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.

Q8. DO YOU HAVE PRIOR EXPERIENCE IN PERFORMING BENCHMARKING 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.

Q9. HAVE YOU TESTIFIED BEFORE ANY REGULATORY AUTHORITIES?

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

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

II. ASSIGNMENT AND SUMMARY OF TESTIMONY AND CONCLUSIONS

Q10. WHAT IS YOUR ASSIGNMENT IN THIS PROCEEDING?

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

c. 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

[1] 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.

were lower (i.e., more favorable to customers) than those of the other utilities in the SERC_Texas peer group.

Q12. WERE EXHIBITS RDS-1 THROUGH RDS-5 PREPARED BY YOU OR UNDER YOUR DIRECT SUPERVISION AND CONTROL?

A. Yes.

III. ANALYTICAL APPROACH FOR THE BENCHMARKING STUDY

Q13. PLEASE DESCRIBE THE NATURE OF THE ANALYSIS THAT YOU PERFORMED IN YOUR BENCHMARKING STUDY.

A. I evaluated a number of retail pricing measures to assess the efficiency of ETI's operations and quality of management. For each metric, I benchmarked ETI's relative performance to other utilities in the SERC_Texas region and the United States.

Q14. PLEASE DESCRIBE WHAT YOU MEAN BY "BENCHMARKING."

A. Benchmarking is a commonly used methodology for comparing a utility's performance in a specific area (e.g., prices, costs, or reliability) to that of other similar utilities or peers. Process benchmarking is often used by companies to evaluate various aspects of their operational or management processes in relation to best practices, usually within their own industry sector. Performance benchmarking is used to quantitatively compare a company's results for a particular 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.

Q16. WHAT ARE THE TYPICAL SOURCES OF BENCHMARKING DATA?

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

Q17. WHAT WAS THE SOURCE FOR THE DATA USED IN THIS 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?

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

1. 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.
2. This list formed the basis for the FERC Form 1 data query from S&P. Operating data and O&M expense data were compiled for diversified utilities and electric utilities for each of the years 2017 through 2021.
3. Peer group selection criteria were defined for the national and SERC_Texas peer groups. Criteria for inclusion included:

a. The company must be of sufficient size to warrant comparison. For the purposes of this effort, companies with less than 10,000 customers were eliminated.

b. The company must be regulated and provide electric service (directly or indirectly) to retail end-use customers. This criterion eliminated generation-only companies, transmission-only companies, and generation and transmission-only companies; however, distribution-only, transmission and distribution, and generation and distribution companies are included in the peer groups.

c. The company must have comparative FERC Form 1 data to enable the development of the metrics used in the benchmarking analysis.[3]

Q19. WAS THE APPROACH TAKEN FOR THIS BENCHMARKING ANALYSIS SIMILAR TO YOUR PREVIOUS BENCHMARKING STUDIES?

A. Yes. The primary data source utilized, the retail price metrics, and the criteria used to identify the benchmarking peer group members are the same as those used in prior studies.

Q20. WHY DID YOU NOT INCLUDE A TEXAS-ONLY PEER GROUP IN YOUR 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.

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

Q21. WHAT SERC_TEXAS PEER GROUP AND NATIONAL PEER GROUP COMPANIES WERE IDENTIFIED AS A RESULT OF YOUR ANALYSIS?

A. The SERC_Texas peer group consists of the following 25 companies:

- Alabama Power Company;
- 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.

- Duke Energy Carolinas, LLC;
- Duke Energy Florida, LLC;
- Duke Energy Progress, LLC;
- El Paso Electric Company;
- Entergy Arkansas, LLC;
- Entergy Louisiana, LLC;
- Entergy Mississippi, LLC;
- Entergy New Orleans, LLC;
- Entergy Texas, Inc.;
- Florida Power & Light Company;
- Florida Public Utilities Company;
- Georgia Power Company;
- Gulf Power Company;
- Kentucky Utilities Company;
- Louisville Gas & Electric Company;
- Mississippi Power Company;
- Southwestern Electric Power Company;
- Southwestern Public Service Company;
- Tampa Electric Company;
- Union Electric Company (dba Ameren Missouri); and

- Virginia Electric and Power Company[5] (dba Dominion Energy).

There were 128 companies included in the national peer group (see Exhibit RDS-2 for a list of these companies).

Q22. WHAT PERFORMANCE METRICS WERE EVALUATED IN YOUR ANALYSIS?

A. ETI performance was benchmarked from just one perspective – average retail electricity prices – using industry-standard benchmarks.[6] Retail pricing benchmarks (overall and by customer class for residential, commercial, industrial, and other customers) show the average price received by a utility for every kilowatt-hour ("kWh") sold. Over time, such measures are good indicators of revenue stability and can also highlight year-to-year changes in customer mix and energy usage patterns. The specific pricing benchmarks included in my analysis are as follows:

- Total Retail Revenues Cents per kWh Sold;
- Residential Revenues Cents per kWh Sold;
- Commercial Revenues Cents per kWh Sold;
- Industrial Revenues Cents per kWh Sold; and
- Other Revenues Cents per kWh Sold.

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[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.

Q23. BEFORE YOU PROVIDE THE RESULTS OF YOUR BENCHMARKING ANALYSIS, CAN YOU PROVIDE GENERAL GUIDANCE AS TO HOW THE RESULTS SHOULD BE INTERPRETED?

A. Yes. When conducting this type of benchmarking analysis, I will typically compare the relative performance of the company under review (in this case ETI) with the peer group quartiles of the various benchmark metrics (i.e., top quartile, median, third quartile, and bottom quartile). For revenue and O&M measures, lower is generally better, meaning lower rates for customers or lower costs to provide electric service.

IV. RETAIL PRICING BENCHMARK RESULTS

Q24. WHY DID YOU BENCHMARK ETI'S AVERAGE ANNUAL RETAIL PRICE PER KWH TO THE NATIONAL AND SERC_TEXAS PEER GROUPS?

A. The average price paid (or received) per kWh for electric service is an often-used benchmarking metric and reflects three primary factors: (1) actual fixed and variable prices; (2) customer energy usage patterns; and (3) customer mix. The average price paid per kWh is therefore a good measure of the overall cost effectiveness of a company in delivering electric service.

Q25. WHAT PRICING METRICS DID YOU EVALUATE IN YOUR ANALYSIS?

A. I compared the average prices paid by residential, commercial, and industrial customers with the median value of the SERC_Texas and national peer groups. For purposes of this analysis, the average price paid per kWh equals annual retail

revenues (from sales to ultimate consumers) divided by kWh sales, both in total and for each customer class. The pricing comparisons are reflected in Figures RDS-1 through RDS-6 described in the paragraphs that follow.

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

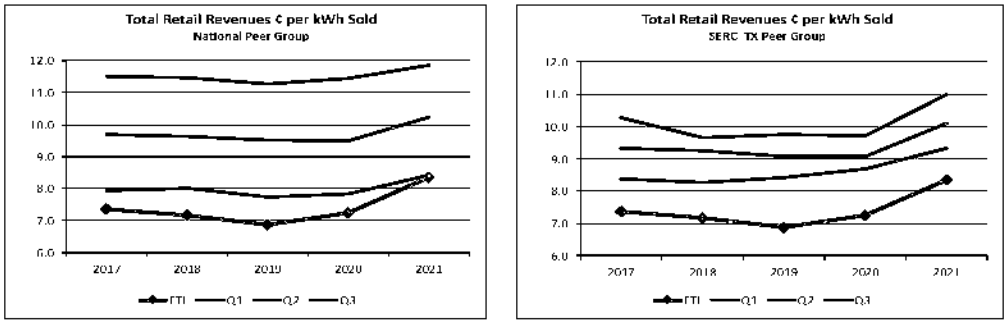
A. ETI's total average price for retail electricity has remained consistently in the top quartile for the national and SERC_Texas peer groups throughout the 2017 to 2021 time period. ETI's average prices for the residential, commercial, industrial, and other customer classes were also consistently at or near the top quartile for the national and the SERC_Texas peer groups throughout the 2017 to 2020 period. 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.

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

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

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.

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

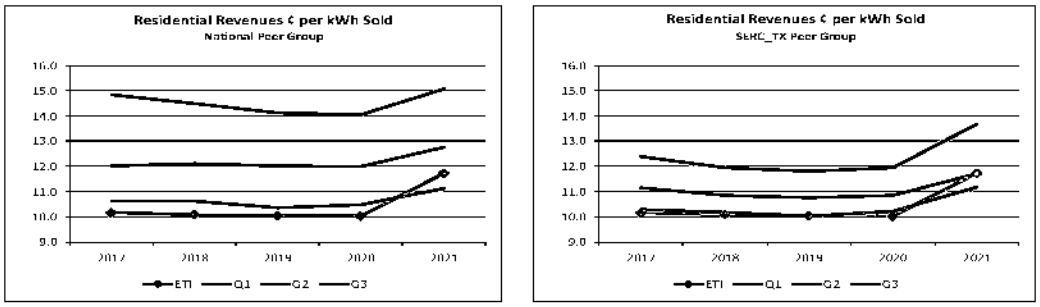
2021 Average Price per kWh (Cents per kWh)	ETI	National Median	SERC_Texas Median
Total Retail Sales	8.36	10.23	10.11
Residential Sales	11.73	12.76	11.70
Commercial Sales	9.02	10.31	10.28
Industrial Sales	5.59	6.88	6.66
Other Sales	9.62	15.22	11.14

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

Q28. PLEASE DESCRIBE THE RESULTS OF YOUR PRICING ANALYSIS FOR RESIDENTIAL CUSTOMERS.

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

Figure RDS-3: Residential Revenues ¢ per kWh Sold

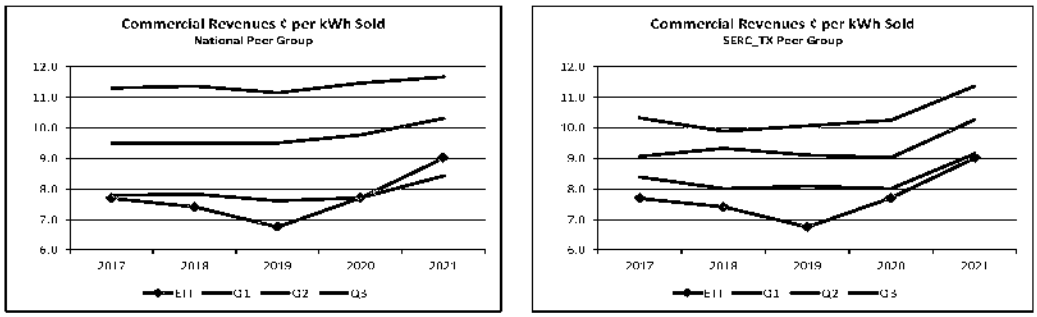


Q29. PLEASE DESCRIBE THE RESULTS OF YOUR PRICING ANALYSIS FOR COMMERCIAL CUSTOMERS.

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, ETI'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.

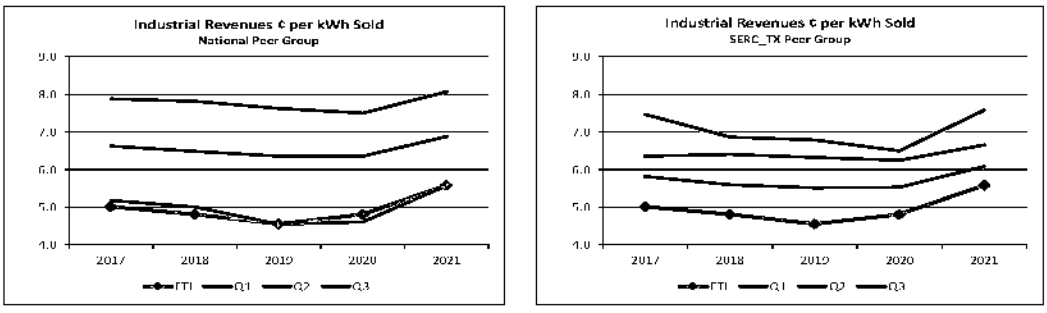
Figure RDS-4: Commercial Revenues ¢ per kWh Sold



Q30. PLEASE DESCRIBE THE RESULTS OF YOUR PRICING ANALYSIS FOR INDUSTRIAL CUSTOMERS.

