Page 3 of 23

- 1 July of 1999 and retired in April 2022.
- Since the early 1990s, I have specialized in the public utility industry and have completed numerous consulting engagements for electric and gas utilities. My areas of expertise include strategic and business planning, benchmarking, regulatory strategy and rate case support, program management, and organizational and operations improvement. Additional details regarding my educational background and professional experience can be found in Exhibit RDS-1.
- 8

9 Q8. DO YOU HAVE PRIOR EXPERIENCE IN PERFORMING BENCHMARKING 10 COMPARISONS OF UTILITY OPERATIONS?

- A. Yes. I have performed numerous benchmarking comparisons of financial and
 operational performance metrics, including retail rates, and Operation and
 Maintenance ("O&M") expense for both electric and gas utilities.
- 14

15 Q9. HAVE YOU TESTIFIED BEFORE ANY REGULATORY AUTHORITIES?

16 Α. Yes. I testified before the Public Utility Commission of Texas ("Commission") in 17 Docket No. 43695, and filed testimony in Docket Nos. 40824, 42004, 45524, 18 47527, 49831, and 51802 on behalf of Southwestern Public Service Company, 19 regarding O&M and capital benchmarking analyses. I also filed rebuttal testimony 20 in Docket 51611 on behalf of Sharyland Utilities, L.L.C. ("Sharyland") regarding 21 an intervenor benchmarking analysis of Sharyland's total O&M expense. I filed 22 testimony at the North Dakota Public Service Commission in Case Nos. PU-12-23 813, PU-13-706, PU-13-707, PU-13-708, PU-13-742, PU-13-743, PU-13-194, and

1	PU-13-195, on behalf of Northern States Power Company, a Minnesota
2	corporation, regarding its proposed Resource Treatment Framework. I also
3	testified before the New Mexico Public Regulation Commission, on behalf of
4	Public Service Company of New Mexico ("PNM"), in Case No. 18-00261-UT
5	regarding the estimated costs and benefits of PNM's participation in the Western
6	Energy Imbalance Market and filed testimony in Case No. 10-00086-UT regarding
7	PNM's capital and O&M budgeting processes.

8

9 II. ASSIGNMENT AND SUMMARY OF TESTIMONY AND CONCLUSIONS

10 Q10. WHAT IS YOUR ASSIGNMENT IN THIS PROCEEDING?

11 A. I provide benchmark data that demonstrates the affordability and reasonableness of 12 The purpose of my direct testimony is to describe the ETI's retail rates. 13 benchmarking analysis completed by ScottMadden on behalf of ETI. Based on this 14 analysis, I also provide my perspectives on ETI's relative performance compared 15 to other utilities in Texas, the investor-owned utility members of SERC Reliability 16 Corporation ("SERC"), and other utilities across the United States, on several retail 17 pricing measures. My analysis uses publicly available data taken from Form 1 18 reports filed by individual utilities with the Federal Energy Regulatory Commission 19 ("FERC") (with two exceptions that I discuss later in my testimony), as well as a 20 report published by the Edison Electric Institute ("EEI").

Q11. PLEASE SUMMARIZE THE CONCLUSIONS YOU REACH AS A RESULT OF YOUR ANALYSES.

A. Based on my benchmarking analysis, I conclude that during the period 2017
through 2021,¹ ETI's average retail prices have generally been lower (i.e., more
affordable), than the average retail prices of the other utilities in the national and
SERC/Texas peer groups. In particular:

- a. ETI's total average price for retail electricity has remained consistently in
 the top quartile for the national and SERC_Texas peer groups throughout
 the 2017 to 2021 time period. ETI's average prices for the residential,
 commercial, industrial, and other customer classes were also consistently at
 or near the top quartile for the national and the SERC_Texas peer groups
 throughout the 2017 to 2020 period.
- b. Only in 2021 were ETI's residential and commercial average prices between the top quartile and the median of the national peer group. ETI's commercial average price was in the top quartile of the SERC_Texas peer group in 2021. ETI's residential average price was slightly above the median of the SERC_Texas peer group in 2021. ETI's 2021 average prices for the other customer classes were at or near the top quartile for both peer groups.
- 20 c. The results of the EEI survey are consistent with the results of the FERC
 21 Form 1 benchmarking analysis on nearly every measure, ETI's retail rates

FERC Form 1s for the previous calendar year must be filed on or before April 18th of the following year. For example, the FERC Form 1s for 2021 were filed on or before April 18, 2022. Thus, 2021 data was the most recent FERC Form 1 data available for the purposes of this analysis.

1		were lower (i.e., more favorable to customers) than those of the other
2		utilities in the SERC_Texas peer group.
3		
4	Q12.	WERE EXHIBITS RDS-1 THROUGH RDS-5 PREPARED BY YOU OR
5		UNDER YOUR DIRECT SUPERVISION AND CONTROL?
6	A.	Yes.
7		
8	11	I. ANALYTICAL APPROACH FOR THE BENCHMARKING STUDY
9	Q13.	PLEASE DESCRIBE THE NATURE OF THE ANALYSIS THAT YOU
10		PERFORMED IN YOUR BENCHMARKING STUDY.
11	A.	I evaluated a number of retail pricing measures to assess the efficiency of ETI's
12		operations and quality of management. For each metric, I benchmarked ETI's
13		relative performance to other utilities in the SERC_Texas region and the United
14		States.
15		
16	Q14.	PLEASE DESCRIBE WHAT YOU MEAN BY "BENCHMARKING."
17	A.	Benchmarking is a commonly used methodology for comparing a utility's
18		performance in a specific area (e.g., prices, costs, or reliability) to that of other
19		similar utilities or peers. Process benchmarking is often used by companies to
20		evaluate various aspects of their operational or management processes in relation
21		to best practices, usually within their own industry sector. Performance
22		benchmarking is used to quantitatively compare a company's results for a particular
23		financial or operational measure against the results for a group of peers.

Q15. HOW SHOULD THE RESULTS OF THIS BENCHMARKING STUDY BE INTERPRETED?

A. Favorable benchmarking results for a utility, particularly over time, can be an
indicator that the utility's underlying management processes and actions regarding
the area being analyzed have been effective. Where benchmarking results indicate
that performance levels are unfavorable, additional analysis can also be conducted
to help determine the causes of the performance gaps.

8

9 Q16. WHAT ARE THE TYPICAL SOURCES OF BENCHMARKING DATA?

10 A. Data used for benchmarking usually comes from publicly available data sources or 11 through proprietary surveys and research. For utilities, publicly available data can 12 be obtained through required regulatory filings with the FERC (e.g., FERC Form 1 13 reports). This data can be gathered individually or through service providers that 14 compile and sell this information in a variety of formats. The benefit of FERC 15 Form 1 data is that the information can be traced back to a specific filing and 16 company. This provides for a consistent, objective, and independent data source 17 that allows for the inclusion of specific companies in a peer group by compiling the 18 associated data from each company.

Factors that can impact the validity of a benchmarking analysis include the comparability of the data inputs used in the benchmark calculations and the comparability of the companies used in the peer groups. It is not uncommon for different utilities to track and report operating statistics and/or costs in different ways—or to interpret reporting requirements differently—even when complying

with standardized reporting formats such as those required by the FERC Uniform
 System of Accounts. As a result, care must be exercised when selecting data
 sources for benchmarking analyses and when interpreting the results of those
 analyses.

5

6 Q17. WHAT WAS THE SOURCE FOR THE DATA USED IN THIS7 BENCHMARKING ANALYSIS?

A. The operational and financial data used in my benchmarking analysis was obtained
from publicly available FERC Form 1 filings made by regulated electric utility
companies and diversified utility companies for the period 2017 through 2021, as
well as company websites.² FERC Form 1 reports are among the most complete
data sources on financial and operating statistics available to the public concerning
individual electric utilities.

The data source utilized for FERC Form 1 data is S&P Global, Inc. ("S&P"), a well-respected industry information and research firm covering a number of business sectors including electric utilities. S&P collects, standardizes, and disseminates a wide variety of electric utility operating and financial statistics including FERC Form 1 data. S&P replicates all of the major schedules of the FERC Form 1 for every filer, and provides query tools to easily pull the information into spreadsheets for analysis, comparison, and benchmarking purposes.

² Information regarding Bear Valley Electric Service in Big Bear Lake, California, including the number of customers, was not available in the FERC Form 1 information. As a proxy, ScottMadden used information shown on a fact sheet on the company's web site. Similarly, the number of customers was not available for Dahlberg Light & Power Company in Solon Springs, Wisconsin. However, this information was included on the company's web site.

Q18. WHAT CRITERIA DID YOU UTILIZE TO SELECT THE COMPANIES MAKING UP THE NATIONAL AND SERC_TEXAS PEER GROUPS?

3 Α. As described earlier, the quality, or relevance, of any particular benchmarking study 4 is dependent on the characteristics, or similarities, of the companies populating the 5 peer groups. When conducting a benchmarking analysis, one wants the peer groups 6 populated with companies with similar characteristics to ensure reliable results. 7 Restructuring of the industry has resulted in a variety of operating models (e.g., generation-only companies, transmission-only companies, etc.), ownership 8 9 models (e.g., municipals, cooperatives, investor-owned utilities, etc.), and corporate structures (e.g., holding companies, service company affiliates, etc.). ETI 10 11 is a vertically integrated, investor-owned utility with generation, transmission, and 12 distribution assets serving a predominantly retail end-use customer base. Given 13 these challenges, ScottMadden employed the following process in the selection of 14 peer group companies to help ensure similarities in characteristics of the national 15 and Texas peer groups to ETI:

A list of all companies filing FERC Form 1 reports over the period 2017
 through 2021 was obtained by querying the current S&P FERC Form 1
 dataset.

192.This list formed the basis for the FERC Form 1 data query from S&P.20Operating data and O&M expense data were compiled for diversified21utilities and electric utilities for each of the years 2017 through 2021.

22 3. Peer group selection criteria were defined for the national and SERC_Texas
23 peer groups. Criteria for inclusion included:

1		a.	The company must be of sufficient size to warrant comparison. For
2			the purposes of this effort, companies with less than 10,000
3			customers were eliminated.
4		b.	The company must be regulated and provide electric service
5			(directly or indirectly) to retail end-use customers. This criterion
6			eliminated generation-only companies, transmission-only
7			companies, and generation and transmission-only companies;
8			however, distribution-only, transmission and distribution, and
9			generation and distribution companies are included in the peer
10			groups.
11		C.	The company must have comparative FERC Form 1 data to enable
12			the development of the metrics used in the benchmarking analysis. ³
13			
14	Q19.	WAS THE A	APPROACH TAKEN FOR THIS BENCHMARKING ANALYSIS
15		SIMILAR TO	YOUR PREVIOUS BENCHMARKING STUDIES?
16	А.	Yes. The prin	nary data source utilized, the retail price metrics, and the criteria used
17		to identify th	e benchmarking peer group members are the same as those used in
18		prior studies.	
19	Q20.	WHY DID Y	OU NOT INCLUDE A TEXAS-ONLY PEER GROUP IN YOUR
20		ANALYSIS?	

³ Note: FERC Form 1 data for a specific company may not be available for all years within the 2017 through 2021 time period.

1	А.	The investor-owned utilities that operate in the Electric Reliability Council of Texas
2		("ERCOT") have transmission and distribution assets only and provide "wires"
3		service directly to end-use retail customers of deregulated retail companies
4		operating in Texas. As a result, the average retail prices paid for electricity for
5		these transmission and distribution utilities do not fully reflect the cost of providing
6		retail electric services to customers. These companies ⁴ were therefore excluded for
7		the purposes of the retail pricing benchmarking analysis. As a result, a Texas (only)
8		peer group would have only included four utilities, including ETI. It is often very
9		difficult to draw meaningful conclusions about the relative performance of different
10		utilities in such small peer groups. While my analysis includes a national peer
11		group, I wanted to include a more regional view of average retail prices as well. As
12		a result, a peer group was formed including the investor-owned utility members of
13		SERC, as well as the four "non-ERCOT" Texas companies.
14		
15	Q21.	WHAT SERC_TEXAS PEER GROUP AND NATIONAL PEER GROUP

16 COMPANIES WERE IDENTIFIED AS A RESULT OF YOUR ANALYSIS?

- 17 A. The SERC Texas peer group consists of the following 25 companies:
- Alabama Power Company;

19

21

- Ameren Illinois Company;
- Cleco Power LLC;
 - Dominion Energy South Carolina, Inc.;

⁴ AEP Texas Inc., CenterPoint Energy Houston Electric, LLC, Oncor Electric Delivery Company LLC, Sharyland Utilities, L.L.C., and Texas-New Mexico Power Company.

1	• Duke Energy Carolinas, LLC;
2	• Duke Energy Florida, LLC;
3	• Duke Energy Progress, LLC;
4	• El Paso Electric Company;
5	• Entergy Arkansas, LLC;
6	• Entergy Louisiana, LLC;
7	• Entergy Mississippi, LLC;
8	• Entergy New Orleans, LLC;
9	• Entergy Texas, Inc.;
10	• Florida Power & Light Company;
11	• Florida Public Utilities Company;
12	Georgia Power Company;
13	• Gulf Power Company;
14	• Kentucky Utilities Company;
15	• Louisville Gas & Electric Company;
16	Mississippi Power Company;
17	• Southwestern Electric Power Company;
18	Southwestern Public Service Company;
19	• Tampa Electric Company;
20	• Union Electric Company (dba Ameren Missouri); and

1		• Virginia Electric and Power Company ⁵ (dba Dominion Energy).
2		There were 128 companies included in the national peer group (see Exhibit RDS-2
3		for a list of these companies).
4		
5	Q22.	WHAT PERFORMANCE METRICS WERE EVALUATED IN YOUR
6		ANALYSIS?
7	Α.	ETI performance was benchmarked from just one perspective - average retail
8		electricity prices – using industry-standard benchmarks. ⁶ Retail pricing
9		benchmarks (overall and by customer class for residential, commercial, industrial,
10		and other customers) show the average price received by a utility for every kilowatt-
11		hour ("kWh") sold. Over time, such measures are good indicators of revenue
12		stability and can also highlight year-to-year changes in customer mix and energy
13		usage patterns. The specific pricing benchmarks included in my analysis are as
14		follows:
15		• Total Retail Revenues Cents per kWh Sold;
16		• Residential Revenues Cents per kWh Sold;
17		• Commercial Revenues Cents per kWh Sold;
18		• Industrial Revenues Cents per kWh Sold; and
19		• Other Revenues Cents per kWh Sold.

[•] Other Revenues Cents per kWh Sold.

⁵ 2021 FERC Form 1 data was not available for Virginia Electric and Power Company at the time of this analysis.

