Corporation	Tennessee Regulatory Authority	14-00146	Atmos Tennessee	2015	Natural Gas Depreciation Study
Colorado	Colorado Public Utilities Commission	15-AL-0299G	Atmos Colorado	2015	Gas Depreciation Study
Kansas	Kansas Corporation Commission	16-ATMG-079-RTS	Atmos Kansas	2015	Gas Depreciation Study
Kansas	Kansas Corporation Commission	15-KCPE-116-RTS	Kansas City Power and Light	2015	Electric Depreciation Study
Montana	NA	NA	Energy Keepers	2015	Property Units/ Depreciation Rates Hydro Facility
Multi-State NE US	FERC	16-453-000	Northeast Transmission Development, LLC	2015	Electric Depreciation Study
New Mexico	New Mexico Public Regulation Commission	15-00261-UT	Public Service Company of New Mexico	2015	Electric Depreciation Study

Asset Location	Commission	Docket No. (if applicable)	Company	Year	Description
New Mexico	New Mexico Public Regulation Commission	15-00296-UT	Southwestern Public Service Company	2015	Electric Depreciation Study
New Mexico	New Mexico Public Regulation Commission	15-00139-UT	Southwestern Public Service Company	2015	Electric Depreciation Study
Texas	Railroad Commission of Texas	GUD 10432	CenterPoint- Texas Coast Division	2015	Gas Depreciation Study
Texas	Public Utility Commission of Texas	44704	Entergy Texas	2015	Electric Depreciation Study
Texas	Public Utility Commission of Texas	44746	Wind Energy Transmission Texas	2015	Electric Depreciation Study
Texas, New Mexico	FERC	ER15-949-000	Southwestern Public Service Company	2015	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-14-120	Alaska Electric Light and Power	2014-2015	Electric Depreciation Study
Alabama	State of Alabama Public Service Commission	U-5115	Mobile Gas	2014	Gas Depreciation Study
Alaska	Regulatory Commission of Alaska	U-14-045	Matanuska Electric Coop	2014	Electric Generation Depreciation Study
Alaska	Regulatory Commission of Alaska	U-14-054	Sand Point Generating LLC	2014	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-14-055	TDX North Slope Generating	2014	Electric Depreciation Study
California	California Public Utilities Commission	A.14-07-006	Golden State Water	2014	Water and Waste Water Depreciation Study
Colorado	Public Utilities Commission of Colorado	14AL-0660E	Public Service Company of Colorado	2014	Electric Depreciation Study
Louisiana	Louisiana Public Service Commission	U-28814	Atmos Energy Corporation	2014	Gas Depreciation Study
Michigan	Michigan Public Service Commission	U-17653	Consumers Energy Company	2014	Electric and Common Depreciation Study
Multi State – SE US	FERC	RP15-101	Florida Gas Transmission	2014	Gas Transmission Depreciation Study
Nebraska	Nebraska Public Service Commission	NG-0079	Source Gas Nebraska	2014	Gas Depreciation Study
New Mexico	New Mexico Public Regulation Commission	14-00332-UT	Public Service of New Mexico	2014	Electric Depreciation Study
Texas	Public Utility Commission of Texas	43950	Cross Texas Transmission	2014	Electric Depreciation Study
Texas	NA	NA	Hughes Natural Gas	2014	Gas Depreciation Study
Texas	Public Utility Commission of Texas	42469	Lone Star Transmission	2014	Electric Depreciation Study
Texas	Public Utility Commission of Texas	43695	Southwestern Public Service Company	2014	Electric Depreciation Study
Wisconsin	Wisconsin	05-DU-102	WE Energies	2014	Electric, Gas, Steam and Common Depreciation Studies
Texas, New Mexico	Public Utility Commission of Texas	42004	Southwestern Public Service Company	2013-2014	Electric Production, Transmission, Distribution and General Plant Depreciation Study
Virginia	Virginia Corporation Commission	PUE-2013-00124	Atmos Energy Corporation	2013-2014	Gas Depreciation Study
Arkansas	Arkansas Public Service Commission	13-078-U	Arkansas Oklahoma Gas	2013	Gas Depreciation Study

Asset Location	Commission	Docket No. (if applicable)	Company	Year	Description
Arkansas	Arkansas Public Service Commission	13-079-U	Source Gas Arkansas	2013	Gas Depreciation Study
California	California Public Utilities Commission	Proceeding No.: A.13-11-003	Southern California Edison	2013	Electric Depreciation Study
Kentucky	Kentucky Public Service Commission	2013-00148	Atmos Energy Corporation	2013	Gas Depreciation Study
Minnesota	Minnesota Public Utilities Commission	13-252	Allete Minnesota Power	2013	Electric Depreciation Study
New Hampshire	New Hampshire Public Service Commission	DE 13-063	Liberty Utilities	2013	Electric Distribution and General
New Jersey	New Jersey Board of Public Utilities	GR13111137	South Jersey Gas	2013	Gas Depreciation Study
North Carolina/South Carolina	FERC	ER13-1313	Progress Energy Carolina	2013	Electric Depreciation Study
Oklahoma and TX Panhandle	NA	NA	Enable Midstream Partners	2013	Gas Depreciation Study
Texas	Public Utility Commission of Texas	41474	Sharyland	2013	Electric Depreciation Study
Texas	Railroad Commission of Texas	10235	West Texas Gas	2013	Gas Depreciation Study
Various	FERC	RP14-247-000	Sea Robin	2013	Gas Depreciation Study
Wisconsin	Public Service Commission of Wisconsin	4220-DU-108	Northern States Power Company - Wisconsin	2013	Electric, Gas and Common Transmission, Distribution and General
Alaska	Regulatory Commission of Alaska	U-12-154	Alaska Telephone Company	2012	Telecommunications Utility
Alaska	Regulatory Commission of Alaska	U-12-141	Interior Telephone Company	2012	Telecommunications Utility
Alaska	Regulatory Commission of Alaska	U-12-149	Municipal Power and Light City of Anchorage	2012	Electric Depreciation Study
Colorado	Colorado Public Utilities Commission	12AL-1269ST	Public Service Company of Colorado	2012	Gas and Steam Depreciation Study
Colorado	Colorado Public Utilities Commission	12AL-1268G	Public Service Company of Colorado	2012	Gas and Steam Depreciation Study
Kansas	Kansas Corporation Commission	12-ATMG-564-RTS	Atmos Kansas	2012	Gas Depreciation Study
Kansas	Kansas Corporation Commission	12-KCPE-764-RTS	Kansas City Power and Light	2012	Electric Depreciation Study
Michigan	Michigan Public Service Commission	U-17104	Michigan Gas Utilities Corporation	2012	Gas Depreciation Study
Minnesota	Minnesota Public Utilities Commission	12-858	Northern States Power Company - Minnesota	2012	Electric, Gas and Common Transmission, Distribution and General
Nevada	Public Utility Commission of Nevada	12-04005	Southwest Gas	2012	Gas Depreciation Study
New Mexico	New Mexico Public Regulation Commission	12-00350-UT	Southwestern Public Service Company	2012	Electric Depreciation Study
North Carolina	North Carolina Utilities Commission	E-2 Sub 1025	Progress Energy Carolina	2012	Electric Depreciation Study
North Dakota	North Dakota Public Service Commission	PU-12-0813	Northern States Power	2012	Electric, Gas and Common Transmission, Distribution and General

Asset Location	Commission	Docket No. (if applicable)	Company	Year	Description
South Carolina	Public Service Commission of South Carolina	Docket 2012-384-E	Progress Energy Carolina	2012	Electric Depreciation Study
Texas	Railroad Commission of Texas	10170	Atmos Mid-Tex	2012	Gas Depreciation Study
Texas	Railroad Commission of Texas	10147, 10170	Atmos Mid-Tex	2012	Gas Depreciation Study
Texas	Railroad Commission of Texas	10174	Atmos West Texas	2012	Gas Depreciation Study
Texas	Railroad Commission of Texas	10182	CenterPoint Beaumont/ East Texas	2012	Gas Depreciation Study
Texas	Texas Public Utility Commission	40604	Cross Texas Transmission	2012	Electric Depreciation Study
Texas	Texas Public Utility Commission	40020	Lone Star Transmission	2012	Electric Depreciation Study
Texas	Texas Public Utility Commission	40606	Wind Energy Transmission Texas	2012	Electric Depreciation Study
Texas	Texas Public Utility Commission	40824	Xcel Energy	2012	Electric Depreciation Study
California	California Public Utilities Commission	A1011015	Southern California Edison	2011	Electric Depreciation Study
Colorado	Public Utilities Commission of Colorado	11AL-947E	Public Service Company of Colorado	2011	Electric Depreciation Study
Michigan	Michigan Public Service Commission	U-16938	Consumers Energy Company	2011	Gas Depreciation Study
Michigan	Michigan Public Service Commission	U-16536	Consumers Energy Company	2011	Wind Depreciation Rate Study
Mississippi	Mississippi Public Service Commission	2011-UN-184	Atmos Energy	2011	Gas Depreciation Study
MultiState	FERC	ER12-212	American Transmission Company	2011	Electric Depreciation Study
MultiState			Atmos Energy	2011	Shared Services Depreciation Study
MultiState			CenterPoint	2011	Shared Services Study
MultiState			CenterPoint	2011	Depreciation Reserve Study (SAP)
Pennsylvania	NA	NA	Safe Harbor	2011	Hydro Depreciation Study
Texas	Texas Public Utility Commission	39896	Entergy Texas	2011	Electric Depreciation Study
Texas	Public Utility Commission of Texas	38929	Oncor	2011	Electric Depreciation Study
Texas	Texas Commission on Environmental Quality	Matter 37050-R	Southwest Water Company	2011	WasteWater Depreciation Study
Texas	Texas Commission on Environmental Quality	Matter 37049-R	Southwest Water Company	2011	Water Depreciation Study
Alaska	Regulatory Commission of Alaska	U-10-070	Inside Passage Electric Cooperative	2010	Electric Depreciation Study
Georgia	Georgia Public Service Commission	31647	Atlanta Gas Light	2010	Gas Depreciation Study
Maine/ New Hampshire	FERC	10-896	Granite State Gas Transmission	2010	Gas Depreciation Study
Multi State – SE US	FERC	RP10-21-000	Florida Gas Transmission	2010	Gas Depreciation Study
Multistate	NA	NA	Constellation Energy	2010	Fossil Generation Depreciation Study
Multistate	NA	NA	Constellation Energy Nuclear	2010	Nuclear Generation Depreciation Study
Texas	Texas Railroad Commission	10041	Atmos Amarillo	2010	Gas Depreciation Study

Asset Location	Commission	Docket No. (if applicable)	Company	Year	Description
Texas	Texas Railroad Commission	10000	Atmos Pipeline Texas	2010	Gas Depreciation Study
Texas	Railroad Commission of Texas	10038	CenterPoint South TX	2010	Gas Depreciation Study
Texas	Public Utility Commission of Texas	36633	City Public Service of San Antonio	2010	Electric Depreciation Study
Texas	Public Utility Commission of Texas	38339	CenterPoint Electric	2010	Electric Depreciation Study
Texas	Public Utility Commission of Texas	38147	Southwestern Public Service Company	2010	Electric Technical Update
Texas	Public Utility Commission of Texas	38480	Texas New Mexico Power	2010	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-09-015	Alaska Electric Light and Power	2009-2010	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-10-043	Utility Services of Alaska	2009-2010	Water Depreciation Study
California	California Public Utility Commission	A10071007	California American Water	2009-2010	Water and Waste Water Depreciation Study
Michigan	Michigan Public Service Commission	U-16054	Consumers Energy	2009-2010	Electric Depreciation Study
Michigan	Michigan Public Service Commission	U-16055	Consumers Energy/DTE Energy	2009-2010	Ludington Pumped Storage Depreciation Study
Wyoming	Wyoming Public Service Commission	30022-148-GR10	Source Gas	2009-2010	Gas Depreciation Study
Colorado	Colorado Public Utilities Commission	09AL-299E	Public Service of Colorado	2009	Electric Depreciation Study
Iowa	NA		Cedar Falls Utility	2009	Telecommunications, Water, and Cable Utility
Michigan	Michigan Public Service Commission	U-15963	Michigan Gas Utilities Corporation	2009	Gas Depreciation Study
Michigan	Michigan Public Service Commission	U-15989	Upper Peninsula Power Company	2009	Electric Depreciation Study
Michigan	Michigan Public Service Commission	In Progress	Edison Sault	2009	Electric Depreciation Study
Mississippi	Mississippi Public Service Commission	09-UN-334	CenterPoint Energy Mississippi	2009	Gas Depreciation Study
New York	New York Public Service Commission		Key Span	2009	Generation Depreciation Study
North Carolina	North Carolina Utilities Commission		Piedmont Natural Gas	2009	Gas Depreciation Study
South Carolina	Public Service Commission of South Carolina		Piedmont Natural Gas	2009	Gas Depreciation Study
Tennessee	Tennessee Regulatory Authority	09-000183	AGL – Chattanooga Gas	2009	Gas Depreciation Study
Tennessee	Tennessee Regulatory Authority	11-00144	Piedmont Natural Gas	2009	Gas Depreciation Study
Texas	Railroad Commission of Texas	9869	Atmos Energy	2009	Shared Services Depreciation Study
Texas	Railroad Commission of Texas	9902	CenterPoint Energy Houston	2009	Gas Depreciation Study
Arizona	NA	NA	Arizona Public Service	2008	Fixed Asset Consulting
Louisiana	Louisiana Public Service Commission	U-30689	Cleco	2008	Electric Depreciation Study
Multiple States	NA	NA	Constellation Energy	2008	Generation Depreciation Study
New Mexico	New Mexico Public Regulation Commission	07-00319-UT	Southwestern Public Service Company	2008	Testimony – Depreciation