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

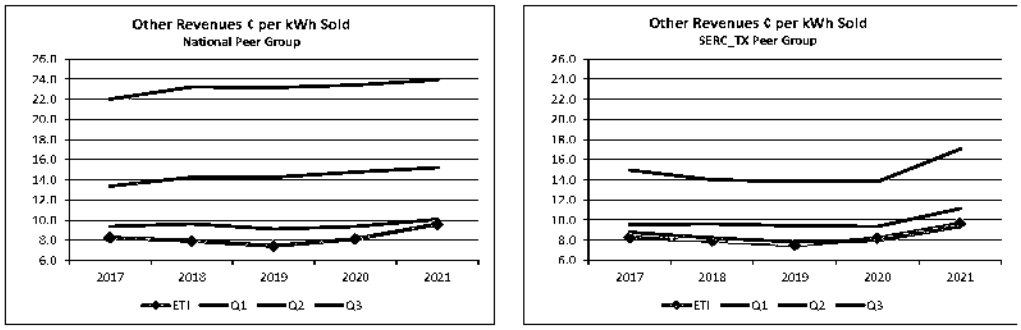
Figure RDS-5: Industrial Revenues ¢ per kWh Sold



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

A. As shown in Figure RDS-2, in 2021, ETI'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.

Figure RDS-6: Other Revenues ¢ per kWh Sold



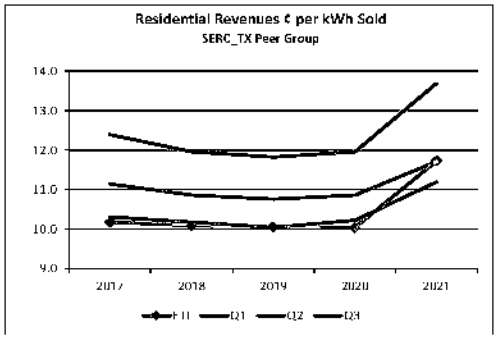
V. IMPACT OF WINTER STORM URI

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).

Figure RDS-7: Residential Revenues ¢ per kWh Sold



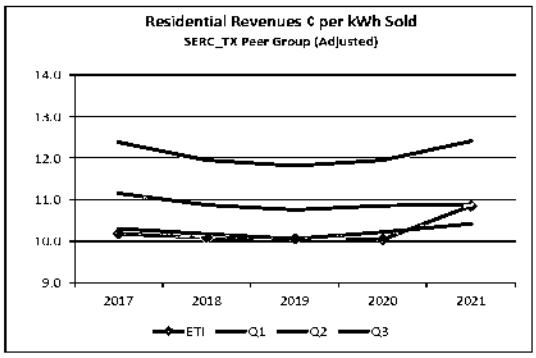
Unfortunately, the level of detail included in the FERC Form 1 data used for the benchmarking analysis is not granular enough to allow one to determine which of these tariff components contributed to this increase.

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.

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

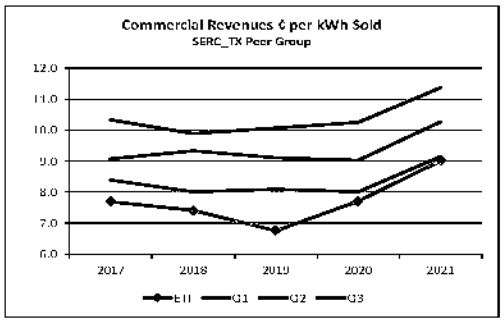
To "adjust" for the possible effects of Winter Storm Uri on the fuel and purchased power costs included in residential revenues, for any member of the SERC_Texas peer group where their average fuel and purchased power costs per megawatt-hour in 2021 increased over their 2019-2020 two-year average costs,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

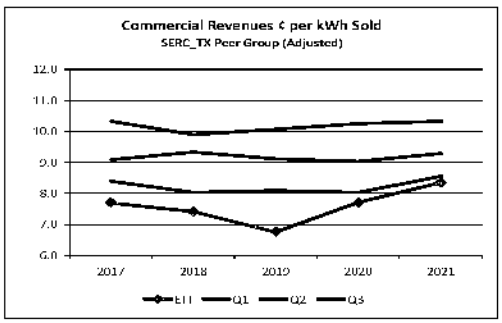
Figure RDS-8: Residential Revenues ¢ per kWh Sold (Adjusted)



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

Figure RDS-9: Commercial Revenues ¢ per kWh Sold





It should be noted that this is an illustrative analysis only and conclusions regarding ETI's benchmarking performance relative to the other members of the SERC_Texas peer group are not affected by this analysis. ETI's total average rate for residential customers is still at or near the top quartile for the SERC_Texas peer group over the 2017 to 2020 time period, and just below the median of the peer group in 2021. ETI's total average rate for commercial customers is still below the top quartile of the SERC_Texas peer group over the 2017 through 2021 time period.

VI. EEI'S TYPICAL BILLS AND AVERAGE RATES REPORT

Q33. PLEASE DESCRIBE ANY ADDITIONAL ANALYSIS YOU COMPLETED TO CONFIRM YOUR BENCHMARKING ANALYSIS OF ETI'S AVERAGE RETAIL RATES.

A. Twice a year the Edison Electric Institute publishes a report entitled "Typical Bills and Average Rates Report." The report surveys typical bills and average revenue per kWh for residential, commercial, and industrial sales for investor-owned utilities in the United States. Typical bills have been calculated by companies participating in the survey and reported to EEI, and average rates are calculated by EEI using data submitted by each company. The Summer 2020 report was the most recent available which included comparative information for ETI. The purpose of reviewing this report was simply to confirm that the results of the EEI study were similar to the results of the FERC Form 1 benchmarking analysis for 2020.

On nearly every measure, ETI's 2020 average retail rates and typical customer bills were better than the SERC_Texas peer group utilities. ETI's typical

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

Q34. WHAT OVERALL CONCLUSIONS DID YOU DRAW FROM YOUR 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.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

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 D Starkweather

RICHARD D. STARKWEATHER

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

Susan K. Horton

Notary Public, State of North Carolina

My Commission Expires: 03/25/2024

scottmadden
MANAGEMENT CONSULTANTS

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

scottmadden
MANAGEMENT CONSULTANTS

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

No.	Company ID	Company Name
1	4199135	Entergy Texas, Inc.
2	4024697	AES Indiana
3	4014956	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	4065694	Black Hills Power, Inc.
14	4057076	Central Hudson Gas & Electric Corporation
15	4056978	Central Maine Power Company
16	4059189	Cheyenne Light, Fuel and Power Company
17	4056982	Cleco Power LLC
18	4000672	Commonwealth Edison Company
19	4057080	Consolidated Edison Company of New York, Inc.
20	4057081	Consumers Energy Company
21	4059540	Dahlberg Light & Power Company
22	4057082	Delmarva Power & Light Company
23	4057099	Dominion Energy South Carolina, Inc.
24	4057083	DTE Electric Company
25	4004320	Duke Energy Carolinas, LLC
26	4056998	Duke Energy Florida, LLC
27	4062444	Duke Energy Indiana, LLC
28	4057103	Duke Energy Kentucky, Inc.
29	4057079	Duke Energy Ohio, Inc.
30	4004192	Duke Energy Progress, LLC
31	4004307	Duquesne Light Company
32	4056994	El Paso Electric Company
33	3005475	Empire District Electric Company
34	4056995	Entergy Arkansas, LLC
35	4112564	Entergy Louisiana, LLC
36	4008616	Entergy Mississippi, LLC
37	4057085	Entergy New Orleans, LLC
38	4057089	Evergy Kansas South, Inc.
39	4072456	Evergy Metro, Inc.
40	4000843	Evergy Missouri West, Inc.
41	4060026	Fitchburg Gas and Electric Light Company
42	4056997	Florida Power & Light Company
43	4057086	Florida Public Utilities Company

No.	Company ID	Company Name
44	4004152	Georgia Power Company
45	4063057	Golden State Water Company
46	4056999	Green Mountain Power Corporation
47	4057000	Gulf Power Company
48	4060446	Hawaii Electric Light Company, Inc.
49	4057001	Hawaiian Electric Company, Inc.
50	4057002	Idaho Power Company
51	4057003	Indiana Michigan Power Company
52	4057087	Interstate Power and Light Company
53	4057004	Jersey Central Power & Light Company
54	4057006	Kentucky Power Company
55	4042397	Kentucky Utilities Company
56	4060895	Kingsport Power Company
57	4232403	Liberty Utilities (CalPeco Electric) LLC
58	4060294	Liberty Utilities (Granite State Electric) Corp.
59	4057090	Louisville Gas and Electric Company
60	4008754	Madison Gas and Electric Company
61	4057008	Massachusetts Electric Company
62	4061329	Maui Electric Company, Limited
63	4010692	MDU Resources Group, Inc.
64	4057009	Metropolitan Edison Company
65	4057091	MidAmerican Energy Company
66	4061513	Minnesota Power Enterprises, Inc.
67	4057010	Mississippi Power Company
68	4057011	Monongahela Power Company
69	4057012	Narragansett Electric Company
70	4061726	Nevada Power Company
71	4004389	New York State Electric & Gas Corporation
72	4057014	Niagara Mohawk Power Corporation
73	4012860	Northern Indiana Public Service Company
74	4057754	Northern States Power Company - MN
75	4061925	Northern States Power Company - WI
76	4057053	NorthWestern Corporation
77	4061951	Northwestern Wisconsin Electric Company
78	4008369	NSTAR Electric Company
79	4014480	Ohio Edison Company
80	4057015	Ohio Power Company
81	4057016	Oklahoma Gas and Electric Company
82	4057093	Orange and Rockland Utilities, Inc.
83	4147257	Otter Tail Power Company
84	4004218	Pacific Gas and Electric Company
85	4001587	PacifiCorp
86	4062222	PECO Energy Company

No.	Company ID	Company Name
87	4057018	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	4057097	San Diego Gas & Electric Company
101	4057098	Sierra Pacific Power Company
102	4009083	Southern California Edison Company
103	4057100	Southern Indiana Gas and Electric Company
104	4057026	Southwestern Electric Power Company
105	4057027	Southwestern Public Service Company
106	4063281	Superior Water, Light and Power Company
107	3010781	Tampa Electric Company
108	4056983	The Cleveland Electric Illuminating Company
109	4056992	The Connecticut Light and Power Company
110	4017451	The Dayton Power and Light Company
111	4057020	The Potomac Edison Company
112	4057029	The Toledo Edison Company
113	3004222	The United Illuminating Company
114	4057030	Tucson Electric Power Company
115	4057538	UGI Utilities, Inc.
116	4057102	Union Electric Company
117	4059391	Unitil Energy Systems, Inc.
118	4092733	UNS Electric, Inc.
119	4887639	Upper Michigan Energy Resources Corporation
120	4081463	Upper Peninsula Power Company
121	3001167	Versant Power
122	4057032	Virginia Electric and Power Company
123	4057033	West Penn Power Company
124	4082573	Westar Energy (KPL)
125	4063994	Wheeling Power Company
126	4057105	Wisconsin Electric Power Company
127	4008669	Wisconsin Power and Light Company
128	4057106	Wisconsin Public Service Corporation

Retail Pricing Benchmarking Analysis

Assumptions:

Mixture between Class

Company Information							
Company Price	Title Commodity	Electric Transmission? Yes/Not	Electric Transmission? Yes/Not	Electric Distribution? Yes/Not	Incentive ID	Incentive Scheme	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7	

DSM Metrics					
Total Retail Customers (Count) per kWh Sold	Residential Customers (Count) per kWh Sold	Commercial Customers (Count) per kWh Sold	Industrial Customers (Count) per kWh Sold	Other Customers (Count) per kWh Sold	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	

Company Metric Metric: [illegible]