⁶ The native format of my Retail Pricing Benchmarking Analysis is provided electronically as Exhibit RDS-3,

1	Q23.	BEFORE YOU PROVIDE THE RESULTS OF YOUR BENCHMARKING
2		ANALYSIS, CAN YOU PROVIDE GENERAL GUIDANCE AS TO HOW THE
3		RESULTS SHOULD BE INTERPRETED?
4	A.	Yes. When conducting this type of benchmarking analysis, I will typically compare
5		the relative performance of the company under review (in this case ETI) with the
6		peer group quartiles of the various benchmark metrics (i.e., top quartile, median,
7		third quartile, and bottom quartile). For revenue and O&M measures, lower is
8		generally better, meaning lower rates for customers or lower costs to provide
9		electric service.
10		
11		IV. <u>RETAIL PRICING BENCHMARK RESULTS</u>
12	Q24.	WHY DID YOU BENCHMARK ETI'S AVERAGE ANNUAL RETAIL PRICE
13		PER KWH TO THE NATIONAL AND SERC_TEXAS PEER GROUPS?
14	Α.	The average price paid (or received) per kWh for electric service is an often-used
15		benchmarking metric and reflects three primary factors: (1) actual fixed and
16		variable prices; (2) customer energy usage patterns; and (3) customer mix. The
17		average price paid per kWh is therefore a good measure of the overall cost
18		effectiveness of a company in delivering electric service.
19		
20	Q25.	WHAT PRICING METRICS DID YOU EVALUATE IN YOUR ANALYSIS?
21	A.	I compared the average prices paid by residential, commercial, and industrial
22		customers with the median value of the SERC_Texas and national peer groups. For
23		purposes of this analysis, the average price paid per kWh equals annual retail

- 3 1 through RDS-6 described in the paragraphs that follow.
- 4

1

2

5 Q26. WHAT OVERALL CONCLUSIONS DO YOU DRAW FROM YOUR 6 ANALYSIS OF ETI'S AVERAGE PRICING?

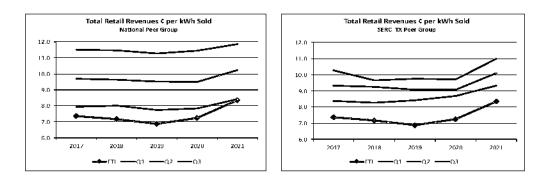
- 7 Α. ETI's total average price for retail electricity has remained consistently in the top 8 quartile for the national and SERC Texas peer groups throughout the 2017 to 2021 9 time period. ETI's average prices for the residential, commercial, industrial, and 10 other customer classes were also consistently at or near the top quartile for the 11 national and the SERC Texas peer groups throughout the 2017 to 2020 period. 12 Only in 2021 were ETI's residential and commercial average prices between the 13 top quartile and the median of the national peer group. ETI's commercial average 14 price was in the top quartile of the SERC Texas peer group in 2021. ETI's 15 residential average price was slightly above the median of the SERC Texas peer 16 group in 2021. ETI's 2021 average prices for the other customer classes were at or 17 near the top quartile for both peer groups.
- 18

19 Q27. PLEASE DESCRIBE THE RESULTS OF YOUR PRICING ANALYSIS.

A. As shown in Figures RDS-1 and RDS-2, in 2021, ETI's total average price for electricity sold to retail customers was 8.36 cents per kWh. This is 18.3% below the national median (10.23 cents per kWh) and 17.3% below the SERC_Texas median (10.11 cents per kWh). ETI's total average price for retail electricity has

- 1 remained consistently in the top quartile for the national and SERC_Texas peer
- 2 groups throughout the 2017 to 2021 time period.
- 3

Figure RDS-1: Total Retail Revenues ¢ per kWh Sold



I also compared ETI's 2021 average price per kWh for each major customer class
relative to the median total average retail price in each peer group. Figure RDS-2
depicts the results of this analysis.

7

Figure RDS-2: Average Price per kWh by Customer Class

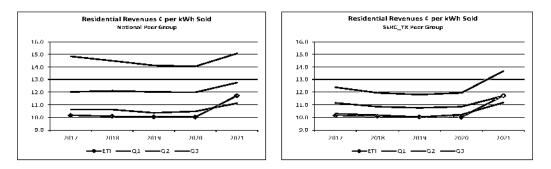
2021 Average Price per kWh (Cents per kWh)	ETI	National Median	SERC_Texas Median
Total Retail Sales	8.36	10.23	10,11
Residential Sales	11.73	12.76	11,70
Commercial Sales	9.02	10.31	10.28
Industrial Sales	5,59	6,88	6,66
Other Sales	9,62	15.22	11,14

8 With one exception, ETI's 2021 average price per kWh for each customer class was 9 well below the median for each peer group. Only ETI's average price per kWh for 10 residential customers was above the SERC Texas peer group median.

As shown in Figure RDS-2, in 2021, ETI's total average residential rate was 3 Α. 11.73 cents per kWh. As shown in Figure RDS-3, ETI's average residential retail 4 5 prices have generally performed below the first quartile for the national peer group 6 and at or near the first quartile for the SERC Texas peer group over the 2017 7 through 2020 time period. This means that ETI provided service to the residential 8 segment at a price that is among the lowest when compared to the national peer 9 group and on par with the SERC Texas peer group. Only in 2021 did ETI's average 10residential retail price increase to above the first quartile relative to the national 11 peer group, and to slightly above the median of the SERC Texas peer group.

12

Figure RDS-3: Residential Revenues ¢ per kWh Sold



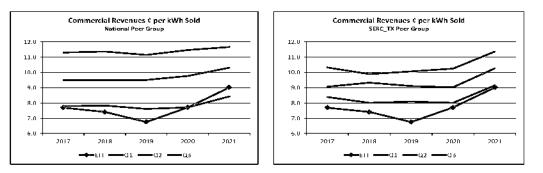
13 Q29. PLEASE DESCRIBE THE RESULTS OF YOUR PRICING ANALYSIS FOR14 COMMERCIAL CUSTOMERS.

A. As shown in Figure RDS-2, in 2021, ETI's total average commercial rate, on a cents
per kWh basis, was 9.02 cents per kWh. As shown in Figure RDS-4, ETI's average
commercial electricity prices have essentially performed at or below the first
quartile for the national peer group, and below the first quartile for the SERC Texas

peer group, over the period 2017 through 2020. In 2021, ETT's average commercial
 electricity prices increased to between the median and the first quartile for the
 national peer group but was still slightly below the first quartile for the
 SERC_Texas peer group.

5

Figure RDS-4: Commercial Revenues ¢ per kWh Sold



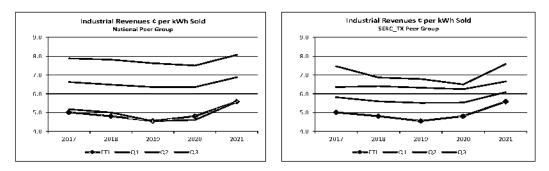
6 Q30. PLEASE DESCRIBE THE RESULTS OF YOUR PRICING ANALYSIS FOR

7 INDUSTRIAL CUSTOMERS.

8 A. As shown in Figure RDS-2, in 2021, ETT's total average industrial rate, on a cents 9 per kWh basis, was 5.59 cents per kWh. As shown in Figure RDS-5, ETI's 10 industrial rates have been at or near the top quartile for the national peer group and 11 well below the first quartile for the SERC Texas peer group since 2017.



Figure RDS-5: Industrial Revenues ¢ per kWh Sold

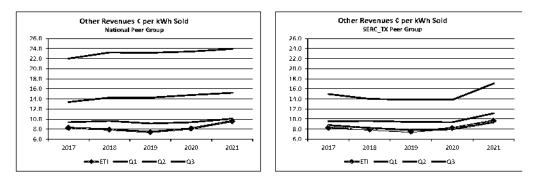


Q31. PLEASE DESCRIBE THE RESULTS OF YOUR PRICING ANALYSIS FOR OTHER CUSTOMERS.

A. As shown in Figure RDS-2, in 2021, ETT's total average rate for other customers (e.g., public street and highway lighting customers and public authorities), on a cents per kWh basis, was 9.62 cents per kWh. As shown in Figure RDS-6, ETI's average rates for other customers have been below the first quartile for the national peer group and at or near the first quartile for the SERC_Texas peer group since 2017.

9

Figure RDS-6: Other Revenues ¢ per kWh Sold



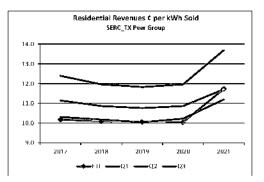
10 V. <u>IMPACT OF WINTER STORM URI</u>

Q32. THE RESULTS OF THE BENCHMARKING ANALYSIS FOR THE PERIOD
2017 THROUGH 2020, WHERE ETI'S AVERAGE RATES ARE VERY
FAVORABLE COMPARED TO THE PEER GROUPS, ARE DIFFERENT
THAN THE RESULTS FOR 2021. IS THERE A REASON WHY?

A. There are many components included within a utility's retail tariff for (for example)
 residential and commercial customers – monthly customer charges, demand and
 energy charges, rate riders, taxes, and fuel clause adjustments among others. As

- can be seen in Figure RDS-7 below, ETI's residential revenues per kWh sold
 increased significantly in 2021 (an almost 17 percent increase over 2020).
- 3

Figure RDS-7: Residential Revenues ¢ per kWh Sold



4 Unfortunately, the level of detail included in the FERC Form 1 data used for the 5 benchmarking analysis is not granular enough to allow one to determine which of 6 these tariff components contributed to this increase.

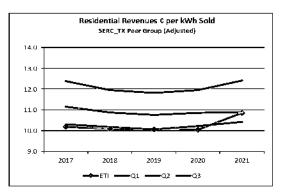
However, ETI's fixed fuel factor filings ("FFF") with the Commission in
2019 through 2021 (see Exhibit RDS-4), show that costs for fossil fuels such as
natural gas have increased and ETI experienced increases in fuel costs due to at
least one major weather event.

11 There are many factors that influence utility fuel costs on a month-to-month 12 basis, including electricity demand, fuel supply constraints, weather events, and 13 generation resource availability. However, during the period 2020 to 2021, one 14 significant event stands out – the February 13 to February 17, 2021 North American 15 winter storm (Winter Storm Uri). In addition to extensive utility system outages, 16 one significant impact of this storm was extremely high deregulated natural gas 17 commodity prices, in Texas and across the country.

1 To "adjust" for the possible effects of Winter Storm Uri on the fuel and 2 purchased power costs included in residential revenues, for any member of the 3 SERC_Texas peer group where their average fuel and purchased power costs per 4 megawatt-hour in 2021 increased over their 2019-2020 two-year average costs, an 5 adjustment to reduce the fuel and purchased power costs included in 2021 6 residential revenues was made. The results can be seen in Figure RDS-8 below.

7

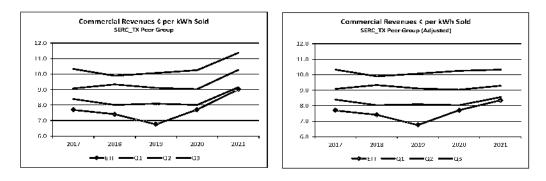
Figure RDS-8: Residential Revenues ¢ per kWh Sold (Adjusted)



8 On an adjusted basis, ETI's 2021 residential revenues per kWh sold increased by 9 only 8 percent over 2020. Figure RDS-9 below shows the results of a similar 10 analysis for commercial revenues per kWh sold. ETI's 2021 commercial revenues 11 per kWh sold increased by 17 percent over 2020 on an unadjusted basis, and only 12 8 percent on an adjusted basis.

13

Figure RDS-9: Commercial Revenues ¢ per kWh Sold



1		It should be noted that this is an illustrative analysis only and conclusions regarding		
2		ETI's benchmarking performance relative to the other members of the		
3		SERC_Texas peer group are not affected by this analysis. ETI's total average rate		
4		for residential customers is still at or near the top quartile for the SERC_Texas peer		
5		group over the 2017 to 2020 time period, and just below the median of the peer		
6		group in 2021. ETI's total average rate for commercial customers is still below the		
7		top quartile of the SERC_Texas peer group over the 2017 through 2021 time period.		
8				
9		VI. <u>EEI'S TYPICAL BILLS AND AVERAGE RATES REPORT</u>		
10	Q33,	PLEASE DESCRIBE ANY ADDITIONAL ANALYSIS YOU COMPLETED TO		
11		CONFIRM YOUR BENCHMARKING ANALYSIS OF ETI'S AVERAGE		
12		RETAIL RATES.		
13	Α.	Twice a year the Edison Electric Institute publishes a report entitled "Typical Bills		
14		and Average Rates Report." The report surveys typical bills and average revenue		
15		per kWh for residential, commercial, and industrial sales for investor-owned		
16		utilities in the United States. Typical bills have been calculated by companies		
17		participating in the survey and reported to EEI, and average rates are calculated by		
18		EEI using data submitted by each company. The Summer 2020 report was the most		
19		recent available which included comparative information for ETI. The purpose of		
20		reviewing this report was simply to confirm that the results of the EEI study were		
21		similar to the results of the FERC Form 1 benchmarking analysis for 2020.		
22		On nearly every measure, ETI's 2020 average retail rates and typical		
23		customer bills were better than the SERC_Texas peer group utilities. ETI's typical		

1 bills for industrial general service customers were all in the top quartile. ETI's 2 typical bills for commercial general service customers were also generally in the 3 top quartile, except for those customers with monthly demands in excess of 4 500 kW, where they were slightly above the top quartile of the peer group. For 5 residential general service customers, ETI's typical bills were between the top 6 quartile and the median. Lastly, ETI's total average retail rates, and average 7 residential, commercial, and industrial rates were all in the top quartile of the 8 SERC Texas peer group. A summary of the results from the EEI Summer 2020 9 report for the SERC Texas peer group can be found in Exhibit RDS-5.

10

11 Q34. WHAT OVERALL CONCLUSIONS DID YOU DRAW FROM YOUR12 ANALYSIS OF EEI'S REPORT?

A. The results of the EEI survey are consistent with the results of the FERC Form 1
 benchmarking analysis – on nearly every measure, ETI's retail rates were lower
 (i.e., more favorable to customers) than those of the other utilities in the
 SERC Texas peer group.

17

18 Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

19 A. Yes

AFFIDAVIT OF RICHARD D. STARKWEATHER

STATE OF NORTH CAROLINA)) COUNTY OF WAKE)

RICHARD D. STARKWEATHER, first being sworn on his oath, states:

I am the witness identified in the preceding testimony. I have read the testimony and the accompanying attachment(s) and am familiar with the contents. Based upon my personal knowledge, the facts stated in the testimony are true. In addition, in my judgment and based upon my professional experience, the opinions and conclusions stated in the testimony are true, valid, and accurate.

Richard & How here atto

RICHARD D. STARKWEATHER

Subscribed and sworn to before me this <u>3</u> day of June 2022 by RICHARD D. STARKWEATHER.

tary Public, State of North Carolina My Commission Expires: 03/25/2024



Exhibit RDS-1 2022 Rate Case Page 1 of 2

Resume of: Richard D. Starkweather Executive Advisor

Summary

Rick Starkweather has been a management consultant for over 30 years. His areas of expertise include strategic and business planning, budgeting and forecasting, regulatory compliance and rate case support, and organizational and operations improvement. Prior to joining ScottMadden, Rick was a consultant with Deloitte Consulting. He also has experience in the healthcare and chemical industries and helped lead the start-up of two companies. Rick received a B.S. in mechanical engineering from Northwestern University and an M.B.A. from the University of Chicago Booth School of Business.

Areas of Specialization

Regulatory strategy and rate case support Strategic and business planning Process improvement Benchmarking Program design/implementation Organizational design and staffing

Representative Assignments

- Directed a project for a western combination utility to improve the speed and accuracy of the rate making process by identifying improvements to the development of revenue requirements and billing determinants by improving underlying reporting processes and analyses, and more efficient sequencing of key activities
- Developed enhancements to capital and O&M budgeting processes for an electric and gas utility to support a multi-year rate plan filing. Additional documentation templates were developed to support the new filing requirements
- Conducted a review of a utility's transmission cost recovery, mercury emissions, environmental, and conservation improvement rate riders. Scope of review included the processes for budgeting and forecasting cash flows for eligible projects and the tracking of projected cash flows for each project through the company's budgeting and fixed asset accounting systems, and the revenue requirements calculations supporting the riders
- Developed statistical sampling methodologies to test gas main extension and new service capital projects for a Midwestern gas utility. Defined the population of all projects, identified sample projects, compiled necessary documentation to assess tariff compliance for these projects, and developed rate base adjustments to address uncollected contributions in aid of construction based on sample results
- Directed several projects providing project management and technical support for retail electric and gas rate cases for several utilities, including the completion of various analyses to support anticipated intervener data requests, as well as the development of direct and rebuttal testimony. Also developed several capital and O&M filing and work paper templates as part of the filings to improve transparency
- Completed an assessment of a new general ledger system for a regional electric and gas utility in light of a pending rate case. Analyses included historical O&M trends and a detailed year-to-year FERC account variance analysis to support pre-filed testimony
- Conducted an assessment of the capital budgeting and reporting processes of a combination gas/electric utility that was migrating to a future test year in several jurisdictions. Developed recommendations and process improvement initiatives to improve accuracy of in-service dates and overall forecast accuracy, resulting in better rate case assumptions, improved budget and forecast data, and more accurate accounting data
- Directed a project for a southeastern utility to improve the speed and accuracy of the rate making process by identifying improvements to the development of revenues and billing determinants by enhancing information reporting and analytics, and automating the process through potential technology solutions
- Assessed a utility's supporting documentation for a transmission and distribution loss study. Work included a review of previous studies, analysis of intervener issues/concerns and an evaluation of company assumptions and analyses. Results were used in the development of billing determinants
- Analyzed the affiliate costs assigned and allocated to operating company capital projects for a southwestern electric utility to support the development of rebuttal testimony for a retail rate cases