Asset Location	Commission	Docket No. (if applicable)	Company	Year	Description
North Dakota	North Dakota Public Service Commission	PU-07-776	Northern States Power Company - Minnesota	2008	Net Salvage
Texas	Public Utility Commission of Texas	35717	Oncor	2008	Electric Depreciation Study
Texas	Public Utility Commission of Texas	35763	Southwestern Public Service Company	2008	Electric Production, Transmission, Distribution and General Plant Depreciation Study
Wisconsin	Wisconsin	05-DU-101	WE Energies	2008	Electric, Gas, Steam and Common Depreciation Studies
Colorado	Colorado Public Utilities Commission	Filed – no docket to date	Public Service Company of Colorado	2007-2008	Electric Depreciation Study
Colorado	Colorado Public Utilities Commission	10AL-963G	Public Service Company of Colorado	2007-2008	Gas Depreciation Study
Minnesota	Minnesota Public Utilities Commission	E015/D-08-422	Minnesota Power	2007-2008	Electric Depreciation Study
Multiple States	Railroad Commission of Texas	9762	Atmos Energy	2007-2008	Shared Services Depreciation Study
Multiple States	None		Tennessee Valley Authority	2007-2008	Electric Generation and Transmission Depreciation Study
Michigan	Michigan Public Service Commission	U-15629	Consumers Energy	2006-2009	Gas Depreciation Study
Multiple States	NA	NA	Constellation Energy	2007	Generation Depreciation Study
Texas	Public Utility Commission of Texas	34040	Oncor	2007	Electric Depreciation Study
Arkansas	Arkansas Public Service Commission	06-161-U	CenterPoint Energy – Arkla Gas	2006	Gas Distribution Depreciation Study and Removal Cost Study
Colorado	Colorado Public Utilities Commission	06-234-EG	Public Service Company of Colorado	2006	Electric Depreciation Study
Multiple States	Multiple	NA	CenterPoint Energy	2006	Shared Services Depreciation Study
Nevada	NA	NA	Nevada Power/Sierra Pacific	2006	ARO Consulting
Pennsylvania	NA	NA	Safe Harbor	2006	Hydro Depreciation Study
Utah, Nevada, California	NA	NA	Intermountain Power Authority	2006	Generation Depreciation Study
Texas	Railroad Commission of Texas	9670/9676	Atmos Energy Corp	2005-2006	Gas Distribution Depreciation Study
Texas, New Mexico	Public Utility Commission of Texas	32766	Southwestern Public Service Company	2005-2006	Electric Production, Transmission, Distribution and General Plant Depreciation Study
Texas	Railroad Commission of Texas	9400	TXU Gas	2003-2004	Gas Distribution Depreciation Study
Texas	Railroad Commission of Texas	9313	TXU Gas	2002	Gas Distribution Depreciation Study
Texas	Railroad Commission of Texas	9225	TXU Gas	2002	Gas Distribution Depreciation Study

Asset Location	Commission	Docket No. (if applicable)	Company	Year	Description
Texas	Public Utility Commission of Texas	24060	TXU	2001	Line Losses
Texas	Public Utility Commission of Texas	23640	TXU	2001	Line Losses
Texas	Public Utility Commission of Texas	22350	TXU	2000-2001	Electric Depreciation Study, Unbundling
Texas	Railroad Commission of Texas	9145-9148	TXU Gas	2000-2001	Gas Distribution Depreciation Study
Texas	Public Utility Commission of Texas	20285	TXU	1999	Fuel Company Depreciation Study
Texas	Railroad Commission of Texas	8976	TXU Pipeline	1999	Pipeline Depreciation Study
Texas	Public Utility Commission of Texas	18490	TXU	1998	Transition to Competition
Texas	Public Utility Commission of Texas	16650	TXU	1997	Customer Complaint
Texas	Public Utility Commission of Texas	15195	TXU	1996	Mining Company Depreciation Study
Texas	Public Utility Commission of Texas	12160	TXU	1993	Fuel Company Depreciation Study
Texas	Public Utility Commission of Texas	11735	TXU	1993	Electric Depreciation Study

WORKPAPERS
TO
DIRECT TESTIMONY
OF
DANE A. WATSON

Workpapers to Direct Testimony of Dane A. Watson are voluminous and will be provided in electronic format.

- Accrual
- Actuarial Data Set
- Actuarial Runs
- Appendices
- Averages
- Interview Notes
- Net Salv
- RTU Data
- Software
- SPR Data Set
- SPR Plots
- SPR Runs

Accrual

Accrual Rate CenterPoint Electric @ 2022

Actuarial Data Set

CPT General Plant @ 2022

Actuarial Runs

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- G39001 P00-22 O00-22 SQ 19
- G39001 P17-22 O74-22 R3 52
- G39001 P17-22 O74-22 R3 53
- G39001 P17-22 O74-22 R3 55
- G39001 P70-22 O00-22 L5 32
- G39001 P70-22 O00-22 R3 40
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G39201 Rolling Band Least Square (SSQ)
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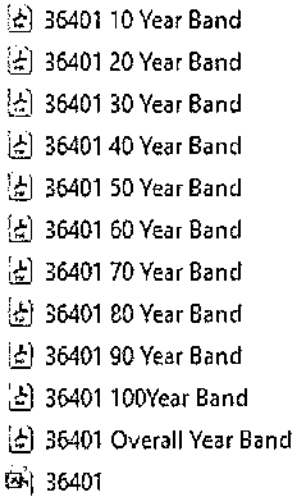
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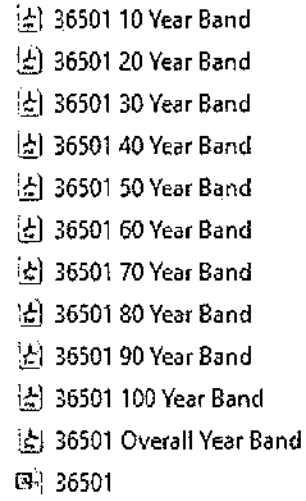
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PUC DOCKET NO. 56211

APPLICATION OF CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC FOR AUTHORITY TO CHANGE RATES	§ § §	PUBLIC UTILITY COMMISSION OF TEXAS

DIRECT TESTIMONY

OF

ANN E. BULKLEY

ON BEHALF OF

CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC

MARCH 2024

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LIST OF EXHIBITS

GLOSSARY OF ACRONYMS AND DEFINED TERMS

Acronym	Definition
ALJ	Administrative Law Judge
Ameren	Ameren Corporation
AEE	Ameren Corporation
Ameren IL	Ameren Illinois Co.
BYRP	Bond Yield Risk Premium
CAPM	Capital Asset Pricing Model
CenterPoint Houston	CenterPoint Energy Houston Electric, LLC
ComEd	Commonwealth Edison Co.
Court	U.S. Supreme Court
Commission	Public Utility Commission of Texas
Company	CenterPoint Energy Houston Electric, LLC
CNP	CenterPoint Energy, Inc.
CPI	Consumer Price Index
DCF	Discounted Cash Flow
DCRF	Distribution Cost Recovery Factor
ECAPM	Empirical Capital Asset Pricing Model
EPS	Earnings Per Share
ERCOT	Electric Reliability Council of Texas
Exelon	Exelon Corporation
EXC	Exelon Corporation
FOMC	Federal Open Market Committee
Fitch	Fitch Ratings
ICC	Illinois Commerce Commission

GLOSSARY OF ACRONYMS AND DEFINED TERMS

Moody's	Moody's Investors Service
Oncor	Oncor Electric Delivery Company
P/E	Price to Earnings
PNW	Pinnacle West Capital Corporation
PUCT	Public Utility Commission of Texas
PURA	Public Utility Regulatory Act
REP	Retail Electric Provider
Risk Premium	Bond Yield Risk Premium
ROE	Rate of Return on Equity
RRA	Regulatory Research Associates
S&P	Standard & Poor's
TCOS	Interim Transmission Cost of Service Adjustment
TEEEF	Temporary Emergency Electric Energy Facilities Rider
Test Year	12 Months Ending December 21, 2023
Value Line	Value Line Investment Survey
WACC	Weighted Average Cost of Capital
YOY	Year Over Year

EXECUTIVE SUMMARY OF ANN E. BULKLEY

My testimony presents evidence and provides a recommendation regarding CenterPoint Energy Houston Electric, LLC's ("CenterPoint Houston" or the "Company") rate of return on equity ("ROE") and also provides an assessment of the capital structure and cost of debt to be used for ratemaking purposes.

The estimation of the Company's ROE relies on several analytical approaches, which include the Constant Growth Discounted Cash Flow ("DCF") model, the Capital Asset Pricing Model ("CAPM"), Empirical Capital Asset Pricing Model ("ECAPM"), and a Bond Yield Risk Premium ("BYRP" or "Risk Premium") analysis, in reference to a proxy group of publicly traded companies. My analysis of the reasonableness of the capital structure is based on a comparison of the Company's proposed capital structure as compared with the capital structures of the operating utilities of the proxy group companies. Finally, in order to evaluate the cost of debt, I compared the cost of debt at the time of issuance with the yields on the Moody's Investors Service ("Moody's") utility bond indexes as of the date of the debt issuance.

In addition, I also considered the effect of recent capital market conditions on the cost of equity as compared to when the Company filed its last rate proceeding and as compared to the conditions at the time of the more recent Oncor Electric Delivery Company ("Oncor") rate proceeding. The results of that analysis demonstrate that interest rates have increased approximately 294 basis points higher than at the time of the Company's last rate case, when the authorized ROE was at 9.40 percent, and 300 basis points higher than at the time of the Oncor case, where the Commission authorized an ROE

of 9.70 percent. This data suggests that the cost of equity has increased since each of these rate determinations.

I also consider more broadly the expectation for interest rates, which have increased significantly over the past several years. The Federal Reserve has committed to the use of monetary policy, and in particular, higher interest rates, to reduce inflation to a target level of 2.00 percent. While inflation has receded from peak levels, recent macroeconomic reports demonstrate that the economy is stronger than anticipated, supporting the expectation that interest rates will remain relatively high.

The following summarizes my conclusions regarding the cost of capital for CenterPoint Houston:

- The model results support a range of returns from 10.00 percent to 11.00 percent and within that range, I recommend an ROE of 10.60 percent. However, as discussed in the Direct Testimony of Company witness Jason M. Ryan, taking into consideration the affordability for customers of the overall revenue requirement, the Company is requesting an ROE of 10.40 percent.
- CenterPoint Houston faces relatively greater financial risk relative to the proxy group due to the Company's proposed highly leveraged capital structure and capital investment plan.
- The Company's cost of debt is within the range established by market conditions at the time the debt was issued, and therefore is reasonable and should be authorized.

DIRECT TESTIMONY OF ANN E. BULKLEY

I. INTRODUCTION

Q: PLEASE STATE YOUR NAME AND AFFILIATION.

A. My name is Ann E. Bulkley. I am a Principal at The Brattle Group. My business address is One Beacon Street, Suite 2600, Boston, Massachusetts 02108.

Q: PLEASE DESCRIBE YOUR BACKGROUND AND PROFESSIONAL EXPERIENCE IN THE ENERGY AND UTILITY INDUSTRIES.

A. I hold a Bachelor's degree in Economics and Finance from Simmons College and a Master's degree in Economics from Boston University, and I have over 25 years of experience consulting to the energy industry. I have advised numerous energy and utility clients on a wide range of financial and economic issues with primary concentrations in valuation and utility rate matters. Many of these assignments have included the determination of the cost of capital for valuation and ratemaking purposes. My resume and a summary of testimony that I have filed in other proceedings are included as Exhibit AEB-1 to this testimony.

Q: ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCEEDING?

A. I am testifying on behalf of CenterPoint Houston.

Q: PLEASE DESCRIBE THE PURPOSE OF YOUR DIRECT TESTIMONY.

A. The purpose of my Direct Testimony is to present evidence and provide a recommendation regarding the appropriate ROE and overall rate of return to be used for CenterPoint Houston's electric utility operations. I also provide an assessment of the reasonableness of the proposed capital structure and cost of debt to be used for ratemaking purposes that is discussed in the Direct Testimony of Company witness Jacqueline M. Richert.

Q: ARE YOU SPONSORING ANY EXHIBITS IN SUPPORT OF YOUR DIRECT TESTIMONY?

A. Yes. My analyses and recommendations are supported by the data presented in Exhibit AEB-2 through Exhibit AEB-15.

Q: WAS YOUR TESTIMONY, INCLUDING ASSOCIATED SCHEDULES, WORKPAPERS, AND EXHIBITS, PREPARED BY YOU OR UNDER YOUR DIRECT SUPERVISION AND CONTROL?

A. Yes.

Q: IS YOUR TESTIMONY RELATED TO THE TESTIMONY OF OTHER WITNESSES IN THIS PROCEEDING?