	Company Information						Sales Data				DSM Metrics						
No.	Company ID	Company Name	Gas Distribution? Yes/Not	Electric Transmission? Yes/Not	Electric Transmission? Yes/Not	Electric Distribution? Yes/Not	Total Retail Electric Customers (Count)	Selective Supply Customers (Count)	Total Sales of Electricity Customers (Count)	NERC_ID Peer Group?	Retail Customer Missed Overrides on Std Data	Total Retail Customers	Metric ID Number	Total Retail Customers (Count) per kWh Sold	Residential Customers (Count) per kWh Sold	Commercial Customers (Count) per kWh Sold	Industrial Customers (Count) per kWh Sold	Other Customers (Count) per kWh Sold
	s Sold Table (TU,ID,TX,TN, Data Set	[illegible]	233,253	233,261	233,264	233,265	[illegible]	[illegible]	[illegible]									
1	[illegible]	[illegible]	No	Yes	Yes	Yes	[illegible]	0	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	0	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	0	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	0	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	0	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	0	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	0	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	0	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	0	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	0	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
11	[illegible]	[illegible]	No	Yes	Yes	Yes	[illegible]	NA	NA			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
13	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
14	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
15	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	0	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
16	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
17	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
18	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
19	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	0	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
20	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	0	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
21	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	0	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
22	[illegible]	[illegible]	No	Yes	Yes	Yes	NA	NA	NA		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
23	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	0	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
24	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
25	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	0	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
26	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	0	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
27	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
28	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	0	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
29	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
30	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
31	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
32	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	0	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
33	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
34	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
35	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
36	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
37	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
38	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
39	[illegible]	[illegible]	No	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
40	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
41	[illegible]	[illegible]	No	Yes	Yes	Yes	[illegible]	0	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
42	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	0	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
43	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
44	[illegible]	[illegible]	No	Yes	Yes	Yes	NA	NA	NA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
45	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
46	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	0	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
47	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
48	[illegible]	[illegible]	No	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
49	[illegible]	[illegible]	No	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
50	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
51	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
52	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
53	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	0	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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55	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
56	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
57	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
58	[illegible]	[illegible]	No	Yes	Yes	Yes	NA	NA	NA		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
59	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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62	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
63	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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65	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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74	[illegible]	[illegible]	No	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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77	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	0	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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83	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	0	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
84	[illegible]	[illegible]	No	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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87	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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90	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
91	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
92	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
93	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
94	[illegible]	[illegible]	No	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
95	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
96	[illegible]	[illegible]	No	Yes	Yes	Yes	NA	NA	NA		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
97	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
98	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
99	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
100	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
101	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
102	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
103	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
104	[illegible]	[illegible]	No	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
105	[illegible]	[illegible]	No	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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107	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
108	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
109	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
110	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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113	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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119	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
120	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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123	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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128	[illegible]	[illegible]	No	Yes	Yes	Yes	NA	NA	NA		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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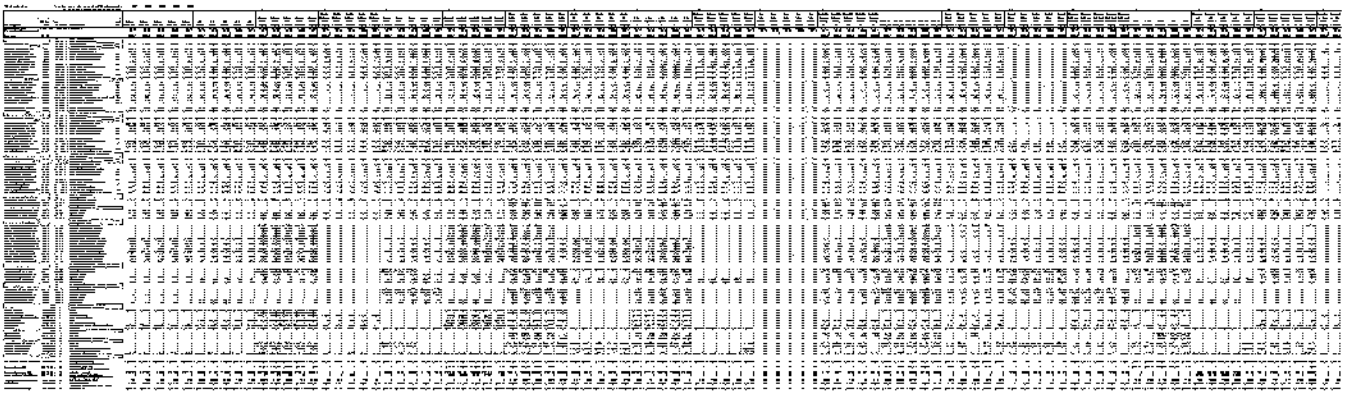
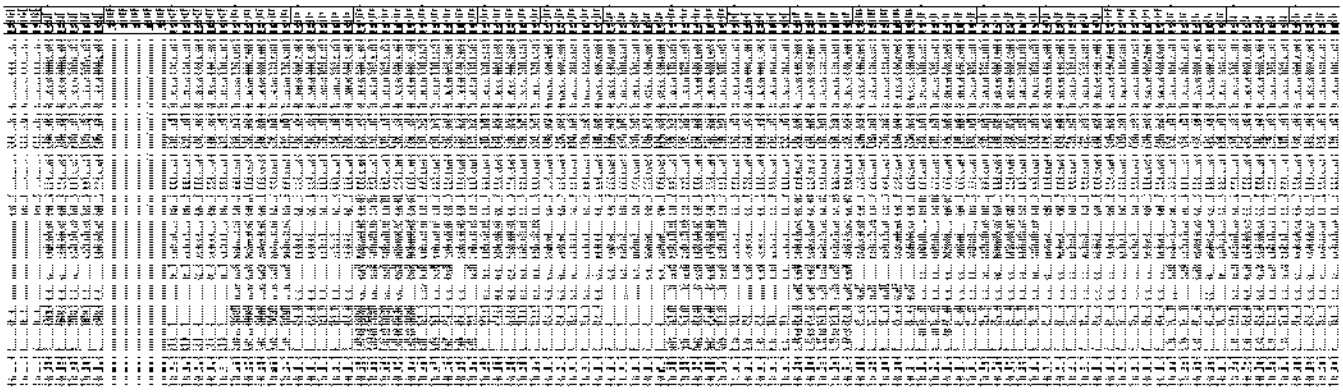
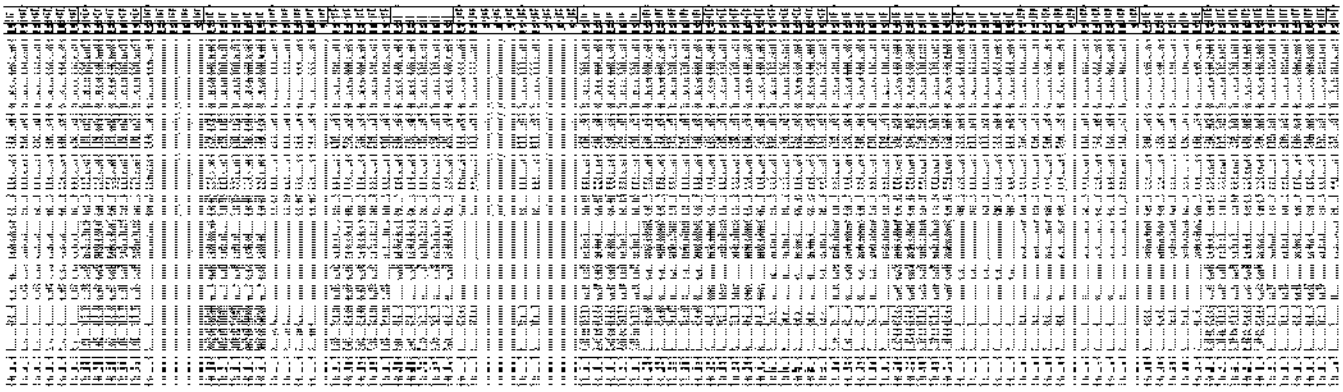
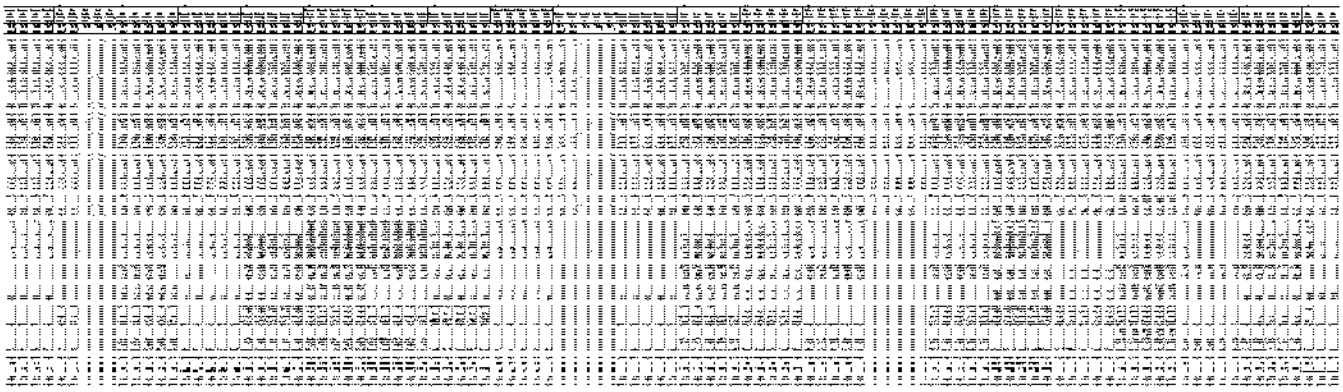
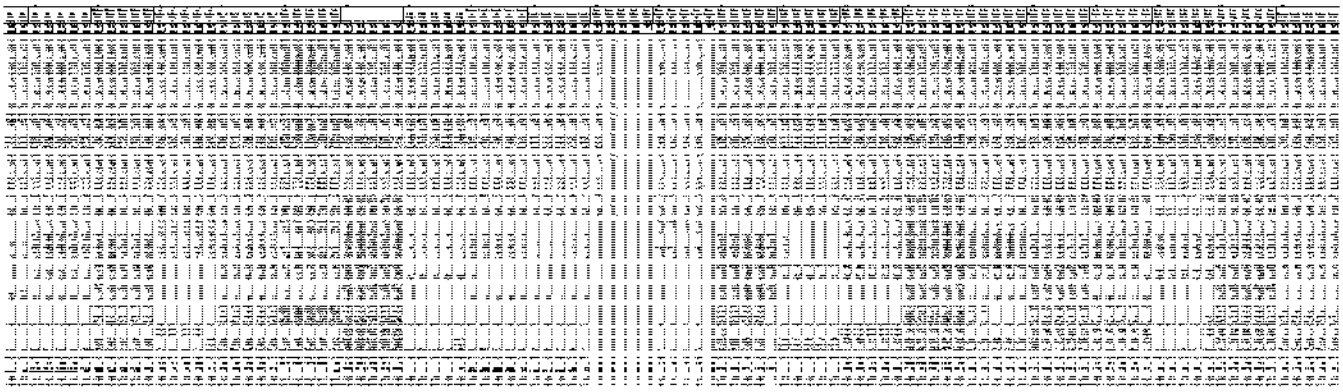
134	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
135	[illegible]	[illegible]	No	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
136	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
137	[illegible]	[illegible]	Yes	Yes	Yes	Yes	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