Exhibit RDS-1 2022 Rate Case Page 2 of 2

Resume of: Richard D. Starkweather Executive Advisor

Representative Assignments (Cont'd)

- Validated the achievement of annual merger synergies targets for a combination utility to support its retail rate case filings. Quantified savings levels by line item consistent with original multi-year savings model and drafted supporting direct testimony
- Assessed business transactions between the regulated and non-regulated affiliates of a Western electric and gas utility to ensure compliance with state regulatory requirements
- Developed enhancements to capital and O&M budgeting processes for an electric utility to support a potential future test year rate case filing. Additional documentation templates were also developed to support the required financial schedules
- Directed an assessment of a southwestern utility's capital and O&M budgeting processes to support a future test year filing. Additional documentation templates were also developed to support the filing
- Completed a risk assessment of various components of an electric utility's rate case filing, including capital additions and capital estimating standards. Also analyzed year-to-year O&M variances to identify significant test period revenue drivers
- Assisted a utility in the Midwest in its response to commission inquiries about affiliate interest issues, cost separation methodologies, and the rationale for proposed increases in the company's cost of service. Developed documentation and supporting work paper templates for capital and O&M budgets, facilitated template completion by the business units, sample-tested capital budget items to ensure adequate separation of regulated and non-regulated projects, and assisted with the new filing
- Developed an audit plan and project management protocols for a Midwestern combination electric and gas utility to guide the development of all regulatory filings in the Company's various jurisdictions. Scope included the development of detailed process maps for each rate filing process, the identification of data input, consistency, and reliability risks, and the identification of appropriate preventive and detective audit controls

Professional History

- SCOTTMADDEN, INC., Raleigh, North Carolina Executive Advisor (2022–Present) Partner (2004–2022 Director (1999–2004)
- DELOITTE CONSULTING, Los Angeles, California Senior Manager (1997–1999)
- EDISON EV, Los Angeles, California, a Subsidiary of EDISON INTERNATIONAL Senior Manager/Director, Finance and Administration (1996–1997)
- EDISON INTERNATIONAL (formerly SCEcorp), Rosemead, California Strategic Projects Manager, Corporate Development (1994–1995)
- DELOITTE & TOUCHE, Dallas, Texas Senior Manager (1990–1994) Manager (1989–1990)
- HEALTH ECONOMICS CORPORATION, Dallas, Texas, a Subsidiary of HALLIBURTON COMPANY Vice President (1986–1989)
- TOUCHE ROSS & CO., Detroit, Michigan Senior Consultant (1985–1986) Associate Consultant (1982–1985)
- EXXON CHEMICAL AMERICAS, Linden, New Jersey Plant Analyst (1982–1982)
 Forecast Coordinator (1980–1982)

List of National Peer Group Companies

Exhibit RDS-2 2022 Rate Case Page 1 of 3

No.	Company ID	Company Name
]	4199135	Entergy Texas, Inc.
2		AES Indiana
3		Alabama Power Company
4	4058371	Alaska Electric Light and Power Company
5	4272394	Ameren Illinois Company
6	4056972	Appalachian Power Company
7	4056974	Arizona Public Service Company
8	4056975	Atlantic City Electric Company
9	4057075	Avista Corporation
10	4007784	Baltimore Gas and Electric Company
11	6949631	Bear Valley Electric Service
12	4215172	Black Hills Colorado Electric, Inc.
13		Black Hills Power, Inc.
14	4057076	Central Hudson Gas & Electric Corporation
15	4056978	Central Maine Power Company
16		Cheyenne Light, Fuel and Power Company
17	4056982	Cleco Power LLC
18		Commonwealth Edison Company
19		Consolidated Edison Company of New York, Inc.
20		Consumers Energy Company
21		Dahlberg Light & Power Company
22		Delmarva Power & Light Company
23		Dominion Energy South Carolina, Inc.
24	4057083	DTE Electric Company
25		Duke Energy Carolinas, LLC
26		Duke Energy Florida, LLC
27		Duke Energy Indiana, LLC
28		Duke Energy Kentucky, Inc.
29		Duke Energy Ohio, Inc.
30		Duke Energy Progress, LLC
31		Duquesne Light Company
32		El Paso Electric Company
33		Empire District Electric Company
34		Entergy Arkansas, LLC
35		Entergy Louisiana, LLC
36		Entergy Mississippi, LLC
37		Entergy New Orleans, LLC
38		Evergy Kansas South, Inc.
39		Evergy Metro, Inc.
40		Evergy Missouri West, Inc.
41		Fitchburg Gas and Electric Light Company
42		Florida Power & Light Company
43	4057086	Florida Public Utilities Company

List of National Peer Group Companies

Exhibit RDS-2 2022 Rate Case Page 2 of 3

No.	Company ID	Company Name
44	4004152	Georgia Power Company
45	4063057	Golden State Water Company
46		Green Mountain Power Corporation
47	4057000	Gulf Power Company
48		Hawaii Electric Light Company, Inc.
49	4057001	Hawaiian Electric Company, Inc.
50		Idaho Power Company
51		Indiana Michigan Power Company
52		Interstate Power and Light Company
53		Jersey Central Power & Light Company
54		Kentucky Power Company
55		Kentucky Utilities Company
56		Kingsport Power Company
57		Liberty Utilities (CalPeco Electric) LLC
58		Liberty Utilities (Granite State Electric) Corp
59		Louisville Gas and Electric Company
60		Madison Gas and Electric Company
61		Massachusetts Electric Company
62		Maui Electric Company, Limited
63	4010692	MDU Resources Group, Inc.
64		Metropolitan Edison Company
65		MidAmerican Energy Company
66		Minnesota Power Enterprises, Inc.
67		Mississippi Power Company
68		Monongahela Power Company
69		Narragansett Electric Company
70		Nevada Power Company
71		New York State Electric & Gas Corporation
72		Niagara Mohawk Power Corporation
73	4012860	Northern Indiana Public Service Company
74	4057754	Northern States Power Company - MN
75		Northern States Power Company - WI
76		NorthWestern Corporation
77		Northwestern Wisconsin Electric Company
78		NSTAR Electric Company
79		Ohio Edison Company
80		Ohio Power Company
81	4057016	Oklahoma Gas and Electric Company
82		Orange and Rockland Utilities, Inc.
83		Otter Tail Power Company
84		Pacific Gas and Electric Company
85		PacifiCorp
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List of National Peer Group Companies

Exhibit RDS-2 2022 Rate Case Page 3 of 3

No.	Company ID	Company Name
87		Pennsylvania Electric Company
88	4018463	Pennsylvania Power Company
89	4057019	Portland General Electric Company
90	4044391	Potomac Electric Power Company
91	4057021	PPL Electric Utilities Corporation
92	4057094	Public Service Company of Colorado
93	4057022	Public Service Company of New Hampshire
94	4073320	Public Service Company of New Mexico
95	4057023	Public Service Company of Oklahoma
96	4057095	Public Service Electric and Gas Company
97	4062485	Puget Sound Energy, Inc.
98	4057096	Rochester Gas and Electric Co
99	4062660	Rockland Electric Company
100		San Diego Gas & Electric Company
101		Sierra Pacific Power Company
102		Southern California Edison Company
103		Southern Indiana Gas and Electric Company
104		Southwestern Electric Power Company
105		Southwestern Public Service Company
106		Superior Water, Light and Power Company
107		Tampa Electric Company
108		The Cleveland Electric Illuminating Company
109		The Connecticut Light and Power Company
110		The Dayton Power and Light Company
111		The Potomac Edison Company
112		The Toledo Edison Company
113		The United Illuminating Company
114		Tucson Electric Power Company
115		UGI Utilities, Inc.
116		Union Electric Company
117		Unitil Energy Systems, Inc.
118		UNS Electric, Inc.
119		Upper Michigan Energy Resources Corporation
120		Upper Peninsula Power Company
121		Versant Power
122 123		Virginia Electric and Power Company West Bonn Power Company
123		West Penn Power Company Westar Energy (KPL)
124		
125		Wheeling Power Company Wisconsin Electric Power Company
120		Wisconsin Electric Power Company Wisconsin Power and Light Company
127		Wisconsin Power and Light Company Wisconsin Public Service Corporation
120	-037100	wisconsni i uone service Corporation

Exhibit RDS-3 2022 Rate Case Teacher Page 1 of 15

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- 本目云龙堂出记青青月时故道说这些这话是这位圣秘强控励主教教学奖本不同大大不同考虑不可以有了!!!这个这个记录这些是有学校的方法和通过会会是在这种国家会问题是	青田区 (本)))()()()() シマチズル 日本 まとこう
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Entergy Texas, Inc. Fixed Fuel Factor Revenues

	FFF Sales at Meter	Retail Fixed	E	stimated FFF	Total Company
	(kWh)	Fuel Factor		Revenues	Fuel Expense
January 2020	1,415,993,082	0.0231702		32,808,843	
February 2020	1,388,136,614	0.0231702	•	32,163,403	
March 2020	1,482,144,268	0.0228285	•	33,835,130	
April 2020	1,396,094,614	0.0228285	\$	31,870,746	
May 2020	1,398,200,491	0.0228285	•	31,918,820	
June 2020	1,699,489,779	0.0228285	\$	38,796,802	
July 2020	1,832,017,597	0.0228285	\$	41,822,214	
August 2020	1,861,243,372	0.0228285	\$	42,489,394	
September 2020	1,781,977,050	0.0294701	\$	52,515,042	
October 2020	1,499,006,840	0.0294701	\$	44,175,881	
November 2020	1,419,297,169	0.0294701	\$	41,826,830	
December 2020	1,502,976,272	0.0294701	\$	44,292,861	
Totals	18,676,577,148		\$	468,515,966	
January 2021	1,628,714,396	0.0294701	\$	47,998,376	\$ 43,374,011
February 2021	1,762,125,748	0.0294701	\$	51,930,022	\$ 103,418,274
March 2021	1,646,677,316	0.0290620	\$	47,855,736	
April 2021	1,665,658,468	0.0290620	\$	48,407,366	
May 2021	1,679,062,070	0.0290620	\$	48,796,902	
June 2021	1,990,940,031	0.0290620	\$	57,860,699	
July 2021	2,066,567,893	0.0290620	\$	60,058,596	
August 2021	2,130,193,340	0.0290620	\$	61,907,679	
September 2021	2,082,548,925	0.0339519	\$	70,706,493	
October 2021	1,823,451,280	0.0339519	\$	61,909,636	
November 2021	1,802,397,131	0.0339519	\$	61,194,807	
December 2021	1,652,370,810	0.0339519		56,101,129	
			•	, ,	
Totals	21,930,707,408		\$	674,727,441	
	· · ·			- •	
	Year to	o Year Increase	\$	206,211,474	
		Month Increase	-		\$ 60,044,263
		ercent Increase		44.0%	138.4%

Sources: Application of Entergy Texas, Inc. to Revise Fixed Fuel Factor (Schedule FF) in Compliance with Order in Docket No. 32915; Docket Nos. 49873, 50568, 51196, 51815, 52452, and 53255.

Industrial

6.25

6.35

Residential

13.46

10.38

Commercial

12.10

8.95

EEI Typical Bills and Average Rates Report Summer 2020

Average Rates (in cents/kWh)AlabamaAlabama Power CompanyArkansasEntergy Arkansas, Inc.FloridaDuke Energy FloridaFloridaFlorida Power & Light CompanyFloridaFlorida Public Utilities CompanyFloridaGulf Power CompanyFloridaTampa Electric CompanyGeorgiaGeorgia Power CompanyIllinoisAmeren IllinoisKentuckyKentucky Utilities CompanyKentuckyLouisville Gas & Electric Company			Average Rates	
AlabamaAlabama Power CompanyArkansasEntergy Arkansas, Inc.FloridaDuke Energy FloridaFloridaFlorida Power & Light CompanyFloridaFlorida Public Utilities CompanyFloridaGulf Power CompanyFloridaTampa Electric CompanyGeorgiaGeorgia Power CompanyIllinoisAmeren IllinoisKentuckyKentucky Utilities CompanyKentuckyLouisville Gas & Electric Company	l Retail	Total Reta	12 Months Ending June 30, 2020	
ArkansasEntergy Arkansas, Inc.FloridaDuke Energy FloridaFloridaFlorida Power & Light CompanyFloridaFlorida Public Utilities CompanyFloridaGulf Power CompanyFloridaTampa Electric CompanyGeorgiaGeorgia Power CompanyIllinoisAmeren IllinoisKentuckyKentucky Utilities CompanyKentuckyLouisville Gas & Electric Company			Average Rates (in cents/kWh)	Average
FloridaDuke Energy FloridaFloridaFlorida Power & Light CompanyFloridaFlorida Public Utilities CompanyFloridaGulf Power CompanyFloridaTampa Electric CompanyGeorgiaGeorgia Power CompanyIllinoisAmeren IllinoisKentuckyKentucky Utilities CompanyKentuckyLouisville Gas & Electric Company	10.20	10.3	Alabama Alabama Power Company	Alabam
FloridaFlorida Power & Light CompanyFloridaFlorida Public Utilities CompanyFloridaGulf Power CompanyFloridaTampa Electric CompanyGeorgiaGeorgia Power CompanyIllinoisAmeren IllinoisKentuckyKentucky Utilities CompanyKentuckyLouisville Gas & Electric Company	8.53	8.5	Arkansas Entergy Arkansas, Inc.	Arkansa
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Kentucky Louisville Gas & Electric Company	N/A	N,	Illinois Ameren Illinois	Illinois
,	9.07	9.0	Kentucky Kentucky Utilities Company	Kentuck
Louisiana CLECO Power LLC	9.81	9.8	Kentucky Louisville Gas & Electric Company	Kentuc
	10.33	10.3	Louisiana CLECO Power LLC	Louisiar
Louisiana Entergy Louisiana, Inc.	6.57	6.5	Louisiana Entergy Louisiana, Inc.	Louisiar

, and the set	Entergy Arkensus, mer	0.55	10.00	0.55	0.00
Florida	Duke Energy Florida	11.62	13.51	10.01	7.14
Florida	Florida Power & Light Company	9.54	10.64	8.26	5.96
Florida	Florida Public Utilities Company	13.41	15.07	13.03	5.47
Florida	Gulf Power Company	11.37	13.34	10.30	7.12
Florida	Tampa Electric Company	9.72	10.73	8.93	7.56
Georgia	Georgia Power Company	9.42	12.13	N/A	5.72
Illinois	Ameren Illinois	N/A	10.22	7.73	N/A
Kentucky	Kentucky Utilities Company	9.07	10.53	10.82	6.30
Kentucky	Louisville Gas & Electric Company	9.81	11.14	10.24	7.01
Louisiana	CLECO Power LLC	10.33	11.57	10.73	7.31
Louisiana	Entergy Louisiana, Inc.	6.57	9.05	8.84	4.55
Louisiana	Entergy Louisiana, LLC (Entergy Gulf States, Inc.)	6.39	8.96	7.66	4.64
Louisiana	Entergy New Orleans, Inc.	8.74	9.88	8.50	5.83
Mississippi	Entergy Mississippi	9.23	10.02	9.51	6.66
Mississippi	Mississippi Power Company	9.04	13.20	10.36	6.40
Missouri	Ameren Missouri	8.44	10.02	7.50	6.11
North Carolina	Dominion Energy North Carolina	8.56	11.14	9.08	5.70
North Carolina	Duke Energy Carolinas	8.40	10.45	7.71	5.90
North Carolina	Duke Energy Progress	9.71	11.70	9.53	6.56
South Carolina	Dominion Energy South Carolina	10.30	12.97	10.27	6.34
South Carolina	Duke Energy Carolinas	8.62	11.64	9.43	5.72
South Carolina	Duke Energy Progress	9.40	12.43	10.09	6.19
Texas	El Paso Electric Company	9.45	11.97	10.06	7.01
Texas	Entergy Texas	6.94	9,94	7.15	4.57
Texas	Southwestern Electric Power Company	8.12	10.22	8.31	6.30
Texas	Southwestern Public Service Company	5.29	9.59	6.83	3.45
Virginia	Dominion Energy Virginia	8.94	10.84	7.43	6.24
	Average for Peer Group (Calculated)	9.11	11.27	9.26	6.08
		0.54	10.00	0.40	
	Q1 Madian	8.51	10.22	8.13	5.72
	Median	9.15	10.84	9.26	6.25
	Q3	9.74	12.13	10.25	6.59

DOCKET NO. 53719

\$ \$ \$

APPLICATION OF ENTERGY TEXAS, INC. FOR AUTHORITY TO CHANGE RATES PUBLIC UTILITY COMMISSION

OF TEXAS

DIRECT TESTIMONY

OF

ANN E. BULKLEY

ON BEHALF OF

ENTERGY TEXAS, INC.