A. Yes. My testimony regarding CenterPoint Houston's cost of capital is related to Ms. Richert's Direct Testimony, who supports CenterPoint Houston's capital structure and cost of long-term debt.

Q: PLEASE PROVIDE A BRIEF OVERVIEW OF THE ANALYSES THAT LEAD TO YOUR ROE RECOMMENDATION.

A. In developing my recommendation regarding the Company's proposed ROE in this proceeding, I have estimated the Company's cost of equity by applying several traditional estimation methodologies to a proxy group of utilities generally comparable to the Company in terms of risk and business operations. These estimation methodologies are the DCF model, the CAPM, the ECAPM, and a Risk Premium analysis. My recommendation also takes into consideration the Company's relative business and regulatory risk as compared with the proxy group; and the Company's proposed capital structure as compared with the capital structures of the operating utilities of the proxy

group companies. While I do not make specific adjustments to my ROE recommendation for these factors, I do consider these factors in the aggregate in determining where my recommended ROE falls within the range of the analytical results.

Q: HOW IS THE REMAINDER OF YOUR DIRECT TESTIMONY ORGANIZED?

A. The remainder of my Direct Testimony is organized as follows:

- Section II provides a summary of my analyses and conclusions.
- Section III reviews the regulatory guidelines pertinent to the development of the cost of capital.
- Section IV discusses current and prospective capital market conditions and the effect of those conditions on the Company's cost of equity.
- Section V explains my selection of a proxy group of electric utilities.
- Section VI describes my analyses and the analytical basis for my recommended ROE in this proceeding.
- Section VII provides a discussion of specific regulatory, business, and financial risks that have a direct bearing on the ROE to be authorized in this proceeding.
- Section VIII assesses the proposed capital structure.
- Section IX assesses the proposed cost of long-term debt.
- Section X presents my overall cost of equity model results and conclusions and recommendations.

II. SUMMARY OF ANALYSES AND CONCLUSIONS

Q: PLEASE SUMMARIZE THE KEY FACTORS CONSIDERED IN YOUR ANALYSES AND UPON WHICH YOU BASE YOUR RECOMMENDED ROE.

A. The key factors that I consider in my cost of equity analyses and recommended ROE for the Company in this proceeding are:

- The U.S. Supreme Court's ("Court") *Hope* and *Bluefield* decisions,[1] which established the standards for determining a fair and reasonable authorized ROE for public utilities, including consistency of the allowed return with the returns of other businesses having similar risk, adequacy of the return to provide access to capital and support credit quality, and the requirement that the result lead to just and reasonable rates.
- The effect of current and prospective capital market conditions on the cost of equity estimation models and on investors' return requirements.
- The results of several analytical approaches that provide estimates of the Company's cost of equity. Because the Company's authorized ROE should be a forward-looking estimate over the period during which the rates will be in effect, these analyses rely on forward-looking inputs and assumptions (*e.g.*, projected analyst growth rates in the DCF model, forecasted risk-free rate and market risk premium in the CAPM analysis).
- Although the companies in my proxy group are generally comparable to CenterPoint Houston, each company is unique, and no two companies have the exact same business and financial risk profiles. Accordingly, I consider the Company's regulatory, business, and financial risks relative to the proxy group of comparable companies in

[1] *Fed. Power Comm'n v. Hope Nat. Gas Co.*, 320 U.S. 591 (1944) ("*Hope*"); *Bluefield Waterworks & Imp. Co. v. Pub. Serv. Comm'n of W. Va.*, 262 U.S. 679 (1923) ("*Bluefield*").

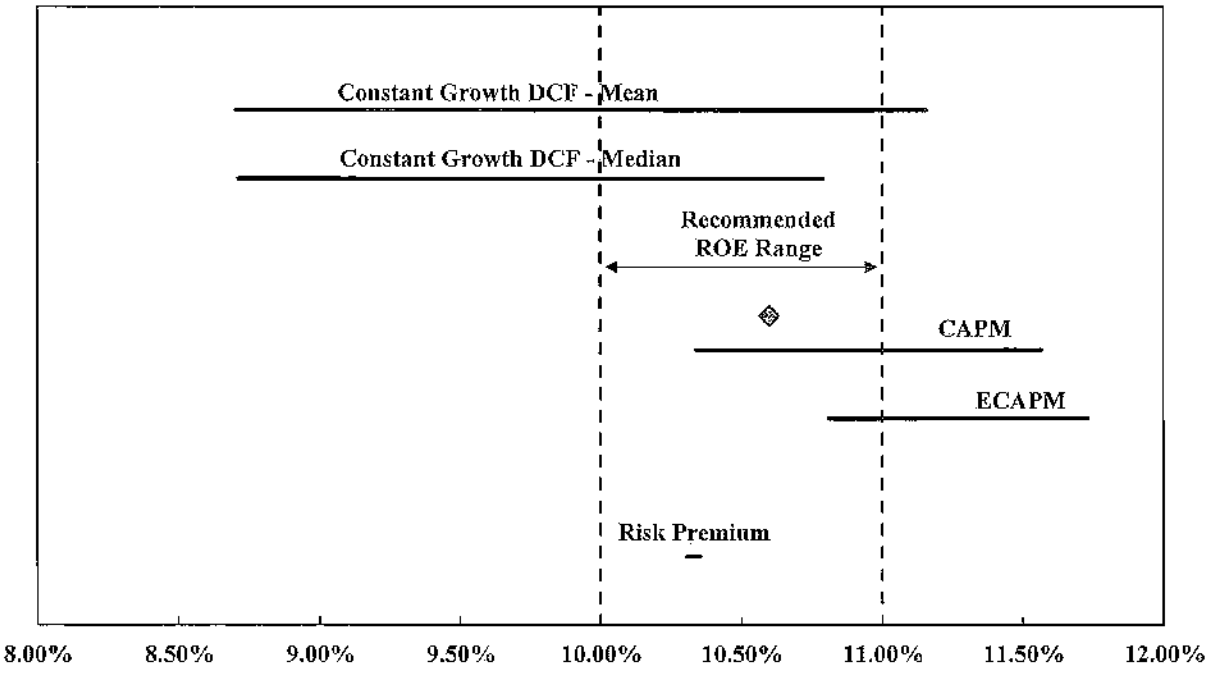
determining where the Company's ROE should fall within the reasonable range of analytical results to appropriately account for any residual differences in risk.

- Finally, I consider that the Company has significantly greater leverage (*i.e.*, debt) relative to the proxy group companies, which increases the Company's overall risk profile as compared with the proxy group.

Q: WHAT ARE THE RESULTS OF THE MODELS THAT YOU HAVE USED TO ESTIMATE THE COST OF EQUITY FOR CENTERPOINT HOUSTON?

A. Figure AEB-1 summarizes the range of results produced by the constant growth DCF, CAPM, ECAPM, and Risk Premium analyses based on data through January 2024.

Figure AEB-1: Summary of Analytical Results



As shown, the range of results across all methodologies is wide. While it is common to consider multiple models to estimate the cost of equity, it is particularly important when the range of results varies considerably across methodologies.

Q: ARE PROSPECTIVE CAPITAL MARKET CONDITIONS EXPECTED TO AFFECT THE RESULTS OF THE COST OF EQUITY ANALYSES FOR THE COMPANY DURING THE PERIOD IN WHICH THE RATES ESTABLISHED IN THIS PROCEEDING WILL BE IN EFFECT?

A. Yes. Capital market conditions are expected to affect the results of the cost of equity estimation models. Specifically:

- Long-term interest rates have increased substantially over the past two years and are expected to remain relatively high at least over the next year in response to inflation.
- Since (1) utility dividend yields are less attractive than the risk-free rates of government bonds; (2) interest rates are expected to remain near current levels over the next year, and (3) utility stock prices are inversely related to changes in interest rates; utility share prices may remain depressed.
- Rating agencies have responded to the risks of the utility sector, citing factors including elevated capital expenditures, interest rates, and inflation that create pressures for customer affordability and prompt rate recovery, and have noted the importance of regulatory support in their current outlooks.
- Similarly, equity analysts have noted the increased risk for the utility sector as a result of elevated interest rates and expect the sector to underperform in 2024.
- Consequently, it is important to consider that if utility share prices decline, the results of the DCF model, which rely on current utility share prices, would understate the cost of equity during the period that the Company's rates will be in effect.

It is appropriate to consider all of these factors when estimating a reasonable range of the investor-required cost of equity and the recommended ROE for the Company.

Q: WHAT IS YOUR RECOMMENDED ROE FOR CENTERPOINT HOUSTON IN THIS PROCEEDING?

A. Considering the analytical results of the cost of equity models, current and prospective capital market conditions, and the Company's regulatory, business, and financial risk relative to the proxy group, I recommend that an ROE in the range 10.00 to 11.00 percent is reasonable, and within that range, an ROE of 10.60 percent. As discussed in the Direct Testimony of Company witness Jason M. Ryan, taking into consideration the affordability for customers of the overall revenue requirement, the Company is requesting an ROE of 10.40 percent.

Q: WITH RESPECT TO THE CAPITAL STRUCTURE, WHAT OPTIONS ARE MOST OFTEN CONSIDERED BY UTILITY REGULATORY COMMISSIONS WHEN SETTING A REGULATED UTILITY'S CAPITAL STRUCTURE FOR RATEMAKING PURPOSES?

A. Commissions most often rely on the operating company's actual or projected capital structure per the financial books and records of the company when this capital structure is reflective of the way the company is operated and it is generally consistent with industry norms.

Q: HOW DOES THE COMPANY'S CAPITAL STRUCTURE AFFECT ITS OVERALL RISK PROFILE?

A. The Company's proposed capital structure is composed of 55.10 percent debt and 44.90 percent equity, which is much more highly leveraged than the average of the utility operating subsidiaries of the proxy group companies. As shown in Exhibit AEB-14, the mean and median equity ratios of the proxy group companies are 52.4 percent and 52.8

percent, respectively, and the high end of the range is 61.2 percent. As leverage increases, a company has less financial flexibility due to the need to service the fixed payments associated with its debt. This reduced financial flexibility results in greater financial risk for the company due to its lower overall coverage ratios. Further, higher leverage increases the risk to equity holders, which are the last claimants on company assets.

Q: IS THE COMPANY'S REQUESTED CAPITAL STRUCTURE REASONABLE?

A. The Company's proposed capital structure is within the range of the actual capital structures of the operating utilities of the proxy group companies. However, the Company's proposed capital structure is significantly more highly leveraged than the average of the operating utilities of the proxy group. As a result, the relatively greater leverage in the Company's capital structure results in the Company having greater overall financial risk than the proxy group companies, which is a consideration in terms of my recommended ROE for the Company in this proceeding.

Q: IS THE COMPANY'S PROPOSED COST OF LONG-TERM DEBT REASONABLE?

A. Yes. The Company's cost of debt for each issuance is consistent with the market cost of debt at the time of issuance and is thus reasonable.

III. REGULATORY GUIDELINES

Q: PLEASE DESCRIBE THE PRINCIPLES THAT GUIDE THE ESTABLISHMENT OF THE COST OF EQUITY FOR A REGULATED UTILITY.

A. The Court's precedent-setting *Hope* and *Bluefield* cases established the standards for determining the fairness or reasonableness of a utility's authorized ROE. Among the standards established by the Court in those cases are: (1) consistency with other businesses

having similar or comparable risks; (2) adequacy of the return to support credit quality and access to capital; and (3) that the end result, as opposed to the methodology employed, is the controlling factor in arriving at just and reasonable rates.[2]

Q: HAS THE COMMISSION PROVIDED SIMILAR GUIDANCE IN ESTABLISHING THE APPROPRIATE RETURN ON COMMON EQUITY?

A. Yes. The Commission follows the precedents of the *Hope* and *Bluefield* cases and acknowledges that utility investors are entitled to a reasonable opportunity to earn a reasonable return. The Commission's obligations for establishing a reasonable return are described in the Public Utility Regulatory Act ("PURA"):[3]

> In establishing an electric utility's rates, the regulatory authority shall establish the utility's overall revenues at an amount that will permit the utility a reasonable opportunity to earn a reasonable return on the utility's invested capital used and useful in providing service to the public in excess of the utility's reasonable and necessary operating expenses.[4]

Q: IS DETERMINING A FAIR RATE OF RETURN SOLELY TO PROTECT THE UTILITY'S INTERESTS?

A. No. As the Court noted in *Bluefield*, a proper rate of return not only assures "confidence in the financial soundness of the utility [but also] should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties."[5] As the Court went on to explain

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[2] *Hope*, 320 U.S. 591; *Bluefield*, 262 U.S. 679.

[3] PURA, Tex. Util. Code §§ 11.001–66.016.

[4] PURA § 36.051.

[5] *Bluefield*, 262 U.S. at 693.

in *Hope*, the rate-making process "involves a balancing of the investor and the consumer interests."[6]

Q: WHY IS IT IMPORTANT FOR A UTILITY TO BE ALLOWED THE OPPORTUNITY TO EARN A RETURN THAT IS ADEQUATE TO ATTRACT CAPITAL AT REASONABLE TERMS?