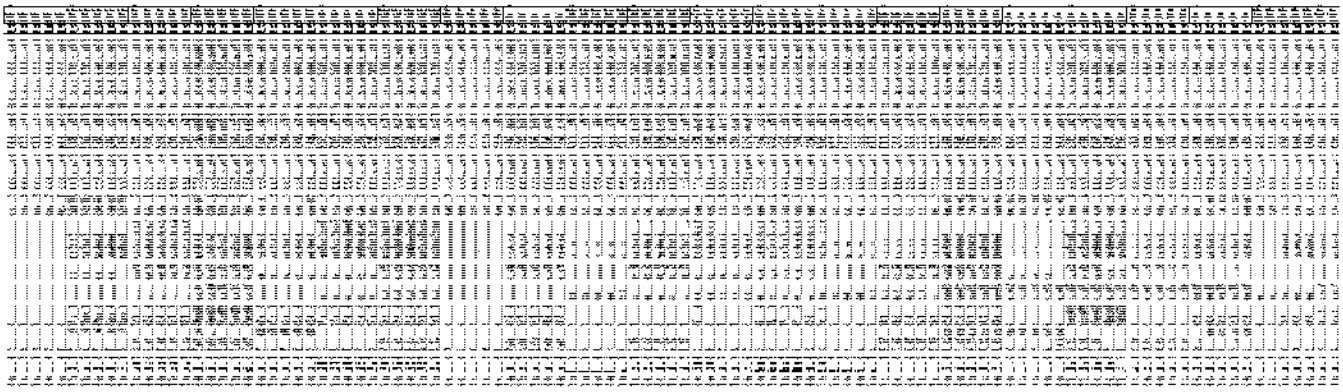


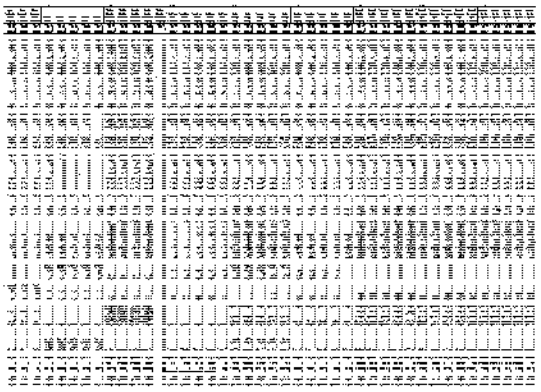


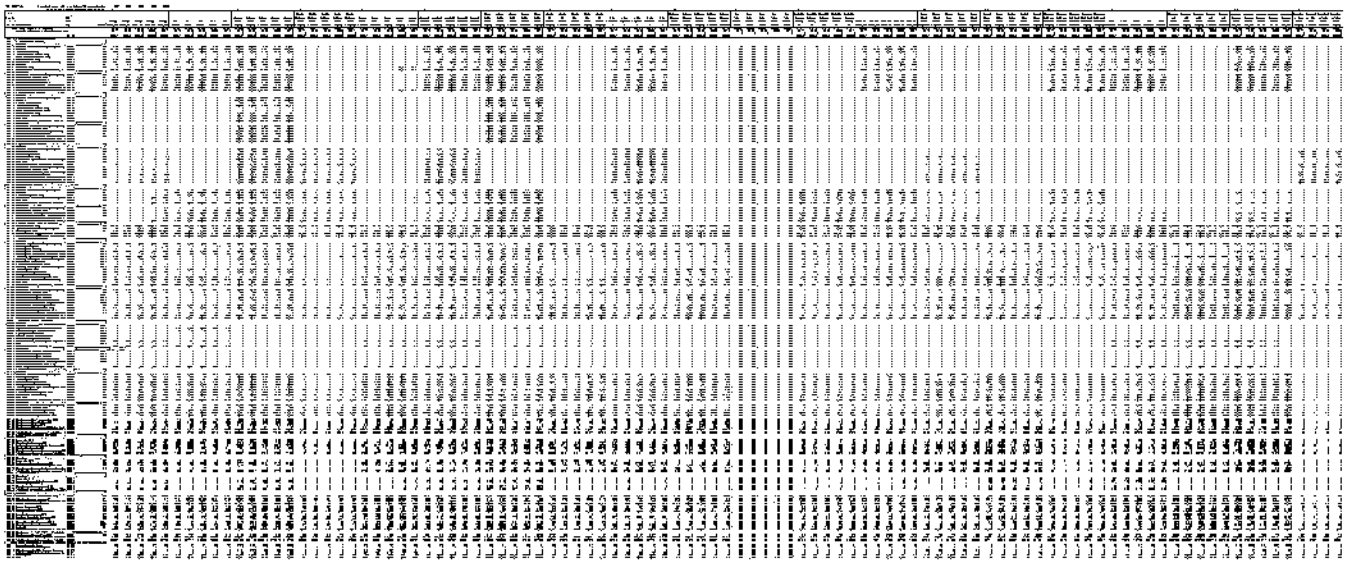


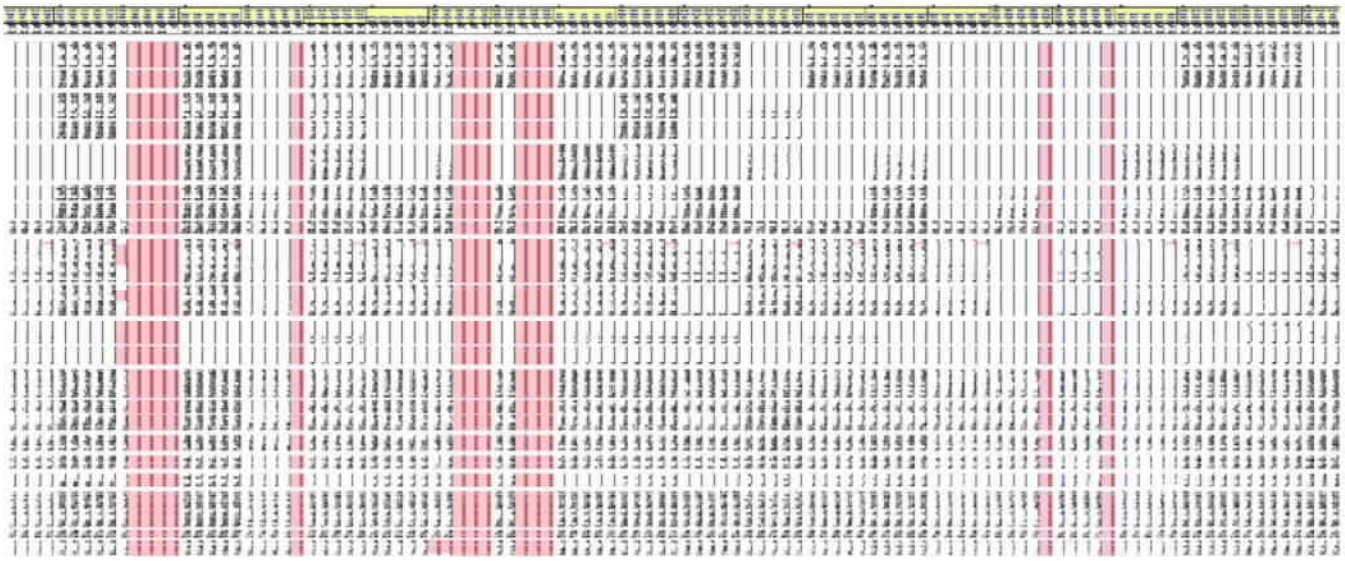


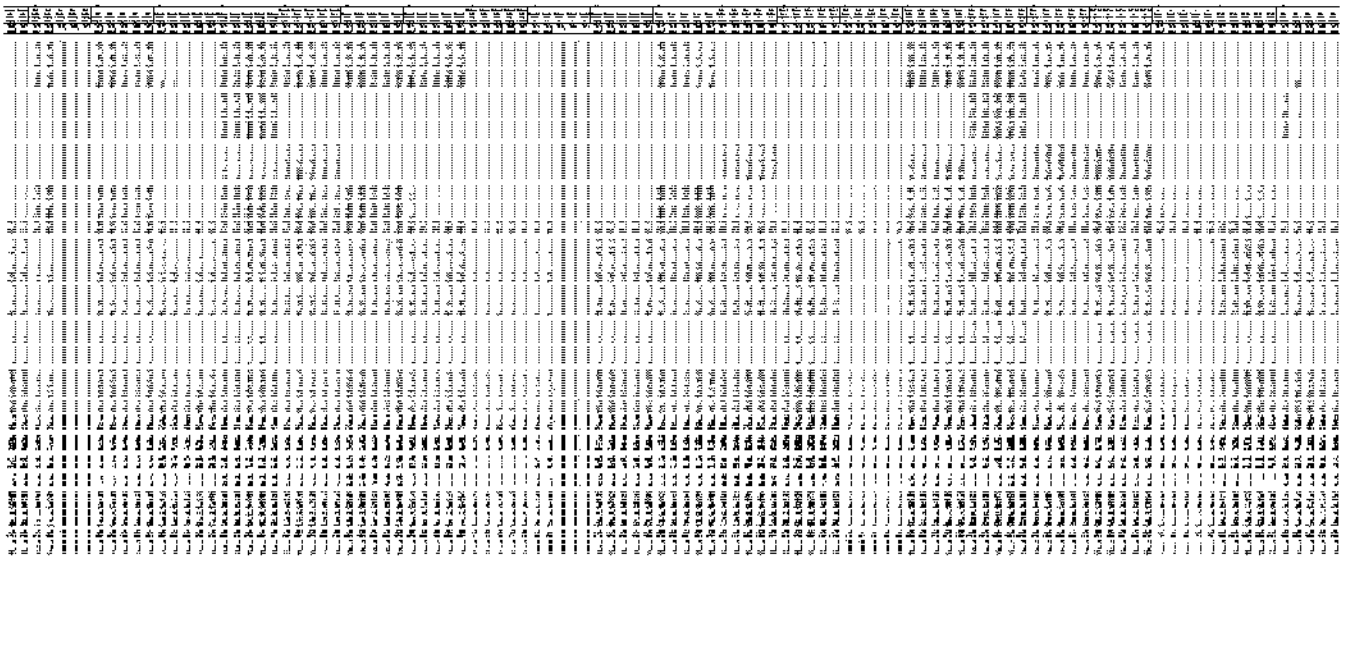


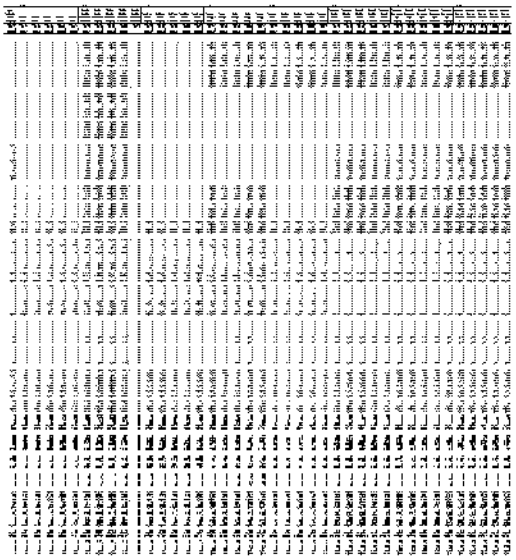












Entergy Texas, Inc.
Fixed Fuel Factor Revenues

		FFF Sales at Meter (kWh)	Retail Fixed Fuel Factor	Estimated FFF Revenues	Total Company 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 Year Increase	$ 206,211,474	
			Month to Month Increase		$ 60,044,263
			Percent 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.

EEI Typical Bills and Average Rates Report
Summer 2020

Average Rates 12 Months Ending June 30, 2020		Total Retail	Residential	Commercial	Industrial
Average Rates (in cents/kWh)					
Alabama	Alabama Power Company	10.20	13.46	12.10	6.25
Arkansas	Entergy Arkansas, Inc.	8.53	10.38	8.95	6.35
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
	Q1	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
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Exhibit AEB-4	Capital Asset Pricing Model
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Exhibit AEB-7	Risk Premium Approach
Exhibit AEB-8	Capital Expenditures Analysis
Exhibit AEB-9	Regulatory Risk Analysis
Exhibit AEB-10	RRA Jurisdictional Rankings
Exhibit AEB-11	S&P Jurisdictional Rankings
Exhibit AEB-12	Capital Structure Analysis

I. WITNESS INTRODUCTION AND QUALIFICATIONS

Q1. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

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

Q2. WHAT IS YOUR POSITION WITH THE BRATTLE GROUP?

A. I am employed by Brattle as a Principal.

Q3. ON WHOSE BEHALF ARE YOU SUBMITTING THIS DIRECT TESTIMONY?

A. I am submitting this direct testimony before the Public Utility Commission of Texas ("Commission") on behalf of Entergy Texas, Inc. ("ETI" or the "Company"), a wholly owned subsidiary of Entergy Corporation ("Entergy"). Entergy Corporation is a registered holding company that owns several electric and natural gas utility operating companies.[1]

Q4. PLEASE DESCRIBE YOUR BACKGROUND AND PROFESSIONAL EXPERIENCE IN THE ENERGY AND UTILITY INDUSTRIES.

A. I hold a Bachelor's degree in Economics and Finance from Simmons College and a Master's degree in Economics from Boston University, with over 25 years of experience consulting to the energy industry. I have advised numerous energy and utility clients on a wide range of financial and economic issues with primary

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

concentrations in valuation and utility rate matters. Many of these assignments have included the determination of the cost of capital for valuation and ratemaking purposes. My resume and a summary of testimony that I have filed in other proceedings are included as Exhibit AEB-1 to this testimony.

II. PURPOSE AND OVERVIEW OF TESTIMONY

Q5. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?

A. The purpose of my direct testimony is to present evidence and provide a recommendation regarding the appropriate Return on Equity ("ROE")[2] for ETI's electric utility operations and to provide an assessment of its proposed capital structure to be used for ratemaking purposes. A summary of my ROE analyses and results is provided in Exhibit AEB-2. My analysis and recommendations are supported by the data presented in Exhibits AEB-3 through AEB-12, which were prepared by me or under my direction.

Q6. PLEASE PROVIDE A BRIEF OVERVIEW OF THE ANALYSES THAT LED TO YOUR ROE RECOMMENDATION.

A. As discussed in more detail in Section VII, I applied the Constant Growth form of the Discounted Cash Flow ("DCF") model, the Capital Asset Pricing Model ("CAPM"), the Empirical CAPM and the Bond Yield Plus Risk Premium approach. 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."

requirements; (2) the regulatory environment in which ETI operates; (3) ETI's adjustment mechanisms; (4) the Company's customer concentration; and (5) the superior management performance of ETI. While I did not make any specific adjustments to my ROE estimates for any of these factors, I did take them into consideration in aggregate when determining where ETI's ROE falls within the range of analytical results.

Finally, I considered ETI's proposed capital structure as compared to the capital structures of the proxy companies.[3]

Q7. HOW IS THE REMAINDER OF YOUR DIRECT TESTIMONY ORGANIZED?

A. Section III provides a summary of my analyses and conclusions. Section IV reviews the regulatory guidelines pertinent to the development of the cost of capital. Section V discusses current and prospective capital market conditions and the effect of those conditions on ETI's cost of equity. Section VI explains my selection of a proxy group of electric utilities. Section VII describes my analyses and the analytical basis for the recommendation of the appropriate ROE for ETI. Section VIII provides a discussion of specific business and financial risks that have a direct bearing on the ROE to be authorized for ETI in this case. Section IX discusses ETI's capital structure as compared with the capital structures of the utility operating company subsidiaries of the proxy group companies. Section X presents 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.

III. SUMMARY OF ANALYSES AND CONCLUSIONS

Q8. WHAT IS YOUR RECOMMENDED ROE FOR ETI?

A. Based on the analytical results in Figure 1 below, I believe a range from 9.95 percent to 11.10 percent is reasonable. The Company is requesting a return of 10.80 percent, which is based on a 10.50 percent rate of return resulting from the analytical model results, and a 30 basis point adder for performance. The latter is primarily addressed in the direct testimony of Jess K. Totten. This recommendation considers the range of results for the proxy group companies, the relative business, financial, and regulatory risks of ETI's electric operations in Texas as compared to the proxy group, and current capital market conditions and balances the interests of customers and shareholders.

Q9. PLEASE SUMMARIZE THE KEY FACTORS CONSIDERED IN YOUR ANALYSES AND UPON WHICH YOU BASE YOUR RECOMMENDED ROE.

A. My analyses and recommendations considered the following:

- The United States (U.S.) Supreme Court's *Hope* and *Bluefield* 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.

- 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 premium in the CAPM).

[4] *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).

- 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.

