

Exhibit No.: _____
Issue: **Cash Working Capital**
Witness: **Timothy S. Lyons**
Type of Exhibit: **Direct Testimony**
Sponsoring Party: **Spire Missouri, Inc.**
Case No.: **GR-2025-0107**
Date Prepared: **November 25, 2024**

SPIRE MISSOURI, INC.

GR-2025-0107

DIRECT TESTIMONY

OF

TIMOTHY S. LYONS

TABLE OF CONTENTS

DIRECT TESTIMONY OF TIMOTHY S. LYONS 1

I. INTRODUCTION 1

II. PURPOSE OF TESTIMONY 2

III. LEAD-LAG STUDY APPROACH..... 4

i. EXPENSE LEAD DAYS 6

ii. O&M EXPENSES..... 6

iii. INCOME TAX EXPENSES..... 9

iv. TAXES OTHER THAN INCOME TAXES..... 10

v. INTEREST EXPENSE..... 10

IV. CONCLUSION 12

SCHEDULES:

Direct Schedule TSL-1	Qualifications
Direct Schedule TSL-2	Summary of Lead-Lag Studies for Spire Missouri East, Spire Missouri West, and Spire Missouri
Direct Schedule TSL-3	Supporting Schedules for Spire Missouri East and Spire Missouri West

DIRECT TESTIMONY OF TIMOTHY S. LYONS

I. INTRODUCTION

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Q. PLEASE STATE YOUR NAME, POSITION, AND BUSINESS ADDRESS.

A. My name is Timothy S. Lyons. I am a Partner with ScottMadden, Inc. My business address is 3 Speen Street, Suite 150, Framingham, Massachusetts 01701.

Q. ON WHOSE BEHALF ARE YOU SUBMITTING THIS TESTIMONY?

A. I am submitting this testimony on behalf of Spire Missouri, Inc. (“Spire Missouri” or the “Company”).

Q. PLEASE DESCRIBE YOUR PROFESSIONAL EXPERIENCE.

A. I have more than 30 years of experience in the energy industry. I started my career in 1985 at Boston Gas Company, eventually becoming Director of Rates and Revenue Analysis. In 1993, I moved to Providence Gas Company, eventually becoming Vice President of Marketing and Regulatory Affairs. Starting in 2001, I held several management consulting positions in the energy industry, first at KEMA and then at Quantec, LLC. In 2005, I became Vice President of Sales and Marketing at Vermont Gas Systems, Inc. before joining Sussex Economic Advisors, LLC (“Sussex”) in 2013. Sussex was acquired by ScottMadden in 2016.

Q. WHAT IS YOUR EDUCATIONAL BACKGROUND?

A. I hold a Bachelor’s Degree from St. Anselm College, a Master’s Degree in Economics from The Pennsylvania State University, and a Master’s Degree in Business Administration from Babson College.

1 **Q. HAVE YOU PREVIOUSLY SPONSORED TESTIMONY BEFORE THE**
2 **MISSOURI PUBLIC SERVICE COMMISSION (THE “COMMISSION”)?**

3 A. Yes. I have previously sponsored testimony before the Commission as well as 29
4 other state regulatory commissions. Direct Schedule TSL-1 contains a list of
5 regulatory proceedings in which I have sponsored testimony.

6 **Q. WAS THIS TESTIMONY PREPARED BY YOU OR UNDER YOUR**
7 **DIRECT SUPERVISION?**

8 A. Yes, it was.

9 **Q. HAVE YOU PREPARED SCHEDULES SUPPORTING YOUR**
10 **TESTIMONY?**

11 A. Yes. My testimony is supported by the schedules in the List of Schedules. The
12 schedules were prepared by me or under my direction.

13 **II. PURPOSE OF TESTIMONY**

14 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

15 A. I was retained by the Company to prepare lead-lag studies for Spire Missouri East,
16 Spire Missouri West, and Spire Missouri, which represents the combined Spire
17 Missouri East and Spire Missouri West studies. The lead-lag studies were used to
18 determine, respectively, the Cash Working Capital (“CWC”) requirements for Spire
19 Missouri East, Spire Missouri West, and Spire Missouri.

20 **Q. PLEASE DEFINE THE TERM “CASH WORKING CAPITAL.”**

1 A. The term “cash working capital” refers to the net funds required by the Company
2 to finance goods and services used to provide service to customers from the time
3 those goods and services are paid for by the Company to the time that payment is
4 received from customers. Goods and services considered in the lead-lag studies
5 include operations and maintenance (“O&M”) expenses, including labor and non-
6 labor expenses, income taxes, and taxes other than income taxes.

7 **Q. HOW WERE THE CWC REQUIREMENTS DETERMINED?**

8 A. The Spire Missouri East, Spire Missouri West, and Spire Missouri CWC
9 requirements were based on the results of the lead-lag studies. The lead-lag studies
10 compare differences between the Company’s revenue lag and expense leads. The
11 revenue lag represents the number of days from the time customers receive their
12 service to the time customers pay for service, *i.e.*, when the funds are available to
13 the Company. The longer the revenue lag, the more cash the Company needs to
14 finance its day-to-day operations. The expense lead represents the number of days
15 from the time the Company receives goods and services used to provide service to
16 the time payments are made for those goods and services, *i.e.*, when the funds are
17 no longer available to the Company. The longer the expense lead, the less cash the
18 Company needs to fund its day-to-day operations. Together, the revenue lag and
19 expense leads are used to measure the lead-lag days. The lead-lag days were then
20 applied to the Company’s adjusted test year expenses to derive the CWC
21 requirements, which were included in the respective rate base.

22 **Q. ARE THE METHODS USED TO DEVELOP THE LEAD-LAG STUDIES IN**
23 **THIS PROCEEDING CONSISTENT WITH THE METHODS USED TO**

1 A. The lead-lag studies were based on the Company’s financial data in Spire Missouri
2 East, Spire Missouri West, and Spire Missouri from July 1, 2023, through June 30,
3 2024. The financial data included customer billing, O&M expenses, income taxes,
4 and taxes other than income taxes.

5 i. **REVENUE LAG**

6 **Q. HOW WAS THE REVENUE LAG DETERMINED?**

7 A. The revenue lag measures the number of days from the time service is provided to
8 customers to the time payment is received from customers. The revenue lag consists
9 of three components: (1) the service lag; (2) the billing lag; and (3) the collection
10 lag.

11 **Q. WHAT IS THE SERVICE LAG?**

12 A. The service lag measures the average number of days in the service period; *i.e.*, the
13 number of days from the start of the billing month to the end of the billing month.
14 Meters are read at the end of the billing month. The service lag in the lead-lag
15 studies was based on the midpoint of the service period, which reflects that natural
16 gas service is provided evenly over the service period.

17 **Q. WHAT IS THE BILLING LAG?**

18 A. The billing lag measures the number of days from the time meters are read to the
19 time bills are recorded and sent to customers. The billing lag includes time for
20 review and validation of billed usage and dollars.

21 **Q. WHAT IS THE COLLECTION LAG?**

1 A. The collection lag measures the number of days from the time bills are recorded
2 and sent to customers to the time customer payments are received (*i.e.*, funds are
3 available to the Company). The collection lag in the lead-lag studies was based on
4 monthly accounts receivable balances and billed revenues. This information was
5 used to calculate the average time to receive customer payments.

6 i. **EXPENSE LEAD DAYS**

7 **Q. HOW WERE LEAD DAYS FOR EXPENSES DETERMINED?**

8 A. Lead days for expenses were determined separately for the following expense
9 categories: (1) Operations and Maintenance (“O&M”) expenses; (2) Income Taxes;
10 (3) Taxes Other than Income Taxes; and (4) Interest Payments on long-term debt.

11 ii. **O&M EXPENSES**

12 **Q. HOW WERE LEAD DAYS FOR O&M EXPENSES DETERMINED?**

13 A. Lead days for O&M expenses were determined separately for the following
14 expense categories: Purchased Gas; Regular Payroll; Vacation Pay; Annual
15 Performance Bonus; Pension; Benefits (Group Insurance); Missouri Public Service
16 Commission (“PSC”) Assessment; and Other O&M Expenses. Uncollectible
17 expenses were assumed to have no impact on the Company’s CWC requirement,
18 consistent with the Company’s lead-lag studies in the prior rate case.

19 **Q. HOW WERE LEAD DAYS FOR PURCHASED GAS EXPENSES**
20 **DETERMINED?**

1 A. Lead days for purchased gas expenses were based on the number of days from the
2 midpoint of the service period (*i.e.*, when gas is received and delivered to
3 customers) to the payment date. The payment date occurs in the month after the gas
4 is received and delivered to customers.

5 **Q. HOW WERE LEAD DAYS FOR REGULAR PAYROLL EXPENSES**
6 **DETERMINED?**

7 A. Lead days for regular payroll expenses were based on the Company's payroll
8 process, which pays employees on a bi-weekly basis. Lead days for regular payroll
9 expenses were based on the number of days from the midpoint of the pay period to
10 the payment date.

11 **Q. DO THE LEAD-LAG STUDIES ADJUST FOR VACATION PAY?**

12 A. Yes. The lead-lag studies adjust for vacation pay, reflecting that vacation pay is
13 generally earned before it is taken. The adjustment is based on lead days for regular
14 payroll and the midpoint of the vacation pay period.

15 **Q. HOW WERE LEAD DAYS FOR THE COMPANY'S ANNUAL**
16 **PERFORMANCE BONUS PAYMENT DETERMINED?**

17 A. Lead days for the Company's Annual Performance Bonus payment were based on
18 the number of days from the midpoint of the performance period (*i.e.*, October 1,
19 2022, through September 30, 2023) to the payment date. The annual performance
20 bonus is paid annually in November for the performance period that reflects the
21 preceding fiscal year.

1 **Q. HOW WERE LEAD DAYS FOR EMPLOYEE BENEFIT EXPENSES**
2 **DETERMINED?**

3 A. Lead days for employee benefit expenses were measured separately for (1) pension
4 contributions; and (2) group insurance expenses, which includes medical, dental,
5 and vision benefits. Lead days for each benefit group were measured separately
6 based on the number of days from the midpoint of the service period to the payment
7 date and then dollar-weighted by annual expenses.