A. An authorized ROE that is adequate to attract capital at reasonable terms enables the utility to continue to provide safe, reliable utility service while maintaining its financial integrity. That return should be commensurate with returns required by investors elsewhere in the market for investments of comparable risk. It is important to recognize that equity investors have a choice of where to invest capital. If the utility's return is not adequate, debt and equity investors will seek alternative investment opportunities for which the expected return reflects the perceived risks, thereby inhibiting the Company's ability to attract capital at reasonable cost. This is of particular concern for the Company at this time given that: (1) its capital expenditure plan is significantly higher than its historical level of capital expenditures; (2) its capital expenditure plan is significantly higher than those of the proxy group companies as measured on the percentage of capital expenditures to net plant; and (3) the industry overall has significant needs for investment in capital, meaning there is competition for capital in the market.

Q: IS A UTILITY'S ABILITY TO ATTRACT CAPITAL ALSO AFFECTED BY THE ROES THAT ARE AUTHORIZED FOR OTHER UTILITIES?

A. Yes. Utilities compete directly for capital with other investments of similar risk, which include other utilities. Therefore, the ROE authorized for a utility sends an important signal

[6] *Hope*, 320 U.S. at 603.

to investors regarding whether there is regulatory support for financial integrity, dividends, growth, and fair compensation for business and financial risk. The cost of capital represents an opportunity cost to investors. If higher returns are available for other investments of comparable risk, over the same time period, investors have an incentive to direct their capital to those alternative investments. Thus, an authorized ROE that is not commensurate with authorized ROEs for other utilities can inhibit the utility's ability to attract capital for investment.

Q: WHAT IS THE STANDARD FOR SETTING THE ROE IN A JURISDICTION?

A. The stand-alone ratemaking principle is the foundation of jurisdictional ratemaking. This principle requires that the rates that are charged in any operating jurisdiction be for the costs incurred in that jurisdiction. The stand-alone ratemaking principle ensures that customers in each jurisdiction only pay for the costs of the service provided in that jurisdiction, which is not influenced by the business operations in other operating companies. In order to maintain this principle, the cost of equity analysis is performed for an individual operating company as a stand-alone entity.

Q: DOES THE FACT THAT THE COMPANY IS OWNED BY CENTERPOINT ENERGY, INC. ("CNP"), A PUBLICLY-TRADED COMPANY, AFFECT YOUR ANALYSIS?

A. No. In this proceeding, consistent with stand-alone ratemaking principles, it is appropriate to establish the cost of equity for the Company, not its publicly-traded parent, CNP. More importantly, however, it is appropriate to establish a cost of equity and capital structure that provide the Company the ability to attract capital on reasonable terms, both on a stand-alone basis and within CNP. While the Company is committed to investing the

required capital to provide safe and reliable service, because it is a subsidiary of CNP, the Company competes with the other CNP subsidiaries for discretionary investment capital. In determining how to allocate its finite discretionary capital resources, it would be reasonable for CNP to consider the overall equity return (*i.e.*, the combination of its authorized ROE and the equity ratio) of each of its subsidiaries.

Q: HAS THE COMMISSION CONSIDERED THE CAPITAL MARKET TRENDS AND THE IMPACT ON UTILITY RETURNS?

A. Yes. For example, in its 2023 order regarding Oncor, the Commission stated:

> After consideration of the record evidence, the Commission determines that a return on equity of 9.70% is appropriate for Oncor. Electric utilities face increasing inflation and less favorable short- and long-term interest rates than in recent years, which saw steady decreases in utility returns on equity.[7]

Therefore, the Commission has considered the macroeconomic trends and their impact on utility ROEs. This should also be an important consideration for the Commission in the current case, particularly since, as discussed in the next section, long-term interest rates have increased substantially since the data available when the Commission made its determination in the Oncor proceeding,[8] thereby increasing the cost of equity for utilities.

Q: IS THE REGULATORY FRAMEWORK, INCLUDING THE AUTHORIZED ROE AND EQUITY RATIO, IMPORTANT TO THE FINANCIAL COMMUNITY?

A. Yes. There are numerous examples in which utilities have experienced a negative market response related to the financial effects of a rate decision, including credit rating

[7] *Application of Oncor Electric Delivery Company LLC for Authority to Change Rates*, Docket No. 53601, Order on Rehearing at 11 (Jun. 30, 2023).

[8] Docket No. 53601, Rebuttal Testimony of Dylan W. D'Ascendis at 5, 7 (Sept. 16, 2022) (updating Oncor's ROE analyses as of August 12, 2022).

downgrades and material stock price declines. For example, the Company,[9] as well as ALLETE, Inc.[10] and Pinnacle West Capital Corporation ("PNW")[11] each received credit rating downgrades following rate case decisions in the past few years for reasons that included below average authorized ROEs. The most recent example is the decision by the Illinois Commerce Commission ("ICC") in mid-December 2023 that rejected the multiyear grid plan proposals of Ameren Illinois Co. ("Ameren IL") and Commonwealth Edison Co. ("ComEd") and authorized lower-than-expected ROEs for both utilities.[12] Specifically, the ICC authorized an ROE for Ameren IL of 8.72 percent[13] and 8.905 percent for ComEd,[14] which was a significant reduction from the Administrative Law Judge's recommendations of 9.24 percent and 9.28 percent, respectively.[15]

Q: HOW DID THE MARKET RESPOND TO THE ICC'S DECISIONS FOR THESE UTILITIES?

A. While the S&P 500 was increasing, the share prices of the parent companies of both Ameren IL and ComEd (*i.e.*, Ameren Corp. and Exelon Corp., respectively) each dropped

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[9] FitchRatings, *Fitch Downgrades CenterPoint Energy Houston Electric to BBB+; Affirms CNP; Outlooks Negative* (Feb. 19, 2020), https://www.fitchratings.com/research/corporate-finance/fitch-downgrades-centerpoint-energy-houston-electric-to-bbb-affirms-cnp-outlooks-negative-19-02-2020.

[10] Moody's Invs. Serv., *Credit Opinion: ALLETE, Inc.: Update following downgrade* at 3

[11] S&P Capital IQ Pro; FitchRatings, *Fitch Downgrades Pinnacle West Capital & Arizona Public Service to 'BBB+'; Outlooks Remain Negative* (Oct. 12, 2021), https://www.fitchratings.com/research/corporate-finance/fitch-downgrades-pinnacle-west-capital-arizona-public-service-to-bbb-outlooks-remain-negative-12-10-2021; Moody's Invs. Serv., *Rating Actions: Moody's downgrades Pinnacle West to Baa1 and Arizona Public Service to A3; outlook negative* (Nov. 17, 2021).

[12] *Ameren Illinois Company d/b/a Ameren Illinois Petition for Approval of a Multi-Year Rate Plan pursuant to 220 ILCS 5/16-108.18*, Ill. Com. Comm'n Docket No. 23-0082, Order (Dec. 14, 2023); *Commonwealth Edison Company Verified Petition for Approval of a Multi-Year Rate Plan under Section 16-108.18 of the Public Utilities Act*, Ill. Com. Comm'n Docket No. 23-0055, Order (Dec. 14, 2023).

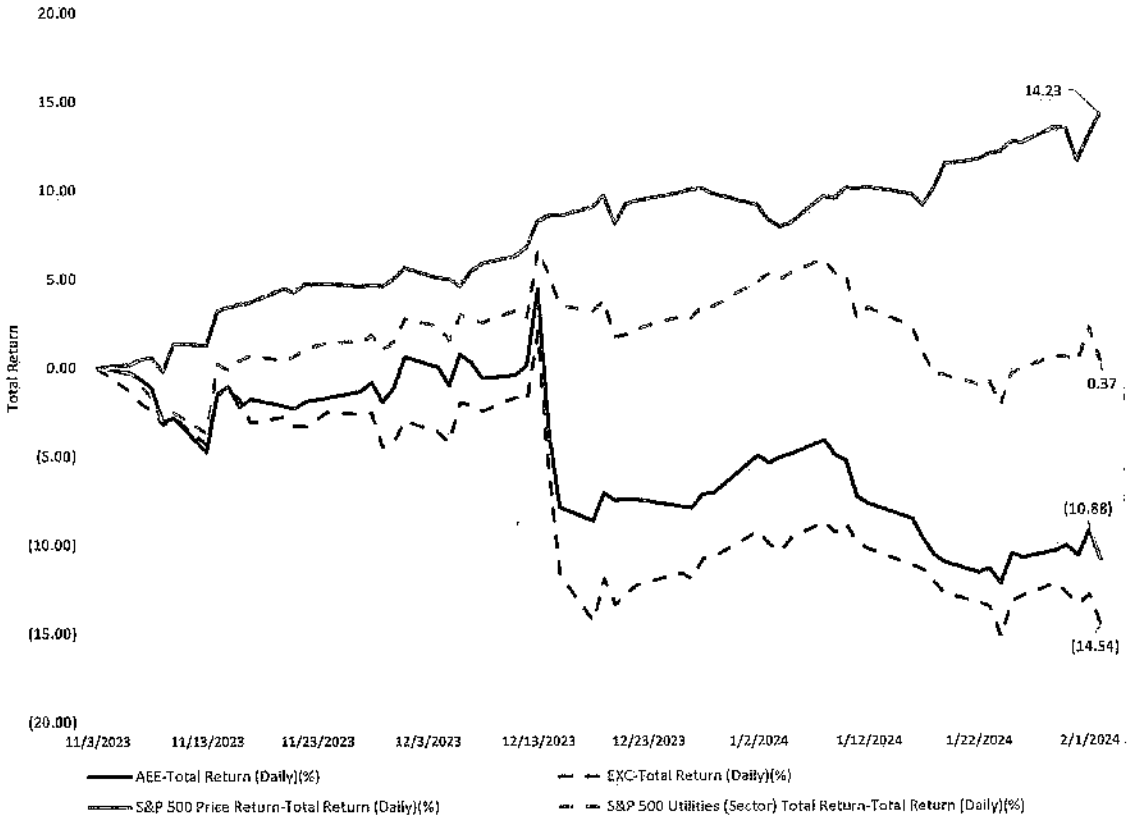
[13] Ill. Com. Comm'n Docket No. 23-0082, Order at 372, Findings and Ordering Paragraphs No. 6.

[14] Ill. Com. Comm'n Docket No. 23-0055, Order at 320, 470, Findings and Ordering Paragraphs No. 6.

[15] Allison Good, *Ameren, Exelon shares fall after Illinois regulators reject grid plans*, Platts (Dec. 15, 2023).

more than 7 percent on December 14, 2023, after the ICC's decision, and declined again by more than 4.4 percent and 6.4 percent the following day, respectively.[16] Further, as shown in Figure AEB-2**Error! Reference source not found.**, their stock prices have continued to underperform the S&P 500 Utilities index since that time.

Figure AEB-3: AEE and EXC Stock Price Performance following IL Rate Decisions



In addition, the reactions of equity analysts were universally negative, and questioned whether the parents of both Ameren IL and ComEd (*i.e.*, Ameren Corp. and Exelon Corp., respectively) will shift their capital spending out of the jurisdiction as a result of the uncertainty associated with the multiyear rate plan and low authorized ROEs. For example:

[16] Yahoo! Finance: Ameren Corporation (AEE) (Dec. 14, 2023); Yahoo! Finance: Exelon Corporation (EXC) (Dec. 14, 2023).

- Barclays characterized the ICC's ROE authorizations as "draconian" and "one of the lowest awarded in recent memory, especially in an elevated interest rate and cost of capital environment."[17] Barclays also stated it found it hard to believe utilities "can deploy capital under the same magnitude on the updated grid plans to be filed, especially under the current proposed ROE framework."[18]
- In its assessment of the impact on Exelon, the parent of ComEd, UBS stated that, "[t]he actions taken by the ICC today call into question, in our view, the regulatory backdrop in which EXC operates."[19]
- Wells Fargo stated that it was not mincing words, the ICC's orders were "onerous," and:

> We now view IL as one of the worst regulatory jurisdictions in the U.S. (nipping at CT's heels). We think the totality of the recent orders suggest that the regulatory balancing act between customers and investors is currently heavily skewed toward customers. As a result, we wonder if AEE & EXC will allocate capital away from IL. Keep in mind, IL represents ~25% of both AEE's & EXC's total rate base.[20]

- In its evaluation of Ameren IL, BofA Securities characterized the ICC's decision as "punitive" and stated that it was a surprise based on numerous conversations with investors that believed the ICC may authorize an ROE above the ALJ's recommendation, not substantially lower, and that the downside surprise was one of the biggest in recent memory for their regulated utility coverage.[21] While BofA

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[17] Barclays, *AEE/EXC: Coal Stocking-Stuffer in Illinois* (Dec. 14, 2023).

[18] *Id.*

[19] UBS, *First Read Exelon Corp., Negative Rate Case Outcome – Rating and PT Under Review* (Dec. 14, 2023).

[20] Wells Fargo, *The ICC Delivers a Lump of Coal for AEE & EXC* (Dec. 14, 2023).

[21] BofA Securities, *Ameren Corporation: Illinois delivers downside surprise* (Dec. 15, 2023).