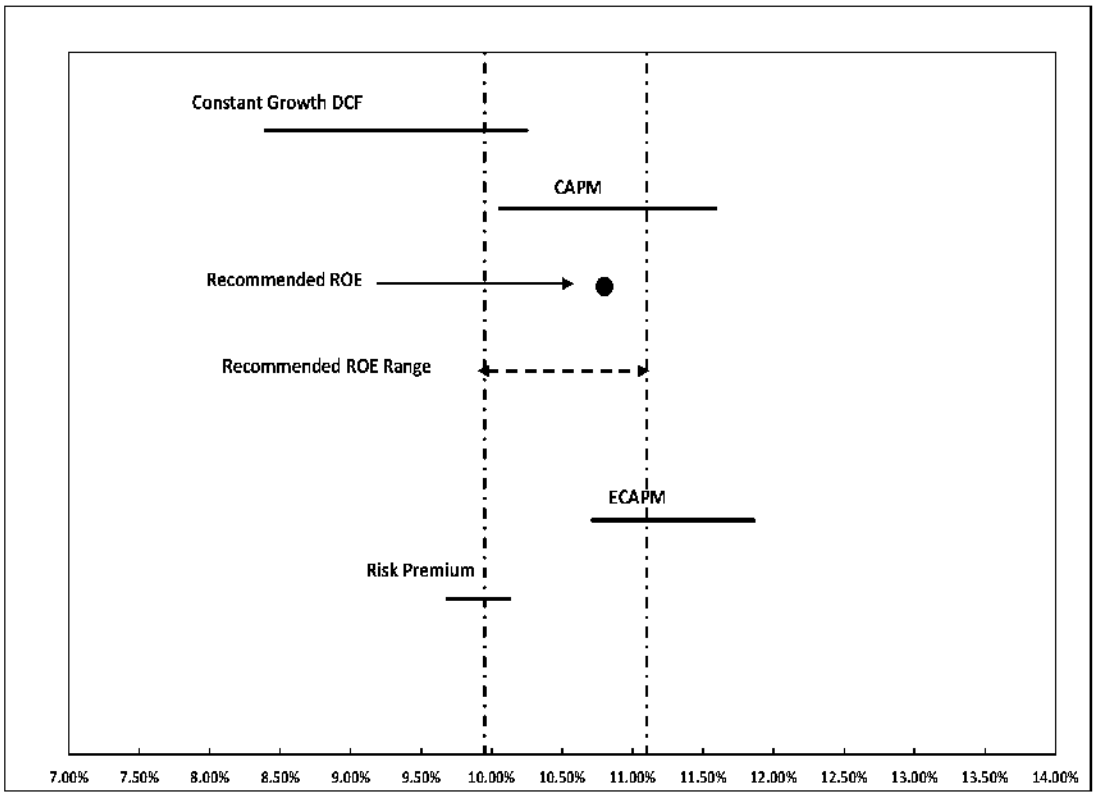
Q10. PLEASE EXPLAIN HOW YOU CONSIDERED THOSE FACTORS.

A. I relied on the results of several analytical approaches to estimate ETI's cost of equity based on a proxy group of publicly-traded companies. As shown in Figure 1, those ROE estimation models produce a wide range of results. My conclusion about where within that range of results ETI's ROE should be placed is based on ETI's business and financial risk relative to the proxy group. Although the 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 profiles. Accordingly, I selected a proxy group with similar, but not identical risk profiles, and I adjusted the results of my analysis either upward or downward within the reasonable range of results to account for any residual differences in risk.

Q11. PLEASE SUMMARIZE THE ROE ESTIMATION MODELS THAT YOU CONSIDERED TO ESTABLISH THE RANGE OF ROES FOR ETI'S TEXAS 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

compensate equity investors for the residual risks of ownership, including the risk that they have the lowest claim on the assets and income of ETI.

Although I have concerns about the results produced by the DCF models, my ROE recommendation considers the range between the median and median-high results of the DCF models. In addition, I consider the results of the forward-looking CAPM, ECAPM and a Bond Yield Plus Risk Premium analysis. I also consider company-specific risk factors, and current and prospective capital market conditions.

As I will discuss, expected changes in capital market conditions will affect the results of the ROE estimation models, making it important to review results based on historical or current data recognizing that these conditions may not represent the forward-looking cost of equity. The assumptions in each of the models are affected differently. In determining the appropriate forward-looking ROE, it is important to recognize these limitations in the static models and consider how the results may differ during the period over which the rates in this proceeding will be in effect. For example, dividend yields in the DCF model are affected by the recent historically high stock prices. As the Federal Reserve normalizes monetary policy, it is reasonable to expect that utility stocks will underperform the broader market. Lower stock prices increase dividend yields on utility stocks and, all else equal, would increase the ROE resulting from the DCF model. Further, the Federal Reserve's normalization of monetary policy is likely to affect the bond yields used in the CAPM. Therefore, it would be reasonable to consider scenarios of this model that reflect changes in bond yields.

Q12. PLEASE SUMMARIZE THE ANALYSIS YOU CONDUCTED IN DETERMINING THAT ETI'S REQUESTED CAPITAL STRUCTURE IS REASONABLE AND APPROPRIATE.

A. Based on the analysis presented in Section IX of my direct testimony, I conclude 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 subsidiaries of the proxy companies. As shown in Exhibit AEB-12, the results of that analysis demonstrate that the equity ratios for the utility operating companies held by the proxy group range from 47.22 percent to 61.49 percent with a median 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 companies and is reasonable.

IV. REGULATORY GUIDELINES

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

> 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]

The *Hope* decision supports the principles outlined in the Bluefield decision.

> 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]

Q14. HAS THE COMMISSION PROVIDED SIMILAR GUIDANCE IN ESTABLISHING THE APPROPRIATE RETURN ON COMMON EQUITY?

A. Yes. The Commission follows the precedents of the *Hope* and *Bluefield* cases and acknowledges that utility investors are entitled to a reasonable opportunity to earn a reasonable return. The Commission's obligations for establishing a reasonable return are described in the Public Utility Regulatory Act:[7]

> 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]

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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.

Q15. WHY IS IT IMPORTANT FOR A UTILITY TO BE ALLOWED THE OPPORTUNITY TO EARN A RETURN THAT IS ADEQUATE TO ATTRACT CAPITAL AT REASONABLE TERMS?

A. An ROE that is adequate to attract capital at reasonable terms enables a utility to continue to provide safe, reliable service while maintaining its financial integrity. To the extent that the utility is provided the opportunity to earn its market-based cost of capital, neither customers nor shareholders are disadvantaged.

Q16. IS A UTILITY'S ABILITY TO ATTRACT CAPITAL ALSO AFFECTED BY THE ROES THAT ARE AUTHORIZED FOR OTHER UTILITIES?

A. Yes. Utilities compete directly for capital with other investments of similar risk, which include other water, natural gas and electric utilities. Therefore, the ROE awarded to a utility sends an important signal to investors regarding whether there is regulatory support for that utility's financial integrity, dividends, growth, and fair compensation for business and financial risk. The cost of capital represents an opportunity cost to investors. If higher returns are available for other investments of comparable risk, investors have an incentive to direct their capital to those investments. Thus, an authorized ROE for the Company that is significantly below authorized ROEs for other utilities can inhibit ETI's ability to attract capital for investment.

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.

The financial community carefully monitors the current and expected 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 factors in both debt and equity investors' assessments of risk. The Commission's order in this proceeding, therefore, should establish rates that provide ETI with the 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 returns on investments in enterprises with similar risk. To the extent that ETI is authorized the opportunity to earn its market-based cost of capital, the proper balance is achieved between customers' and shareholders' interests.

V. CAPITAL MARKET CONDITIONS

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

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.

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

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

A. The cost of equity for regulated utility companies is 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.

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

A. The combination of high inflation, the Federal Reserve's changes in monetary policy, and the dramatic shifts in market conditions all contribute to an expectation of increased market risk and an increase in the return on equity required by investors. It is essential that these factors be considered in determining an appropriate forward-looking ROE. Inflation is currently at the highest level experienced in approximately 40 years. Interest rates, which have increased significantly from pandemic-related lows in 2020 are expected to continue to increase in direct response to the Federal Reserve's use of monetary policy to 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 typically fall when interest rates rise), it is reasonable to expect that investors' required ROE for utility companies will also continue to increase. Therefore, ROE estimates based solely on current market conditions will understate the ROE required by investors during the future period that the Company's rates determined in this proceeding will be in effect.

A. The Effect of Monetary Policy on Market Dynamics

Q21. PLEASE SUMMARIZE THE MONETARY POLICY ACTIONS OF THE FEDERAL RESERVE IN RESPONSE TO THE ECONOMIC EFFECTS OF COVID-19.

A. In response to the COVID-19 pandemic, the Federal Reserve:

(1) decreased the Federal Funds rate twice in March 2020, resulting in a target range of 0.00 percent to 0.25 percent;

(2) increased its holdings of both Treasury and mortgaged-back securities;

(3) started expansive programs to support credit to large employers – the Primary Market Corporate Credit Facility to provide liquidity for new issuances of corporate bonds; and the Secondary Market Corporate Credit Facility to provide liquidity for outstanding corporate debt issuances; and

(4) supported the flow of credit to consumers and businesses through the Term Asset-Backed Securities Loan Facility.

In addition, Congress also passed the Coronavirus Aid, Relief, and Economic Security ("CARES") Act in March 2020, the Consolidated Appropriations Act, 2021 in December 2020, and the American Rescue Plan Act in March 2021, which included $2.2 trillion, $900 billion, and $1.9 trillion, respectively, in fiscal stimulus aimed at also mitigating the economic effects of COVID-19. These expansive monetary and fiscal programs mitigated the economic effects of the COVID-19 pandemic and provided additional support as the economy recovers from the COVID-19 recession.

Q22. HOW DID THE ACCOMMODATIVE MONETARY AND FISCAL POLICY AFFECT THE U.S. ECONOMY?

A. The expansive monetary and fiscal policy programs resulted in a strong economic recovery in 2021 from the COVID-19 induced recessionary period in 2020. In fact, 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 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 discuss in more detail below, the economic recovery has also brought about a substantial increase in inflation, with the year-over-year ("YOY") change in the Consumer Price Index ("CPI") at 8.22 percent in April 2022.[11]

Q23. IS THE FEDERAL RESERVE NORMALIZING MONETARY POLICY?

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

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[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-year-ended-april-2022-largest-12-month-increase-since-november-1980.htm.

- Completed its taper of Treasury bond and mortgage-backed securities purchases, decreasing monthly purchase plans by $60b (from $80b to $20b) since November 2021;[12]

- 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 percent to 0.75 – 1.00 percent at the May 4, 2022 meeting;[14]

- 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 1.9 percent and 2.8 percent in 2022 and 2023, respectively;[15]

- 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 balance sheet by only reinvesting principal payments on owned securities after the total amount of payments received exceeds a defined cap. For Treasury Securities, the cap will be set at $30 billion per month for the first three months and $60 billion per month after the first three months while for mortgage-backed securities the cap will be set at $17.5 billion per month for the first three months and $35 billion per month after the first three months.[17]

Q24. WHAT IS THE MARKET RESPONSE TO THE RECENT FEDERAL OPEN MARKET COMMITTEE MEETINGS?

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

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

[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).

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

probability of the target federal funds rate range at upcoming Federal Reserve meetings.[18] Figure 2 below summarizes investors' expectations regarding the level of the federal funds rate at each of the next eleven meetings as of May 5, 2022, based on The CME Group's methodology. As shown in Figure 2, investors expect the Federal Reserve to increase the federal funds rate at a faster pace than what was indicated in the forecasts released at the Federal Reserve's March 16, 2022 meeting. For example, according to the CME Group, there is a 53.6 percent probability[19] that the target federal funds rate range is 3.00 percent to 3.25 percent as of December 2022 which is greater than the Federal Reserve's median forecast of 1.90 percent. This is consistent with expectations of major financial institutions. In particular:

- 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.
- 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.
- 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]

Thus, the consensus of investors is an expectation that the Federal Reserve

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[18] https://www.cmegroup.com/education/demos-and-tutorials/fed-funds-futures-probability-tree-calculator.html.

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

[20] Lanman, 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.

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

Figure 2: Investor Expectation of Future Federal Funds Rate Increases[22]

	MEETING PROBABILITIES														
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%	0.0%
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%	0.0%
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%	0.0%
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%	0.0%
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%	0.0%
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%	0.1%
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%	0.3%

Q25. HAS THE FEDERAL RESERVE PROVIDED ADDITIONAL SUPPORT FOR INVESTORS' EXPECTATIONS REGARDING THE FEDERAL FUNDS RATE?