8 **Q. HOW WERE LEAD DAYS FOR THE MISSOURI PSC ASSESSMENT**
9 **DETERMINED?**

10 A. Lead days for the Missouri PSC Assessment were based on the number of days
11 from the midpoint of the service period to the payment dates.

12 **Q. HOW WERE LEAD DAYS FOR OTHER O&M EXPENSES**
13 **DETERMINED?**

14 A. Lead days for Other O&M expenses were based on the sum of two components: (1)
15 lead days from the service period to the invoice date; and (2) lead days from the
16 invoice date to the payment date.

17 Lead days from the service period to the invoice date were based on a
18 stratified sample of invoices paid by the Company from July 1, 2023, through June
19 30, 2024. Lead days were measured for each invoice in the sample as the number
20 of days from the midpoint of the service period to the invoice date. Invoices were
21 then dollar-weighted by invoice amounts to determine lead days. The studies relied
22 on a sample of invoices to measure the lead days because the service periods were

1 not readily available electronically and instead required a detailed inspection of
2 individual invoices.

3 Lead days from the invoice date to the payment date were based on the full
4 population of invoices paid by the Company from July 1, 2023, through June 30,
5 2024. Lead days were measured for each invoice as the number of days from the
6 invoice date to the payment date. Invoices were then dollar-weighted by invoice
7 amounts to determine the lead days.

8 **iii. INCOME TAX EXPENSES**

9 **Q. HOW WERE LEAD DAYS FOR FEDERAL INCOME TAX PAYMENTS**
10 **DETERMINED?**

11 A. Lead days for Federal Income Tax payments were based on the number of days
12 from the midpoint of the taxing period to the Internal Revenue Service (“IRS”)
13 scheduled payment dates. The Company’s taxing period is its fiscal year October
14 1, 2023, through September 30, 2024. The IRS scheduled payment dates are
15 January 15, March 15, June 15, and September 15. If the scheduled payment date
16 falls on a Saturday, Sunday, or legal holiday, the payment is due on the next regular
17 business day.

18 **Q. HOW WERE LEAD DAYS FOR STATE INCOME TAXES DETERMINED?**

19 A. Lead days for State Income Taxes were based on the number of days from the
20 midpoint of the taxing period to the scheduled payment dates. The Company’s
21 taxing period is its fiscal year October 1, 2023, through September 30, 2024. The
22 scheduled payment dates are January 15, March 15, June 15, and September 15. If

1 the scheduled payment date falls on a Saturday, Sunday, or legal holiday, the
2 payment is due on the next regular business day.

3 **iv. TAXES OTHER THAN INCOME TAXES**

4 **Q. HOW WERE LEAD DAYS FOR TAXES OTHER THAN INCOME TAXES**
5 **DETERMINED?**

6 A. Lead days for Taxes other than Income Taxes were measured separately for the
7 following categories: (1) Employment Taxes related to the Federal Insurance
8 Contributions Act (“FICA”), Federal Unemployment Taxes (“FUTA”) and State
9 Unemployment Taxes (“SUTA”); and (2) Property Taxes.

10 **Q. HOW WERE LEAD DAYS FOR EMPLOYMENT TAXES DETERMINED?**

11 A. Lead days for employment taxes related to FICA, FUTA, and SUTA were measured
12 separately as the number of days from the midpoint of the taxing period to the
13 payment date.

14 **Q. HOW WERE LEAD DAYS FOR PROPERTY TAX PAYMENTS**
15 **DETERMINED?**

16 A. Lead days for Property Tax payments were measured separately for each taxing
17 authority as the number of days from the midpoint of the taxing period to the
18 payment date and then dollar-weighted by payment amounts.

19 **v. INTEREST EXPENSE**

20 **Q. HOW WERE LEAD DAYS FOR INTEREST PAYMENTS DETERMINED?**

1 A. Lead days for interest payments on the Company's debt were measured separately
2 for each payment as the number of days from the midpoint of the interest expense
3 period to the payment date and then dollar-weighted by payment amounts.

4 **Q. WERE THERE OTHER ITEMS INCLUDED IN THE STUDIES?**

5 A. Yes, the studies also included: (1) Sales and Use Tax; and (2) Gross Receipts Taxes.

6 **Q. HOW WERE LEAD DAYS FOR SALES TAXES DETERMINED?**

7 A. Lead days for sales taxes were measured as the number of days from the midpoint
8 of the taxing period to the payment date, adjusted to reflect there is no service period
9 associated with the revenue lag or expense lead.

10 **Q. HOW WERE LEAD DAYS FOR USE TAXES DETERMINED?**

11 A. Lead days for use taxes were measured as the number of days from the midpoint of
12 the taxing period to the payment date.

13 **Q. HOW WERE LEAD DAYS FOR GROSS RECEIPTS TAXES
14 DETERMINED?**

15 A. Lead days for gross receipts taxes were measured as the number of days from the
16 midpoint of the taxing period to the payment date, adjusted to reflect there is no
17 service period associated with the revenue lag or expense lead.

1 **IV. CONCLUSION**

2 **Q. WHAT WERE THE RESULTS OF THE LEAD-LAG STUDIES?**

3 A. The Company's lead-lag studies are summarized in Direct Schedule TSL-2 and
4 show a CWC requirement of \$11.9 million for Spire Missouri East, \$12.2 million
5 for Spire Missouri West, and \$24.1 million for Spire Missouri.

6 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

7 A. Yes, it does.

Summary of Qualifications

Tim Lyons is a partner with ScottMadden with more than 30 years of experience in the energy industry. Tim has held senior positions at several gas utilities and energy consulting firms. His experience includes rates and regulatory support, sales and marketing, customer service and strategy development. Prior to joining ScottMadden, Tim served as Vice President of Sales and Marketing for Vermont Gas. He has also served as Vice President of Marketing and Regulatory Affairs for Providence Gas Company, Director of Rates at Boston Gas Company, and Project Director at Quantec, LLC, an energy consulting firm.

Tim has sponsored testimony before 30 U.S. and 3 Canadian regulatory agencies. Tim holds a bachelor's degree from St. Anselm College, a master's degree in economics from The Pennsylvania State University, and a master's degree in business administration from Babson College.

Areas of Specialization

- Regulation and Rates
- Retail Energy
- Utilities
- Natural Gas

Capabilities

- Regulatory Strategy and Rate Case Support
- Strategic and Business Planning
- Capital Project Planning
- Process Improvements

Articles and Speeches

- "Country Strong: Vermont Gas shares its comprehensive effort to expand natural gas service into rural communities." **American Gas Association**, June 2011 (with Don Gilbert).
- "Talking Safety With Vermont Gas." **American Gas Association**, February 2009 (with Dave Attig).
- "Consumers Say 'Act Now' To Stabilize Prices." **Power & Gas Marketing**, September/ October 2001 (with Jim DeMetro and Gerry Yurkevicz).
- "Rate Reclassification: Who Buys What and When." **Public Utilities Fortnightly**, October 15, 1991 (with John Martin).

Sponsor	Date	Docket No.	Subject
Regulatory Commission of Alaska			
Cook Inlet Natural Gas Storage Alaska, LLC	7/21	Docket No. U-21-058	Sponsored testimony supporting the lead-lag study/cash working capital requirement for a general rate case proceeding.
ENSTAR Natural Gas Company	06/16	Docket No. U-16-066	Adopted and sponsored testimony supporting a lead-lag study for a general rate case proceeding.
Arizona Corporation Commission			
Southwest Gas Corporation	02/24	Docket No. G-01551A-23-0341	Sponsored testimony supporting class cost of service, rate design and bill impact analysis for a general rate case proceeding.
Southwest Gas Corporation	12/21	Docket No. G-01551A-21-0368	Sponsored testimony supporting class cost of service, rate design and bill impact analysis for a general rate case proceeding.
Arkansas Public Service Commission			
Summit Utilities, Inc.	01/24	Docket No. 23-079-U	Sponsored testimony supporting class cost of service, rate design and bill impact analysis for a general rate case proceeding.
Liberty Utilities (The Empire District Electric Company)	2/23	Docket No. 22-085-U	Sponsored testimony supporting the class cost of service, rate design, bill impact studies, and revenue decoupling for a general rate case proceeding.
Liberty Utilities (Pine Bluff Water)	10/18	Docket No. 18-027-U	Sponsored testimony supporting the cost of service, rate design and bill impact studies for a general rate case proceeding.
California Public Utilities Commission			
Liberty Utilities (CalPeco Electric)	9/24	Application No. 24-09-010	Sponsored testimony supporting the marginal cost study, rate design and bill impact analysis for a general rate case proceeding.
Liberty Utilities (Apple Valley Water)	01/24	Application No. 24-01-0003	Sponsored testimony supporting rate design studies for a general rate case proceeding.
Liberty Utilities (Park Water)	01/24	Application No. 24-01-0002	Sponsored testimony supporting rate design studies for a general rate case proceeding.
Bear Valley Electric Service, Inc.	10/22	Application No. 22-08-010	Sponsored testimony supporting marginal cost study, rate design and bill impact analysis for a general rate case proceeding.
Liberty Utilities (CalPeco Electric)	5/21	Application No. 21-05-017	Sponsored testimony supporting the lead-lag study/cash working capital, marginal cost study, rate design and bill impact analysis for a general rate case proceeding.
Southwest Gas Corporation (Southern California, Northern California, and South Lake Tahoe jurisdictions)	8/19	Application No. 19-08-015	Sponsored testimony on behalf of three separate rate jurisdictions supporting revenue requirements, lead-lag/ cash working capital, and class cost of service, rate design and bill impact analysis for a general rate case proceeding.
Colorado Public Utilities Commission			
Colorado Natural Gas (Summit Utilities)	01/24	Proceeding No. 23A-0570G	Sponsored the Fully Distributed Cost (FDC) study in support of a Cost Assignment and Allocation Manual (CAAM) application.
Connecticut Public Utilities Regulatory Authority			
Yankee Gas Company	07/14	Docket No. 13-06-02	Sponsored report and testimony supporting the review and evaluation of gas expansion policies, procedures, and analysis.
Delaware Public Service Commission			
Tidewater Utilities, Inc	08/24	Docket No. 24-0991	Sponsored testimony supporting the cost of service, rate design and bill impact studies for a general rate case proceeding.
Artesian Water Company	04/23	Docket No. 23-0601	Sponsored testimony supporting the cost of service, rate design and bill impact studies for a general rate case proceeding.
Illinois Commerce Commission			
Ameren Illinois Company d/b/a Ameren Illinois	6/24	Docket 22-0487/23-0082/ 24-0238 (cons.)	Sponsored rebuttal testimony supporting a marginal cost study for a Multi-Year Integrated Grid Plan (Grid Plan) proceeding.
Liberty Utilities (Midstates Natural Gas)	12/23	Docket No. 23-0380	Sponsored testimony supporting cost of service, rate design, bill impact and lead-lag studies for a general rate case proceeding.