Securities acknowledged that Ameren IL represents less than 20 percent of Ameren Corp.'s consolidated rate base, it will nonetheless need offsets or capital expenditures elsewhere in order to hit its earnings growth rate targets.[22]

- After the decisions, Guggenheim questioned, "Is Illinois Becoming the Next Connecticut?"[23] Guggenheim noted that investors questioned whether Illinois was "slowly becoming a CT-esque jurisdiction," and that equity and debt holders are going to be wary of Illinois as a jurisdiction going forward and that the ICC is "simply sending a negative message to investors."[24]
- Also, after the ICC's decisions, Regulatory Research Associates ("RRA") lowered its rating of the Illinois regulatory jurisdiction from Average/2 to Average/3 due to the "concerning pattern of restrictive" rate actions in the state.[25]

Q: WHAT ARE YOUR CONCLUSIONS REGARDING REGULATORY GUIDELINES?

A. The ratemaking process is premised on the principle that, in order for investors and companies to commit the capital needed to provide safe and reliable utility services, a utility must have a reasonable opportunity to recover the return of, and the market-required return on, its invested capital. Accordingly, the Commission's order in this proceeding should establish rates that provide the Company with a reasonable opportunity to earn an ROE that is: (1) adequate to attract capital at reasonable terms; (2) sufficient to ensure its

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[22] *Id.*

[23] Guggenheim, *IL: Is Illinois Becoming the Next Connecticut? To Be Determined, but Taking a Neutral Stance on the State* (Dec. 15, 2023).

[24] *Id.*

[25] RRA Regul. Focus, *Concerning pattern of restrictive Ill. Rate actions prompts rankings revision* (Dec. 18, 2023).

financial integrity; and (3) commensurate with returns on investments in enterprises with similar risk. It is important for the ROE authorized in this proceeding to take into consideration current and projected capital market conditions, as well as investors' expectations and requirements for both risks and returns. Because utility operations are capital-intensive, regulatory decisions should enable the utility to attract capital at reasonable terms under a variety of economic and financial market conditions. Providing the opportunity to earn a market-based cost of capital supports the financial integrity of the Company, which is in the best interest of both customers and shareholders.

IV. CAPITAL MARKET CONDITIONS

Q: WHY IS IT IMPORTANT TO ANALYZE CAPITAL MARKET CONDITIONS?

A. The models used to estimate the cost of equity rely on market data and thus the results of those models can be affected by prevailing market conditions at the time the analysis is performed. While the ROE established in a rate proceeding is intended to be forward-looking, the analyst uses current and projected market data, including stock prices, dividends, growth rates, and interest rates in the cost of equity estimation models to estimate the investor-required return for the subject company.

Analysts and regulatory commissions recognize that current market conditions affect the results of the cost of equity estimation models. As a result, it is important to consider the effect of the market conditions on these models when determining an appropriate range for the ROE, and the ROE to be used for ratemaking purposes for a future period. If investors do not expect current market conditions to be sustained in the future, it is possible that the cost of equity estimation models will not provide an accurate estimate

of investors' required return during that rate period. Therefore, it is very important to consider projected market data to estimate the return for that forward-looking period.

Q: WHAT FACTORS ARE AFFECTING THE COST OF EQUITY FOR REGULATED UTILITIES IN THE CURRENT AND PROSPECTIVE CAPITAL MARKETS?

A. The cost of equity for regulated utility companies is affected by several factors in the current and prospective capital markets, including: (1) changes in monetary policy; (2) relatively high inflation; and (3) increased interest rates that are expected to remain relatively high over the next few years. These factors affect the assumptions used in the cost of equity estimation models.

A. Inflationary Expectations in Current and Projected Capital Market Conditions

Q: WHAT HAS THE LEVEL OF INFLATION BEEN OVER THE PAST FEW YEARS?

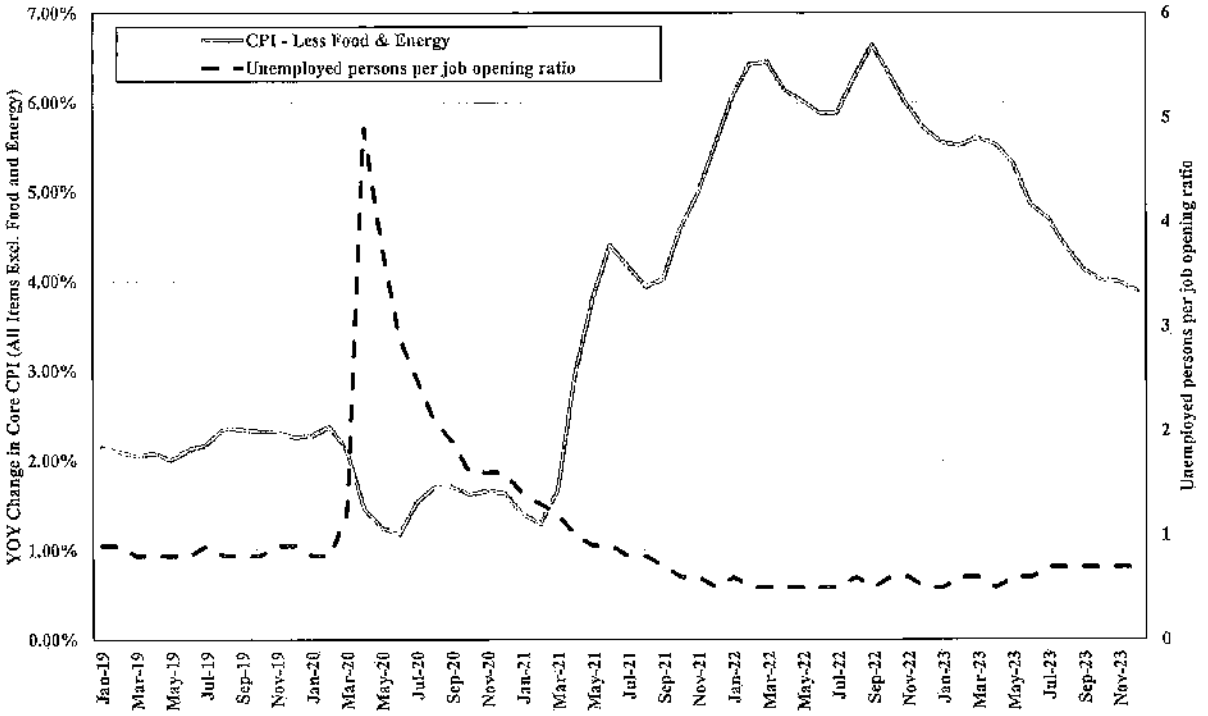
A. As shown in Figure AEB-4, core inflation increased steadily beginning in early 2021, rising from 1.41 percent in January 2021 to a high of 6.64 percent in September 2022. This was the largest 12-month increase since 1982.[26] While core inflation has declined in response to the Federal Reserve's monetary policy since September 2022, it continues to remain above the Federal Reserve's target level of 2.0 percent.

In addition, as shown in Figure AEB-4, I have also considered the ratio of unemployed persons per job opening, which is currently 0.7 and has been consistently

[26] Figure AEB-4 presents the year-over-year ("YOY") change in core inflation, as measured by the Consumer Price Index ("CPI") excluding food and energy prices as published by the Bureau of Labor Statistics. I considered core inflation because it is the preferred inflation indicator of the Federal Reserve for determining the direction of monetary policy. Core inflation is preferred by the Federal Reserve because it removes the effect of food and energy prices, which can be highly volatile and unpredictable.

below 1.0 since 2021, despite the Federal Reserve's accelerated policy normalization. This metric indicates sustained strength in the labor market. Further, the January 2024 jobs report showed that the U.S economy added 353,000 jobs in that month, which was significantly higher than the expectation, demonstrating the strength of the economy.[27] Given the Federal Reserve's dual mandate of maximum employment and price stability, the continued increased levels of core inflation coupled with the strength in the labor market has resulted in the Federal Reserve's sustained focus on the priority of reducing inflation.

Figure AEB-4: Core Inflation and Unemployed Persons-to-Job Openings, January 2019 to January 2024[28]



[27] CNN Business, *Another shockingly good jobs report shows America's economy is booming* (Feb. 2, 2024), https://www.cnn.com/business/live-news/jobs-report-january-02-02-24/index.html.

[28] Bureau of Labor Statistics.

Q: WHAT ARE THE EXPECTATIONS FOR INFLATION OVER THE NEAR-TERM?

A. The Federal Reserve has indicated that it expects inflation will remain elevated above its target level until 2026 and that the extent to which it maintains the restrictive monetary policy will depend on market indicators going forward. For example, Federal Reserve Chair Powell at the Federal Open Market Committee ("FOMC") meeting on December 13, 2023 observed that while inflation is off of its recent highs, it remains too high and noted that further policy firming is possible based on the data:

> Today, we decided to leave our policy interest rate unchanged and to continue to reduce our securities holdings. Given how far we have come, along with the uncertainties and risks that we face, the Committee is proceeding carefully. We will make decisions about the extent of any additional policy firming and how long policy will remain restrictive based on the totality of the incoming data, the evolving outlook, and the balance of risks.[29]

Chair Powell reiterated that the FOMC was committed to bringing inflation down to the 2 percent target level, and that while the easing of inflation has been good news, it is currently projected to take until 2026 to reach the Federal Reserve's target of 2.0 percent:

> Inflation has eased over the past year but remains above our longer-run goal of 2 percent. Based on the Consumer Price Index and other data, we estimate that total PCE [*Personal Consumption Expenditures*] prices rose 2.6 percent over the 12 months ending in November; and that, excluding the volatile food and energy categories, core PCE prices rose 3.1 percent. The lower inflation readings over the past several months are welcome, but we will need to see further evidence to build confidence that inflation is moving down sustainably toward our goal. Longer-term inflation expectations appear to remain well anchored, as reflected in a broad range of surveys of households, businesses, and forecasters, as well as measures from financial markets. As is evident from the SEP [*Summary of Economic Projections*], we anticipate that the process of getting inflation all the way to 2 percent will take some time. The median

[29] Bd. of Governors of the Fed. Rsrv. Sys., *Transcript of Chair Powell's Press Conference* at 1 (Dec. 13, 2023).

> projection in the SEP is 2.8 percent this year, falls to 2.4 percent next year, and reaches 2 percent in 2026.[30]

Chair Powell noted that the FOMC members project a gradual decline in the federal funds rates over time, although they remain cautious and leave open the possibility of further monetary policy tightening as required:

> While we believe that our policy rate is likely at or near its peak for this tightening cycle, the economy has surprised forecasters in many ways since the pandemic, and ongoing progress toward our 2 percent inflation objective is not assured. We are prepared to tighten policy further if appropriate. We are committed to achieving a stance of monetary policy that is sufficiently restrictive to bring inflation sustainably down to 2 percent over time, and to keeping policy restrictive until we are confident that inflation is on a path to that objective.
>
> In our SEP, FOMC participants wrote down their individual assessments of an appropriate path for the federal funds rate based on what each participant judges to be the most likely scenario going forward. While participants do not view it as likely to be appropriate to raise interest rates further, neither do they want to take the possibility off the table. If the economy evolves as projected, the median participant projects that the appropriate level of the federal funds rate will be 4.6 percent at the end of 2024, 3.6 percent at the end of 2025, and 2.9 percent at the end of 2026, still above the median longer-term rate. These projections are not a Committee decision or plan; if the economy does not evolve as projected, the path for policy will adjust as appropriate to foster our maximum employment and price stability goals.[31]

On January 31, 2024, the FOMC concluded their meeting with a unanimous decision to leave the federal funds rate unchanged. In his speech following that meeting, Chair Powell indicated that inflation was still too high and added that a March cut is "not the most likely" or "base case" scenario.[32] Since that time, the following data has been released demonstrating the unexpected strength in the U.S. economy:

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[30] *Id.* at 2-3.

[31] *Id.* at 3-4.

[32] Bd. of Governors of the Fed. Rsrv. Sys., *Transcript of Chair Powell's Press Conference* at 16 (Jan. 31, 2024).

- Gross Domestic Product increased in the fourth quarter of 2023 by 3.3 percent, which exceeded the expectation of 2.0 percent. This followed an increase of 4.9 percent in the third quarter of the year.[33]
- U.S. employers added 353,000 jobs in January, far exceeding forecasts. Further, revised 2023 data indicated that 2023 was stronger than previously reported.[34]
- The unemployment rate remained at 3.7 percent, and has been below 4.0 percent for 24 months.[35]
- Average hourly earnings increased 0.6 percent in January 2024, up 4.5 percent year-over-year.[36]

Therefore, it is clear that the timing and nature of any cuts are speculative at this time.

B. The Use of Monetary Policy to Address Inflation

Q: WHAT POLICY ACTIONS HAS THE FEDERAL RESERVE ENACTED TO RESPOND TO INCREASED INFLATION?

A. The dramatic increase in inflation has prompted the Federal Reserve to pursue an aggressive normalization of monetary policy, removing the accommodative policy programs used to mitigate the economic effects of COVID-19. Beginning in March 2022 and through May 3, 2023, the Federal Reserve increased the target federal funds rate through a series of increases from a range of 0.00–0.50 percent to a range of 5.00 percent to 5.25 percent.[37] Further, as noted above, while the Federal Reserve acknowledges that inflation has declined from its peak, it still is well above the Federal Reserve's target of 2 percent. Therefore, the Federal Reserve anticipates the continued need to maintain the

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[33] *See, e.g.*, Jeff Cox, *The U.S. economy grew at a blistering 3.3% pace in Q4 while inflation pulled back*, CNBC (Jan. 25, 2024).