A. Yes. Specifically, at the May 4, 2022 meeting, when the Federal Reserve increased the federal funds target rate by 50 basis points from a range of 0.25 – 0.50 percent to a range of 0.75 – 1.00 percent, Federal Reserve Chairman Powell noted at his press conference that additional 50 basis point increases should be considered at the next couple of meetings:

> "[w]e are on a path to move our policy rate expeditiously to more normal levels. Assuming that economic and financial conditions evolve in line with expectations, there is a broad sense on the Committee that additional 50 basis point increases should be on the table at the next 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]

B. Inflationary Expectations in Current and Projected Market Conditions

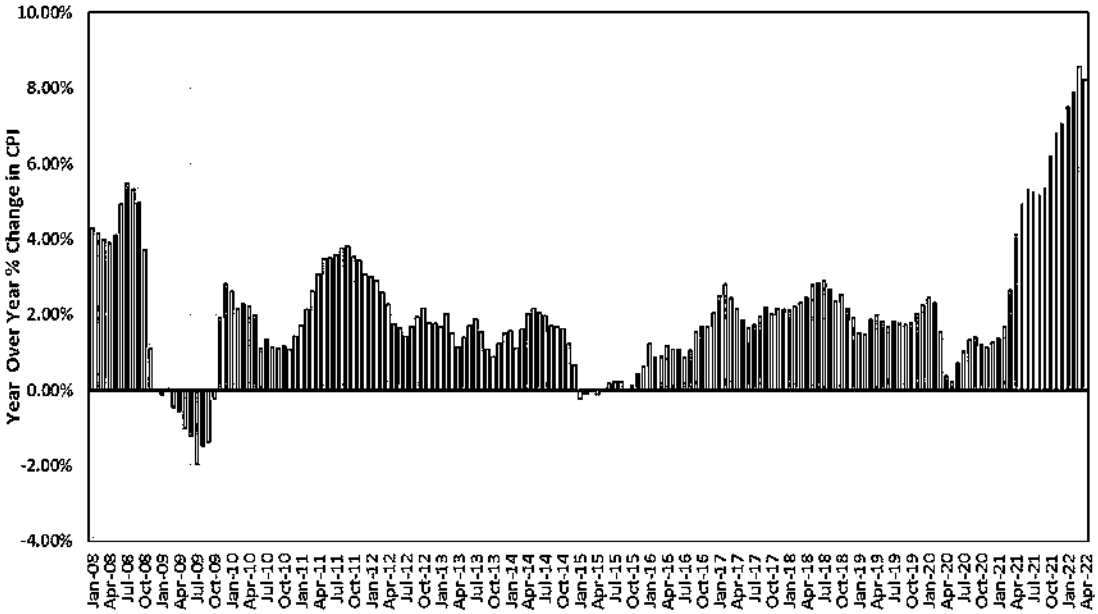
Q26. IS THE INCREASE IN INFLATION SIGNIFICANT?

A. Yes. As shown in Figure 3, the YOY change in the Consumer Price Index ("CPI") published by the Bureau of Labor Statistics has increased steadily over the past year, rising from 1.37 percent in January 2021 to 8.22 percent in April 2022. The 8.22 percent YOY in the CPI in April; 2022 is down slightly from 8.56 percent in March 2022 which was the largest 12-month increase since 1981 and significantly 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.

Figure 3: Consumer Price Index
YOY Percent Change – January 2008 – April 2022[25]



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

A. In his press conference following the May 4, 2022, meeting, Chairman Powell 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 expect inflation to remain elevated over the near-term. One measure of investors' expectations regarding inflation is the breakeven inflation rate, which is calculated as the difference between the yield on a Treasury bond and the yield on a Treasury Inflation-Protected bond of the same maturity, since the yield on a Treasury Inflation-Protected bond would account for the effect of inflation. The maturity of

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

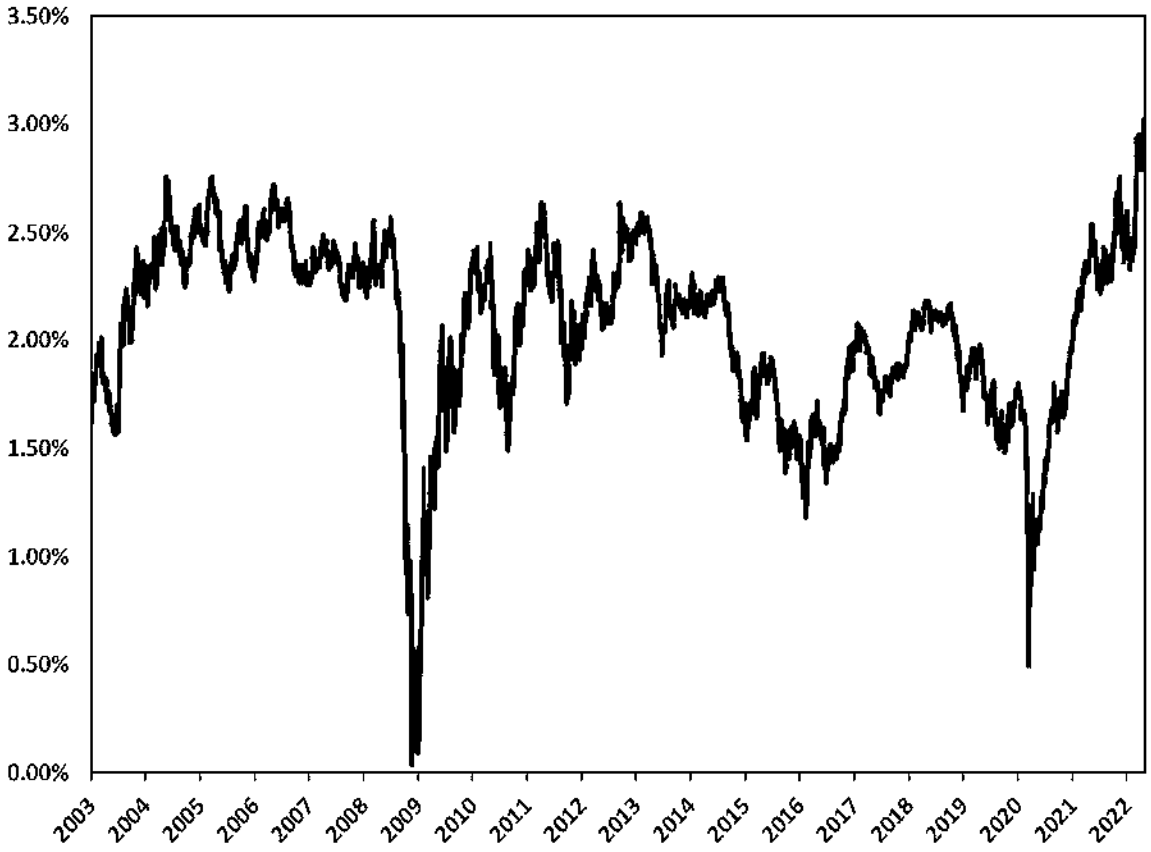
[26] Federal Reserve, Transcript of Chair Powell's Press Conference Opening Statement at 1 (May 4, 2022).

the bond selected would then reflect investors' views of inflation during the holding period of the bond. For example, the 10-year breakeven inflation rate calculated as the spread between the 10-year Treasury bond yield and the 10-year Treasury Inflation-Protected bond yield would reflect investors' expectations of inflation 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 10-year breakeven inflation rate as of April 29, 2022 was 2.88 percent indicating that investors expect inflation will remain well above the Federal Reserve's 2 percent target over the next 10 years. There are many reasons why inflation is 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 rate of 6.3 percent for 2022:

> 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 the rate should fall faster, down to 3.0% by the end of the year. The higher cost of housing will keep inflation rates elevated for some time to come. Gasoline prices and heating costs are likely to stay high for a good while because of the war in Ukraine, but they may plateau instead of climbing more. The price of cars and trucks will also stay at a high level until the semiconductor shortage ends sometime next year. Continued spot shortages of various items will drive their price up, adding to the overall inflation rate. The latest is a shortage of baby formula.[27]

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

Figure 4: 10-year Breakeven Inflation Rate – Janaury 2003 – April 2022[28]



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

Q28. WHAT EFFECT WILL INFLATION HAVE ON LONG-TERM INTEREST RATES?

A. Inflation and the Federal Reserve's normalization of monetary policy will likely result in increases in long-term interest rates. Specifically, inflation reduces the purchasing power of the future interest payments an investor expects to receive over the duration of a bond. This risk increases the longer the duration of the bond. As

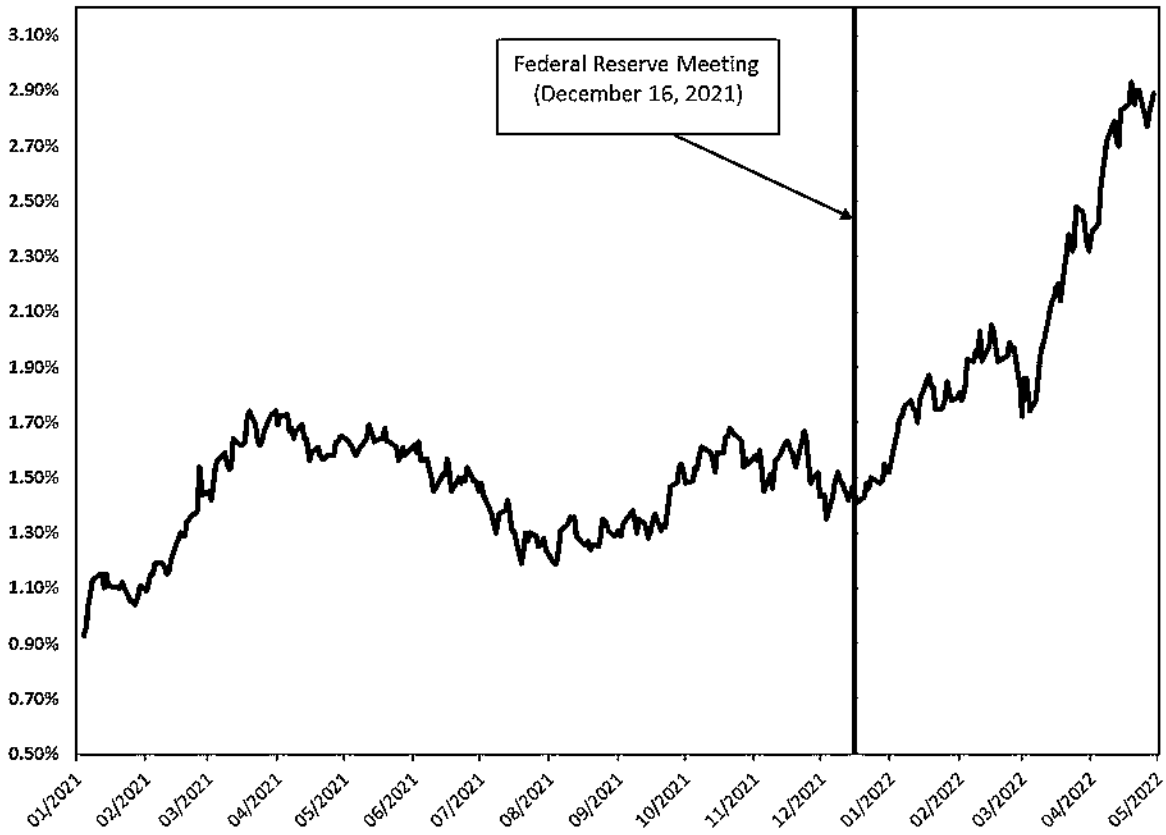
[28] Federal Reserve Bank of St. Louis, 10-Year Breakeven Inflation Rate [T10YIE], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/T10YIE, April 29, 2022.

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.

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

A. Yes, they have. As noted above, at each of the December 2021, January 2022, March 2022, and May 2022 meetings, the Federal Reserve noted its continued 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 Reserve accelerated the process of normalizing monetary policy to respond to inflation. As shown in Figure 5, since the Federal Reserve's December 2021 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 is due to the Federal Reserve's announcements at the December 2021, January 2022, March 2022 and May 2022 meetings, actions the Federal Reserve has taken to normalize monetary policy, and the continued increased levels of inflation that are now expected to persist much longer than the Federal Reserve and investors had originally projected.

Figure 5: 10-Year Treasury Bond Yield – Janaury 2021 – April 2022[29]



Q30. WHAT VIEWS HAVE EQUITY ANALYSTS EXPRESSED ABOUT LONG-TERM GOVERNMENT BOND YIELDS?

A. Leading equity analysts have noted that they expect the yields on long-term government bonds to remain elevated 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.

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

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

Bank	10-year U.S. Treasury Yield	
	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%

Q31. HAVE YOU CONSIDERED ANY ADDITIONAL INDICATORS THAT MAY IMPLY LONG-TERM INTEREST RATES ARE EXPECTED TO INCREASE?

A. Yes, I have. I considered the net position of commercials (i.e., banks) in U.S. Treasury Bond futures contracts as reported in the Commitment of Traders ("COT") Report produced by the Commodity Futures Trading Commission ("CFTC"). A net position is defined as the total number of long positions in a futures contract minus the total number of short positions in a futures contract. A long position means that an investor agrees to purchase an asset in the future at a predetermined price and therefore profits if the price of the underlying asset increases. Conversely, short position is when an investor agrees to sell an asset at 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. https://www.marketwatch.com/story/this-bond-expert-who-called-the-spike-in-u-s-yields-forecasts-the-10-year-to-reach-4-11651843223.