Sponsor	Date	Docket No.	Subject
Ameren Illinois Company d/b/a Ameren Illinois	1/23	Docket No. 22-0487	Sponsored testimony supporting a Multi-Year Integrated Grid Plan (Grid Plan). Prepared research and analysis evaluating the reasonableness of the Grid Plan through comparison to how other electric utilities have responded to the changing energy landscape.
Liberty Utilities (Midstates Natural Gas)	07/16	Docket No. 16-0401	Sponsored testimony supporting the cost of service, rate design and bill impact studies for a general rate case proceeding. The testimony includes proposal for new commercial classes and a decoupling mechanism.
Iowa Utilities Board			
Liberty Utilities (Midstates Natural Gas)	07/16	Docket No. RPU-2016-0003	Sponsored testimony supporting the cost of service, rate design and bill impact studies for a general rate case proceeding. The testimony includes proposal for new commercial classes.
Kansas Corporation Commission			
The Empire District Electric Company	12/18	Docket No. 19-EPDE-223-RTS	Sponsored testimony supporting cost of service, rate design, bill impact and lead-lag studies for a general rate case proceeding.
Kentucky Public Service Commission			
Bluegrass Water Utility (Central States Water Company)	02/23	Case No. 2022-00432	Sponsored testimony supporting the rate design and bill impact studies for a general rate case proceeding.
Maine Public Utilities Commission			
Maine Water Company	10/24	Docket No. 2024-00291	Sponsored testimony supporting the class cost of service, rate design, and bill impact studies for a general rate case proceeding for the Camden and Rockland Division.
Calpine Corporation and Casco Bay Energy Company	10/24	Docket No. 2024-00137	Sponsored testimony regarding ratemaking treatment of Net Energy Billing stranded cost rate design.
Northern Utilities, Inc. d/b/a Unitil	05/23	Docket No. 2023-00051	Sponsored testimony supporting a marginal cost study, class cost of service study, rate design and customer bill impact for a general rate case proceeding.
Maine Water Company	03/21	Docket No. 2021-00053	Sponsored testimony supporting a proposed rate smoothing mechanism.
Northern Utilities, Inc. d/b/a Unitil	06/19	Docket No. 2019-00092	Sponsored testimony supporting a proposed capital investment cost recovery mechanism.
Northern Utilities, Inc. d/b/a Unitil	06/15	Docket No. 2015-00146	Sponsored testimony supporting the proposed gas expansion program, including a zone area surcharge.
Maryland Public Service Commission			
The Potomac Edison Company (FirstEnergy)	03/23	Case No. 9695	Sponsored testimony supporting the class cost of service, rate design, bill impact and lead-lag studies for a general rate case proceeding.
Sandpiper Energy, a Chesapeake Utilities company	12/15	Case No. 9410	Sponsored testimony supporting the cost of service, rate design and bill impact studies for a general rate case proceeding. The testimony includes proposal for new residential and commercial classes.
Massachusetts Department of Public Utilities			
Berkshire Gas Company, Eversource Energy, Liberty Utilities, National Grid, and Unitil	03/22	Docket No. DPU 20-80	Sponsored report that summarizes research, findings, and recommendations for regulatory mechanisms, methodologies, and policies that support Massachusetts's achievement of its net zero climate goal by 2050. The regulatory designs were informed by the results of quantitative and qualitative analysis of decarbonization pathways to achieve the Commonwealth's climate goals.
Liberty Utilities (New England Gas Company)	08/20	Docket No. DPU 20-92	Sponsored the Long-Range Forecast and Supply Plan filing for the five-year forecast period 2020/2021 through 2024/2025.
Eversource Energy, National Grid, and Unitil	02/20	Docket No. DPU 19-55	Sponsored report that summarizes research and evaluation of funding approaches for infrastructure modifications that interconnect Distributed Generation (DG) projects.

Sponsor	Date	Docket No.	Subject
Liberty Utilities (New England Gas Company)	07/18	Docket No. DPU 18-68	Sponsored the Long-Range Forecast and Supply Plan filing for the five-year forecast period 2018/2019 through 2022/2023.
Liberty Utilities (New England Gas Company)	07/16	Docket No. DPU 16-109	Sponsored the Long-Range Forecast and Supply Plan filing for the five-year forecast period 2016/2017 through 2020/2021.
Boston Gas	10/93	Docket No. DPU 92-230	Sponsored testimony describing the Company's position regarding rate treatment of vehicular natural gas investments and expenses.
Boston Gas	03/90	Docket No. DPU 90-55	Sponsored testimony supporting the weather and other cost of service adjustments, rate design and customer bill impact studies for a general rate case proceeding.
Boston Gas	03/88	Docket No. DPU 88-67-II	Sponsored testimony supporting the rate reclassification of commercial and industrial customers for a rate design proceeding.
Michigan Public Service Commission			
Lansing Board of Water & Light and Michigan State University	04/23	Docket No. U-21308	Sponsored testimony evaluating Consumer Energy's class cost of service and rate design proposals.
Lansing Board of Water & Light and Michigan State University	04/20	Docket No. U-20650	Sponsored testimony evaluating Consumer Energy's class cost of service and rate design proposals.
Lansing Board of Water & Light and Michigan State University	04/19	Docket No. U-20322	Sponsored testimony evaluating Consumer Energy's class cost of service and rate design proposals.
Midland Cogeneration Ventures, LLC	09/18	Docket No. U-18010	Sponsored testimony evaluating Consumer Energy's class cost of service and rate design proposals.
Minnesota Public Utilities Commission			
Northern States Power Company (XcelEnergy)	10/21	Docket No. E002/GR-21-630	Sponsored testimony supporting a Return on Equity (ROE) adjustment mechanism that would allow the Company to symmetrically adjust its ROE to reflect significant changes in financial market conditions.
Missouri Public Service Commission			
The Empire District Electric Company	11/24	Docket No. ER-2024-0261	Sponsored testimony supporting the class cost of service, rate design, bill impact and lead-lag studies for a general rate case proceeding.
Liberty Utilities (Missouri Water)	03/24	Docket No. WR-2024-0104	Sponsored testimony supporting lead-lag study for a general rate case proceeding.
Liberty Utilities (Midstates Natural Gas)	02/24	Docket No. GR-2024-0106	Sponsored testimony supporting the class cost of service, rate design, bill impact and lead-lag studies for a general rate case proceeding.
Confluence Rivers Utility Operating Company	12/22	Case No. WR-2023-0006/ SR-2023-0007	Sponsored testimony supporting the rate design and bill impact studies for a general rate case proceeding.
The Empire District Gas Company	08/21	Docket No. GR-2021-0320	Sponsored testimony supporting the class cost of service, rate design, bill impact and lead-lag studies for a general rate case proceeding.
The Empire District Electric Company	05/21	Docket No. ER-2021-0312	Sponsored testimony supporting the class cost of service, rate design, bill impact and lead-lag studies for a general rate case proceeding.
Spire Missouri, Inc.	12/20	Docket No. GR-2021-0108	Sponsored testimony supporting class cost of service, rate design, and lead-lag study proposals for a general rate case proceeding. The testimony also included support for a proposed revenue adjustment mechanism.
The Empire District Electric Company	08/19	Docket No. ER-2019-0374	Sponsored testimony supporting the class cost of service, rate design, bill impact and lead-lag studies for a general rate case proceeding. The testimony also included proposals for a weather normalization mechanism.

Sponsor	Date	Docket No.	Subject
Liberty Utilities (Midstates Natural Gas)	09/17	Docket No. GR-2018-0013	Sponsored testimony supporting the class cost of service, rate design, bill impact and lead-lag studies for a general rate case proceeding. The testimony also included proposals for a revenue decoupling/ weather normalization mechanism as well as tracker accounts for certain O&M expenses and capital costs.
Missouri Gas Energy	04/17	Docket No. GR-2017-0216	Sponsored testimony supporting the class cost of service, rate design, bill impact and Lead/Lag studies for a general rate case proceeding. The testimony included support for a decoupling mechanism.
Laclede Gas Company	04/17	Docket No. GR-2017-0215	Sponsored testimony supporting the class cost of service, rate design, bill impact and Lead/Lag studies for a general rate case proceeding. The testimony included support for a decoupling mechanism.
Nevada Public Utilities Commission			
Southwest Gas Corporation	09/23	Docket No. 23-09012	Sponsored testimony supporting the class cost of service, rate design, bill impact and Lead/Lag studies for a general rate case proceeding.
Southwest Gas Corporation	09/21	Docket No. 21-09001	Sponsored testimony supporting the class cost of service, rate design, bill impact and Lead/Lag studies for a general rate case proceeding.
Southwest Gas Corporation	02/20	Docket No. 20-02023	Sponsored testimony supporting the class cost of service, rate design, bill impact and Lead/Lag studies for a general rate case proceeding.
New Hampshire Public Utilities Commission			
Unitil (Northern Utilities, Inc.)	8/21	Docket No. DG 21-104	Sponsored testimony supporting a revenue decoupling mechanism.
Unitil Energy Systems, Inc.	4/21	Docket No. DE 21-030	Sponsored testimony supporting a revenue decoupling mechanism.
Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities	11/17	Docket No. DG 17-198	Sponsored testimony supporting a levelized cost analysis for approval of firm supply and transportation agreements.
Liberty Utilities d/b/a Granite State Electric Company	04/16	Docket No. DE 16-383	Adopted testimony and sponsored Lead/Lag study for a general rate case proceeding.
New Jersey Board of Public Utilities			
Elizabethtown Gas Company	02/24	Docket No. GR24020158	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
Jersey Central Power and Light Company (FirstEnergy)	03/23	Docket No. ER23030144	Sponsored testimony supporting the class cost of service and Lead/Lag studies for a general rate case proceeding.
South Jersey Gas Company	04/22	Docket No. GR22040253	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
Elizabethtown Gas Company	12/21	Docket No. GR21121254	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
South Jersey Gas Company	03/20	Docket No. GR20030243	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
Elizabethtown Gas Company	04/19	Docket No. GR19040486	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
Pivotal Utility Holdings, Inc. d/b/a Elizabethtown Gas Company	08/16	Docket No. GR16090826	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
New Mexico Public Regulation Commission			
New Mexico Gas Company, Inc.	7/24	Case No. 18-00038-UT	Sponsored testimony supporting the Weather Normalization Adjustment Mechanism.
New Mexico Gas Company, Inc.	9/23	Case No. 23-00255-UT	Sponsored testimony supporting the class cost of service, rate design, bill impact and weather normalization adjustment mechanisms for a general rate case proceeding.