[34] *See, e.g.*, Lydia DePillis, *Job Market Starts 2024 With a Bang*, N.Y. Times (Feb. 2, 2024), https://www.nytimes.com/2024/02/02/business/economy/jobs-report-january-2024.html.

[35] *Id.*

[36] *Id.*

[37] Bd. of Governors of the Fed. Rsrv. Sys., *Policy Tools: Open Market Operations*, https://www.federalreserve.gov/monetarypolicy/openmarket.htm (last visited Feb. 11, 2024).

federal funds rate at a restrictive level in order to achieve its goal of 2 percent inflation over the long-run.

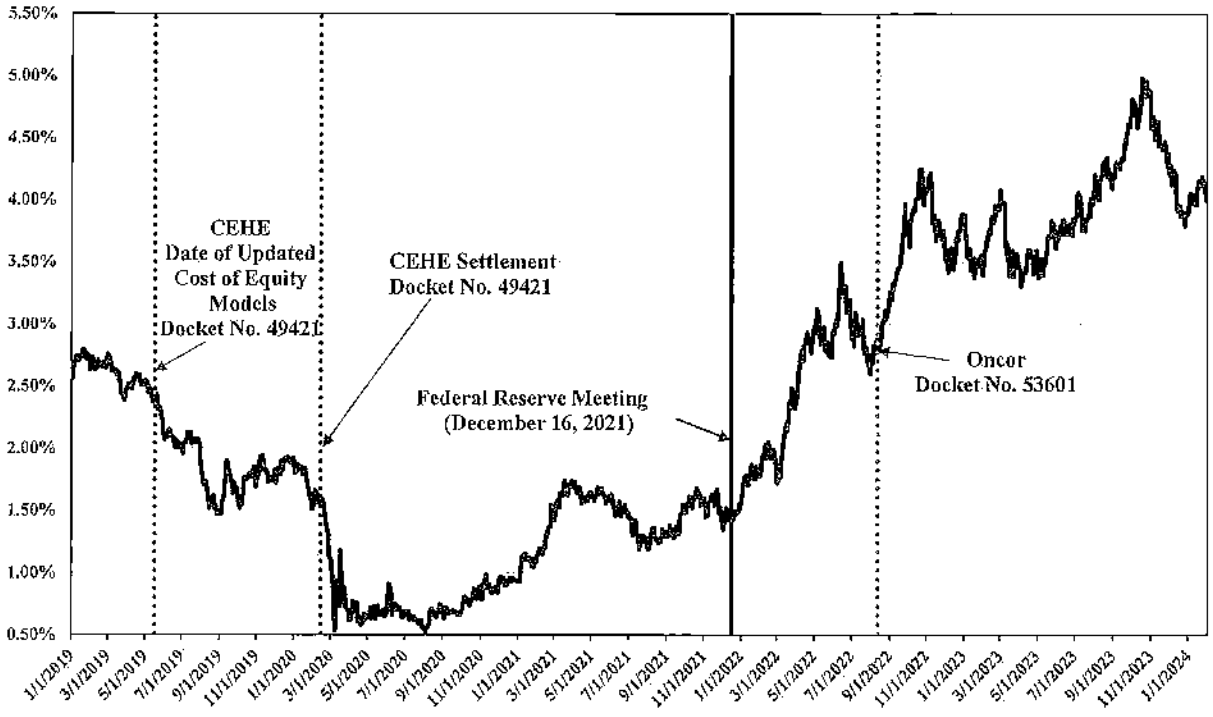
C. The Effect of Inflation and Monetary Policy on Interest Rates and the Investor-Required Return

Q: HAVE YIELDS ON LONG-TERM GOVERNMENT BONDS INCREASED IN RESPONSE TO INFLATION AND THE FEDERAL RESERVE'S NORMALIZATION OF MONETARY POLICY?

A. Yes. As the Federal Reserve has substantially increased the federal funds rate and decreased its holdings of Treasury bonds and mortgage-backed securities in response to increased levels of inflation, longer-term interest rates have also increased. As shown in Figure AEB-5, since the Federal Reserve's December 2021 meeting, the yield on 10-year Treasury bonds has nearly tripled, increasing from 1.47 percent on December 15, 2021 to 3.99 percent at the end of January 2024. Similarly, the yield on the 10-year Treasury bond has also increased substantially since (1) the Company's updated cost of equity analyses were conducted in its last rate proceeding; (2) the Commission approved the settlement in that case; and (3) Oncor's rebuttal testimony in Docket No. 53601.[38] Inflation and the Federal Reserve's normalization of monetary policy are expected to result in long-term interest rates remaining relatively high over at least the next year.

[38] Docket No. 53601, Rebuttal Testimony of Dylan W. D'Ascendis at 5, 7 (Sept. 16, 2022) (updating Oncor's ROE analyses as of August 12, 2022).

Figure AEB-5: 10-Year Treasury Bond Yield, January 2019 – January 2024[39]



Specifically, as shown in Figure AEB-6, the 30-year Treasury bond yield averaged approximately 3.0 percent at the time the Company filed its updated cost of equity analyses in its 2019 rate proceeding, as well as when Oncor updated its cost of equity analyses in its 2022 rate proceeding. However, since both of those proceedings, long-term interest rates have increased substantially to 4.19 percent, or an increase of approximately 120 basis points. As discussed, as a result of the Federal Reserve's monetary policy of substantially increasing short-term interest rates, core inflation has declined since the Commission's decision on the settlements in the last rate proceeding, although inflation remains above the Federal Reserve's long-term target value of 2.0 percent.

[39] S&P Capital IQ Pro.

Figure AEB-6: Change in Market Conditions Since the Company's Last Rate Case

Docket	Date	Federal Funds Rate	30-Day Avg of 30-Year Treasury Bond Yield	Core Inflation Rate	Auth'd ROE
Docket No. 49421	5/17/2019	2.39%	2.92%	2.01%	9.40%
Docket No. 53601	8/12/2022	2.33%	3.08%	6.30%	9.70%
Current	1/31/2024	5.33%	4.19%	3.90%	

Q: WHAT HAVE EQUITY ANALYSTS SAID ABOUT LONG-TERM GOVERNMENT BOND YIELDS?

A. Leading equity analysts have noted that they expect the yields on long-term government bonds to remain elevated. For example, in the most recent Big Money poll released by *Barron's* in October 2023, which surveys money managers regarding the outlook for the next twelve months, two-thirds of the money managers surveyed expect the yield on the 10-year Treasury bond to be at least 4.50 percent in October 2024.[40] Similarly, according to the *Blue Chip Financial Forecasts* report, the consensus estimate of the average yields on the 10-year and 30-year Treasury bonds are approximately 3.80 percent and 4.00 percent, respectively, through the second quarter of 2025.[41] Therefore, investors expect interest rates to remain elevated for at least the next 15 months. As a result, it is reasonable to expect that if government bond yields remain elevated, the cost of equity will remain materially higher than at the time of the Company's last rate proceeding.

[40] Nicholas Jasinski, *Big Money Pros Are Split on the Outlook for Stocks. But They Are Fans of Bonds*, Barron's (Oct. 27, 2023), https://www.barrons.com/articles/big-money-poll-stock-market-bonds-economy-outlook-375aebae.

[41] 43(2) Blue Chip Fin. Forecasts at 2 (Feb. 1, 2024).

D. Expected Performance of Utility Stocks and the Investor-Required Return on Utility Investments

Q: ARE UTILITY SHARE PRICES CORRELATED TO CHANGES IN THE YIELDS ON LONG-TERM GOVERNMENT BONDS?

A. Yes. Interest rates and utility share prices are inversely correlated which means, for example, that an increase in interest rates will result in a decline in the share prices of utilities. For example, Goldman Sachs and Deutsche Bank examined the sensitivity of share prices of different industries to changes in interest rates over the past five years. Both Goldman Sachs and Deutsche Bank found that utilities had one of the strongest negative relationships with bond yields (*i.e.*, increases in bond yields resulted in the decline of utility share prices).[42]

Q: HOW DID THE UTILITY SECTOR PERFORM IN 2023?

A. As interest rates increased substantially in 2023, the valuations of utilities declined substantially. From January 1, 2023 through January, 2024, the S&P 500 Index increased approximately 25.9 percent, while the S&P 500 Utilities Index decreased by approximately 13.8 percent.[43]

Q: HOW DO EQUITY ANALYSTS EXPECT THE UTILITIES SECTOR TO PERFORM IN 2024?

A. Equity analysts have recently projected the continued underperformance of the utility sector. For example, Fidelity Investments classifies the utility sector as underweight,[44] and

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[42] Justina Lee, *Wall Street Is Rethinking the Treasury Threat to Big Tech Stocks*, Bloomberg.com (Mar. 11, 2021), https://www.bloomberg.com/news/articles/2021-03-11/wall-street-is-rethinking-the-treasury-threat-to-big-tech-stocks.

[43] S&P Capital IQ Pro.

[44] Fid. Invs., *Fourth Quarter 2023: Investment Research Update* (Oct. 19, 2023).

Bank of America recently noted that they are "not so constructive on [u]tilities" given that the dividend yields for utilities are below both the yields available on long- and short-term treasury bonds.[45] Moreover, the professional investors surveyed by *Barron's* in its most recent Big Money poll selected the utility sector as one of the four equity sectors that they liked the least over the next twelve months, indicating they are projecting that utilities will underperform the broader market in 2024.[46]

Q: WHY DO EQUITY ANALYSTS EXPECT THE UTILITY SECTOR TO UNDERPERFORM OVER THE NEAR-TERM?

A. Equity analysts expect the utility sector to continue to underperform given that utility dividend yields remain lower than the yields on long-term government bonds. To illustrate this point, I examined the difference between the dividend yields of utility stocks and the yields on long-term government bonds from January 2010 through January 2024 ("yield spread"). I selected the dividend yield on the S&P Utilities Index as the measure of the dividend yields for the utility sector and the yield on the 10-year Treasury bond as the estimate of the yield on long-term government bonds.

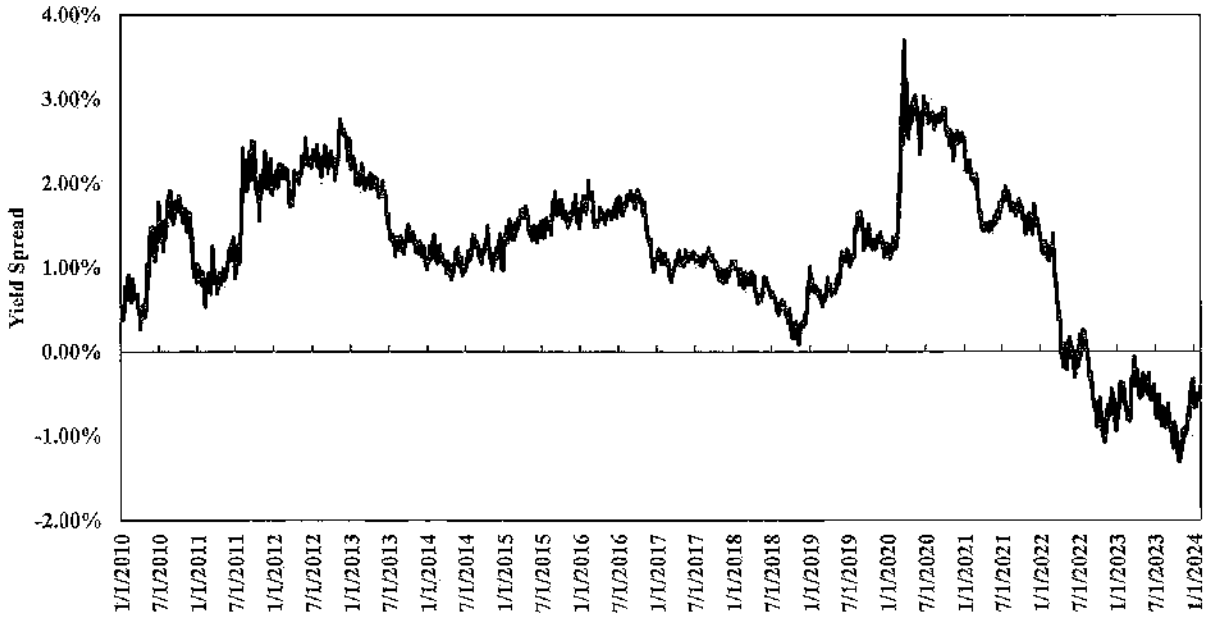
As shown in Figure AEB-7, the recent significant increase in long-term government bonds yields has resulted in the yield on long-term government bonds exceeding the dividend yields of utilities. Specifically, the yield spread as of January 31, 2024 was negative 0.42 percent, meaning that the yield on the 10-year Treasury bond exceeds the dividend yield for the S&P Utilities Index. However, the long-term average yield spread

[45] Julien Dumoulin-Smith *et al.*, *US Electric Utilities & IPPs: As the leaves fall, preparing for Autumn utility outlook. Macro still has potholes, BofA Securities* (Sept. 6, 2023).