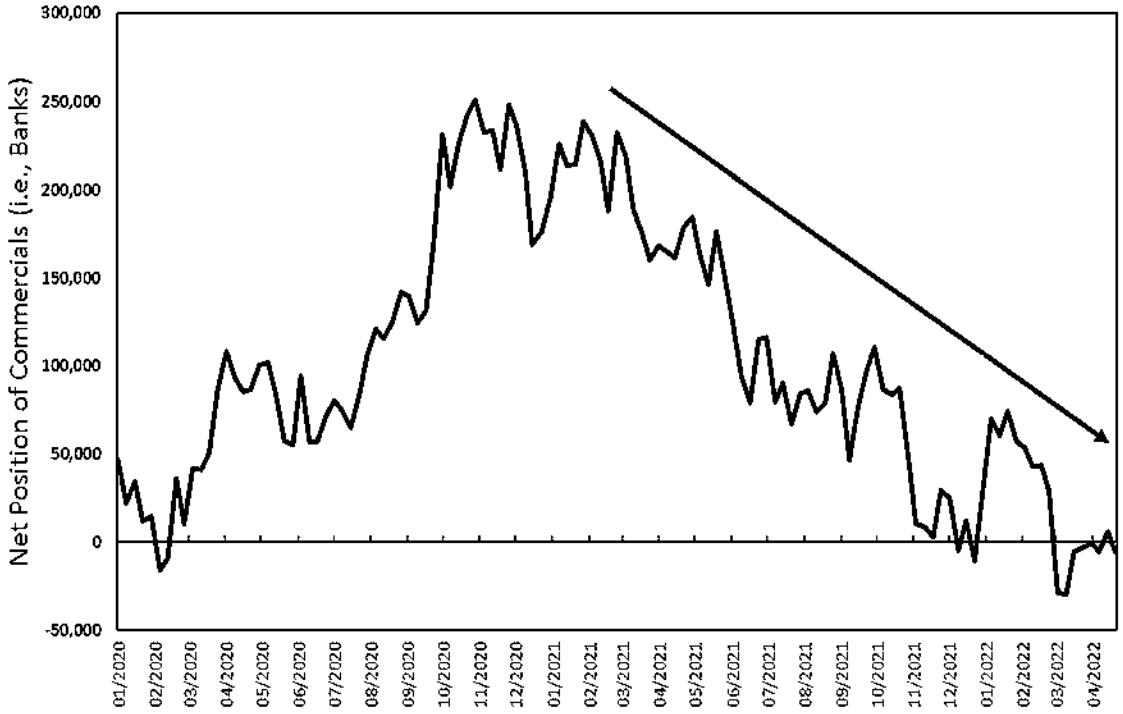
[31] Pollard, Amelia. "Goldman Lifts Yield Forecasts, Sees 10-Year Treasuries at 3.3%." Bloomberg.com, May 12, 2022.

[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.

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.

Figure 7: Commitment of Traders Report – Net Position of Commercials (i.e., Banks) in U.S. Treasury Bond Futures Contracts[34]



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

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

Q32. ARE UTILITY SHARE PRICES CORRELATED TO CHANGES IN THE YIELDS ON LONG-TERM GOVERNMENT BONDS?

A. Yes, interest rates and utility share prices are inversely correlated which means, for example, that an increase in interest rates will generally result in a decline in the share prices of utilities. For example, Goldman Sachs and Deutsche Bank recently examined the sensitivity of share prices of different industries to changes in interest rates over the past five years. Both Goldman Sachs and Deutsche Bank found that utilities had one of the strongest negative relationships with bond yields (i.e., increases in bond yields resulted in the decline of utility share prices).[35]

Q33. HAVE ELECTRIC UTILITY STOCK PRICES RECENTLY INCREASED?

A. Yes. Utility stock prices had trended down as interest rates moved higher; however, as a result of the political turmoil associated with the war in Ukraine, investors have recently returned to utility stocks as a safe haven seeking to lower risk, resulting in higher electric utility stock prices and thus lower dividend yields.[36]

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

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

Q34. HOW DO EQUITY ANALYSTS EXPECT THE UTILITIES SECTOR TO PERFORM IN AN INCREASING INTEREST RATE ENVIRONMENT?

A. Even with the recent increase in electric utility stock prices, equity analysts project that utilities are expected to underperform the broader market as interest rates 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 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 recently recommended underweighting the utility sector and noted that it classified the sector as underweight due to a combination of "poor fundamentals and expensive valuations."[38] Furthermore, regarding the recent increase in utility share 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]

Q35. HAVE YOU REVIEWED ANY MARKET INDICATORS THAT MAY IMPLY THAT UTILITIES WILL UNDERPERFORM OVER THE NEAR-TERM?

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

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

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

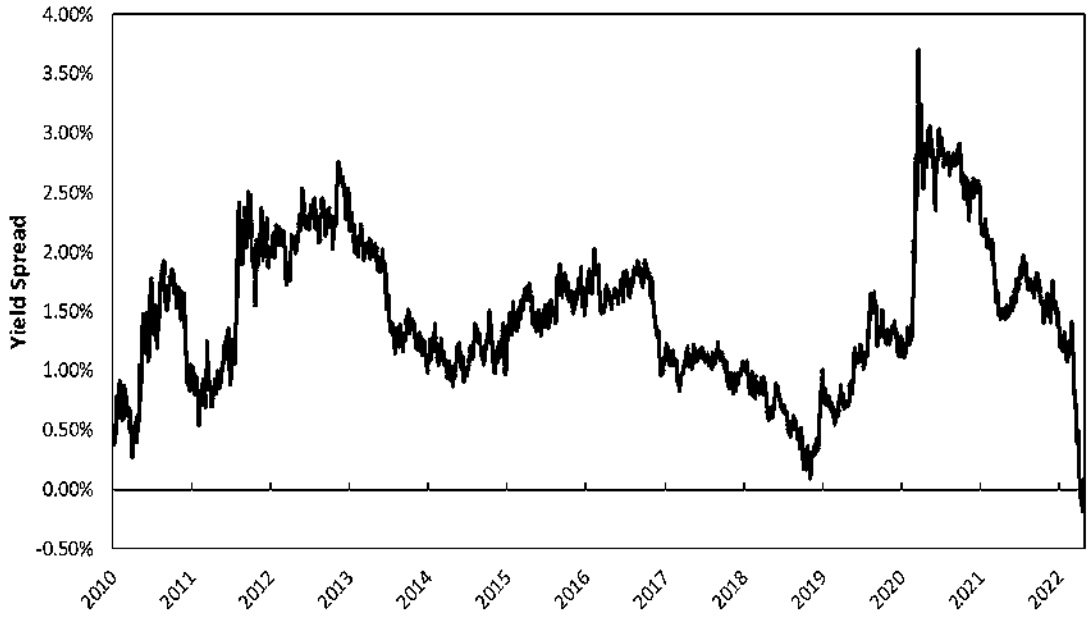
[39] *Id.*

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

As shown in Figure 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 to the dividend yield for the S&P Utilities Index. Furthermore, the current yield spread of 0.05 percent is well below the long-term average since January 2010 of 1.47 percent. Given that the yield spread is currently well below the long-term average as well as the expectation that interest rates will continue to increase, it is reasonable to conclude that utility sector will most likely underperform over the near-term. This is because investors that purchased utility stocks as an alternative to the lower yields on long-term government bonds would otherwise be inclined to rotate back into government bonds, particularly as the yields on long-term government bonds continue to increase, thus resulting in a decrease in the share

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 2022[40]

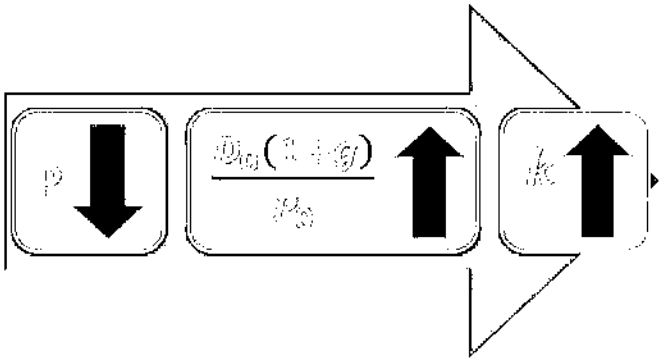


Q36. WHAT IS THE SIGNIFICANCE OF THE INVERSE RELATIONSHIP BETWEEN INTEREST RATES AND UTILITY SHARE PRICES IN THE CURRENT MARKET?

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.

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



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

E. Conclusion

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

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

to continued elevated levels of inflation and the Federal Reserve's normalization of monetary policy. Because the share prices of utilities are inversely correlated to interest rates, an increase in long-term government bond yields will likely result in a decline in utility share prices, which is the reason a number of equity analysts expect the utility sector to underperform over the near-term. The expected underperformance of utilities means that DCF models using recent historical data likely underestimate investors' required return over the period that rates will be in effect. This change in market conditions also supports the use of other ROE estimation models such as the CAPM and the ECAPM, which may better reflect expected market conditions.

VI. PROXY GROUP SELECTION

Q38. WHY HAVE YOU USED GROUPS OF PROXY COMPANIES TO ESTIMATE THE COST OF EQUITY FOR ETI?

A. 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.

Even if ETI's electric utility operations made up the entirety of a publicly-traded entity, it is possible that transitory events could bias its market value over a given time period. A significant benefit of using a proxy group is that it mitigates

the effects of anomalous events that may be associated with any one company. The proxy companies used in my analyses all possess a set of operating and financial risk characteristics that are substantially comparable to ETI, and, therefore, provide a reasonable basis to derive and estimate the appropriate ROE for the Company.

Q39. PLEASE PROVIDE A BRIEF PROFILE OF ETI.

A. ETI is a wholly owned subsidiary that provides electricity to approximately 486,000 customers in 27 counties in Texas.[41] Retail sales in Texas in 2021 were approximately 22,051,000 MWh.[42] ETI currently has an investment grade long-term rating of BBB+ (Outlook: Stable) from Standard & Poor's ("S&P") and Baa2 (Outlook: Stable) from Moody's.[43] ETI's current long-term issuer credit ratings are shown in Figure 10.

Figure 10: ETI Credit Ratings[44]

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

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

A. I began with the group of 36 companies that Value Line classifies as Electric Utilities and applied the following screening criteria to select companies that:

[41] Entergy Texas, Inc. https://www.entergy-texas.com/about-us, 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.

- pay consistent quarterly cash dividends, because companies that do not cannot be analyzed using the Constant Growth DCF model;
- have investment grade long-term issuer ratings from S&P and/or Moody's;
- are covered by at least two utility industry analysts;
- have positive long-term earnings growth forecasts from at least two utility industry equity analysts;
- own regulated generation assets that are included in rate base;
- derive more than 40.00 percent of its megawatt-hour sales from its owned generation facilities;
- derive more than 60.00 percent of their total operating income from regulated operations;
- derive more than 80.00 percent of their total regulated operating income from regulated electric operations; and
- were not parties to a merger or transformative transaction during the analytical periods relied on.

Q41. DID YOU EXCLUDE ANY OTHER COMPANIES FROM THE PROXY GROUP?

A. Yes. I also excluded Pinnacle West Capital Corporation ("PNW") and Hawaiian Electric Industries, Inc. ("HE"). For PNW, the share price decreased approximately 24 percent over a two-month period from October through November 2021 resulting from a negative regulatory decision for its largest operating company, Arizona Public Service Company ("APS"). Therefore, similar to the reason that I exclude transformative transactions; because the stock price can be affected by one-time events, I also excluded PNW from the proxy group.

HE's operations are concentrated on the islands of Hawaii; therefore, the company faces geographic concentration risk. As HE noted in the company's 2021

Form10-K:

> 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]

The increased risk of service interruptions resulting from HE's geographic location which could result in revenue loss and increased costs is a risk unique to HE and would not apply to utilities located on the U.S. mainland. Furthermore, HE's unregulated operations which represent approximately 33 percent of the company's operation income in 2021 are concentrated in the banking sector through the ownership of American Savings Bank ("ASB").[46] ASB also only operates on Hawaii; thus, all of the company's consumer and commercial loans are to customers on Hawaii. If Hawaii were to face an adverse economic or political event, ASB could face severe financial effects given the company's geographic concentration in Hawaii.[47] As a result, I have excluded HE from my proxy group considering HE's unique geographical risks.

Q42. WHAT IS THE COMPOSITION OF YOUR PROXY GROUP?

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

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

[46] *Id.* at 86.

[47] *Id.* at 20.

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

VII. COST OF EQUITY ESTIMATION

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

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

performance measures, the base ROE is intended to reflect the return that investors require in order to invest in utility assets rather than investing in enterprises of comparable risk in the industry or competitive market.

The overall rate of return for a regulated utility includes both the cost of 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 proportion in the capital structure. While the cost of debt and preferred stock can be directly observed, the cost of equity is market-based and, therefore, must be estimated based on observable market data.

Q44. HOW IS THE REQUIRED ROE DETERMINED?

A. The required ROE is estimated by using multiple analytical techniques that rely on market data to quantify investors' return requirements, adjusted for certain incremental costs and risks. Quantitative models produce a range of reasonable results from which the market-required ROE is selected. That selection must be based on a comprehensive review of relevant data and information, but it does not necessarily lend itself to a strict mathematical solution. The key consideration in determining the cost of equity is to ensure that the methodologies employed reasonably reflect investors' views of the financial markets in general and of the subject company (in the context of the proxy group) in particular.

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

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.

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

A. Because the cost of equity is not directly observable, it must be estimated based on both quantitative and qualitative information. When faced with the task of estimating the cost of equity, analysts and investors are inclined to gather and evaluate as much relevant data as reasonably can be analyzed. Several models have been developed to estimate the cost of equity, and I use multiple approaches to estimate the cost of equity. As a practical matter, however, all of the models available for estimating the cost of equity are subject to limiting assumptions or other methodological constraints. Consequently, many well-regarded finance texts recommend using multiple approaches when estimating the cost of equity. For example, Copeland, Koller, and Murrin[48] suggest using the CAPM and Arbitrage Pricing Theory model, while Brigham and Gapenski[49] recommend the CAPM, DCF, and Bond Yield Plus Risk Premium approaches. Consistent with the *Hope* finding, it is the analytical result, not the methodology employed, which is 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.