Sponsor	Date	Docket No.	Subject
New York Public Service Commission			
New York Power Authority	09/04	Case No. 04-E-0572	Sponsored testimony evaluating Con Edison's class cost of service study.
Corporation Commission of Oklahoma			
The Empire District Electric Company	02/21	Cause No. PUD 202100163	Sponsored testimony supporting the class cost of service, rate design, bill impact and Lead/Lag studies for a general rate case proceeding. The proposed rate design included a three-year phase-in of the proposed rate increase.
The Empire District Electric Company	03/19	Cause No. PUD 201800133	Sponsored testimony supporting the class cost of service, rate design, bill impact and Lead/Lag studies for a general rate case proceeding.
The Empire District Electric Company	04/17	Cause No. PUD 201600468	Adopted direct testimony and sponsored rebuttal testimony supporting the revenue requirements for a general rate case proceeding. The testimony included proposals for alternative ratemaking mechanisms.
Ohio Public Utilities Commission			
Ohio Edison Company, The Cleveland Electric Illuminating Company, and The Toledo Edison Company	06/24	Case Nos. 24-0468-EL-AIR, 24-0469-EL-ATA, 24-0470-EL-AAM, 24-0471-EL-UNC	Sponsored testimony supporting the class cost of service, rate design, bill impact and Lead/Lag studies for a general rate case proceeding.
Pennsylvania Public Utility Commission			
FirstEnergy Pennsylvania Electric Company	04/24	Docket No. R-2024-3047068	Sponsored testimony supporting the class cost of service, rate design, bill impact and Lead/Lag studies for a general rate case proceeding.
Rhode Island Public Utilities Commission			
Providence Gas Company	08/01 09/00 08/96	Docket No. 1673	Sponsored testimony supporting the changes in cost of gas adjustment factor related to projected under-recovery of gas costs; Filed testimony and witness for pilot hedging program to mitigate price risks to customers; Filed testimony and witness for changes in cost of gas adjustment factor related to extension of rate plan.
Providence Gas Company	08/00	Docket No. 2581	Sponsored testimony supporting the extension of a rate plan that began in 1997 and included certain modifications, including a weather normalization clause.
Providence Gas Company	03/00	Docket No. 3100	Sponsored testimony supporting the de-tariff and deregulation of appliance repair service, enabling the Company to have needed pricing flexibility.
Providence Gas Company	06/97	Docket No. 2581	Sponsored testimony supporting a rate plan that fixed all billing rates for three-year period; included funding for critical infrastructure investments in accelerated replacement of mains and services, digitized records system, and economic development projects.
Providence Gas Company	04/97	Docket No. 2552	Sponsored testimony supporting the rate design, customer bill impact studies and retail access tariffs for commercial and industrial customers, including redesign of cost of gas adjustment clause, for a rate design proceeding.
Providence Gas Company	02/96	Docket No. 2374	Sponsored testimony supporting the rate design, customer bill impact studies and retail access tariffs for largest commercial and industrial customers for a rate design proceeding.
Providence Gas Company	01/96	Docket No. 2076	Sponsored testimony supporting the rate reclassification of customers into new rate classes, rate design (including introduction of demand charges), and customer bill impact studies for a rate design proceeding.
Providence Gas Company	11/92	Docket No. 2025	Sponsored testimony supporting the Integrated Resource Plan filing, including a performance-based incentive mechanism.

Sponsor	Date	Docket No.	Subject
Railroad Commission of Texas			
Texas Gas Service Company – Central-Gulf Service Area	06/24	Case No. 00017471	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
CenterPoint Energy – Texas Gas Division	10/23	Case No. 00015513	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
Texas Gas Service Company – Rio Grande Valley Service Area	06/23	Case No. 00014399	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
Texas Gas Service Company – West Texas, North Texas, and Borger/ Skellytown Service Areas	06/22	Case No. 00009896	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
Texas Gas Service Company – Central Texas and Gulf Coast Service Areas	12/19	GUD No. 10928	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
CenterPoint Energy – Beaumont/ East Texas Division	11/19	GUD No. 10920	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
Texas Gas Service Company – Borger/ Skellytown Service Area	08/18	GUD No. 10766	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
Texas Gas Service Company – North Texas Service Area	06/18	GUD No. 10739	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
CenterPoint Energy – South Texas Division	11/17	GUD No. 10669	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
Texas Gas Service Company – Rio Grande Valley Service Area	06/17	GUD No. 10656	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
Atmos Pipeline – Texas	01/17	GUD No. 10580	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
CenterPoint Energy – Texas Gulf Division	11/16	GUD No. 10567	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
Public Utility Commission of Texas			
CenterPoint Energy Houston Electric, LLC	03/24	Docket No. 56211	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
CenterPoint Energy Houston Electric, LLC	04/19	Docket No. 49421	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
Vermont Public Utilities Commission			
Vermont Gas Systems	12/12	Docket No. 7970	Sponsored testimony describing the market served by \$90 million natural gas expansion project to Addison County, VT. Also described the terms and economic benefits of a special contract with International Paper.
Vermont Gas Systems	02/11	Docket No. 7712	Sponsored testimony supporting the market evaluation and analysis for a system expansion and reliability regulatory fund.
Virginia State Corporation Commission			
Rappahannock Electric Cooperative	8/24	Case No. PUR-2024-00132	Sponsored report and studies related to revenue requirements, class cost of service, rate design, and bill impact analysis for a streamlined application to increase base rates.
Shenandoah Valley Electric Cooperative	01/24	Case No. PUR-2023-00207	Sponsored report and studies related to revenue requirements, class cost of service, rate design, and bill impact analysis for a streamlined application to increase base rates.
American Electric Power - Appalachian Power Company	3/23	Case No. PUR-2023-00002	Sponsored testimony supporting the Lead/Lag study for the 2023 triennial review of base rates, terms, and conditions.
Rappahannock Electric Cooperative	10/22	Case No. PUR-2022-00160	Sponsored report and studies related to revenue requirements, class cost of service, rate design, and bill impact analysis for a streamlined application to increase base rates.
American Electric Power - Appalachian Power Company	3/20	Case No. PUR-2020-00015	Sponsored testimony supporting the Lead/Lag study for the 2020 triennial review of base rates, terms, and conditions.

Sponsor	Date	Docket No.	Subject
West Virginia Public Service Commission			
American Electric Power - Appalachian Power Company and Wheeling Power Company	11/24	Case No. 24-0854-E-42T	Sponsored testimony supporting the lead-lag study for a general rate case proceeding.
Monongahela Power Company and The Potomac Edison Company (FirstEnergy)	06/23	Case No. 23-0460-E-42T	Sponsored testimony supporting the class cost of service, rate design, bill impact and lead-lag studies for a general rate case proceeding.
Nova Scotia Utility and Review Board			
Nova Scotia Power	01/22	Matter No. M10431	Sponsored evidence supporting the cash working capital requirement and lead/Lag study for a general rate case proceeding.
Ontario Energy Board			
Toronto Hydro-Electric System Limited	11/23	Docket No. EB-2023-0195	Sponsored evidence supporting Toronto Hydro's Custom Rate Framework. Prepared research and analysis evaluating the appropriateness of the Rate Framework in the context of how other electric utility ratemaking practices have responded to developments in the energy industry.
Ontario Energy Association	01/21	Docket No. EB-2020-0133	Sponsored evidence regarding policies and ratemaking treatment related to COVID-19 costs in U.S. and Canadian regulatory jurisdictions. The evidence was used to support Ontario Energy Association's response to Staff's proposals.
Commission of Canada Energy Regulator			
Trans-Northern Pipelines, Inc.	06/23	Docket No. RH-001-2023	Sponsored evidence related to application for approval of incentive tolls.