JULY 2022

ENTERGY TEXAS, INC. DIRECT TESTIMONY OF ANN E. BULKLEY 2022 RATE CASE

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EXHIBITS

Exhibit AEB-1	Resume and Testimony Listing of Ann E. Bulkley
Exhibit AEB-2	Summary of Results
Exhibit AEB-3	Constant Growth Discounted Cash Flow Model
Exhibit AEB-4	Capital Asset Pricing Model
Exhibit AEB-5	CAPM – Long-Term Beta
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Exhibit AEB-7	Risk Premium Approach
Exhibit AEB-8	Capital Expenditures Analysis
Exhibit AEB-9	Regulatory Risk Analysis
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Exhibit AEB-11	S&P Jurisdictional Rankings
Exhibit AEB-12	Capital Structure Analysis

1		I. WITNESS INTRODUCTION AND QUALIFICATIONS
2	Q1.	PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.
3	A.	My name is Ann E. Bulkley. I am a Principal at The Brattle Group ("Brattle"). My
4		business address is One Beacon Street, Suite 2600, Boston, Massachusetts 02108.
5		
6	Q2.	WHAT IS YOUR POSITION WITH THE BRATTLE GROUP?
7	A.	I am employed by Brattle as a Principal.
8		
9	Q3.	ON WHOSE BEHALF ARE YOU SUBMITTING THIS DIRECT TESTIMONY?
10	Α.	I am submitting this direct testimony before the Public Utility Commission of Texas
11		("Commission") on behalf of Entergy Texas, Inc. ("ETI" or the "Company"), a
12		wholly owned subsidiary of Entergy Corporation ("Entergy"). Entergy
13		Corporation is a registered holding company that owns several electric and natural
14		gas utility operating companies. ¹
15		
16	Q4.	PLEASE DESCRIBE YOUR BACKGROUND AND PROFESSIONAL
17		EXPERIENCE IN THE ENERGY AND UTILITY INDUSTRIES.
18	Α.	I hold a Bachelor's degree in Economics and Finance from Simmons College and
19		a Master's degree in Economics from Boston University, with over 25 years of
20		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

21

¹ Entergy Corporation, together with its subsidiaries, engages in the production and distribution of electricity in the United States.

1		concentrations in valuation and utility rate matters. Many of these assignments
2		have included the determination of the cost of capital for valuation and ratemaking
3		purposes. My resume and a summary of testimony that I have filed in other
4		proceedings are included as Exhibit AEB-1 to this testimony.
5		
6		II. <u>PURPOSE AND OVERVIEW OF TESTIMONY</u>
7	Q5.	WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?
8	A.	The purpose of my direct testimony is to present evidence and provide a
9		recommendation regarding the appropriate Return on Equity ("ROE") ² for ETI's
10		electric utility operations and to provide an assessment of its proposed capital
11		structure to be used for ratemaking purposes. A summary of my ROE analyses and
12		results is provided in Exhibit AEB-2. My analysis and recommendations are
13		supported by the data presented in Exhibits AEB-3 through AEB-12, which were
14		prepared by me or under my direction.
15		
16	Q6.	PLEASE PROVIDE A BRIEF OVERVIEW OF THE ANALYSES THAT LED
17		TO YOUR ROE RECOMMENDATION.
18	A.	As discussed in more detail in Section VII, I applied the Constant Growth form of
19		the Discounted Cash Flow ("DCF") model, the Capital Asset Pricing Model
20		("CAPM"), the Empirical CAPM and the Bond Yield Plus Risk Premium approach.
21		My recommendation also takes into consideration: (1) ETI's capital expenditure

 $^{^2}$ Throughout my direct testimony, I interchangeably use the terms "ROE" and "cost of equity."

1		requirements; (2) the regulatory environment in which ETI operates; (3) ETI's
2		adjustment mechanisms; (4) the Company's customer concentration; and (5) the
3		superior management performance of ETI. While I did not make any specific
4		adjustments to my ROE estimates for any of these factors, I did take them into
5		consideration in aggregate when determining where ETI's ROE falls within the
6		range of analytical results.
7		Finally, I considered ETI's proposed capital structure as compared to the
8		capital structures of the proxy companies. ³
9		
10	Q7.	HOW IS THE REMAINDER OF YOUR DIRECT TESTIMONY ORGANIZED?
11	A.	Section III provides a summary of my analyses and conclusions. Section IV
12		reviews the regulatory guidelines pertinent to the development of the cost of capital.
13		Section V discusses current and prospective capital market conditions and the effect
14		of those conditions on ETI's cost of equity. Section VI explains my selection of a
15		proxy group of electric utilities. Section VII describes my analyses and the
16		analytical basis for the recommendation of the appropriate ROE for ETI. Section
17		VIII provides a discussion of specific business and financial risks that have a direct
18		bearing on the ROE to be authorized for ETI in this case. Section IX discusses
19		ETI's capital structure as compared with the capital structures of the utility
20		operating company subsidiaries of the proxy group companies. Section X presents
21		my conclusions and recommendations.

³ The selection and purpose of developing a group of comparable companies is discussed in detail in Section VI of my direct testimony.

25

1		III. <u>SUMMARY OF ANALYSES AND CONCLUSIONS</u>
2	Q8.	WHAT IS YOUR RECOMMENDED ROE FOR ETI?
3	Α.	Based on the analytical results in Figure 1 below, I believe a range from
4		9.95 percent to 11.10 percent is reasonable. The Company is requesting a return of
5		10.80 percent, which is based on a 10.50 percent rate of return resulting from the
6		analytical model results, and a 30 basis point adder for performance. The latter is
7		primarily addressed in the direct testimony of Jess K. Totten. This recommendation
8		considers the range of results for the proxy group companies, the relative business,
9		financial, and regulatory risks of ETI's electric operations in Texas as compared to
10		the proxy group, and current capital market conditions and balances the interests of
11		customers and shareholders.
12		
13	Q9.	PLEASE SUMMARIZE THE KEY FACTORS CONSIDERED IN YOUR
14		ANALYSES AND UPON WHICH YOU BASE YOUR RECOMMENDED ROE.
15	A.	My analyses and recommendations considered the following:
16 17 18 19 20 21		• The United States (U.S.) Supreme Court's <i>Hope</i> and <i>Bluefield</i> decisions, ⁴ which established the standards for determining a fair and reasonable authorized ROE, including consistency of the authorized return with other businesses having similar risk, adequacy of the return to ensure access to capital and support credit quality, and the necessity for the end result to lead to just and reasonable rates.
22 23 24 25		• The required ROE should be a forward-looking estimate; therefore, the analyses supporting my recommendation rely on forward-looking inputs and assumptions (e.g., forecasted growth rates in the DCF model, projected interest rates and a forward looking market risk promium in the CAPM)

interest rates and a forward-looking market risk premium in the CAPM).

Bluefield Waterworks & Improvement Co. v. Pub. Serv. Comm'n of West Virginia, 262 U.S. 679, 692-93 (1923); Fed. Power Comm'n v. Hope Natural Gas Co., 320 U.S. 591, 603 (1944). 4

- The effect of current and prospective capital market conditions on the ROE
 estimation models and on investors' return requirements.
- ETI's business risks relative to the proxy group companies and the implications of those risks in arriving at the appropriate ROE.

5 Q10. PLEASE EXPLAIN HOW YOU CONSIDERED THOSE FACTORS.

6 A. I relied on the results of several analytical approaches to estimate ETI's cost of 7 equity based on a proxy group of publicly-traded companies. As shown in Figure 1, 8 those ROE estimation models produce a wide range of results. My conclusion 9 about where within that range of results ETI's ROE should be placed is based on 10 ETI's business and financial risk relative to the proxy group. Although the 11 companies in my proxy group are generally comparable to ETI, each company is unique and no two companies have the exact same business and financial risk 12 13 profiles. Accordingly, I selected a proxy group with similar, but not identical risk 14 profiles, and I adjusted the results of my analysis either upward or downward within 15 the reasonable range of results to account for any residual differences in risk.

16

17 Q11. PLEASE SUMMARIZE THE ROE ESTIMATION MODELS THAT YOU

- 18 CONSIDERED TO ESTABLISH THE RANGE OF ROES FOR ETI'S TEXAS
 19 OPERATIONS.
- A. I considered the results of the Constant Growth DCF model, the CAPM, the
 ECAPM and the Bond Yield Risk Premium methodology. The results of these
 analyses are summarized in Figure 1 below.

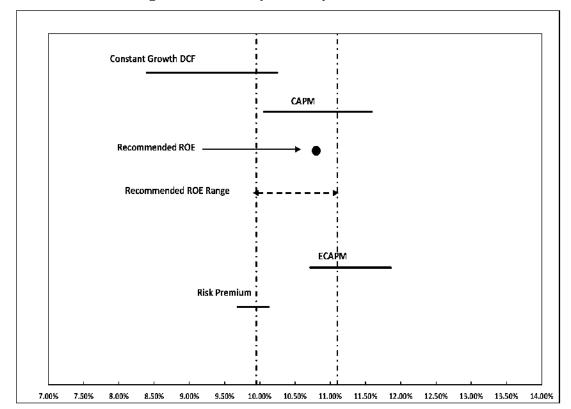


Figure 1: Summary of Analytical Results

As shown in Figure 1, the range of results produced by the Constant Growth DCF estimation model is relatively wide, particularly in relation to the results of the other methodologies. 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.

Furthermore, as shown in Exhibit AEB-3, the median results of the Constant
Growth analyses using the lowest earnings growth rates for each of the proxy group
companies produce results that are below recently authorized ROEs for electric
utilities in the U.S. that are relying on traditional original cost ratemaking.
Therefore, I conclude that these results do not provide a sufficient risk premium to

1	compensate equity investors for the residual risks of ownership, including the risk
2	that they have the lowest claim on the assets and income of ETI.
3	Although I have concerns about the results produced by the DCF models,
4	my ROE recommendation considers the range between the median and median-
5	high results of the DCF models. In addition, I consider the results of the forward-
6	looking CAPM, ECAPM and a Bond Yield Plus Risk Premium analysis. I also
7	consider company-specific risk factors, and current and prospective capital market
8	conditions.
9	As I will discuss, expected changes in capital market conditions will affect
10	the results of the ROE estimation models, making it important to review results
11	based on historical or current data recognizing that these conditions may not
12	represent the forward-looking cost of equity. The assumptions in each of the
13	models are affected differently. In determining the appropriate forward-looking
14	ROE, it is important to recognize these limitations in the static models and consider
15	how the results may differ during the period over which the rates in this proceeding
16	will be in effect. For example, dividend yields in the DCF model are affected by
17	the recent historically high stock prices. As the Federal Reserve normalizes
18	monetary policy, it is reasonable to expect that utility stocks will underperform the
19	broader market. Lower stock prices increase dividend yields on utility stocks and,
20	all else equal, would increase the ROE resulting from the DCF model. Further, the
21	Federal Reserve's normalization of monetary policy is likely to affect the bond
22	yields used in the CAPM. Therefore, it would be reasonable to consider scenarios
23	of this model that reflect changes in bond yields.

1	Q12.	PLEASE	SUMMARIZE	THE	ANALYSIS	YOU	CONDUCTED	IN
2		DETERMI	INING THAT E	ETI'S R	REQUESTED	CAPITA	L STRUCTURE	IS
3		REASONA	ABLE AND APPH	ROPRIA	ATE.			

4 A. Based on the analysis presented in Section IX of my direct testimony, I conclude 5 that ETI's proposed common equity ratio of 51.21 percent, is reasonable. To make this determination, I reviewed the capital structures of the utility operating 6 7 subsidiaries of the proxy companies. As shown in Exhibit AEB-12, the results of 8 that analysis demonstrate that the equity ratios for the utility operating companies 9 held by the proxy group range from 47.22 percent to 61.49 percent with a median 10 of 53.68 percent. ETI's proposed common equity ratio of 51.21 percent is well within the range established for the utility operating subsidiaries of the proxy group 11 12 companies and is reasonable.

13

14

IV. <u>REGULATORY GUIDELINES</u>

Q13. PLEASE DESCRIBE THE PRINCIPLES THAT GUIDE THE
ESTABLISHMENT OF THE COST OF CAPITAL FOR A REGULATED
UTILITY.

A. The U.S. Supreme Court's precedent-setting *Hope* and *Bluefield* cases established
 the standards for determining the fairness or reasonableness of a utility's authorized
 ROE. According to the *Bluefield* decision:

A public utility is entitled to such rates as will permit it to earn a return upon the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding

1 2 3 4 5		risks and uncertainties The return should be reasonably sufficient to assure confidence in the financial soundness of the utility, and 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
6		The Hope decision supports the principles outlined in the Bluefield decision.
7 8 9 10 11 12 13 14		From the investor or company point of view it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business. These include service on the debt and dividends on the stock By that standard, the return to the equity holder should be commensurate with the returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and attract capital. ⁶
15	Q14.	HAS THE COMMISSION PROVIDED SIMILAR GUIDANCE IN
16		ESTABLISHING THE APPROPRIATE RETURN ON COMMON EQUITY?
17	А.	Yes. The Commission follows the precedents of the Hope and Bluefield cases and
18		acknowledges that utility investors are entitled to a reasonable opportunity to earn
19		a reasonable return. The Commission's obligations for establishing a reasonable
20		return are described in the Public Utility Regulatory Act?
21 22 23 24 25 26		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. ⁸

- ⁵ Bluefield, 262 U.S. at 679, 692-93.
- ⁶ Hope, 320 U.S. at 591, 603.
- 7 Tex, Util, Code Ann. §§ 11,001-66,016.
- ⁸ Tex, Util, Code Ann. § 36.051,

1	Q15.	WHY IS IT IMPORTANT FOR A UTILITY TO BE ALLOWED THE
2		OPPORTUNITY TO EARN A RETURN THAT IS ADEQUATE TO ATTRACT
3		CAPITAL AT REASONABLE TERMS?
4	A.	An ROE that is adequate to attract capital at reasonable terms enables a utility to
5		continue to provide safe, reliable service while maintaining its financial integrity.
6		To the extent that the utility is provided the opportunity to earn its market-based
7		cost of capital, neither customers nor shareholders are disadvantaged.
8		
9	Q16.	IS A UTILITY'S ABILITY TO ATTRACT CAPITAL ALSO AFFECTED BY
10		THE ROES THAT ARE AUTHORIZED FOR OTHER UTILITIES?
11	A.	Yes. Utilities compete directly for capital with other investments of similar risk,
12		which include other water, natural gas and electric utilities. Therefore, the ROE
13		awarded to a utility sends an important signal to investors regarding whether there
14		is regulatory support for that utility's financial integrity, dividends, growth, and fair
15		compensation for business and financial risk. The cost of capital represents an
16		opportunity cost to investors. If higher returns are available for other investments
17		of comparable risk, investors have an incentive to direct their capital to those
18		investments. Thus, an authorized ROE for the Company that is significantly below
19		authorized ROEs for other utilities can inhibit ETI's ability to attract capital for

Q17. 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 the opportunity to recover the return of, and the market-required
return on, its invested capital. Because utility operations are capital-intensive,
regulatory decisions should enable the utility to attract capital at reasonable terms;
doing so balances the long-term interests of the utility and its customers.

9 The financial community carefully monitors the current and expected 10 financial condition of utility companies and the regulatory framework in which they operate. In that respect, the regulatory framework is one of the most important 11 12 factors in both debt and equity investors' assessments of risk. The Commission's 13 order in this proceeding, therefore, should establish rates that provide ETI with the 14 opportunity to earn an ROE that is: (1) adequate to attract capital at reasonable terms; (2) sufficient to ensure its financial integrity; and (3) commensurate with 15 returns on investments in enterprises with similar risk. To the extent that ETI is 16 17 authorized the opportunity to earn its market-based cost of capital, the proper 18 balance is achieved between customers' and shareholders' interests.