[46] Nicholas Jasinski, *Big Money Pros Are Split on the Outlook for Stocks. But They Are Fans of Bonds*, Barron's (Oct. 27, 2023), https://www.barrons.com/articles/big-money-poll-stock-market-bonds-economy-outlook-375acbae.

from 2010 to January 2024 is 1.21 percent. Therefore, the current yield spread is well below the long-term average. Because of the fact that the yield spread is currently well below the long-term average, and the expectation that interest rates will remain relatively high through at least the next year, it is reasonable to conclude that the utility sector may continue to underperform in 2024. This is because investors that purchased utility stocks as an alternative to the lower yields on long-term government bonds would otherwise be inclined to rotate into government bonds given the yields on long-term government bonds remain elevated and higher than utility dividend yields, thus resulting in a decrease in the share prices of utilities.

Figure AEB-7: Spread between the S&P Utilities Index Dividend Yield and the 10-year Treasury Bond Yield, January 2010 – January 2024[47]



[47] S&P Capital IQ Pro; Bloomberg Professional.

E. Conclusion of Capital Market Conditions

Q: WHAT ARE YOUR CONCLUSIONS REGARDING THE EFFECT OF CURRENT MARKET CONDITIONS ON THE COST OF EQUITY FOR THE COMPANY?

A. Due to their impact on the cost of equity, it is important that current and projected market conditions be considered in setting the forward-looking ROE in this proceeding. The combination of persistently high inflation and the Federal Reserve's changes in monetary policy that have increased interest rates indicate that the cost of equity has increased since the Company's last rate proceeding given that (1) there is a strong historical inverse correlation between interest rates (*i.e.*, yields on long-term government bonds) and the share prices of utility stocks (*i.e.*, as interest rates increase, utility share prices decline, and thus utility dividend yields increase); and (2) the yields on long-term government bonds currently exceed the dividend yields of utilities, when historically long-term government bond yields have been lower than the dividend yields of utilities. Because the cost of equity has increased since the Company's last rate proceeding, cost of equity estimates based in whole or in part on historical or current market conditions, as opposed to projected market conditions, may understate the cost of equity during the future period that the Company's rates will be in effect. Therefore, these current and expected market conditions support the Commission's consideration of the higher end of the range of cost of equity results produced by the DCF models, and warrant consideration of forward-looking cost of equity estimation models such as the CAPM and ECAPM that better reflect expected market conditions.

V. PROXY GROUP SELECTION

Q: PLEASE PROVIDE A BRIEF PROFILE OF CENTERPOINT HOUSTON.

A. CenterPoint Houston is an electric transmission and distribution company that is an indirect wholly owned subsidiary of CNP. CenterPoint Houston transmits and distributes electricity on behalf of 65 retail electric providers ("REP") to approximately 2.76 million metered customers in the Houston/Galveston metropolitan area near the Texas gulf coast.[48] CenterPoint Houston currently is rated BBB+ (outlook: Stable) by S&P,[49] Baa1 (outlook: Stable) by Moody's,[50] and BBB+ (outlook: Stable) by FitchRatings.[51]

Q: PLEASE DESCRIBE CNP.

A. CNP is a public utility holding company with indirect, wholly owned subsidiaries that own and operate electric generation, transmission, and distribution facilities, as well as natural gas distribution facilities, in various states across the U.S. CNP currently has an investment grade long-term rating of BBB+ (Outlook: Stable) from S&P, Baa2 (Outlook: Stable) from Moody's, [52] and BBB by FitchRatings.[53]

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[48] CenterPoint Energy, Inc., Annual Report (Form 10-K) (Feb. 20, 2024).

[49] S&P Rating as of April 26, 2023.

[50] Moody's long-term issuer rating as of January 11, 2024.

[51] FitchRatings as of August 15, 2023.

[52] S&P Capital IQ Pro, rating as of February 1, 2019; Moody's Investors Service, long-term issuer rating as of December 3, 2020, last update to credit analysis October 12, 2023.

[53] FitchRatings, *Fitch Affirms CenterPoint Energy, CEHE and CERC; Outlook Stable* (Aug. 15, 2023), https://www.fitchratings.com/research/corporate-finance/fitch-affirms-centerpoint-energy-cehe-cerc-outlook-stable-15-08-2023.

Q: WHY HAVE YOU USED A GROUP OF PROXY COMPANIES TO ESTIMATE THE COST OF EQUITY FOR THE COMPANY?

A. In this proceeding, the cost of equity is being estimated for an electric utility company that is not itself publicly traded. Because the cost of equity is a market-based concept and because CenterPoint Houston's operations do not make up the entirety of a publicly-traded entity, it is necessary to establish a group of companies that is both publicly traded and comparable to the Company in certain fundamental business and financial respects to serve as its "proxy" for purposes of estimating the cost of equity.

Even if CenterPoint Houston were a publicly-traded entity, it is possible that transitory events could bias its market value over a given period. A significant benefit of using a proxy group is that it mitigates the effects of anomalous events that may be associated with any one company. The proxy companies used in my analyses all possess a set of operating and financial risk characteristics that are substantially comparable to CenterPoint Houston, and, therefore, provide a reasonable basis to estimate the appropriate cost of equity for the Company.

Q: HOW DO YOU SELECT THE COMPANIES IN YOUR PROXY GROUP?

A. I have developed a set of screening criteria to select a proxy group of companies that align with the financial and operational characteristics of CenterPoint Houston and that investors would view as comparable to the Company. I began with the group of 36 companies that *Value Line Investment Survey* ("*Value Line*") classifies as Electric Utilities and applied the following screening criteria to select companies that:

- pay consistent quarterly cash dividends because such companies can be analyzed using the constant growth DCF model;

- have investment grade long-term issuer ratings from S&P and/or Moody's;
- are covered by at least two utility industry analysts;
- have positive long-term earnings growth forecasts from at least two utility industry equity analysts;
- derive more than 60.00 percent of their total operating income from regulated operations;
- derive more than 80.00 percent of their total regulated operating income from regulated electric operations; and
- were not parties to a merger or transformative transaction during the analytical periods relied on or did not have a material event that would have affected the market data for the company.

Q: HOW DID YOU DETERMINE THAT THESE ARE THE APPROPRIATE SCREENING CRITERIA TO APPLY TO YOUR INITIAL LIST OF VALUE LINE ELECTRIC UTILITIES?

A. The screening criteria and thresholds for each screen are widely-used in the regulated utility industry. They are designed to ensure that the proxy group is of sufficient size to generate a reasonable cost of equity measurement and to ensure that the individual proxy group companies are comparable in business and financial risk to the utility whose rates are at issue.

Q: WHAT IS THE COMPOSITION OF YOUR PROXY GROUP?

A. The screening criteria just discussed results in a proxy group consisting of the companies shown in Figure AEB-8 (and also in Exhibit AEB-3).

Figure AEB-8: Proxy Group

Company	Ticker
ALLETE, Inc.	ALE
Alliant Energy Corporation	LNT
Ameren Corporation	AEE
American Electric Power Company, Inc.	AEP
Duke Energy Corporation	DUK
Edison International	EIX
Entergy Corporation	ETR
Eversource Energy	ES
Evergy, Inc.	EVRG
IDACORP, Inc.	IDA
NextEra Energy, Inc.	NEE
NorthWestern Corporation	NWE
OGE Energy Corporation	OGE
Pinnacle West Capital Corporation	PNW
Portland General Electric Company	POR
Xcel Energy Inc.	XEL

VI. COST OF EQUITY ESTIMATION

Q: PLEASE BRIEFLY DISCUSS THE ROE IN THE CONTEXT OF A REGULATED RATE OF RETURN.

A. The overall rate of return for a regulated utility is the weighted average cost of capital, in which the cost rates of the individual sources of capital are weighted by their respective book values. The ROE is the cost of common equity capital in the utility's capital structure for ratemaking purposes. While the costs of debt and preferred stock can be directly observed, the cost of equity is market-based and, therefore, must be estimated based on observable market data.

Q: HOW IS THE REQUIRED COST OF EQUITY DETERMINED?

A. The required cost of equity is estimated by using analytical techniques that rely on market-based data to quantify investor expectations regarding equity returns, adjusted for

certain incremental costs and risks. Informed judgment is then applied to determine where the Company's cost of equity falls within the range of results produced by multiple analytical techniques. The key consideration in determining the cost of equity is to ensure that the methodologies employed reasonably reflect investors' views of the financial markets in general, as well as the subject company in the context of the proxy group, in particular.

Q: WHAT METHODS DO YOU USE TO ESTABLISH YOUR RECOMMENDED ROE IN THIS PROCEEDING?

A. I consider the results of the constant growth DCF model, the CAPM model, the ECAPM model, and a BYRP approach. Each of these methodologies are explained briefly below and in more detail in Appendix A. A reasonable cost of equity estimate appropriately considers alternative methodologies and the reasonableness of their individual and collective results.

Q: WHY IS IT IMPORTANT TO USE MORE THAN ONE ANALYTICAL APPROACH TO ESTIMATE THE COST OF EQUITY?

A. Because the cost of equity is not directly observable, it must be estimated based on both quantitative and qualitative information. When faced with the task of estimating the cost of equity, analysts and investors are inclined to gather and evaluate as much relevant data as reasonably can be analyzed. Several models have been developed to estimate the cost of equity, and I use multiple approaches to estimate the cost of equity. As a practical matter, however, all of the models available for estimating the cost of equity are subject to limiting assumptions or other methodological constraints. Consequently, many well-regarded finance texts recommend using multiple approaches when estimating the

cost of equity. For example, Copeland, Koller, and Murrin[54] suggest using the CAPM and Arbitrage Pricing Theory model, while Brigham and Gapenski[55] recommend the CAPM, DCF, and BYRP approaches.

Q: IS IT IMPORTANT GIVEN CURRENT MARKET CONDITIONS TO USE MORE THAN ONE ANALYTICAL APPROACH?

A. Yes. As discussed previously, interest rates have increased substantially over the past two years and are expected to remain elevated over at least the next year from the lows seen during the COVID-19 pandemic. While the share prices of utilities have declined, the negative yield spread is an indication that utility share prices have not declined sufficiently to account for the recent rise in interest rates. As a result, equity analysts expect the utility sector to continue to underperform over the next year, and thus it is reasonable to conclude that the DCF model is likely understating the forward-looking cost of equity because the model relies on historical share prices to calculate the dividend yield.

These recent changes in market conditions highlight the benefit of using multiple models since each model relies on different assumptions, certain of which better reflect current and projected market conditions at different times. As discussed previously, the CAPM, ECAPM, and BYRP analyses offer some balance through the use of projected market data. Accordingly, it is important to use multiple analytical approaches to ensure that the cost of equity results reflect market conditions that are expected during the period when the Company's rates will be in effect.

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[54] Tom Copeland et al., *Valuation: Measuring and Managing the Value of Companies* at 214 (McKinsey & Co., Inc., 3d ed. 2000).

[55] Eugene F. Brigham & Louis C. Gapenski, *Financial Management: Theory and Practice* at 341 (Dryden Press 1994).

Q: HAS THE COMMISSION CONSIDERED THE RESULTS OF MULTIPLE COST OF EQUITY ESTIMATION MODELS IN DETERMINING AN APPROPRIATE ROE?

A. Yes. For example, when determining the cost of equity for Oncor in its most recent rate case, the Commission found that the results of the DCF model, the Risk Premium approach, and the CAPM supported the ROE that was ultimately approved by the Commission.[56]

Q: PLEASE BRIEFLY DESCRIBE THE DCF APPROACH.

A. The DCF approach is based on the theory that a stock's current price represents the present value of all expected future cash flows. In the constant growth DCF, the cost of equity is defined as the sum of the expected dividend yield and the expected long-term growth rate that is assumed in perpetuity. To reduce the long-term growth rate to a single measure, one must assume that the payout ratio remains constant and that earnings per share, dividends per share, and book value per share all grow at the same constant rate. However, over the long run, dividend growth can only be sustained by earnings growth. Therefore, it is important to consider a variety of sources in arriving at a single projected long-term earnings growth rate for the constant growth DCF model.[57]

Q: PLEASE BRIEFLY DESCRIBE THE CAPM.

A. The CAPM is a risk premium approach that estimates the cost of equity for a given security as the sum of a risk-free rate of return plus a risk premium to compensate investors for the non-diversifiable or "systematic" risk of that security. Systematic risk is the risk inherent

[56] Docket No. 53601, Order on Rehearing, Finding of Fact No. 186 (Jun. 30, 2023).

[57] As discussed in Appendix A, the constant growth DCF model requires the following four assumptions: (1) a constant growth rate for earnings and dividends; (2) a stable dividend payout ratio; (3) a constant price-to-earnings ("P/E") ratio; and (4) a discount rate greater than the expected growth rate. To the extent that any of these assumptions are violated, considered judgment and/or specific adjustments should be applied to the results.

in the entire market or market segment, which cannot be diversified away using a portfolio of assets. Unsystematic risk is the risk of a specific company that can theoretically be mitigated through portfolio diversification. According to the theory underlying the CAPM, because unsystematic risk can be diversified away, investors should only be concerned with systematic or non-diversifiable risk. In the CAPM, non-diversifiable risk is measured by a beta coefficient, which represents the risk of the security relative to the general market. Therefore, the CAPM is defined as the sum of a risk-free rate of return plus the beta coefficient multiplied by the market risk premium, which is further defined as the expected market return less the risk-free rate.

Q: DID YOU CONSIDER ANOTHER FORM OF THE CAPM IN YOUR ANALYSIS?