Spire Missouri Inc. (East)
2024 Lead-Lag Study
Cash Working Capital Requirement
Summary

Line	Description	Revenue Requirement Amount	Average Daily Amount	Revenue Lag	Ref.	Expense (Lead)/Lag Days	Ref.	Net (Lead)/Lag Days	Working Capital Requirement
<u>Operation and Maintenance Expenses</u>									
1	Purchased Gas Costs	\$ 450,319,184	\$ 1,233,751	52.24	A	(40.44)	B	11.80	\$ 14,558,339
2	Regular Payroll Expenses & Withholdings	71,083,397	194,749	52.24	A	(12.00)	C	40.24	7,837,080
3	Vacation Pay	4,995,900	13,687	52.24	A	(182.50)	C	(130.26)	(1,782,894)
4	Annual Performance Bonus	4,272,210	11,705	52.24	A	(235.50)	C	(183.26)	(2,144,978)
5	Pension	14,096,218	38,620	52.24	A	13.84	C	66.09	2,552,252
6	Benefits (Group Insurance)	7,654,828	20,972	52.24	A	(10.88)	C	41.37	867,520
7	Missouri PSC Assessment	2,843,381	7,790	52.24	A	41.00	C	93.24	726,363
8	Uncollectible Expense	6,980,751	19,125	52.24	A	(52.24)	C	0.00	-
9	Other O&M	61,013,344	167,160	52.24	A	(51.83)	C	0.41	68,115
<u>Income Taxes</u>									
11	Federal Income Taxes	\$ (10,186,171)	\$ (27,907)	52.24	A	(39.00)	D	13.24	\$ (369,547)
12	State Income Taxes	(1,026,404)	(2,812)	52.24	A	(39.00)	D	13.24	(37,237)
<u>Taxes Other Than Income Taxes</u>									
14	FICA - Employer Portion	\$ 5,039,632	\$ 13,807	52.24	A	(15.08)	E	37.16	\$ 513,082
15	FUTA	47,292	130	52.24	A	(75.58)	E	(23.34)	(3,024)
16	SUTA	219	1	52.24	A	(75.50)	E	(23.26)	(14)
17	Property Taxes	22,906,291	62,757	52.24	A	(182.50)	F	(130.26)	(8,174,600)
18	Sales Tax	14,806,729	40,566	37.03	A	(22.89)	G	14.14	573,756
19	Use Tax	2,033,723	5,572	52.24	A	(78.55)	G	(26.31)	(146,594)
20	Gross Receipts Tax	46,741,723	128,060	37.03	A	(24.74)	G	12.29	1,574,319
21	Interest Payments	\$ 43,848,671	\$ 120,133	52.24	A	(91.73)	H	(39.49)	\$ (4,743,738)
22	Total	\$ 747,470,919	\$ 2,047,866						\$ 11,868,201

Spire Missouri Inc. (West)
2024 Lead-Lag Study
Cash Working Capital Requirement
Summary

Line	Description	Revenue Requirement Amount	Average Daily Amount	Revenue Lag	Ref.	Expense (Lead)/Lag Days	Ref.	Net (Lead)/Lag Days	Working Capital Requirement
<u>Operation and Maintenance Expenses</u>									
1	Purchased Gas Costs	\$ 436,054,788	\$ 1,194,671	53.09	A	(37.02)	B	16.07	\$ 19,194,707
2	Regular Payroll Expenses & Withholdings	48,851,465	133,840	53.09	A	(12.00)	C	41.09	5,499,605
3	Vacation Pay	1,330,074	3,644	53.09	A	(182.50)	C	(129.41)	(471,571)
4	Annual Performance Bonus	906,105	2,482	53.09	A	(235.50)	C	(182.41)	(452,827)
5	Pension	4,398,177	12,050	53.09	A	13.39	C	66.49	801,142
6	Benefits (Group Insurance)	7,118,785	19,504	53.09	A	(10.88)	C	42.21	823,330
7	Missouri PSC Assessment	1,815,908	4,975	53.09	A	41.00	C	94.09	468,111
8	Uncollectible Expense	12,013,245	32,913	53.09	A	(53.09)	C	0.00	-
9	Other O&M	49,751,176	136,305	53.09	A	(51.83)	C	1.26	171,273
<u>Income Taxes</u>									
11	Federal Income Taxes	\$ (28,641)	\$ (78)	53.09	A	(39.00)	D	14.09	\$ (1,106)
12	State Income Taxes	(3,069,817)	(8,410)	53.09	A	(39.00)	D	14.09	(118,512)
<u>Taxes Other Than Income Taxes</u>									
14	FICA - Employer Portion	\$ 3,454,344	\$ 9,464	53.09	A	(15.08)	E	38.01	\$ 359,720
15	FUTA	68,815	189	53.09	A	(75.58)	E	(22.49)	(4,239)
16	SUTA	318	1	53.09	A	(75.50)	E	(22.41)	(20)
17	Property Taxes	26,412,084	72,362	53.09	A	(187.72)	F	(134.63)	(9,742,297)
18	Sales Tax	15,200,415	41,645	37.88	A	(26.21)	G	11.67	486,049
19	Use Tax	846,374	2,319	53.09	A	(78.28)	G	(25.19)	(58,419)
20	Gross Receipts Tax	46,317,956	126,899	37.88	A	(45.25)	G	(7.36)	(934,461)
21	Interest Payments	\$ 35,876,185	\$ 98,291	53.09	A	(91.73)	H	(38.64)	\$ (3,797,785)
22	Total	\$ 687,317,756	\$ 1,883,062						\$ 12,222,699

Spire Missouri Inc. (Missouri)
2024 Lead-Lag Study
Cash Working Capital Requirement
Summary

Line	Description	Revenue Requirement Amount	Average Daily Amount	Revenue Lag	Ref.	Expense (Lead)/Lag Days	Ref.	Net (Lead)/Lag Days	Working Capital Requirement
<u>Operation and Maintenance Expenses</u>									
1	Purchased Gas Costs	\$ 886,373,972							\$ 33,753,046
2	Regular Payroll Expenses & Withholdings	119,934,862							13,336,686
3	Vacation Pay	6,325,974							(2,254,465)
4	Annual Performance Bonus	5,178,315							(2,597,804)
5	Pension	18,494,395							3,353,394
6	Benefits (Group Insurance)	14,773,613							1,690,850
7	Missouri PSC Assessment	4,659,290							1,194,474
8	Uncollectible Expense	18,993,995							-
9	Other O&M	110,764,520							239,387
<u>Income Taxes</u>									
11	Federal Income Taxes	\$ (10,214,812)							\$ (370,653)
12	State Income Taxes	(4,096,221)							(155,749)
<u>Taxes Other Than Income Taxes</u>									
14	FICA - Employer Portion	\$ 8,493,976							\$ 872,802
15	FUTA	116,107							(7,263)
16	SUTA	537							(33)
17	Property Taxes	49,318,375							(17,916,897)
18	Sales Tax	30,007,144							1,059,805
19	Use Tax	2,880,098							(205,013)
20	Gross Receipts Tax	93,059,679							639,858
21	Interest Payments	\$ 79,724,856							\$ (8,541,523)
22	Total	\$ 1,434,788,675							\$ 24,090,901

Spire Missouri Inc. (East)
 2024 Lead-Lag Study
 Revenue Collection Lag

Line	Description	Service Lag Service Period (365 days/ 12 months/ 2)	Billing Lag	Collection Lag Average Daily A/R Balance	Total Revenue Lag	Reference
1	Revenue Lag	15.21	2.04	34.99	52.24	WP (A-1, A-2)

Spire Missouri Inc. (East)
 Lead-Lag Study
 Purchased Gas

Line	Month	Amounts	(Lead)/Lag Days	Dollar Days
1	June-23	\$ 8,958,637	(40.21)	\$ (360,240,960)
2	July-23	26,077,331	(37.58)	(980,020,078)
3	August-23	26,271,272	(36.87)	(968,617,482)
4	September-23	24,462,878	(37.91)	(927,509,014)
5	October-23	30,495,207	(38.75)	(1,181,813,611)
6	November-23	40,874,327	(38.33)	(1,566,748,569)
7	December-23	47,876,308	(39.09)	(1,871,559,196)
8	January-24	57,600,216	(39.48)	(2,274,131,029)
9	February-24	67,021,122	(39.86)	(2,671,699,717)
10	March-24	35,928,071	(37.91)	(1,361,945,650)
11	April-24	20,547,989	(35.94)	(738,570,105)
12	May-24	15,338,182	(35.56)	(545,365,806)
13	June-24	13,523,012	(34.81)	(470,683,487)
14	July-24	10,286,469	(33.59)	(345,508,442)
15	<u>Total</u>	<u>\$ 425,261,022</u>		<u>\$ (16,264,413,144)</u>
16	<u>Composite (Lead) / Lag Days</u>			<u>(38.25)</u>

Spire Missouri Inc. (East)
2024 Lead-Lag Study
O&M Expenses

Line	Description	(Lead)/Lag Days	Reference
1	Regular Payroll Expenses	(12.00)	C-1
2	Vacation Pay	(182.50)	365 / 2
3	Annual Performance Bonus	(235.50)	C-2
4	Pension & OPEB	13.84	C-3
5	Benefits (Group)	(10.88)	C-4
6	Missouri PSC Assessment	41.00	C-5
7	Other O&M	(51.83)	C-6

Spire Missouri Inc. (East)
2024 Lead-Lag Study
Income Tax Expenses

<u>Line</u>	<u>Description</u>	<u>(Lead)/Lag Days</u>	<u>Reference</u>
1	Federal Income Taxes	(39.00)	D-1
2	State Income Taxes	(39.00)	D-2

Spire Missouri Inc. (East)
2024 Lead-Lag Study
Payroll Taxes

<u>Line</u>	<u>Description</u>	<u>(Lead)/Lag Days</u>	<u>Reference</u>
1	FICA	(15.08)	E-1
2	FUTA	(75.58)	E-2
3	SUTA	(75.50)	E-3