- 19
- 20

V. <u>CAPITAL MARKET CONDITIONS</u>

21 Q18. WHY IS IT IMPORTANT TO ANALYZE CAPITAL MARKET CONDITIONS?

A. The ROE estimation models rely on market data that are either specific to the proxy
group, in the case of the DCF model, or to the expectations of market risk, in the

Entergy Texas, Inc. Direct Testimony of Ann E. Bulkley 2022 Rate Case

case of the CAPM. The results of the ROE estimation models can be affected by
prevailing market conditions at the time the analysis is performed. While the ROE
that is established in a rate proceeding is intended to be forward-looking, current
market data and projections, specifically stock prices, dividends, growth rates and
interest rates, are utilized in the ROE estimation models to determine the subject
company's required ROE.

7 As is discussed in the remainder of this section, current market conditions 8 will likely have a material effect on the results of the ROE estimation models. As 9 a result, it is important to consider the effect of these conditions on the results of 10 ROE estimation models when determining the appropriate range and recommended 11 ROE for a future period. If investors do not expect current market conditions to be 12 sustained, it is possible that the ROE estimation models will not provide an accurate 13 estimate of investors' required return during the period rates established in this 14 proceeding will be in effect. Therefore, it is important to consider projected market 15 data to estimate the return for that forward-looking period.

16

17 Q19. WHAT FACTORS ARE AFFECTING THE COST OF EQUITY FOR
18 REGULATED UTILITIES IN THE CURRENT AND PROSPECTIVE CAPITAL
19 MARKETS?

A. The cost of equity for regulated utility companies is being affected by several factors in the current and prospective capital markets, including: 1) persistently high inflation, 2) changes in monetary policy, 3) rising interest rates, and 4) volatile market conditions. These factors affect the market data and projections used in the ROE estimation models. In this section, I discuss each of these factors and how it
 affects the models used to estimate the cost of equity for regulated utilities.

3

4 Q20. WHAT EFFECT DO CURRENT AND PROSPECTIVE MARKET 5 CONDITIONS HAVE ON THE COST OF EQUITY FOR ETI?

6 A. The combination of high inflation, the Federal Reserve's changes in monetary 7 policy, and the dramatic shifts in market conditions all contribute to an expectation 8 of increased market risk and an increase in the return on equity required by 9 It is essential that these factors be considered in determining an investors. 10 appropriate forward-looking ROE. Inflation is currently at the highest level 11 experienced in approximately 40 years. Interest rates, which have increased 12 significantly from pandemic-related lows in 2020 are expected to continue to 13 increase in direct response to the Federal Reserve's use of monetary policy to 14 address inflation. Since there is a strong historical inverse correlation between interest rates and the share prices of utility stocks (share prices of utility stocks 15 typically fall when interest rates rise), it is reasonable to expect that investors' 16 17 required ROE for utility companies will also continue to increase. Therefore, ROE 18 estimates based solely on current market conditions will understate the ROE 19 required by investors during the future period that the Company's rates determined 20 in this proceeding will be in effect.

1		A. <u>The Effect of Monetary Policy on Market Dynamics</u>
2	Q21.	PLEASE SUMMARIZE THE MONETARY POLICY ACTIONS OF THE
3		FEDERAL RESERVE IN RESPONSE TO THE ECONOMIC EFFECTS OF
4		COVID-19.
5	А.	In response to the COVID-19 pandemic, the Federal Reserve:
6		(1) decreased the Federal Funds rate twice in March 2020, resulting in a target
7		range of 0.00 percent to 0.25 percent;
8		(2) increased its holdings of both Treasury and mortgaged-back securities;
9		(3) started expansive programs to support credit to large employers - the
10		Primary Market Corporate Credit Facility to provide liquidity for new
11		issuances of corporate bonds; and the Secondary Market Corporate Credit
12		Facility to provide liquidity for outstanding corporate debt issuances; and
13		(4) supported the flow of credit to consumers and businesses through the Term
14		Asset-Backed Securities Loan Facility.
15		In addition, Congress also passed the Coronavirus Aid, Relief, and Economic
16		Security ("CARES") Act in March 2020, the Consolidated Appropriations Act,
17		2021 in December 2020, and the American Rescue Plan Act in March 2021, which
18		included \$2.2 trillion, \$900 billion, and \$1.9 trillion, respectively, in fiscal stimulus
19		aimed at also mitigating the economic effects of COVID-19. These expansive
20		monetary and fiscal programs mitigated the economic effects of the COVID-19
21		pandemic and provided additional support as the economy recovers from the
22		COVID-19 recession.

1 HOW DID THE ACCOMMODATIVE MONETARY AND FISCAL POLICY O22. 2 AFFECT THE U.S. ECONOMY?

- 3 The expansive monetary and fiscal policy programs resulted in a strong economic Α. 4 recovery in 2021 from the COVID-19 induced recessionary period in 2020. In fact, 5 according to the Bureau of Economic Analysis, real GDP grew by 5.7 percent in 2021 driven primarily by a 7.9 percent increase in personal consumption 6 7 expenditures.⁹ Moreover, the unemployment rate decreased from a high of 14.7 percent in April 2020 to 3.9 percent as of December 2021.¹⁰ Finally, as I will 8 9 discuss in more detail below, the economic recovery has also brought about a 10 substantial increase in inflation, with the year-over-year ("YOY") change in the Consumer Price Index ("CPF") at 8.22 percent in April 2022.¹¹ 11
- 12

13 IS THE FEDERAL RESERVE NORMALIZING MONETARY POLICY? 023.

14	Α.	Yes. The dramatic increase in inflation has prompted the Federal Reserve to pursue
15		an aggressive normalization of monetary policy, removing the accommodative
16		policy programs used to mitigate the economic effects of COVID-19. As of the
17		May 4, 2022 meeting, the Federal Reserve has taken the following actions:

⁹ Bureau of Economic Analysis, News Release, "Gross Domestic Product, Fourth Quarter and Year 2021 (2nd estimate)" at 8 (Feb. 24, 2022).

¹⁰ Bureau of Labor Statistics. "Labor Force Statistics from the Current Population Survey." Available at https://data.bls.gov/timeseries/LNS14000000.

¹¹ Bureau of Labor Statistics, U.S. Department of Labor, The Economics Daily, "Food prices up 10.8 percent for year ended April 2022; largest 12-month increase since November 1980" (May 17, 2022). Available at https://www.bls.gov/opub/ted/2022/food-prices-up-10-8-percent-for-vear-ended-april-2022-largest-12-month-increase-since-november-1980.htm.

1 2	٠	Completed its taper of Treasury bond and mortgage-backed securities purchases, decreasing monthly purchase plans by \$60b (from \$80b to \$20b)
3		since November 2021; ¹²
4 5 6	•	Increased the target federal funds rate from $0.00 - 0.25$ percent to $0.25 - 0.50$ percent at the March 16, 2022 meeting ¹³ and then from $0.25 - 0.50$
7 8		percent to $0.75 - 1.00$ percent at the May 4, 2022 meeting; ¹⁴
9 10	•	Forecasted a total of seven rate increases in 2022 and four rate increases in 2023 which resulted a median forecast of the federal funds rate of
11 12		1.9 percent and 2.8 percent in 2022 and 2023, respectively; ¹⁵
13 14	•	Will begin reducing its holdings of Treasury and mortgage-backed securities on June 1, 2022. ¹⁶ The Federal Reserve will reduce the size of its
15 16		balance sheet by only reinvesting principal payments on owned securities after the total amount of payments received exceeds a defined cap. For
17		Treasury Securities, the cap will be set at \$30 billion per month for the first
18		three months and \$60 billion per month after the first three months while
19		for mortgage-backed securities the cap will be set at \$17.5 billion per month
20		for the first three months and \$35 billion per month after the first three
21		months. ¹⁷

22 Q24. WHAT IS THE MARKET RESPONSE TO THE RECENT FEDERAL OPEN

23 MARKET COMMITTEE MEETINGS?

- A. The market response is an expectation that interest rates will continue to increase
- 25 in response to Federal Reserve actions to address inflation. The CME Group uses
- 26 federal funds rate futures contracts to determine investors' views regarding the

- ¹³ Federal Reserve, Press Release (Mar. 16, 2022).
- ¹⁴ Federal Reserve, Press Release (May 4, 2022).
- ¹⁵ Federal Reserve, Summary of Economic Projections, at 2 (Mar 16, 2022).
- ¹⁶ Federal Reserve, Press Release (May 4, 2022).

¹² Federal Reserve Bank of New York, <u>https://www.newyorkfed.org/markets/domestic-market-operations/monetary-policy-implementation/treasury-securities/treasury-securities-operational-details#monthly-details.</u>

¹⁷ Federal Reserve, Plans for Reducing the Size of the Federal Reserve's Balance Sheet, Press Release (May 4, 2022).

1	probability of the target federal funds rate range at upcoming Federal Reserve
2	meetings.18 Figure 2 below summarizes investors' expectations regarding the level
3	of the federal funds rate at each of the next eleven meetings as of May 5, 2022,
4	based on The CME Group's methodology. As shown in Figure 2, investors expect
5	the Federal Reserve to increase the federal funds rate at a faster pace than what was
6	indicated in the forecasts released at the Federal Reserve's March 16, 2022 meeting.
7	For example, according to the CME Group, there is a 53.6 percent probability ¹⁹ that
8	the target federal funds rate range is 3.00 percent to 3.25 percent as of December
9	2022 which is greater than the Federal Reserve's median forecast of 1.90 percent.
10	This is consistent with expectations of major financial institutions. In particular:
11 12 13	• Citigroup, Inc. is now projecting 50 basis point increases at the next four Federal Open Market Committee ("FOMC") meetings followed by 25 basis point increases in October and December, reaching 3.50 to 3.75 percent.
14 15 16 17	• Bank of America Corp. is projecting a 25 basis point increase in May, followed by two 50 basis point increases, and then a 25 basis point increase at each subsequent meeting through May 2023, reaching a range of 3.00 to 3.25 percent.
18 19 20 21 22	• Goldman Sachs Group Inc. is projecting 50 basis point increases at the May and June FOMC meetings with a 25 basis point increase at the four remaining meetings in 2022. ²⁰ Moody's recently noted that the financial markets are close to fully pricing in three 50-basis point rate increases this year. ²¹
23	Thus, the consensus of investors is an expectation that the Federal Reserve

¹⁸ <u>https://www.cmegroup.com/cducation/demos-and-tutorials/fed-funds-futures-probability-treecalculator.html.</u>

¹⁹ The probability of a rate hike is calculated by adding the probabilities of all target rate levels above the current target rate.

²⁰ Lamman, Scott, "Wall Street Lifts Fed Forecasts; Citi See Four Half-Point Hikes," Bloomberg, March 25, 2022.

²¹ Moody's Analytics, Weekly Market Outlook, "Fed Girds for Stagflation," April 14, 2022.

3

- 1 will pursue more aggressive monetary policy than indicated at the March 16, 2022,
- 2 meeting to combat persistent high levels of inflation.

						MEETI	NG PROB	ABILITIES							
MEETING DATE	125-150	150-175	175-200	200-225	225-250	250-275	275-300	300-325	325-350	350-375	375-400	400-425	425-450	450-475	475-500
6/15/2022	12.9%	87.1%	0.0%	0.0%										-	
7/27/2022	0.0%	0.0%	12.8%	86.9%	0.3%	0.0%	0.0%	0.0%	0.0%						
9/21/2022	0.0%	0.0%	0.0%	6.8%	52.1%	41.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
11/2/2022	0.0%	0.0%	0.0%	0.0%	5.4%	43.0%	43.2%	8.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.09
12/14/2022	0.0%	0.0%	0.0%	0.0%	0.0%	5.2%	41.2%	43.2%	10.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.09
2/1/2023	0.0%	0.0%	0.0%	0.0%	0.0%	1.8%	17.4%	41.9%	31.9%	6.8%	0.3%	0.0%	0.0%	0.0%	0.09
3/15/2023	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%	8.8%	28.4%	37.4%	20.6%	3.8%	0.2%	0.0%	0.09
5/3/2023	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	1.5%	10.5%	29.2%	36.0%	19.2%	3.5%	0.1%	0.0%	0.09
6/14/2023	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%	6.4%	20.7%	32.9%	26.8%	10.6%	1.7%	0.19
7/26/2023	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	5.5%	18.4%	30.9%	27.8%	13.2%	3.1%	0.35

Figure 2: Investor Expectation of Future Federal Funds Rate Increases²²

4	Q25.	HAS THE FEDERAL RESERVE PROVIDED ADDITIONAL SUPPORT FOR
5		INVESTORS' EXPECTATIONS REGARDING THE FEDERAL FUNDS
6		RATE?
7	A.	Yes. Specifically, at the May 4, 2022 meeting, when the Federal Reserve increased
8		the federal funds target rate by 50 basis points from a range of 0.25 - 0.50 percent
9		to a range of 0.75 - 1.00 percent, Federal Reserve Chairman Powell noted at his
10		press conference that additional 50 basis point increases should be considered at
11		the next couple of meetings:
12		"[w]e are on a path to move our policy rate expeditiously to more normal
13		levels. Assuming that economic and financial conditions evolve in line
14		with expectations, there is a broad sense on the Committee that
15		additional 50 basis point increases should be on the table at the next
16		couple of meetings. We will make our decisions meeting by meeting, as

²² CME Group; FedWatch tool as of May 5, 2022.

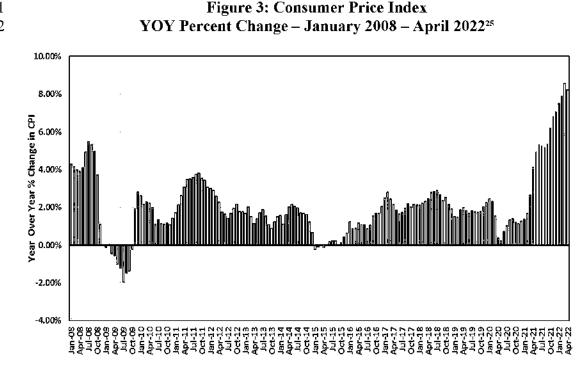
we learn from incoming data and the evolving outlook for the economy.
 And we will continue to communicate our thinking as clearly as possible. Our overarching focus is using our tools to bring inflation back down to our 2 percent goal."²³

5 B. Inflationary Expectations in Current and Projected Market Conditions

- 6 Q26. IS THE INCREASE IN INFLATION SIGNIFICANT?
- 7 A. Yes. As shown in Figure 3, the YOY change in the Consumer Price Index ("CPI")
- 8 published by the Bureau of Labor Statistics has increased steadily over the past
- 9 year, rising from 1.37 percent in January 2021 to 8.22 percent in April 2022. The
- 10 8.22 percent YOY in the CPI in April; 2022 is down slightly from 8.56 percent in
- 11 March 2022 which was the largest 12-month increase since 1981 and significantly
- 12 greater than any level seen since January 2008.²⁴

²³ Federal Reserve, Transcript of Chair Powell's Press Conference Opening Statement, at 3 (May 4, 2022).

²⁴ Bureau of Labor Statistics, Consumer Price Index News Release, April 12, 2022, data accessed May 12, 2022.



3 Q27. WHAT ARE THE EXPECTATIONS FOR INFLATION OVER THE NEAR-TERM? 4

5 Α. In his press conference following the May 4, 2022, meeting, Chairman Powell 6 noted that "[i]nflation is much too high and we understand the hardship it is causing, and we're moving expeditiously to bring it back down."²⁶ Therefore, investors 7 8 expect inflation to remain elevated over the near-term. One measure of investors' 9 expectations regarding inflation is the breakeven inflation rate, which is calculated 10as the difference between the yield on a Treasury bond and the yield on a Treasury 11 Inflation-Protected bond of the same maturity, since the yield on a Treasury 12 Inflation-Protected bond would account for the effect of inflation. The maturity of

²⁵ Bureau of Labor Statistics, shaded area indicates a recession.

²⁶ Federal Reserve, Transcript of Chair Powell's Press Conference Opening Statement at 1 (May 4, 2022).