Q47. IS IT IMPORTANT GIVEN THE CURRENT MARKET CONDITIONS TO USE MORE THAN ONE ANALYTICAL APPROACH?

A. Yes. The historical average dividend yields for utilities are currently reflecting the effect of the recently low interest rate environment which results in DCF cost of 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 sensitivity of the DCF model to low Treasury yields. Low interest rates might also affect the CAPM in two ways: (1) the risk-free rate is lower, and (2) because the market risk premium is a function of interest rates, (i.e., it is the return on the broad 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 will take into account the relationship between ROE and interest rates through the market risk premium component. Therefore, it is important to use multiple analytical approaches to moderate the impact that the current low interest rate environment is having on the ROE estimates, especially the DCF analysis, and where possible consider using projected market data in the models to estimate the return for the forward-looking period.

Q48. WHAT ARE YOUR CONCLUSIONS ABOUT THE RESULTS OF THE DCF 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

assumptions are consistent with investors' future expectations, will underestimate the cost of equity that investors would require over the period that the rates in this case are to be in effect. In this instance, relying on the historically low dividend yields that are not expected to continue over the period that the new rates will be in effect will underestimate the ROE for ETI.

Furthermore, as discussed in Section V above, long-term interest rates have increased since August 2020, and this trend is expected to continue as the Federal Reserve normalizes monetary policy in response to increased inflation. Therefore, the use of current averages of Treasury bond yields as the estimate of the risk-free rate in the CAPM is not appropriate since recent market conditions are not expected to continue over the long-term. Instead, analysts should rely on projected yields of Treasury Bonds in the CAPM. The projected Treasury Bond yields result in CAPM estimates that are more reflective of the market conditions that investors expect during the period that the Company's rates will be in effect.

A. Constant Growth DCF Model

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:

Equation [1]

$$P_0 = \frac{D_1}{(1+k)} + \frac{D_2}{(1+k)^2} + \ldots + \frac{D_\infty}{(1+k)^\infty}$$

Where P_0 represents the current stock price, $D_1 \ldots D_\infty$ 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.

Q50. WHAT ASSUMPTIONS ARE REQUIRED FOR THE CONSTANT GROWTH 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.

Q51. WHAT MARKET DATA DID YOU USE TO CALCULATE THE DIVIDEND 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.

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

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

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

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

Q54. WHAT SOURCES OF LONG-TERM GROWTH RATES DID YOU RELY ON IN YOUR CONSTANT GROWTH DCF MODEL?

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

Q55. HOW DID YOU CALCULATE THE RANGE OF RESULTS FOR THE CONSTANT GROWTH DCF MODEL?

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

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.

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%

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

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

B. CAPM Analysis

Q58. PLEASE BRIEFLY DESCRIBE THE CAPITAL ASSET PRICING MODEL.

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

security as a function of a risk-free return plus a risk premium to compensate investors for the non-diversifiable or "systematic" risk of that security.[50] This second component is the product of the market risk premium and the Beta coefficient, which measures the relative riskiness of the security being evaluated.

The CAPM is defined by four components, each of which must theoretically be a forward-looking estimate:

Equation [3]

$$K_e = r_f + \beta\left(r_m - r_f\right)$$

Where:

K_e = the required market ROE;

β = Beta coefficient of an individual security;

r_f = the risk-free rate of return; and

r_m = the required return on the market as a whole.

In this specification, the term (r_m – r_f) represents the Market Risk Premium. According to the theory underlying the CAPM, since unsystematic risk can be diversified away, investors should only be concerned with systematic risk. Systematic risk is measured by Beta, which is a measure of the volatility of a security as compared to the overall market. Beta is defined as:

Equation [4]

$$\beta = \frac{Covariance(r_e, r_m)}{Variance(r_m)}$$

The variance of the market return (i.e., Variance (r_m)) 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.

uncertainty of the general market. The covariance between the return on a specific security and the general market (i.e., Covariance (r_e, r_m)) reflects the extent to which the return on that security will respond to a given change in the general market return. Thus, Beta represents the risk of the security relative to the general market.

Q59. WHAT RISK-FREE RATE DID YOU USE IN YOUR CAPM ANALYSIS?

A. I relied on three sources for my estimate of the risk-free rate: (1) the current 30-day average yield on 30-year Treasury bonds of 2.37 percent;[51] (2) the projected 30-year Treasury yield for Q3 2022–Q3 2023 of 3.12 percent;[52] and (3) the average projected 30-year Treasury bond yield for the period 2022 through 2026 of 3.40 percent.[53]

Q60. WOULD YOU PLACE MORE WEIGHT ON ONE OF THESE SCENARIOS?

A. 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 inputs and assumptions used in the CAPM analysis should reflect the expectations of the market at that time. While I have included the results of a CAPM analysis that relies on a current 30-day average risk-free rate, this analysis fails to take into

[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.

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

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

Q62. HOW DID YOU ESTIMATE THE MARKET RISK PREMIUM IN THE CAPM?

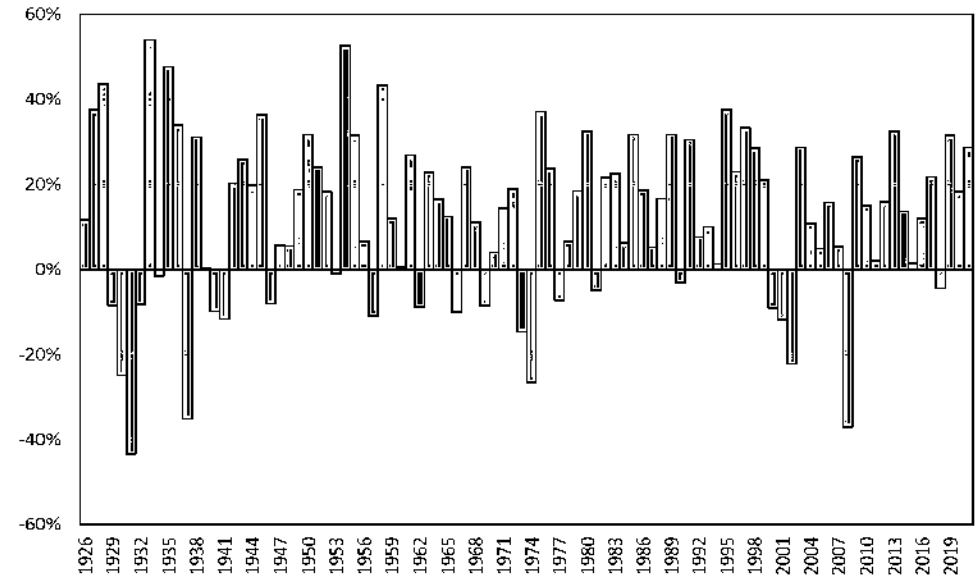
A. I estimated the market risk premium as the difference between the implied expected equity market return and the risk-free rate. The expected return on the S&P 500 Index is calculated using the Constant Growth DCF model discussed earlier in my testimony for the companies in the S&P 500 Index for which 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.

Q63. HOW DOES THE EXPECTED MARKET RETURN YOU HAVE CALCULATED COMPARE TO OBSERVED HISTORICAL MARKET 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.

Figure 13: Realized U.S. equity market returns (1926–2021)[54]



[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?

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

Equation [5]

$$k_e = r_f + 0.75\beta(r_m - r_f) + 0.25(r_m - r_f)$$

Where:

k_e = the required market ROE

β = Adjusted Beta coefficient of an individual security

r_f = the risk-free rate of return

r_m = the required return on the market as a whole

In essence, the Empirical form of the CAPM addresses the tendency of the "traditional" CAPM to underestimate the cost of equity for companies with low Beta coefficients such as regulated utilities. In that regard, the ECAPM is not redundant to the use of adjusted Betas; rather, it recognizes the results of academic 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.

than estimated by the CAPM, and that the CAPM underestimates the "alpha," or the constant return term.[56]

As with the CAPM, my application of the ECAPM uses the forward-looking market risk premium estimates, the three yields on 30-year Treasury securities noted earlier as the risk-free rate, and the Bloomberg, Value Line and long-term average Beta coefficients.

Q65. WHAT ARE THE RESULTS OF YOUR CAPM ANALYSES?

A. As shown in Figure 14, my traditional CAPM analysis produces a range of returns from 10.06 percent to 11.59 percent. The ECAPM analysis results range from 10.72 percent to 11.86 percent.

Figure 14: CAPM Results

	Current Risk-Free Rate (2.37%)	Q3 2022 – Q3 2023 Projected Risk-Free Rate (3.12%)	2023-2027 Projected Risk-Free Rate (3.40%)
CAPM			
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%
ECAPM			
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%

C. Bond Yield Plus Risk Premium Analysis

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

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

[56] *Id.* at 191.

investors bear the residual risk associated with equity ownership and therefore require a premium over the return they would have earned as a bondholder. That is, because returns to equity holders have greater risk than returns to bondholders, equity investors must be compensated to bear that risk. Risk premium approaches, therefore, estimate the cost of equity as the sum of the equity risk premium and the yield on a particular class of bonds. In my analysis, I used actual authorized returns for electric utility companies as the historical measure of the cost of equity to determine the risk premium.

Q67. ARE THERE OTHER CONSIDERATIONS THAT SHOULD BE ADDRESSED IN CONDUCTING THIS ANALYSIS?

A. Yes. It is important to recognize both academic literature and market evidence indicating that the equity risk premium (as used in this approach) is inversely related to the level of interest rates. That is, as interest rates increase (decrease), the equity risk premium decreases (increases). Consequently, it is important to develop an analysis that: (1) reflects the inverse relationship between interest rates and the equity risk premium; and (2) relies on recent and expected market conditions. Such an analysis can be developed based on a regression of the risk premium as a function of U.S. Treasury bond yields. If authorized ROEs for electric utilities serve as the measure of required equity returns and define the yield 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]

Q68. IS THE BOND YIELD PLUS RISK PREMIUM ANALYSIS RELEVANT TO INVESTORS?

A. Yes. Investors are aware of ROE awards in other jurisdictions, and they consider those awards as a benchmark for a reasonable level of equity returns for utilities of comparable risk operating in other jurisdictions. Because my Bond Yield Plus Risk Premium analysis is based on authorized ROEs for utility companies relative to corresponding Treasury yields, it provides relevant information to assess the return expectations of investors.

Q69. WHAT DID YOUR BOND YIELD PLUS RISK PREMIUM ANALYSIS REVEAL?

A. As shown in Figure 15, from 1992 through March 31, 2022, there was a strong negative relationship between risk premia and interest rates. To estimate that relationship, I conducted a regression analysis using the following equation:

$$RP = a + b(T) \quad [6]$$

Where:

RP = Risk Premium (difference between authorized ROEs and the yield on 30-year U.S. Treasury bonds)

[57] *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.

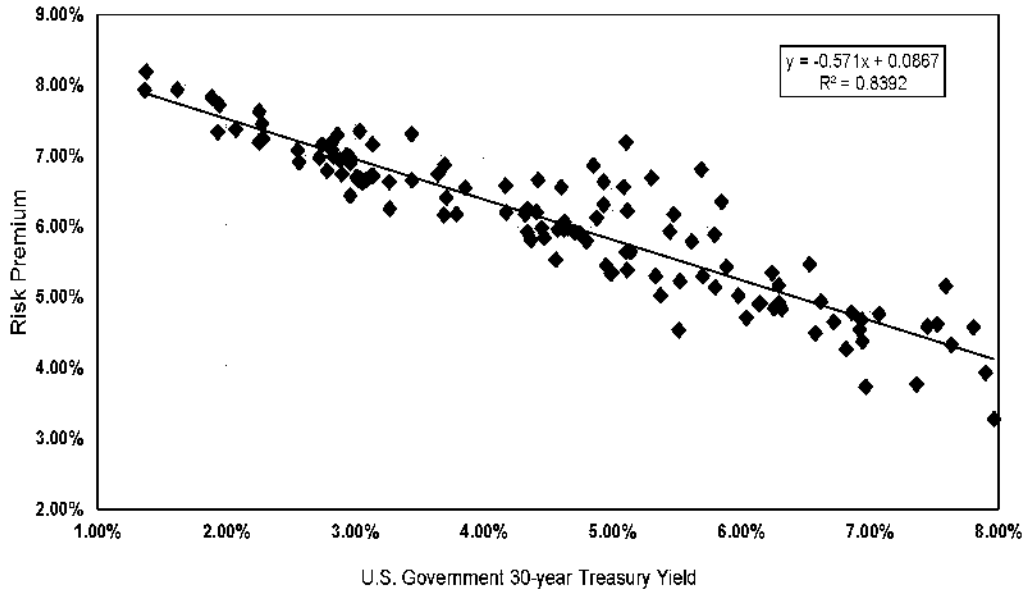
a = intercept term

b = slope term

T = 30-year U.S. Treasury bond yield

Data regarding allowed ROEs were derived from more than 681 vertically integrated electric utility rate cases from 1992 through March 31, 2022 as reported by Regulatory Research Associates ("RRA"). The equation's coefficients were 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 near-term (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