Spire Missouri Inc. (East)
2024 Lead-Lag Study
Property Taxes

Line	Description	Service Period Start	Service Period End	Midpoint	Due Date (1st Installment)	Due Date (2nd Installment)	Amount Paid	Payment (Lead)/Lag Days	Dollar Days
Spire MO East									
1	LA - Lincoln Parish	01/01/23	12/31/23	(182.50)	12/31/2023		\$ 445,487	(182.50)	\$ (81,301,363)
2	MO - City and Village	01/01/23	12/31/23	(182.50)	12/31/2023		40	(182.50)	(7,298)
3	MO - St. Charles County	01/01/23	12/31/23	(182.50)	12/31/2023		1,957,148	(182.50)	(357,179,567)
4	MO - St. Louis City MFG Lic (LAC)	01/01/23	12/31/23	(182.50)	12/31/2023		212,264	(182.50)	(38,738,193)
5	MO - St. Louis City PP/RE	01/01/23	12/31/23	(182.50)	12/31/2023		8,990,899	(182.50)	(1,640,838,995)
6	MO - St. Louis County	01/01/23	12/31/23	(182.50)	12/31/2023		10,925,889	(182.50)	(1,993,974,761)
7	MO - St. Louis County MFG Lic	01/01/23	12/31/23	(182.50)	12/31/2023		203,389	(182.50)	(37,118,405)
8	MO - Warren County	01/01/23	12/31/23	(182.50)	12/31/2023		1,397	(182.50)	(255,013)
9	TX - Dallas Co.	01/01/23	12/31/23	(182.50)	12/31/2023		3,893	(182.50)	(710,407)
Midwest Division									
10	MO - Jefferson County	01/01/23	12/31/23	(182.50)	12/31/2023		\$ 705,402	(182.50)	\$ (128,735,790)
Spire MO West									
11	KS - Allen County	01/01/23	12/31/23	(182.50)	12/10/2023	5/10/2024	\$ 52,970	(237.50)	\$ (12,580,451)
12	KS - Anderson County	01/01/23	12/31/23	(182.50)	12/10/2023	5/10/2024	1,047,465	(237.50)	(248,772,843)
13	KS - Chautauqua	01/01/23	12/31/23	(182.50)	12/10/2023	5/10/2024	15,183	(237.50)	(3,606,048)
14	KS - Elk Coutny	01/01/23	12/31/23	(182.50)	12/10/2023	5/10/2024	333,769	(237.50)	(79,270,247)
15	KS - Jefferson County	01/01/23	12/31/23	(182.50)	12/10/2023	5/10/2024	71,066	(237.50)	(16,878,208)
16	KS - Leavenworth County	01/01/23	12/31/23	(182.50)	12/10/2023	5/10/2024	54,243	(237.50)	(12,882,784)
17	KS - Meade County	01/01/23	12/31/23	(182.50)	12/10/2023	5/10/2024	264,591	(237.50)	(62,840,420)
18	KS - Montgomery County	01/01/23	12/31/23	(182.50)	12/10/2023	5/10/2024	812,191	(237.50)	(192,895,429)
19	KS - Rice County	01/01/23	12/31/23	(182.50)	12/10/2023	5/10/2024	247,423	(237.50)	(58,763,010)
20	KS - Woodson County	01/01/23	12/31/23	(182.50)	12/10/2023	5/10/2024	16,864	(237.50)	(4,005,148)
21	MO - Anderson City	01/01/23	12/31/23	(182.50)	12/31/2023		536	(182.50)	(97,762)
22	MO - Andrew County	01/01/23	12/31/23	(182.50)	12/31/2023		26,814	(182.50)	(4,893,579)
23	MO - Barry County	01/01/23	12/31/23	(182.50)	12/31/2023		180,730	(182.50)	(32,983,296)
24	MO - Barton County	01/01/23	12/31/23	(182.50)	12/31/2023		35,444	(182.50)	(6,468,530)
25	MO - Bates County	01/01/23	12/31/23	(182.50)	12/31/2023		1,379	(182.50)	(251,730)
26	MO - Buchanan County	01/01/23	12/31/23	(182.50)	12/31/2023		747,960	(182.50)	(136,502,653)
27	MO - Carroll County	01/01/23	12/31/23	(182.50)	12/31/2023		99,125	(182.50)	(18,090,227)
28	MO - Carrollton Town	01/01/23	12/31/23	(182.50)	12/31/2023		16,261	(182.50)	(2,967,653)
29	MO - Cass County	01/01/23	12/31/23	(182.50)	12/31/2023		878,306	(182.50)	(160,290,761)
30	MO - Cedar County	01/01/23	12/31/23	(182.50)	12/31/2023		54,745	(182.50)	(9,990,937)
31	MO - Christian County	01/01/23	12/31/23	(182.50)	12/31/2023		478,153	(182.50)	(87,262,943)

Spire Missouri Inc. (East)
 2024 Lead-Lag Study
 Property Taxes

Line	Description	Service Period Start	Service Period End	Midpoint	Due Date (1st Installment)	Due Date (2nd Installment)	Amount Paid	Payment (Lead)/Lag Days	Dollar Days
32	MO - Clay County	01/01/23	12/31/23	(182.50)	12/31/2023		4,251,879	(182.50)	(775,967,919)
33	MO - Clinton County	01/01/23	12/31/23	(182.50)	12/31/2023		93,042	(182.50)	(16,980,127)
34	MO - Cooper County	01/01/23	12/31/23	(182.50)	12/31/2023		2,309	(182.50)	(421,309)
35	MO - Crane City	01/01/23	12/31/23	(182.50)	12/31/2023		343	(182.50)	(62,672)
36	MO - Dade County	01/01/23	12/31/23	(182.50)	12/31/2023		14,235	(182.50)	(2,597,962)
37	MO - Dekalb County	01/01/23	12/31/23	(182.50)	12/31/2023		17,194	(182.50)	(3,137,940)
38	MO - Drexel City	01/01/23	12/31/23	(182.50)	12/31/2023		115	(182.50)	(21,042)
39	MO - Duenweg City	01/01/23	12/31/23	(182.50)	12/31/2023		6,116	(182.50)	(1,116,212)
40	MO - Emma City	01/01/23	12/31/23	(182.50)	12/31/2023		321	(182.50)	(58,581)
41	MO - Goodman City	01/01/23	12/31/23	(182.50)	12/31/2023		392	(182.50)	(71,478)
42	MO - Greene County	01/01/23	12/31/23	(182.50)	12/31/2023		455,247	(182.50)	(83,082,532)
43	MO - Henry County	01/01/23	12/31/23	(182.50)	12/31/2023		79,944	(182.50)	(14,589,736)
44	MO - Howard County	01/01/23	12/31/23	(182.50)	12/31/2023		105,468	(182.50)	(19,247,833)
45	MO - Jackson County	01/01/23	12/31/23	(182.50)	12/31/2023		16,665,205	(182.50)	(3,041,399,982)
46	MO - Jasper County	01/01/23	12/31/23	(182.50)	12/31/2023		1,261,637	(182.50)	(230,248,826)
47	MO - Johnson County	01/01/23	12/31/23	(182.50)	12/31/2023		424,175	(182.50)	(77,411,879)
48	MO - Lafayette County	01/01/23	12/31/23	(182.50)	12/31/2023		355,117	(182.50)	(64,808,812)
49	MO - Lanagan City	01/01/23	12/31/23	(182.50)	12/31/2023		261	(182.50)	(47,689)
50	MO - Lawrence County	01/01/23	12/31/23	(182.50)	12/31/2023		227,588	(182.50)	(41,534,832)
51	MO - McDonald County	01/01/23	12/31/23	(182.50)	12/31/2023		26,641	(182.50)	(4,862,023)
52	MO - Moniteau County	01/01/23	12/31/23	(182.50)	12/31/2023		48,950	(182.50)	(8,933,455)
53	MO - Newton County	01/01/23	12/31/23	(182.50)	12/31/2023		283,706	(182.50)	(51,776,309)
54	MO - Pettis County	01/01/23	12/31/23	(182.50)	12/31/2023		15,667	(182.50)	(2,859,284)
55	MO - Pineville City	01/01/23	12/31/23	(182.50)	12/31/2023		639	(182.50)	(116,608)
56	MO - Platte County	01/01/23	12/31/23	(182.50)	12/31/2023		1,183,282	(182.50)	(215,949,042)
57	MO - Ray County	01/01/23	12/31/23	(182.50)	12/31/2023		20,725	(182.50)	(3,782,307)
58	MO - Saline County	01/01/23	12/31/23	(182.50)	12/31/2023		68,064	(182.50)	(12,421,673)
59	MO - Southwest City City	01/01/23	12/31/23	(182.50)	12/31/2023		286	(182.50)	(52,129)
60	MO - Stone County	01/01/23	12/31/23	(182.50)	12/31/2023		6,627	(182.50)	(1,209,415)
61	MO - Vernon County	01/01/23	12/31/23	(182.50)	12/31/2023		4,850	(182.50)	(885,196)
62	OK - Grant County	01/01/23	12/31/23	(182.50)	12/31/2023	4/1/2024	201,371	(228.50)	(46,013,274)
63	OK - Woods County	01/01/23	12/31/23	(182.50)	12/31/2023	4/1/2024	4,686	(228.50)	(1,070,751)

Spire Missouri Inc. (East)
 2024 Lead-Lag Study
 Property Taxes

Line	Description	Service Period Start	Service Period End	Midpoint	Due Date (1st Installment)	Due Date (2nd Installment)	Amount Paid	Payment (Lead)/Lag Days	Dollar Days
MoNat Division									
64	MO - Butler County	01/01/23	12/31/23	(182.50)	12/31/2023		\$ 158,993	(182.50)	\$ (29,016,164)
65	MO - City of Annapolis	01/01/23	12/31/23	(182.50)	12/31/2023		18	(182.50)	(3,289)
66	MO - City of Pilot Knob	01/01/23	12/31/23	(182.50)	12/31/2023		147	(182.50)	(26,888)
67	MO - Crawford County	01/01/23	12/31/23	(182.50)	12/31/2023		4,217	(182.50)	(769,646)
68	MO - Franklin County	01/01/23	12/31/23	(182.50)	12/31/2023		375,923	(182.50)	(68,605,960)
69	MO - Iron County	01/01/23	12/31/23	(182.50)	12/31/2023		2,744	(182.50)	(500,784)
70	MO - Jefferson County	01/01/23	12/31/23	(182.50)	12/31/2023		243,736	(182.50)	(44,481,767)
71	MO - Madison County	01/01/23	12/31/23	(182.50)	12/31/2023		43,119	(182.50)	(7,869,212)
72	MO - St. Francois County	01/01/23	12/31/23	(182.50)	12/31/2023		399,075	(182.50)	(72,831,270)
73	MO - Ste. Genevieve County	01/01/23	12/31/23	(182.50)	12/31/2023		23,153	(182.50)	(4,225,395)
74	Total Property Tax Payments						\$ 55,958,235	(185.54)	\$ (10,382,223,648)
75	Source: WP (F) - Property Taxes								
76	East						\$ 23,445,807	(182.50)	\$ (4,278,859,790)
77	West						32,512,428	(187.72)	(6,103,363,857)
78	Total						\$ 55,958,235	(185.54)	\$ (10,382,223,648)