1 the bond selected would then reflect investors' views of inflation during the holding 2 period of the bond. For example, the 10-year breakeven inflation rate calculated as 3 the spread between the 10-year Treasury bond yield and the 10-year Treasury 4 Inflation-Protected bond yield would reflect investors' expectations of inflation 5 over the next 10 years. As shown in Figure 4 below, the 10-year breakeven inflation rate is currently greater than any level seen since January 2003. Furthermore, the 6 7 10-year breakeven inflation rate as of April 29, 2022 was 2.88 percent indicating 8 that investors expect inflation will remain well above the Federal Reserve's 9 2 percent target over the next 10 years. There are many reasons why inflation is 10 expected to remain elevated. For example, Kiplinger recently noted some key factors, including Russia's war in Ukraine, which led them to forecast an inflation 11 rate of 6.3 percent for 2022: 12

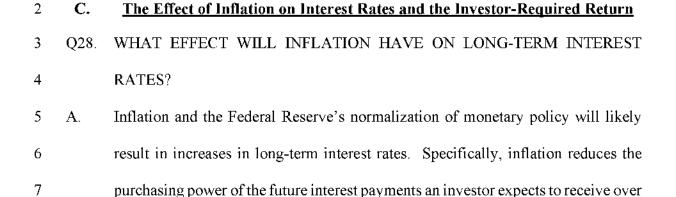
13 The inflation rate is expected to ease further over the rest of this year, but will likely end 2022 at a still-high rate of about 6.3%. In 2023 14 the rate should fall faster, down to 3.0% by the end of the year. The 15 16 higher cost of housing will keep inflation rates elevated for some time to come. Gasoline prices and heating costs are likely to stay 17 18 high for a good while because of the war in Ukraine, but they may 19 plateau instead of climbing more. The price of cars and trucks will 20 also stay at a high level until the semiconductor shortage ends sometime next year. Continued spot shortages of various items will 21 22 drive their price up, adding to the overall inflation rate. The latest is 23 a shortage of baby formula.²⁷

²⁷ Payne, David, "Inflation Will Ease, But Only Gradually This Year," Kiplinger, May 11, 2022.

1



Figure 4: 10-year Breakeven Inflation Rate – Janaury 2003 – April 2022²⁸



8

the duration of a bond. This risk increases the longer the duration of the bond. As

²⁸ Federal Reserve Bank of St. Louis, 10-Year Breakeven Inflation Rate [T10YIE], retrieved from FRED, Federal Reserve Bank of St. Louis; <u>https://fred.stlouisfed.org/series/T10YIE</u>, April 29, 2022.

a result, if investors expect increased levels of inflation, they will require higher
 yields to compensate for the increased risk of inflation, which means interest rates
 will increase.

4

5 Q29. HAVE THE YIELDS ON LONG-TERM GOVERNMENT BONDS INCREASED 6 IN RESPONSE TO INFLATION AND THE FEDERAL RESERVE'S 7 NORMALIZATION OF MONETARY POLICY?

8 Α, Yes, they have. As noted above, at each of the December 2021, January 2022, 9 March 2022, and May 2022 meetings, the Federal Reserve noted its continued 10 concerns over the sustained increased levels of inflation. In addition, starting at the December 2021 meeting and continuing through the May 2022 meeting, the Federal 11 12 Reserve accelerated the process of normalizing monetary policy to respond to 13 inflation. As shown in Figure 5, since the Federal Reserve's December 2021 14 meeting, the yield on 10-year Treasury bond has doubled, increasing from 1.47 percent on December 15, 2021 to 2.89 percent on April 29, 2022. The increase 15 is due to the Federal Reserve's announcements at the December 2021, January 16 17 2022, March 2022 and May 2022 meetings, actions the Federal Reserve has taken 18 to normalize monetary policy, and the continued increased levels of inflation that 19 are now expected to persist much longer than the Federal Reserve and investors had 20 originally projected.

1

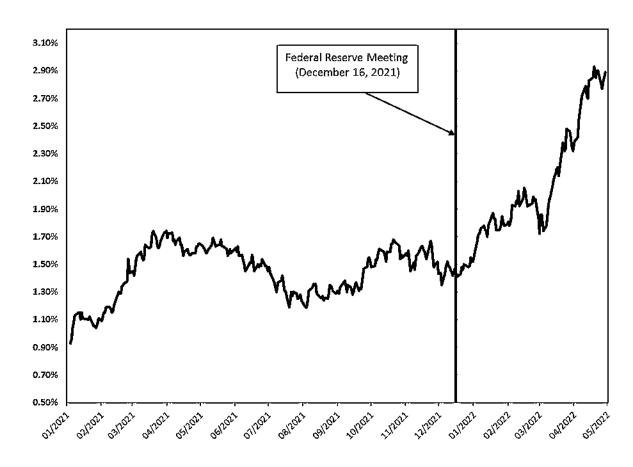


Figure 5: 10-Year Treasury Bond Yield – Janaury 2021 – April 2022²⁹

2 Q30. WHAT VIEWS HAVE EQUITY ANALYSTS EXPRESSED ABOUT LONG-

3 TERM GOVERNMENT BOND YIELDS?

A. Leading equity analysts have noted that they expect the yields on long-term
government bonds to remain elevated through at least the end of 2022. According
to views of equity analysts summarized in Figure 6, the yield on the 10-year
Treasury Bond is expected to range from 3.10 percent to 4.00 percent by the end of
2022, which is 101 to 191 basis points greater than the current 30-day average yield
on the 10-year Treasury Bond as of March 31, 2022 of 2.09 percent. Furthermore,

²⁹ S&P Capital IQ Pro.

2

1 on March 31, 2022, the yield on the 10-year Treasury was trading at 2.32 percent.

	10-year U.S. Treasury Yield					
Bank	30-day Average as of April 29, 2022	2022 Forecast				
Advocate Capital Management ³⁰	2.09%	4.00%				
Goldman Sachs ³¹	2.09%	3.30%				
Blue Chip Financial Forecasts (Consensus Estimate) ³²	2.09%	3.10%				
BMO Economics ³³	2.09%	3.15%				

Figure 6: Equity Analysts Forecast of the 10-year Treasury Yield

3 Q31. HAVE YOU CONSIDERED ANY ADDITIONAL INDICATORS THAT MAY

4 IMPLY LONG-TERM INTEREST RATES ARE EXPECTED TO INCREASE?

5 Α. Yes, I have. I considered the net position of commercials (i.e., banks) in U.S. 6 Treasury Bond futures contracts as reported in the Commitment of Traders 7 ("COT") Report produced by the Commodity Futures Trading Commission 8 ("CFTC"). A net position is defined as the total number of long positions in a 9 futures contract minus the total number of short positions in a futures contract. A 10 long position means that an investor agrees to purchase an asset in the future at a 11 predetermined price and therefore profits if the price of the underlying asset 12 increases. Conversely, short position is when an investor agrees to sell an asset at 13 a time in the future at a predetermined price and profits if the price of the underlying

³⁰ MarketWatch, "This bond expert who called the spike in U.S. yields forecasts the 10-year to reach 4%," May 7, 2022. <u>https://www.marketwatch.com/story/this-bond-expert-who-called-the-spike-in-u-s-yields-forecasts-the-10-year-to-reach-4-11651843223</u>.

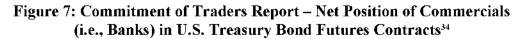
³¹ Pollard, Amelia. "Goldman Lifts Yield Forecasts, Sees 10-Year Treasuries at 3.3%." Bloomberg.com, May 12, 2022.

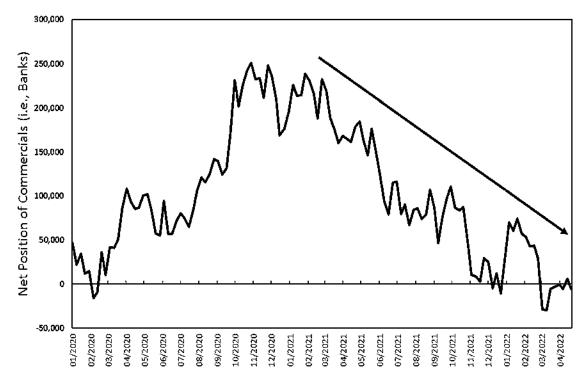
³² Blue Chip Financial Forecasts, Vol. 41, No. 5, April 29, 2022, at 2.

³³ BMO Economics, "Rates Scenario for May 11, 2022," May 11, 2022.

8

asset declines. Therefore, if banks are increasing the number of short positions and
thus have a declining net position, the banks are assuming that the price of the asset
will decline. As shown in Figure 7, the net position of banks in U.S. Treasury
Bonds has been decreasing since the end of 2020. Therefore, banks are forecasting
a decrease in the price of long-term government bonds and thus the yields (which
are inversely related to the price) to increase over the near-term.





³⁴ Commitment of Traders Report, as of April 29, 2022 https://www.cftc.gov/MarketReports/CommitmentsofTraders/HistoricalCompressed/index.htm.

1 2	D.	<u>Expected Performance of Utility Stocks and the Investor-Required ROE on</u> <u>Utility Investments</u>
3	Q32.	ARE UTILITY SHARE PRICES CORRELATED TO CHANGES IN THE
4		YIELDS ON LONG-TERM GOVERNMENT BONDS?
5	Α.	Yes, interest rates and utility share prices are inversely correlated which means, for
6		example, that an increase in interest rates will generally result in a decline in the
7		share prices of utilities. For example, Goldman Sachs and Deutsche Bank recently
8		examined the sensitivity of share prices of different industries to changes in interest
9		rates over the past five years. Both Goldman Sachs and Deutsche Bank found that
10		utilities had one of the strongest negative relationships with bond yields
11		(i.e., increases in bond yields resulted in the decline of utility share prices).35
12		
13	Q33.	HAVE ELECTRIC UTILITY STOCK PRICES RECENTLY INCREASED?
14	A.	Yes. Utility stock prices had trended down as interest rates moved higher; however,
15		as a result of the political turmoil associated with the war in Ukraine, investors have
16		recently returned to utility stocks as a safe haven seeking to lower risk, resulting in
17		higher electric utility stock prices and thus lower dividend yields.36

³⁵ Lee, Justina. "Wall Street Is Rethinking the Treasury Threat to Big Tech Stocks." Bloomberg.com, March 11, 2021, <u>www.bloomberg.com/news/articles/2021-03-11/wall-street-is-rethinking-the-treasury-threat-to-big-tech-stocks</u>.

³⁶ Sonenshine, Jacob. "Utilities Have Been Soaring as Treasuries Get Crushed. That Isn't Supposed to Happen." Barrons.com, April 11, 2022, <u>https://www.barrons.com/articles/utilities-treasury-yieldsoutlook-51649457572?mod=hp_INTERESTS_bonds&refsec=hp_INTERESTS_bonds.</u>

1 Q34. HOW DO EQUITY ANALYSTS EXPECT THE UTILITIES SECTOR TO

- 2 PERFORM IN AN INCREASING INTEREST RATE ENVIRONMENT?
- 3 Α. Even with the recent increase in electric utility stock prices, equity analysts project 4 that utilities are expected to underperform the broader market as interest rates 5 increase. For example, in its most recent Big Money Poll, which closed in mid-April 2022 and surveyed 112 money managers regarding the outlook for the next 6 7 twelve months, the professional investors surveyed by Barron's selected the utility sector as the least attractive of all industries for investment.³⁷ In addition, Fidelity 8 9 recently recommended underweighting the utility sector and noted that it classified 10 the sector as underweight due to a combination of "poor fundamentals and expensive valuations."³⁸ Furthermore, regarding the recent increase in utility share 11
- 12 prices, Fidelity stated that:

Energy stocks have garnered a lot of attention, but in February utilities was the only sector with monthly returns in the 90th percentile of its historical range. In the past, powerful utilities rallies have signaled investors getting too defensive. The market typically has gained, and utilities have underperformed, in 12-month periods after top-decile monthly relative returns for the sector.³⁹

19 Q35. HAVE YOU REVIEWED ANY MARKET INDICATORS THAT MAY IMPLY

- 20 THAT UTILITIES WILL UNDERPERFORM OVER THE NEAR-TERM?
- 21 A. Yes, I have. As discussed above, the utility sector is considered a "bond proxy" or
- a sector that investors view as a "safe haven" alternative to bonds, and changes in

³⁸ Fidelity, "Top sectors to watch in Q2," May 4, 2022.

³⁹ Id.

³⁷ Jasinski, Nicholas, "Bullish Later: How Investors Are Sizing up Stocks," Barron's, updated April 24, 2022.

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1 utility stock prices are therefore inversely related to changes in interest rates. For 2 example, the utility sector tends to perform well when interest rates are low since 3 the dividend yields for utilities offer investors the prospect of higher returns when 4 compared to the yields on long-term government bonds. Conversely, the utility 5 sector underperforms as the yields on long-term government bonds increase and the spread between the dividend yields on utility stocks and the yields on long-term 6 7 government bonds decreases. Therefore, I examined the difference ("yield spread") 8 between the dividend yields of utility stocks and the yields on long-term 9 government bonds from January 2010 through April 2022. I selected the dividend 10 yield on the S&P Utilities Index as the measure of the dividend yields for the utility 11 sector and the yield on the 10-year Treasury Bond as the estimate of the yield on 12 long-term government bonds.

13 As shown in Figure 8, the yield spread as of April 29, 2022, was 0.05 percent, indicating that the yield on the 10-year Treasury Bond is equivalent 14 15 to the dividend yield for the S&P Utilities Index. Furthermore, the current yield 16 spread of 0.05 percent is well below the long-term average since January 2010 of 17 1.47 percent. Given that the yield spread is currently well below the long-term 18 average as well as the expectation that interest rates will continue to increase, it is 19 reasonable to conclude that utility sector will most likely underperform over the 20 near-term. This is because investors that purchased utility stocks as an alternative 21 to the lower yields on long-term government bonds would otherwise be inclined to 22 rotate back into government bonds, particularly as the yields on long-term government bonds continue to increase, thus resulting in a decrease in the share 23

1 prices of utilities.



Figure 8: Yield Spread between the Dividend Yield on the S&P Utilities Index and the Yield on the 10-year Treasury Bond – January 2010 – April 2022⁴⁰



4 Q36. WHAT IS THE SIGNIFICANCE OF THE INVERSE RELATIONSHIP 5 BETWEEN INTEREST RATES AND UTILITY SHARE PRICES IN THE 6 CURRENT MARKET?

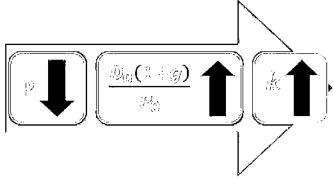
A. As discussed above, the Federal Reserve is currently normalizing monetary policy
in response to inflation which is expected to increase long-term government bond
yields. If interest rates increase as expected, then the share prices of utilities will
decline which results in the DCF model understating the cost of equity. For
example, Figure 9 below summarizes the effect of price on the dividend yield in
the Constant Growth DCF model.

⁴⁰ Bloomberg Professional and S&P Capital IQ Pro.

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Figure 9: The Effect of a Decline in Stock Prices on the **Constant Growth DCF Model**



3	A decline in stock prices will increase the dividend yields and thus the estimate of
4	the ROE produced by the Constant Growth DCF model. Therefore, this expected
5	change in market conditions supports consideration of the range of ROE results
6	produced by the median to median-high DCF results since the median DCF results
7	would likely understate the cost of equity during the period that the Company's
8	rates will be in effect. Moreover, prospective market conditions warrant
9	consideration of other ROE estimation models such as the CAPM and ECAPM,
10	which may better reflect expected market conditions. For example, two out of three
11	inputs to the CAPM (i.e., the market risk premium and risk-free rate) are forward-
12	looking.

- 13
- 14

Е, Conclusion

15 Q37. WHAT ARE YOUR CONCLUSIONS REGARDING THE EFFECT OF CURRENT MARKET CONDITIONS ON THE COST OF EQUITY FOR THE 16 17 COMPANY?