A. Yes. I have also considered the results of an ECAPM analysis. The ECAPM calculates the product of the beta coefficient and the market risk premium and applies a weight of 75.00 percent to that result. The model then applies a 25.00 percent weight to the market risk premium without any effect from the beta coefficient. In essence, the ECAPM addresses the tendency of the "traditional" CAPM to underestimate the cost of equity for companies with low beta coefficients such as regulated utilities. In that regard, the ECAPM is not redundant to the use of adjusted betas in the traditional CAPM; rather, it recognizes the results of academic research indicating that the risk-return relationship is different (in essence, flatter) than estimated by the CAPM, and that the CAPM underestimates the "alpha," or the constant return term.

Q: PLEASE DESCRIBE THE BYRP APPROACH.

A. In general terms, this approach is based on the fundamental principle that equity investors bear the residual risk associated with equity ownership and therefore require a premium

over the return they would have earned as bondholders. In other words, because returns to equity holders have greater risk than returns to bondholders, equity investors must be compensated to bear that risk. Thus, risk premium approaches estimate the cost of equity as the sum of the yield on a particular class of bonds and the equity risk premium. In my analysis, I use actual authorized returns for electric utilities as the historical measure of the cost of equity to determine the risk premium. When the authorized ROEs for electric utilities serve as the measure of required equity returns and the yield on the long-term U.S. Treasury bond is defined as the relevant measure of interest rates, the risk premium is the difference between those two points.[58]

It is important to recognize both academic literature and market evidence indicating that the equity risk premium is inversely related to the level of interest rates (*i.e.*, as interest rates increase, the equity risk premium decreases, and vice versa). Consequently, it is important to develop an analysis that: (1) reflects the inverse relationship between interest rates and the equity risk premium; and (2) relies on recent and expected market conditions.

Q: WHAT ARE THE RESULTS OF YOUR COST OF EQUITY ANALYSES?

A. Figure AEB-9 summarizes the results of my cost of equity analyses.

[58] *See, e.g.*, S. Keith Berry, *Interest Rate Risk and Utility Risk Premia during 1982-93*, 19(2) Managerial & Decision Econ. 127 (Mar. 1998) (the author used a similar methodology, including using authorized ROEs as the relevant data source, and came to similar conclusions regarding the inverse relationship between risk premia and interest rates); *see also* Robert S. Harris, *Using Analysts' Growth Forecasts to Estimate Shareholder Required Rates of Return*, 15 Fin. Mgmt. 58, 66 (1986).

Figure AEB-9: Summary of Analytical Results

	Constant Growth DCF		
	Minimum Growth Rate	Average Growth Rate	Maximum Growth Rate
Mean Results:			
30-Day Average	8.68%	9.92%	11.13%
90-Day Average	8.78%	10.02%	11.23%
180-Day Average	8.65%	9.89%	11.10%
Average	8.70%	9.94%	11.15%
Median Results:			
30-Day Average	8.70%	9.75%	10.84%
90-Day Average	8.80%	9.86%	10.90%
180-Day Average	8.63%	9.69%	10.63%
Average	8.71%	9.77%	10.79%

	CAPM / ECAPM / Bond Yield Risk Premium		
	30-Year Treasury Bond Yield		
	Current 30-Day Avg	Near-Term Projected	Longer-Term Projected
CAPM:			
Value Line Beta	11.57%	11.56%	11.56%
Bloomberg Beta	10.61%	10.59%	10.59%
Long-term Avg. Beta	10.36%	10.34%	10.34%
ECAPM:			
Value Line Beta	11.73%	11.72%	11.72%
Bloomberg Beta	11.01%	11.00%	11.00%
Long-term Avg. Beta	10.83%	10.81%	10.81%
Bond Yield Risk Premium	10.36%	10.31%	10.31%

Q: HAVE REGULATORY COMMISSIONS ACKNOWLEDGED THAT THE DCF MODEL MIGHT UNDERSTATE THE COST OF EQUITY GIVEN THE CURRENT CAPITAL MARKET CONDITIONS OF HIGH INFLATION AND ELEVATED INTEREST RATES?

A. Yes. For example, in its May 2022 decision establishing the cost of equity for Aqua Pennsylvania, Inc., the Pennsylvania Public Utility Commission concluded that the current capital market conditions of high inflation and increased interest rates has resulted in the

DCF model understating the utility cost of equity, and that weight should be placed on risk premium models, such as the CAPM, in the determination of the ROE:

> To help control rising inflation, the Federal Open Market Committee has signaled that it is ending its policies designed to maintain low interest rates. Aqua Exc. At 9. Because the DCF model does not directly account for interest rates, consequently, it is slow to respond to interest rate changes. However, I&E's CAPM model uses forecasted yields on ten-year Treasury bonds, and accordingly, its methodology captures forward looking changes in interest rates.
>
> Therefore, our methodology for determining Aqua's ROE shall utilize both I&E's DCF and CAPM methodologies. As noted above, the Commission recognizes the importance of informed judgment and information provided by other ROE models. In the 2012 PPL Order, the Commission considered PPL's CAPM and RP methods, tempered by informed judgment, instead of DCF-only results. We conclude that methodologies other than the DCF can be used as a check upon the reasonableness of the DCF derived ROE calculation. Historically, we have relied primarily upon the DCF methodology in arriving at ROE determinations and have utilized the results of the CAPM as a check upon the reasonableness of the DCF derived equity return. As such, where evidence based on other methods suggests that the DCF-only results may understate the utility's ROE, we will consider those other methods, to some degree, in determining the appropriate range of reasonableness for our equity return determination. In light of the above, we shall determine an appropriate ROE for Aqua using informed judgement based on I&E's DCF and CAPM methodologies.[59]
>
> .....
>
> We have previously determined, above, that we shall utilize I&E's DCF and CAPM methodologies. I&E's DCF and CAPM produce a range of reasonableness for the ROE in this proceeding from 8.90% [DCF] to 9.89% [CAPM]. Based upon our informed judgment, which includes consideration of a variety of factors, including increasing inflation leading to increases in interest rates and capital costs since the rate filing, we determine that a base ROE of 9.75% is reasonable and appropriate for Aqua.[60]

Similarly, the Massachusetts Department of Public Utilities in a recent rate case for NSTAR Electric Company concluded that given the recent increase in interest rates there

[59] *Pennsylvania Public Utility Commission Bureau of Investigation and Enforcement v. Aqua Pennsylvania, Inc.*, Pa. Pub. Util. Comm'n Docket Nos. R-2021-3027385 and R-2021-3027386 (consol.), Opinion and Order at 154-155 (May 12, 2022).

[60] *Id.* at 177–178.

was "greater certainty" that the results of the DCF model were understating the cost of equity for the utility.[61]

Q: ARE THERE OTHER FACTORS THAT SHOULD BE CONSIDERED IN ESTIMATING THE MARKET COST OF EQUITY?

A. Yes. Consistent with what is done in determining the cost of debt, it is reasonable and appropriate to consider flotation costs in determining the cost of equity. Flotation costs are the costs associated with the sale of new issues of common stock. These costs include out-of-pocket expenditures for preparation, filing, underwriting, and other issuance costs. Flotation costs are part of the invested costs of the utility, which are properly reflected on the balance sheet under "paid in capital." They are not current expenses, and, therefore, are not reflected on the income statement. Rather, like investments in rate base or the issuance costs of long-term debt, flotation costs are incurred over time. As a result, the great majority of a utility's flotation cost is incurred prior to the test year but remains part of the cost structure that exists during the test year and beyond, and as such, should be recognized for ratemaking purposes.

Q: IS THE COMPANY REQUESTING RECOVERY OF FLOTATION COSTS IN THE ROE?

A. No. While the recovery of these costs is consistent with financial theory and provides the Company an opportunity to earn its authorized ROE, the Company recognizes that the Commission has not authorized the recovery of these costs in prior cases and is therefore not requesting recovery of flotation costs in this proceeding.

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[61] *Petition of NSTAR Electric Company, doing business as Eversource Energy, pursuant to G.L. c. 164, § 94 and 220 CMR 5.00, for Approval of a General Increase in Base Distribution Rates for Electric Service and a Performance-Based Ratemaking Plan*, Mass. Dep't of Pub. Utils. Docket No. D.P.U. 22-22, Order at 385–386 (Nov. 30, 2022).

VII. REGULATORY AND BUSINESS RISKS

Q: DO THE RESULTS OF THE COST OF EQUITY ANALYSES ALONE PROVIDE AN APPROPRIATE ESTIMATE OF THE COST OF EQUITY FOR THE COMPANY?

A. No. The model results provide only a range of the appropriate estimate of CenterPoint Houston's cost of equity. Several additional factors must be considered when determining where the Company's cost of equity falls within the range of analytical results. These risk factors, discussed below, should be considered with respect to their overall effect on the Company's risk profile relative to the proxy group.

A. Capital Expenditures

Q: PLEASE SUMMARIZE THE COMPANY'S CAPITAL EXPENDITURE REQUIREMENTS.

A. The Company's current projection of capital expenditures for 2024 through 2028 totals approximately $12.8 billion,[62] which represents approximately 114 percent of the Company's approximate $11.2 billion in net utility plant as of December 31, 2022.[63]

Q: HOW DO CENTERPOINT HOUSTON'S CAPITAL EXPENDITURE REQUIREMENTS COMPARE TO THOSE OF THE PROXY GROUP COMPANIES?

A. As shown in Exhibit AEB-10, I have calculated the ratio of expected capital expenditures to net utility plant for CenterPoint Houston and each of the companies in the proxy group by dividing each company's projected capital expenditures for the period 2024-2028 by its

[62] CenterPoint Energy, Inc., Annual Report (Form 10-K) at 62 (Feb 20, 2024).

[63] CenterPoint Energy, Inc., Annual Report (Form 10-K) at 109 (Feb 17, 2023).

total net utility plant as of December 31, 2022. As shown, CenterPoint Houston's ratio of capital expenditures as a percentage of net utility plant is significantly higher than all of the proxy group companies.

Q: HOW IS THE COMPANY'S RISK PROFILE AFFECTED BY ITS SUBSTANTIAL CAPITAL EXPENDITURE REQUIREMENTS?

A. As with any utility faced with substantial capital expenditure requirements, the Company's risk profile may be adversely affected in two significant and related ways: (1) the heightened level of investment increases the risk of under-recovery or delayed recovery of the invested capital; and (2) an inadequate return would put downward pressure on key credit metrics.

Q: DO CREDIT RATING AGENCIES RECOGNIZE THE RISKS ASSOCIATED WITH ELEVATED LEVELS OF CAPITAL EXPENDITURES?

A. Yes. From a credit perspective, the additional pressure on cash flows associated with high levels of capital expenditures exerts corresponding pressure on credit metrics and, therefore, credit ratings. To that point, S&P explains the importance of regulatory support for a significant amount of capital projects:

> When applicable, a jurisdiction's willingness to support large capital projects with cash during construction is an important aspect ofour analysis. This is especially true when the project represents a major addition to rate base and entails long lead times and technological risks that make it susceptible to construction delays. Broad support for all capital spending is the most credit-sustaining. Support for only specific types of capital spending, such as specific environmental projects or system integrity plans, is less so, but still favorable for creditors. Allowance of a cash return on construction work-in-progress or similar ratemaking methods historically were extraordinary measures for use in unusual circumstances, but when construction costs are rising, cash flow support could be crucial to maintain credit quality through the spending program. Even more favorable are those jurisdictions

> that present an opportunity for a higher return on capital projects as an incentive to investors.[64]

Recently, S&P evaluated the capital expenditure trends in the utility sector, noting that the balance between operating with negative discretionary cash flow from operations offset by reliable access to capital markets for financing may be tested through ever-increasing capital expenditure requirements as a result of the transformation of the energy sector through the focus on low/no carbon generation, electrification, and the replacement of aging infrastructure:

> Some companies have been unable to support financial metrics consistent with former ratings as their discretionary cash flow deteriorated. This trend was a significant contributor to the sector seeing the median rating decline to 'BBB+' from 'A-' for the first time in 2022. What is less clear is whether or not management teams will take steps to forestall another step down in credit quality as high capital outlays persist. So far in 2023, we have not seen evidence that equity issuance is keeping pace with debt issuance to fill ever-deepening discretionary cash flow shortfalls, but time will tell.
>
> .....
>
> Despite the improvement in the economic outlook, we expect inflation, high interest rates, higher capital spending, and the strategic decision by many companies to operate with only minimal financial cushion from their downgrade thresholds to continue to pressure the industry's credit quality. We are cautious about the durability of the current stable ratings outlook given persistently high capital spending that now supports a trend of deterioration in discretionary cash flow. Without a commensurate focus on balance sheet preservation through equity support of discretionary cash flow deficits, limited financial cushions could give rise to another round of negative rating actions. The question then comes back to management priorities and financial policy decisions, or utilities may be faced with another step down in the median ratings. [65]

CenterPoint Houston has a stable outlook from the credit rating agencies, and Moody's has noted the significant capital investment plans for the Company and the need to issue a

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[64] S&P Glob. Ratings, *Assessing U.S. Investor-Owned Utility Regulatory Environments* at 7 (Aug. 10, 2016)[CONFIDENTIAL].

[65] S&P Glob. Ratings, *Record CapEx Fuels Growth Along With Credit Risk For North American Investor-Owned Utilities* at 5, 7–8 (Sept. 12, 2023)[CONFIDENTIAL].