Spire Missouri Inc. (East)
Lead-Lag Study
Other Taxes

Line	Description	Amount	Reference
1	Sales Tax	(22.89)	G-1
2	Use Tax	(78.55)	G-2
3	Gross Receipts Taxes	(24.74)	G-3

Spire Missouri Inc. (East)
 2024 Lead-Lag Study
 Interest Expense Payment

Line	Description	Service Period Begin	Service Period End	Midpoint	Payment Date	Amount	Lead-Lag Days	Dollar-Days	Composite Lead-Lag Days
1	AC_221120 - First Mort Bonds - 6% Due May 1 2034	11/1/2023	5/1/2024	(91.50)	5/1/2024	\$ (2,977,350)	(91.50)	\$ 272,427,525	
2	AC_221180 - First Mort Bonds - 4.625% Due August 15 2043	2/15/2024	8/15/2024	(91.50)	8/15/2024	(2,311,228)	(91.50)	211,477,374	
3	AC_221400 - First Mort Bonds - 3.40% Due March 15 2028	3/15/2024	9/15/2024	(92.50)	9/15/2024	(765,000)	(92.50)	70,762,500	
4	AC_221570 - First Mort Bonds - 7 9/10% Due Sep 15 2030	3/15/2024	9/15/2024	(92.50)	9/15/2024	(1,185,000)	(92.50)	109,612,500	
5	AC_221571 - First Mort Bonds Series A - 3.68% Due Sep 15 2032	3/15/2024	9/15/2024	(92.50)	9/15/2024	(920,000)	(92.50)	85,100,000	
6	AC_221572 - First Mort Bonds Series B - 4.23% Due Sep 15 2047	3/15/2024	9/15/2024	(92.50)	9/15/2024	(1,480,500)	(92.50)	136,946,250	
7	AC_221573 - First Mort Bonds Series C - 4.38% Due Sep 15 2057	3/15/2024	9/15/2024	(92.50)	9/15/2024	(1,095,000)	(92.50)	101,287,500	
8	AC_221574 - First Mort Bonds - 2.84% Due Nov 15 2029	11/15/2023	5/15/2024	(91.50)	5/15/2024	(3,905,000)	(91.50)	357,307,500	
9	AC_221577 - First Mort Bonds - 2.84% Due Nov 15 2029	2/15/2024	8/15/2024	(91.50)	8/15/2024	(8,240,000)	(91.50)	753,960,000	
10	AC_221680 - First Mort Bonds - 7% Due Jun 1 2029	12/2/2023	6/2/2024	(92.00)	6/2/2024	(674,975)	(92.00)	62,097,700	
11	AC_221720 - First Mort Bonds - 6.15% Due Jun 1 2036	12/1/2023	6/1/2024	(92.00)	6/1/2024	(1,675,875)	(92.00)	154,180,500	
12	AC_221730 - First Mort Bonds - 3.30% Due Jun 1 2051	12/1/2023	6/1/2024	(92.00)	6/1/2024	(5,032,500)	(92.00)	462,990,000	
13	AC_221815 - First Mort Bonds - 4.80% Due 02/15/2023	2/15/2024	8/15/2024	(91.50)	8/15/2024	(9,600,000)	(91.50)	878,400,000	
14	Subtotal					\$ (39,862,428)		\$ 3,656,549,349	(91.73)

Spire Missouri Inc. (West)
2024 Lead-Lag Study
Revenue Collection Lag

Line	Description	Service Lag Service Period (365 days/ 12 months/ 2)	Billing Lag	Collection Lag Average Daily A/R Balance	Total Revenue Lag	Reference
1	Revenue Lag	15.21	2.04	35.84	53.09	WP (A-1, A-2)

Spire Missouri Inc. (West)
 Lead-Lag Study
 Purchased Gas

Line	Month	Amounts	(Lead)/Lag Days	Dollar Days
1	June-23	\$ 8,958,637	(40.21)	\$ (360,240,960)
2	July-23	26,077,331	(37.58)	(980,020,078)
3	August-23	26,271,272	(36.87)	(968,617,482)
4	September-23	24,462,878	(37.91)	(927,509,014)
5	October-23	30,495,207	(38.75)	(1,181,813,611)
6	November-23	40,874,327	(38.33)	(1,566,748,569)
7	December-23	47,876,308	(39.09)	(1,871,559,196)
8	January-24	57,600,216	(39.48)	(2,274,131,029)
9	February-24	67,021,122	(39.86)	(2,671,699,717)
10	March-24	35,928,071	(37.91)	(1,361,945,650)
11	April-24	20,547,989	(35.94)	(738,570,105)
12	May-24	15,338,182	(35.56)	(545,365,806)
13	June-24	13,523,012	(34.81)	(470,683,487)
14	July-24	10,286,469	(33.59)	(345,508,442)
15	Total	\$ 425,261,022		\$ (16,264,413,144)
16	Composite (Lead) / Lag Days			(38.25)

Spire Missouri Inc. (West)
2024 Lead-Lag Study
O&M Expenses

Line	Description	(Lead)/Lag Days	Reference
1	Regular Payroll Expenses	(12.00)	C-1
2	Vacation Pay	(182.50)	365 / 2
3	Annual Performance Bonus	(235.50)	C-2
4	Pension & OPEB	13.39	C-3
5	Benefits (Group)	(10.88)	C-4
6	Missouri PSC Assessment	41.00	C-5
7	Other O&M	(51.83)	C-6

Spire Missouri Inc. (West)
2024 Lead-Lag Study
Income Tax Expenses

<u>Line</u>	<u>Description</u>	<u>(Lead)/Lag Days</u>	<u>Reference</u>
1	Federal Income Taxes	(39.00)	D-1
2	State Income Taxes	(39.00)	D-2

Spire Missouri Inc. (West)
2024 Lead-Lag Study
Payroll Taxes

<u>Line</u>	<u>Description</u>	<u>(Lead)/Lag Days</u>	<u>Reference</u>
1	FICA	(15.08)	E-1
2	FUTA	(75.58)	E-2
3	SUTA	(75.50)	E-3

Spire Missouri Inc. (West)
 2024 Lead-Lag Study
 Property Taxes

Line	Description	Service Period Start	Service Period End	Midpoint	Due Date (1st Installment)	Due Date (2nd Installment)	Amount Paid	Payment (Lead)/Lag Days	Dollar Days
Spire MO East									
1	LA - Lincoln Parish	01/01/23	12/31/23	(182.50)	12/31/2023		\$ 445,487	(182.50)	\$ (81,301,363)
2	MO - City and Village	01/01/23	12/31/23	(182.50)	12/31/2023		40	(182.50)	(7,298)
3	MO - St. Charles County	01/01/23	12/31/23	(182.50)	12/31/2023		1,957,148	(182.50)	(357,179,567)
4	MO - St. Louis City MFG Lic (LAC)	01/01/23	12/31/23	(182.50)	12/31/2023		212,264	(182.50)	(38,738,193)
5	MO - St. Louis City PP/RE	01/01/23	12/31/23	(182.50)	12/31/2023		8,990,899	(182.50)	(1,640,838,995)
6	MO - St. Louis County	01/01/23	12/31/23	(182.50)	12/31/2023		10,925,889	(182.50)	(1,993,974,761)
7	MO - St. Louis County MFG Lic	01/01/23	12/31/23	(182.50)	12/31/2023		203,389	(182.50)	(37,118,405)
8	MO - Warren County	01/01/23	12/31/23	(182.50)	12/31/2023		1,397	(182.50)	(255,013)
9	TX - Dallas Co.	01/01/23	12/31/23	(182.50)	12/31/2023		3,893	(182.50)	(710,407)
Midwest Division									
10	MO - Jefferson County	01/01/23	12/31/23	(182.50)	12/31/2023		\$ 705,402	(182.50)	\$ (128,735,790)
Spire MO West									
11	KS - Allen County	01/01/23	12/31/23	(182.50)	12/10/2023	5/10/2024	\$ 52,970	(237.50)	\$ (12,580,451)
12	KS - Anderson County	01/01/23	12/31/23	(182.50)	12/10/2023	5/10/2024	1,047,465	(237.50)	(248,772,843)
13	KS - Chautauqua	01/01/23	12/31/23	(182.50)	12/10/2023	5/10/2024	15,183	(237.50)	(3,606,048)
14	KS - Elk Coutny	01/01/23	12/31/23	(182.50)	12/10/2023	5/10/2024	333,769	(237.50)	(79,270,247)
15	KS - Jefferson County	01/01/23	12/31/23	(182.50)	12/10/2023	5/10/2024	71,066	(237.50)	(16,878,208)
16	KS - Leavenworth County	01/01/23	12/31/23	(182.50)	12/10/2023	5/10/2024	54,243	(237.50)	(12,882,784)
17	KS - Meade County	01/01/23	12/31/23	(182.50)	12/10/2023	5/10/2024	264,591	(237.50)	(62,840,420)
18	KS - Montgomery County	01/01/23	12/31/23	(182.50)	12/10/2023	5/10/2024	812,191	(237.50)	(192,895,429)
19	KS - Rice County	01/01/23	12/31/23	(182.50)	12/10/2023	5/10/2024	247,423	(237.50)	(58,763,010)
20	KS - Woodson County	01/01/23	12/31/23	(182.50)	12/10/2023	5/10/2024	16,864	(237.50)	(4,005,148)
21	MO - Anderson City	01/01/23	12/31/23	(182.50)	12/31/2023		536	(182.50)	(97,762)
22	MO - Andrew County	01/01/23	12/31/23	(182.50)	12/31/2023		26,814	(182.50)	(4,893,579)
23	MO - Barry County	01/01/23	12/31/23	(182.50)	12/31/2023		180,730	(182.50)	(32,983,296)
24	MO - Barton County	01/01/23	12/31/23	(182.50)	12/31/2023		35,444	(182.50)	(6,468,530)
25	MO - Bates County	01/01/23	12/31/23	(182.50)	12/31/2023		1,379	(182.50)	(251,730)
26	MO - Buchanan County	01/01/23	12/31/23	(182.50)	12/31/2023		747,960	(182.50)	(136,502,653)
27	MO - Carroll County	01/01/23	12/31/23	(182.50)	12/31/2023		99,125	(182.50)	(18,090,227)
28	MO - Carrollton Town	01/01/23	12/31/23	(182.50)	12/31/2023		16,261	(182.50)	(2,967,653)
29	MO - Cass County	01/01/23	12/31/23	(182.50)	12/31/2023		878,306	(182.50)	(160,290,761)
30	MO - Cedar County	01/01/23	12/31/23	(182.50)	12/31/2023		54,745	(182.50)	(9,990,937)
31	MO - Christian County	01/01/23	12/31/23	(182.50)	12/31/2023		478,153	(182.50)	(87,262,943)