18 Over the near-term, investors expect long-term interest rates to increase in response Α.

1		to continued elevated levels of inflation and the Federal Reserve's normalization of
2		monetary policy. Because the share prices of utilities are inversely correlated to
3		interest rates, an increase in long-term government bond yields will likely result in
4		a decline in utility share prices, which is the reason a number of equity analysts
5		expect the utility sector to underperform over the near-term. The expected
6		underperformance of utilities means that DCF models using recent historical data
7		likely underestimate investors' required return over the period that rates will be in
8		effect. This change in market conditions also supports the use of other ROE
9		estimation models such as the CAPM and the ECAPM, which may better reflect
10		expected market conditions.
11		
12		VI. PROXY GROUP SELECTION
12		VI. <u>PROXY GROUP SELECTION</u>
12	Q38.	WHY HAVE YOU USED GROUPS OF PROXY COMPANIES TO ESTIMATE
	Q38.	
13	Q38. A.	WHY HAVE YOU USED GROUPS OF PROXY COMPANIES TO ESTIMATE
13 14	Ì	WHY HAVE YOU USED GROUPS OF PROXY COMPANIES TO ESTIMATE THE COST OF EQUITY FOR ETI?
13 14 15	Ì	WHY HAVE YOU USED GROUPS OF PROXY COMPANIES TO ESTIMATE THE COST OF EQUITY FOR ETI? In this proceeding, I am estimating the cost of equity for ETI, a rate-regulated
13 14 15 16	Ì	WHY HAVE YOU USED GROUPS OF PROXY COMPANIES TO ESTIMATE THE COST OF EQUITY FOR ETI? In this proceeding, I am estimating the cost of equity for ETI, a rate-regulated subsidiary of Entergy. Since the ROE is a market-based concept and given the fact
13 14 15 16 17	Ì	WHY HAVE YOU USED GROUPS OF PROXY COMPANIES TO ESTIMATE THE COST OF EQUITY FOR ETI? In this proceeding, I am estimating the cost of equity for ETI, a rate-regulated subsidiary of Entergy. Since the ROE is a market-based concept and given the fact ETI's operations in Texas do not make up the entirety of a publicly-traded entity,
13 14 15 16 17 18	Ì	WHY HAVE YOU USED GROUPS OF PROXY COMPANIES TO ESTIMATE THE COST OF EQUITY FOR ETI? In this proceeding, I am estimating the cost of equity for ETI, a rate-regulated subsidiary of Entergy. Since the ROE is a market-based concept and given the fact ETI's operations in Texas 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
 13 14 15 16 17 18 19 	Ì	WHY HAVE YOU USED GROUPS OF PROXY COMPANIES TO ESTIMATE THE COST OF EQUITY FOR ETI? In this proceeding, I am estimating the cost of equity for ETI, a rate-regulated subsidiary of Entergy. Since the ROE is a market-based concept and given the fact ETI's operations in Texas 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 ETI in certain fundamental business and financial respects to serve
 13 14 15 16 17 18 19 20 	Ì	WHY HAVE YOU USED GROUPS OF PROXY COMPANIES TO ESTIMATE THE COST OF EQUITY FOR ETI? In this proceeding, I am estimating the cost of equity for ETI, a rate-regulated subsidiary of Entergy. Since the ROE is a market-based concept and given the fact ETI's operations in Texas 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 ETI in certain fundamental business and financial respects to serve as its "proxy" for purposes of estimating the cost of equity.

1		the effects of anomalous events that may be associated with any one company. The
2		proxy companies used in my analyses all possess a set of operating and financial
3		risk characteristics that are substantially comparable to ETI, and, therefore, provide
4		a reasonable basis to derive and estimate the appropriate ROE for the Company.
5		
6	Q39,	PLEASE PROVIDE A BRIEF PROFILE OF ETI.
7	Α.	ETI is a wholly owned subsidiary that provides electricity to approximately
8		486,000 customers in 27 counties in Texas. ⁴¹ Retail sales in Texas in 2021 were
9		approximately 22,051,000 MWh. ⁴² ETI currently has an investment grade long-
10		term rating of BBB+ (Outlook: Stable) from Standard & Poor's ("S&P") and Baa2
11		(Outlook: Stable) from Moody's. ⁴³ ETI's current long-term issuer credit ratings are
12		shown in Figure 10.

Figure 10: ETI Credit Ratings⁴⁴

Credit Rating Agency	Rating	Outlook
Standard & Poor's	BBB+	Stable
Moody's Investors Service	Baa2	Stable

14 Q40. HOW DID YOU SELECT THE COMPANIES IN YOUR PROXY GROUP?

15 A. I began with the group of 36 companies that Value Line classifies as Electric

16

Utilities and applied the following screening criteria to select companies that:

⁴¹ Entergy Texas, Inc. <u>https://www.entergy-texas.com/about-us</u>, accessed May 4, 2022.

⁴² Entergy Texas, Inc. SEC Form 10-K, December 31, 2020, at 402.

⁴³ Moody's.com accessed March 28, 2022.

⁴⁴ S&P Global Ratings, Ratings Direct, Entergy Texas, Inc., March 7, 2022.

- 1 pay consistent quarterly cash dividends, because companies that do not 2 cannot be analyzed using the Constant Growth DCF model; 3 have investment grade long-term issuer ratings from S&P and/or Moody's; 4 are covered by at least two utility industry analysts; 5 have positive long-term earnings growth forecasts from at least two utility 6 industry equity analysts; 7 own regulated generation assets that are included in rate base; 8 derive more than 40.00 percent of its megawatt-hour sales from its owned • 9 generation facilities; derive more than 60.00 percent of their total operating income from 10 • 11 regulated operations; 12 derive more than 80.00 percent of their total regulated operating income . 13 from regulated electric operations; and were not parties to a merger or transformative transaction during the 14 • 15 analytical periods relied on. Q41. DID YOU EXCLUDE ANY OTHER COMPANIES FROM THE PROXY 16 17 GROUP? Yes. I also excluded Pinnacle West Capital Corporation ("PNW") and Hawaiian 18 Α. 19 Electric Industries, Inc. ("HE"). For PNW, the share price decreased approximately 20 24 percent over a two-month period from October through November 2021 21 resulting from a negative regulatory decision for its largest operating company, 22 Arizona Public Service Company ("APS"). Therefore, similar to the reason that I 23 exclude transformative transactions; because the stock price can be affected by one-24 time events, I also excluded PNW from the proxy group. 25 HE's operations are concentrated on the islands of Hawaii; therefore, the
- 26 company faces geographic concentration risk. As HE noted in the company's 2021

1 Form10-K:

2 3 4 5		The Company is subject to the risks associated with the geographic concentration of its businesses and current lack of interconnections that could result in service interruptions at the Utilities or higher default rates on loans held by ASB [American Savings Bank]. ⁴⁵
6		The increased risk of service interruptions resulting from HE's geographic
7		location which could result in revenue loss and increased costs is a risk unique to
8		HE and would not apply to utilities located on the U.S. mainland. Furthermore,
9		HE's unregulated operations which represent approximately 33 percent of the
10		company's operation income in 2021 are concentrated in the banking sector through
11		the ownership of American Savings Bank ("ASB").46 ASB also only operates on
12		Hawaii; thus, all of the company's consumer and commercial loans are to customers
13		on Hawaii. If Hawaii were to face an adverse economic or political event, ASB
14		could face severe financial effects given the company's geographic concentration
15		in Hawaii.47 As a result, I have excluded HE from my proxy group considering
16		HE's unique geographical risks.
17		
18	Q42.	WHAT IS THE COMPOSITION OF YOUR PROXY GROUP?
10	•	The second state is a discussion of the interview of the interview of the second state of the

A. The screening criteria just discussed results in a proxy group consisting of thecompanies shown in Figure 11 (and also in Exhibit AEB-3).

⁴⁶ *Id.* at 86.

⁴⁵ Hawaii Electric Industries, Inc., 2021 Form 10-K at 23.

⁴⁷ Id. at 20.

1	

Figure 11: Proxy Group

Company	Ticker
ALLETE, Inc.	ALE
Alliant Energy Corporation	LNT
Ameren Corporation	AEE
American Electric Power Company, Inc.	AEP
Duke Energy Corporation	DUK
Evergy, Inc.	EVRG
IDACORP, Inc.	IDA
NextEra Energy, Inc.	NEE
NorthWestern Corporation	NWE
OGE Energy Corporation	OGE
Otter Tail Corporation	OTTR
Portland General Electric Company	POR
Southern Company	SO
Xcel Energy Inc.	XEL

2

VII. <u>COST OF EQUITY ESTIMATION</u>

3 Q43. PLEASE BRIEFLY DISCUSS THE ROE IN THE CONTEXT OF A
4 REGULATED UTILITY.

5 A. The regulatory construct requires that the regulatory agency, acting as a substitute 6 for the competitive market, establish a rate of return for the company that is 7 commensurate with the rate of return expected in the market for investments of 8 similar risk. There can be adjustments to the ROE to reflect specific performance 9 (e.g., positive adjustments recognizing strong management performance, cost 10 savings and other important operational metrics, or negative adjustments reflecting 11 poor performance in similar metrics). Absent any adjustments for these types of

1 performance measures, the base ROE is intended to reflect the return that investors 2 require in order to invest in utility assets rather than investing in enterprises of 3 comparable risk in the industry or competitive market. The overall rate of return for a regulated utility includes both the cost of 4 5 debt and the cost of equity and is based on its weighted average cost of capital, whereby the costs of the individual sources of capital are weighted by their 6 7 proportion in the capital structure. While the cost of debt and preferred stock can 8 be directly observed, the cost of equity is market-based and, therefore, must be 9 estimated based on observable market data. 10 11 HOW IS THE REQUIRED ROE DETERMINED? O44. 12 A. The required ROE is estimated by using multiple analytical techniques that rely on market data to quantify investors' return requirements, adjusted for certain 13 14 incremental costs and risks. Quantitative models produce a range of reasonable results from which the market-required ROE is selected. That selection must be 15 based on a comprehensive review of relevant data and information, but it does not 16 17 necessarily lend itself to a strict mathematical solution. The key consideration in determining the cost of equity is to ensure that the methodologies employed 18 19 reasonably reflect investors' views of the financial markets in general and of the 20 subject company (in the context of the proxy group) in particular. 21

22 Q45. WHAT METHODS DID YOU USE TO ESTIMATE ETI'S COST OF EQUITY?

23 A. I considered the results of the Constant Growth DCF model, the CAPM, the

ECAPM and the Bond Yield Plus Risk Premium approach. As discussed in more detail below, a reasonable ROE estimate considers alternative methodologies, and the reasonableness of their individual and collective results.

4

5 Q46. WHY IS IT IMPORTANT TO USE MORE THAN ONE ANALYTICAL6 APPROACH?

7 A. Because the cost of equity is not directly observable, it must be estimated based on 8 both quantitative and qualitative information. When faced with the task of 9 estimating the cost of equity, analysts and investors are inclined to gather and 10 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 11 12 estimate the cost of equity. As a practical matter, however, all of the models 13 available for estimating the cost of equity are subject to limiting assumptions or 14 other methodological constraints. Consequently, many well-regarded finance texts recommend using multiple approaches when estimating the cost of equity. For 15 example, Copeland, Koller, and Murrin⁴⁸ suggest using the CAPM and Arbitrage 16 Pricing Theory model, while Brigham and Gapenski⁴⁹ recommend the CAPM, 17 18 DCF, and Bond Yield Plus Risk Premium approaches. Consistent with the Hope 19 finding, it is the analytical result, not the methodology employed, which is 20 controlling in arriving at ROE determinations.

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⁴⁸ Tom Copeland, Tim Koller and Jack Murrin, Valuation: Measuring and Managing the Value of Companies, 3rd Ed. (New York: McKinsey & Company, Inc., 2000) at 214.

⁴⁹ Eugene Brigham, Louis Gapenski, Financial Management: Theory and Practice, 7th Ed. (Orlando: Dryden Press, 1994) at 341.

1 Q47. IS IT IMPORTANT GIVEN THE CURRENT MARKET CONDITIONS TO USE

2 MORE THAN ONE ANALYTICAL APPROACH?

3 Α. Yes. The historical average dividend yields for utilities are currently reflecting the 4 effect of the recently low interest rate environment which results in DCF cost of 5 equity estimates that are understating the forward-looking cost of equity. The CAPM and Bond Yield Plus Risk Premium method offer some balance to the 6 7 sensitivity of the DCF model to low Treasury yields. Low interest rates might also 8 affect the CAPM in two ways: (1) the risk-free rate is lower, and (2) because the 9 market risk premium is a function of interest rates, (i.e., it is the return on the broad 10 stock market less the risk-free interest rate), the risk premium should move higher when interest rates are lower. However, when applied appropriately, the CAPM 11 12 will take into account the relationship between ROE and interest rates through the 13 market risk premium component. Therefore, it is important to use multiple 14 analytical approaches to moderate the impact that the current low interest rate environment is having on the ROE estimates, especially the DCF analysis, and 15 where possible consider using projected market data in the models to estimate the 16 17 return for the forward-looking period.

18

19 Q48. WHAT ARE YOUR CONCLUSIONS ABOUT THE RESULTS OF THE DCF20 AND CAPM MODELS?

A. Recent market data that is used as the basis for the assumptions for both models
have been affected by market conditions. As a result, relying exclusively on
historical assumptions in these models, without considering whether these

1	assumptions are consistent with investors' future expectations, will underestimate
2	the cost of equity that investors would require over the period that the rates in this
3	case are to be in effect. In this instance, relying on the historically low dividend
4	yields that are not expected to continue over the period that the new rates will be in
5	effect will underestimate the ROE for ETI.
6	Furthermore, as discussed in Section V above, long-term interest rates have
7	increased since August 2020, and this trend is expected to continue as the Federal

- 8 Reserve normalizes monetary policy in response to increased inflation. Therefore, 9 the use of current averages of Treasury bond yields as the estimate of the risk-free 10 rate in the CAPM is not appropriate since recent market conditions are not expected 11 to continue over the long-term. Instead, analysts should rely on projected yields of 12 Treasury Bonds in the CAPM. The projected Treasury Bond yields result in CAPM 13 estimates that are more reflective of the market conditions that investors expect 14 during the period that the Company's rates will be in effect.
- 15
- 16

A. Constant Growth DCF Model

17 Q49. PLEASE 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 its most general form, the DCF
 model is expressed as follows:

21 Equation [1] $P_0 = \frac{D_1}{(1+k)} + \frac{D_2}{(1+k)^2} + \dots + \frac{D_{\infty}}{(1+k)^{\infty}}$ Where P₀ represents the current stock price, D₁...D∞ are all expected future
 dividends, and k is the discount rate, or required ROE. Equation [1] is a standard
 present value calculation that can be simplified and rearranged into the following
 form:

Equation [2]
$k = \frac{D_0(1+g)}{P_0} + g$

Equation [2] is often referred to as the Constant Growth DCF model in
which the first term is the expected dividend yield and the second term is the
expected long-term growth rate.

9

5

10 Q50. WHAT ASSUMPTIONS ARE REQUIRED FOR THE CONSTANT GROWTH11 DCF MODEL?

A. The Constant Growth DCF model requires the following 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 any of these assumptions is violated,
considered judgment and/or specific adjustments should be applied to the results.

17

18 Q51. WHAT MARKET DATA DID YOU USE TO CALCULATE THE DIVIDEND19 YIELD IN YOUR CONSTANT GROWTH DCF MODEL?

A. The dividend yield in my Constant Growth DCF model is based on the proxy group
 companies' current annual dividend and average closing stock prices over the 30-,

- 90-, and 180-trading days ended March 31, 2022.
- 2

3 Q52. DID YOU MAKE ANY ADJUSTMENTS TO THE DIVIDEND YIELD TO 4 ACCOUNT FOR PERIODIC GROWTH IN DIVIDENDS?

5 A. Yes. Since utility companies tend to increase their quarterly dividends at different 6 times throughout the year, it is reasonable to assume that dividend increases will be 7 evenly distributed over calendar quarters. Given that assumption, it is reasonable 8 to apply one-half of the expected annual dividend growth rate for purposes of 9 calculating the expected dividend yield component of the DCF model. This 10 adjustment ensures that the expected first year dividend yield is, on average, 11 representative of the coming 12-month period, and does not overstate the 12 aggregated dividends to be paid during that time.

13

14 Q53. WHY IS IT IMPORTANT TO SELECT APPROPRIATE MEASURES OF 15 LONG-TERM GROWTH IN APPLYING THE DCF MODEL?

16 Α. In its Constant Growth form, the DCF model (i.e., Equation [2]) assumes a single 17 long-term growth rate in perpetuity. In order to reduce the long-term growth rate 18 to a single measure, one must assume that the dividend payout ratio remains 19 constant and that Earnings Per Share ("EPS"), dividends per share, and book value 20 per share all grow at the same constant rate. Over the long run, however, dividend 21 growth can only be sustained by earnings growth. Therefore, it is important to 22 incorporate a variety of sources of long-term earnings growth rates into the 23 Constant Growth DCF model.

1 O54. WHAT SOURCES OF LONG-TERM GROWTH RATES DID YOU RELY ON IN YOUR CONSTANT GROWTH DCF MODEL?

- 3 Α. As shown in Exhibit AEB-3, my Constant Growth DCF model incorporates three 4 sources of long-term growth rates: (1) consensus long-term earnings growth 5 estimates from Zacks Investment Research; (2) consensus long-term earnings growth estimates from Thomson First Call (provided by Yahoo! Finance); and 6 7 (3) long-term earnings growth estimates from Value Line Investment Survey 8 (Value Line).
- 9

2

10 O55. HOW DID YOU CALCULATE THE RANGE OF RESULTS FOR THE 11 CONSTANT GROWTH DCF MODEL?

12 Α. I calculated the low-end result for the Constant Growth DCF model using the lowest 13 projected earnings growth rate (i.e., the lowest of First Call, Zacks, and Value Line) 14 for each of the proxy group companies. I applied a similar approach to calculate 15 the high-end result for the Constant Growth DCF model by using the highest 16 projected earnings growth rate of the three sources for each proxy group company. 17 The median results of the Constant Growth DCF model were calculated using the 18 mean growth rate of the three sources for each proxy group company. Once the 19 results for each proxy group company were calculated, I then relied on the median 20 of the results as the measure of central tendency for purposes of my analysis, 21 referring to each of the results as the "median low," "median" and "median high" 22 results.

1 Q56. WHAT ARE THE RESULTS OF YOUR DCF ANALYSES?

A. Figure 12 summarizes the results of my DCF analyses. As shown in Figure 12, the
median Constant Growth DCF results range from 9.53 percent to 9.65 percent and
the median high results range from 10.20 percent to 10.30 percent.

5

Figure 12: Discounted Cash Flow Results

	Median Low	Median	Median High
30-Day Average	8,38%	9.53%	10,20%
90-Day Average	8,37%	9.53%	10.24%
180-Day Average	8.43%	9.65%	10.30%

6 Q57. WHAT ARE YOUR CONCLUSIONS ABOUT THE RESULTS OF THE DCF7 MODELS?

8 Α. As discussed previously, one primary assumption of the DCF models is a constant 9 P/E ratio. That assumption is heavily influenced by the market price of utility 10 stocks. Since utility stocks are expected to underperform the broader market over 11 the near-term as interest rates increases, it is important to consider the results of the 12 DCF models with caution. This means that the results of the DCF models, which 13 rely on historical stock prices, are below where they would be expected to be going 14 forward during the period in which the rates for the Company will be in effect. 15 Therefore, while I have given weight to the results of the DCF models, my 16 recommendation also gives weight to the results of other ROE estimation models. 17

18

B. <u>CAPM Analysis</u>

19 Q58. PLEASE BRIEFLY DESCRIBE THE CAPITAL ASSET PRICING MODEL.

20 A. The CAPM is a risk premium approach that estimates the cost of equity for a given

1	security as a function of a risk-free return plus a risk premium to compensate
2	investors for the non-diversifiable or "systematic" risk of that security.50 This
3	second component is the product of the market risk premium and the Beta
4	coefficient, which measures the relative riskiness of the security being evaluated.
5	The CAPM is defined by four components, each of which must theoretically
6	be a forward-looking estimate:
7	Equation [3]
	$K_e = r_f + \beta (r_m - r_f)$
8	Where:
9	$K_e =$ the required market ROE;
10	β = Beta coefficient of an individual security;
11	r_{Γ} = the risk-free rate of return; and
12	r_m = the required return on the market as a whole.
13	In this specification, the term $(r_m - r_f)$ represents the Market Risk Premium.
14	According to the theory underlying the CAPM, since unsystematic risk can be
15	diversified away, investors should only be concerned with systematic risk.
16	Systematic risk is measured by Beta, which is a measure of the volatility of a
17	security as compared to the overall market. Beta is defined as:
18	Equation [4]
	$\boldsymbol{\beta} = \frac{Covariance(r_e, r_m)}{Variance(r_m)}$
19	The variance of the market return (i.e., Variance (r_m)) is a measure of the

The variance of the market return (i.e., Variance (rm)) is a measure of the

⁵⁰ Systematic risk is the risk inherent in the entire market or market segment. This form of risk cannot be diversified away using a portfolio of assets. Non-systematic risk is the risk of a specific company that can be mitigated through portfolio optimization.

1		uncertainty of the general market. The covariance between the return on a specific
2		security and the general market (i.e., Covariance (r_e, r_m)) reflects the extent to which
3		the return on that security will respond to a given change in the general market
4		return. Thus, Beta represents the risk of the security relative to the general market.
5		
6	Q59,	WHAT RISK-FREE RATE DID YOU USE IN YOUR CAPM ANALYSIS?
7	Α.	I relied on three sources for my estimate of the risk-free rate: (1) the current 30-day
8		average yield on 30-year Treasury bonds of 2.37 percent; ⁵¹ (2) the projected 30-year
9		Treasury yield for Q3 2022-Q3 2023 of 3.12 percent; ⁵² and (3) the average
10		projected 30-year Treasury bond yield for the period 2022 through 2026 of
11		3.40 percent. ⁵³
12		
12 13	Q60.	WOULD YOU PLACE MORE WEIGHT ON ONE OF THESE SCENARIOS?
	Q60. A.	WOULD YOU PLACE MORE WEIGHT ON ONE OF THESE SCENARIOS? Yes. Based on current market conditions, I place more weight on the results of the
13		
13 14		Yes. Based on current market conditions, I place more weight on the results of the
13 14 15		Yes. Based on current market conditions, I place more weight on the results of the projected yields on the 30-year Treasury bonds. As discussed previously, the
13 14 15 16		Yes. Based on current market conditions, I place more weight on the results of the projected yields on the 30-year Treasury bonds. As discussed previously, the estimation of the cost of equity in this case should be forward-looking because it is
13 14 15 16 17		Yes. Based on current market conditions, I place more weight on the results of the projected yields on the 30-year Treasury bonds. As discussed previously, the estimation of the cost of equity in this case should be forward-looking because it is the return that investors would receive over the future rate period. Therefore, the

⁵¹ Bloomberg Professional as of March 31, 2022.

⁵² Blue Chip Financial Forecasts, Vol. 41, No. 4, April 1, 2022, at 2.

⁵³ Blue Chip Financial Forecasts, Vol. 40, No. 12, December 1, 2021, at 14.

- consideration the effect of the market's expectations for interest rate increases on
 the cost of equity.
- 3

4 Q61. WHAT BETA COEFFICIENTS DID YOU USE IN YOUR CAPM ANALYSIS?

5 A. As shown in Exhibit AEB-4, I used the Beta coefficients for the proxy group 6 companies as reported by Bloomberg and Value Line. The Beta coefficients 7 reported by Bloomberg are calculated using 10 years of weekly returns relative to 8 the S&P 500 Index. The Beta coefficients reported by Value Line are calculated 9 based on five years of weekly returns relative to the New York Stock Exchange 10 Composite Index. Additionally, as shown in Exhibit AEB-5, I also considered an 11 additional CAPM analysis that relies on the long-term average Beta coefficient 12 reported by Value Line for the companies in my proxy group from 2013 through 13 2021.

14

Q62. HOW DID YOU ESTIMATE THE MARKET RISK PREMIUM IN THE CAPM? A. I estimated the market risk premium as the difference between the implied expected equity market return and the risk-free rate. The expected return on the S&P 500 Index is calculated using the Constant Growth DCF model discussed earlier in my

testimony for the companies in the S&P 500 Index for which dividend yields and
Value Line long-term earnings projections are available. As shown in
Exhibit AEB-6, based on an estimated market capitalization-weighted dividend
yield of 1.61 percent and a weighted long-term growth rate of 10.99 percent, the
estimated required market return for the S&P 500 Index is 12.68 percent. The

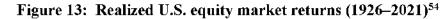
implied market risk premium over the risk-free rates evaluated (i.e., the current,
 near-term projected and longer-term projected 30-year U.S. Treasury bond yield)
 ranges from 9.68 percent to 10.13 percent.

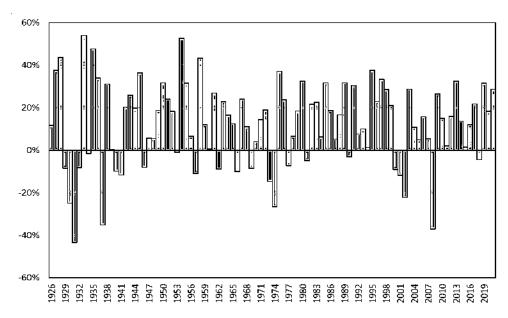
4

5 Q63. HOW DOES THE EXPECTED MARKET RETURN YOU HAVE
6 CALCULATED COMPARE TO OBSERVED HISTORICAL MARKET
7 RETURNS?

A. Given the range of annual equity returns that have been observed over the past
century as shown in Figure 13, a current expected market return of 12.68 percent is
consistent with the historical returns. In fact, in 50 out of the past 96 years (or
approximately 52 percent of the observations), the realized equity return was
12.68 percent or greater.







⁵⁴ Depicts total annual returns on large company stocks, as reported in the 2022 Duff & Phelps SBBI Yearbook.

Q64. DID YOU CONSIDER ANOTHER FORM OF THE CAPM IN YOUR ANALYSIS?

3	А.	Yes. I have also considered the results of an Empirical CAPM ("ECAPM" or
4		alternatively referred to as the Zero-Beta CAPM)55 in estimating the cost of equity
5		for ETI. The ECAPM calculates the product of the adjusted Beta coefficient and
6		the market risk premium and applies a weight of 75.00 percent to that result. The
7		model then applies a 25.00 percent weight to the market risk premium, without any
8		effect from the Beta coefficient. The results of the two calculations are summed,
9		along with the risk-free rate, to produce the ECAPM result, as noted in Equation [5]
10		below:

11

Equation [5]

$$k_{\rm e} = r_{\rm f} + 0.75\beta(r_{\rm m} - r_{\rm f}) + 0.25(r_{\rm m} - r_{\rm f})$$

12	Where:
12	Where:

13	k_e = the required market ROE
14	β = Adjusted Beta coefficient of an individual security
15	$r_{\rm f}$ = the risk-free rate of return
16	r_m = the required return on the market as a whole
17	In essence, the Empirical form of the CAPM addresses the tendency of the
18	"traditional" CAPM to underestimate the cost of equity for companies with low
19	Beta coefficients such as regulated utilities. In that regard, the ECAPM is not
20	redundant to the use of adjusted Betas; rather, it recognizes the results of academic
21	research indicating that the risk-return relationship is different (in essence, flatter)

⁵⁵ See e.g., Roger A. Morin, New Regulatory Finance, Public Utilities Reports, Inc., 2006, at 189.

1		than estimated by the CAPM, and that the CAPM underestimates the "alpha," or
2		the constant return term. ⁵⁶
3		As with the CAPM, my application of the ECAPM uses the forward-looking
4		market risk premium estimates, the three yields on 30-year Treasury securities
5		noted earlier as the risk-free rate, and the Bloomberg, Value Line and long-term
6		average Beta coefficients.
7		
8	Q65.	WHAT ARE THE RESULTS OF YOUR CAPM ANALYSES?
9	А.	As shown in Figure 14, my traditional CAPM analysis produces a range of returns
10		from 10.06 percent to 11.59 percent. The ECAPM analysis results range from
11		10.72 percent to 11.86 percent.

-

	9		
	Current Risk- Free Rate (2.37%)	Q3 2022 – Q3 2023 Projected Risk-Free Rate (3.12%)	2023-2027 Projected Risk- Free Rate (3.40%)
	CA	PM	
Value Line Beta	11.47%	11.55%	11.59%
Bloomberg Beta	10,67%	10.81%	10.87%
Long-term Avg. Beta	10.06%	10.25%	10.32%
ЕСАРМ			
Value Line Beta	11.77%	11.84%	11.86%
Bloomberg Beta	11.17%	11,28%	11.32%
Long-term Avg. Beta	10.72%	10.86%	10.91%

Figure 14: CAPM Results

13

C. Bond Yield Plus Risk Premium Analysis

14 Q66. PLEASE DESCRIBE THE BOND YIELD PLUS RISK PREMIUM APPROACH.

15 A. In general terms, this approach is based on the fundamental principle that equity

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⁵⁶ Id. at 191.

1		investors bear the residual risk associated with equity ownership and therefore
2		require a premium over the return they would have earned as a bondholder. That
3		is, because returns to equity holders have greater risk than returns to bondholders,
4		equity investors must be compensated to bear that risk. Risk premium approaches,
5		therefore, estimate the cost of equity as the sum of the equity risk premium and the
6		yield on a particular class of bonds. In my analysis, I used actual authorized returns
7		for electric utility companies as the historical measure of the cost of equity to
8		determine the risk premium.
9		
10	Q67.	ARE THERE OTHER CONSIDERATIONS THAT SHOULD BE ADDRESSED
11		IN CONDUCTING THIS ANALYSIS?
12	Α.	Yes. It is important to recognize both academic literature and market evidence
13		indicating that the equity risk premium (as used in this approach) is inversely
14		related to the level of interest rates. That is, as interest rates increase (decrease),
15		the equity risk premium decreases (increases). Consequently, it is important to
16		develop an analysis that: (1) reflects the inverse relationship between interest rates
17		and the equity risk premium; and (2) relies on recent and expected market
18		conditions. Such an analysis can be developed based on a regression of the risk
19		premium as a function of U.S. Treasury bond yields. If authorized ROEs for
20		electric utilities serve as the measure of required equity returns and define the yield
21		on the long-term U.S. Treasury bond as the relevant measure of interest rates, the

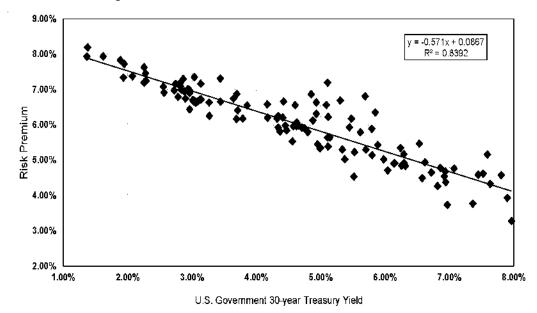
- risk premium simply would be the difference between those two points.⁵⁷ 1 2 3 IS THE BOND YIELD PLUS RISK PREMIUM ANALYSIS RELEVANT TO O68. **INVESTORS?** 4 5 Yes. Investors are aware of ROE awards in other jurisdictions, and they consider Α. those awards as a benchmark for a reasonable level of equity returns for utilities of 6 7 comparable risk operating in other jurisdictions. Because my Bond Yield Plus Risk 8 Premium analysis is based on authorized ROEs for utility companies relative to 9 corresponding Treasury yields, it provides relevant information to assess the return 10expectations of investors. 11 WHAT DID YOUR BOND YIELD PLUS RISK PREMIUM ANALYSIS Q69. 13 **REVEAL**? 14 As shown in Figure 15, from 1992 through March 31, 2022, there was a strong Α. 15 negative relationship between risk premia and interest rates. To estimate that 16 relationship, I conducted a regression analysis using the following equation:
- RP = a + b(T) [6]17
- 18 Where:
- 19 RP = Risk Premium (difference between authorized ROEs and the yield on 20 30-year U.S. Treasury bonds)

- 12

See e.g., S. Keith Berry, "Interest Rate Risk and Utility Risk Premia during 1982-93," Managerial and Decision Economics, Vol. 19, No. 2 (March 1998), in which the author used a methodology similar to the regression approach described below, including using allowed 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 Shareholders Required Rates of Return," Financial Management, Spring 1986, at 66.

1	a = intercept term
2	b = slope term
3	T = 30-year U.S. Treasury bond yield
4	Data regarding allowed ROEs were derived from more than 681 vertically
5	integrated electric utility rate cases from 1992 through March 31, 2022 as reported
6	by Regulatory Research Associates ("RRA"). The equation's coefficients were
7	statistically significant.

Figure 15: Risk Premium Results – Electric Utilities



As shown on Exhibit AEB-7, based on the current 30-day average of the 30-year U.S. Treasury bond yield (i.e., 2.37 percent), the risk premium would be 7.31 percent, resulting in an estimated ROE of 9.68 percent. Based on the nearterm (Q3 2022 – Q3 2023) projected 30-year U.S. Treasury bond yield (i.e., 3.12 percent), the risk premium would be 6.88 percent, resulting in an estimated ROE of 10.00 percent. Using the long-term projected yield on the 30-year