Direct Schedule TSL-3

Spire West

Tab F

32	MO - Clay County	01/01/23	12/31/23	(182.50)	12/31/2023		4,251,879	(182.50)	(775,967,919)	
33	MO - Clinton County	01/01/23	12/31/23	(182.50)	12/31/2023		93,042	(182.50)	(16,980,127)	
34	MO - Cooper County	01/01/23	12/31/23	(182.50)	12/31/2023		2,309	(182.50)	(421,309)	
35	MO - Crane City	01/01/23	12/31/23	(182.50)	12/31/2023		343	(182.50)	(62,672)	
36	MO - Dade County	01/01/23	12/31/23	(182.50)	12/31/2023		14,235	(182.50)	(2,597,962)	
37	MO - Dekalb County	01/01/23	12/31/23	(182.50)	12/31/2023		17,194	(182.50)	(3,137,940)	
38	MO - Drexel City	01/01/23	12/31/23	(182.50)	12/31/2023		115	(182.50)	(21,042)	
39	MO - Duenweg City	01/01/23	12/31/23	(182.50)	12/31/2023		6,116	(182.50)	(1,116,212)	
40	MO - Emma City	01/01/23	12/31/23	(182.50)	12/31/2023		321	(182.50)	(58,581)	
41	MO - Goodman City	01/01/23	12/31/23	(182.50)	12/31/2023		392	(182.50)	(71,478)	
42	MO - Greene County	01/01/23	12/31/23	(182.50)	12/31/2023		455,247	(182.50)	(83,082,532)	
43	MO - Henry County	01/01/23	12/31/23	(182.50)	12/31/2023		79,944	(182.50)	(14,589,736)	
44	MO - Howard County	01/01/23	12/31/23	(182.50)	12/31/2023		105,468	(182.50)	(19,247,833)	
45	MO - Jackson County	01/01/23	12/31/23	(182.50)	12/31/2023		16,665,205	(182.50)	(3,041,399,982)	
46	MO - Jasper County	01/01/23	12/31/23	(182.50)	12/31/2023		1,261,637	(182.50)	(230,248,826)	
47	MO - Johnson County	01/01/23	12/31/23	(182.50)	12/31/2023		424,175	(182.50)	(77,411,879)	
48	MO - Lafayette County	01/01/23	12/31/23	(182.50)	12/31/2023		355,117	(182.50)	(64,808,812)	
49	MO - Lanagan City	01/01/23	12/31/23	(182.50)	12/31/2023		261	(182.50)	(47,689)	
50	MO - Lawrence County	01/01/23	12/31/23	(182.50)	12/31/2023		227,588	(182.50)	(41,534,832)	
51	MO - McDonald County	01/01/23	12/31/23	(182.50)	12/31/2023		26,641	(182.50)	(4,862,023)	
52	MO - Moniteau County	01/01/23	12/31/23	(182.50)	12/31/2023		48,950	(182.50)	(8,933,455)	
53	MO - Newton County	01/01/23	12/31/23	(182.50)	12/31/2023		283,706	(182.50)	(51,776,309)	
54	MO - Pettis County	01/01/23	12/31/23	(182.50)	12/31/2023		15,667	(182.50)	(2,859,284)	
55	MO - Pineville City	01/01/23	12/31/23	(182.50)	12/31/2023		639	(182.50)	(116,608)	
56	MO - Platte County	01/01/23	12/31/23	(182.50)	12/31/2023		1,183,282	(182.50)	(215,949,042)	
57	MO - Ray County	01/01/23	12/31/23	(182.50)	12/31/2023		20,725	(182.50)	(3,782,307)	
58	MO - Saline County	01/01/23	12/31/23	(182.50)	12/31/2023		68,064	(182.50)	(12,421,673)	
59	MO - Southwest City City	01/01/23	12/31/23	(182.50)	12/31/2023		286	(182.50)	(52,129)	
60	MO - Stone County	01/01/23	12/31/23	(182.50)	12/31/2023		6,627	(182.50)	(1,209,415)	
61	MO - Vernon County	01/01/23	12/31/23	(182.50)	12/31/2023		4,850	(182.50)	(885,196)	
62	OK - Grant County	01/01/23	12/31/23	(182.50)	12/31/2023	4/1/2024	201,371	(228.50)	(46,013,274)	
63	OK - Woods County	01/01/23	12/31/23	(182.50)	12/31/2023	4/1/2024	4,686	(228.50)	(1,070,751)	
MoNat Division										
64	MO - Butler County	01/01/23	12/31/23	(182.50)	12/31/2023		\$ 158,993	(182.50)	\$ (29,016,164)	
65	MO - City of Annapolis	01/01/23	12/31/23	(182.50)	12/31/2023		18	(182.50)	(3,289)	
66	MO - City of Pilot Knob	01/01/23	12/31/23	(182.50)	12/31/2023		147	(182.50)	(26,888)	
67	MO - Crawford County	01/01/23	12/31/23	(182.50)	12/31/2023		4,217	(182.50)	(769,646)	
68	MO - Franklin County	01/01/23	12/31/23	(182.50)	12/31/2023		375,923	(182.50)	(68,605,960)	
69	MO - Iron County	01/01/23	12/31/23	(182.50)	12/31/2023		2,744	(182.50)	(500,784)	
70	MO - Jefferson County	01/01/23	12/31/23	(182.50)	12/31/2023		243,736	(182.50)	(44,481,767)	
71	MO - Madison County	01/01/23	12/31/23	(182.50)	12/31/2023		43,119	(182.50)	(7,869,212)	
72	MO - St. Francois County	01/01/23	12/31/23	(182.50)	12/31/2023		399,075	(182.50)	(72,831,270)	
73	MO - Ste. Genevieve County	01/01/23	12/31/23	(182.50)	12/31/2023		23,153	(182.50)	(4,225,395)	
74	Total Property Tax Payments							\$ 55,958,235	(185.54)	\$ (10,382,223,648)
75	Source: WP (F) - Property Taxes									
76	East							\$ 23,445,807	(182.50)	\$ (4,278,859,790)
77	West							32,512,428	(187.72)	(6,103,363,857)

78

Total

\$ 55,958,235

(185.54)

\$ (10,382,223,648)

Spire Missouri Inc. (West)
Lead-Lag Study
Other Taxes

Line	Description	Amount	Reference
1	Sales Tax	(26.21)	G-1
2	Use Tax	(78.28)	G-2
3	Gross Receipts Taxes	(45.25)	G-3

Spire Missouri Inc. (West)
 2024 Lead-Lag Study
 Interest Expense Payment

Line	Description	Service Period Begin	Service Period End	Midpoint	Payment Date	Amount	Lead-Lag Days	Dollar-Days	Composite Lead-Lag Days
1	AC_221120 - First Mort Bonds - 6% Due May 1 2034	11/1/2023	5/1/2024	(91.50)	5/1/2024	\$ (2,977,350)	(91.50)	\$ 272,427,525	
2	AC_221180 - First Mort Bonds - 4.625% Due August 15 2043	2/15/2024	8/15/2024	(91.50)	8/15/2024	(2,311,228)	(91.50)	211,477,374	
3	AC_221400 - First Mort Bonds - 3.40% Due March 15 2028	3/15/2024	9/15/2024	(92.50)	9/15/2024	(765,000)	(92.50)	70,762,500	
4	AC_221570 - First Mort Bonds - 7 9/10% Due Sep 15 2030	3/15/2024	9/15/2024	(92.50)	9/15/2024	(1,185,000)	(92.50)	109,612,500	
5	AC_221571 - First Mort Bonds Series A - 3.68% Due Sep 15 2032	3/15/2024	9/15/2024	(92.50)	9/15/2024	(920,000)	(92.50)	85,100,000	
6	AC_221572 - First Mort Bonds Series B - 4.23% Due Sep 15 2047	3/15/2024	9/15/2024	(92.50)	9/15/2024	(1,480,500)	(92.50)	136,946,250	
7	AC_221573 - First Mort Bonds Series C - 4.38% Due Sep 15 2057	3/15/2024	9/15/2024	(92.50)	9/15/2024	(1,095,000)	(92.50)	101,287,500	
8	AC_221574 - First Mort Bonds - 2.84% Due Nov 15 2029	11/15/2023	5/15/2024	(91.50)	5/15/2024	(3,905,000)	(91.50)	357,307,500	
9	AC_221577 - First Mort Bonds - 2.84% Due Nov 15 2029	2/15/2024	8/15/2024	(91.50)	8/15/2024	(8,240,000)	(91.50)	753,960,000	
10	AC_221680 - First Mort Bonds - 7% Due Jun 1 2029	12/2/2023	6/2/2024	(92.00)	6/2/2024	(674,975)	(92.00)	62,097,700	
11	AC_221720 - First Mort Bonds - 6.15% Due Jun 1 2036	12/1/2023	6/1/2024	(92.00)	6/1/2024	(1,675,875)	(92.00)	154,180,500	
12	AC_221730 - First Mort Bonds - 3.30% Due Jun 1 2051	12/1/2023	6/1/2024	(92.00)	6/1/2024	(5,032,500)	(92.00)	462,990,000	
13	AC_221815 - First Mort Bonds - 4.80% Due 02/15/2023	2/15/2024	8/15/2024	(91.50)	8/15/2024	(9,600,000)	(91.50)	878,400,000	
14	Subtotal					\$ (39,862,428)		\$ 3,656,549,349	(91.73)