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Witness:	**James Rieske**
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SPIRE MISSOURI INC.

CASE NO. GR-2021-0108

SURREBUTTAL TESTIMONY

OF

JAMES RIESKE

JULY 14, 2021

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REBUTTAL TESTIMONY OF JAMES RIESKE

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is James Andrew Rieske, and my business address is 700 Market Street, Saint Louis, MO 63101.

Q. WHAT IS YOUR PRESENT POSITION?

A. I am currently Director, Measurement for Spire Missouri Inc. ("Spire").

Q. ARE YOU THE SAME JAMES RIESKE THAT PREVIOUSLY FILED REBUTTAL TESTIMONY IN THIS PROCEEDING ON JUNE 17, 2021?

A. Yes, I am.

II. PURPOSE OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?

A. I will respond to the Rebuttal Testimony of Staff witness J. Luebbert and in part to OPC witness Geoff Marke, both of whom recommend that the Company's investments in advanced ultrasonic metering technology ("AMI") be disallowed from Spire's rates and rate base. Staff recommends excluding the amount recorded for smart meters while Staff continues to investigate the decision to install the smarter meters and justification of the cost. OPC's position is that (1) AMI investments made by Spire are not prudent or necessary to provide safe and reliable service, (2) that no benefits would inure to customers from AMI technology without an accompanying network, (3) that AMI investments lead to stranded costs for diaphragm meters that are not fully depreciated, (4) that diaphragm meter technology is not obsolete, (5) that AMI investments are not cost effective, (6) that gas AMI investments do not deliver benefits comparable to electric AMI investment, such as time of use rates, and (7) Spire's sole motivation in

investing in AMI is to build out rate base and increase its own profitability. Many of OPC's arguments I addressed in my Rebuttal Testimony, so they will not be restated herein.

Q. HOW IS YOUR SURREBUTTAL TESTIMONY ORGANIZED?

A. I respond first to the assertions of Staff that Spire has not adequately justified, supported, and documented the new metering investments. Subsequently I will correct certain mischaracterizations contained in Mr. Luebbert's Rebuttal Testimony.

III. ULTRASONIC METERS

Q. THE CRUX OF STAFF'S ARGUMENT AGAINST THE INCLUSION OF AMI INVESTMENTS APPEARS TO BE FOCUSED UPON STAFF'S BELIEF THAT SPIRE HAS NOT ADEQUATELY PROVIDED JUSTIFICATION AND DOCUMENTATION IN SUPPORT OF THESE INVESTMENTS. FOR EXAMPLE, AT PAGE 2 OF STAFF WITNESS LUEBBERT'S REBUTTAL TESTIMONY HE NOTES THAT SPIRE MISSOURI "HAS NOT SUPPORTED THE INCLUSION OF THE INVESMENTS IN REPLACING EXISTING INFRASTRUCTURE WITH NEW METERS AND THE ASSOCIATED CAPITAL COSTS." LATER IN LUEBBERT'S REBUTTAL AT P. 4 IT IS NOTED THAT "IT IS UNKNOWN TO WHAT EXTENT SPIRE WILL ADDRESS ALL OF THE CONCERNS RAISED TO DATE" OR WHETHER SUPPORTING DOCUMENTATION WILL BE PROVIDED. WILL YOU PLEASE ADDRESS THE TIMING CONSIDERATIONS RELEVANT TO STAFF'S COMMENTS ON SUPPORTING DOCUMENTATION?

A. Staff is critical of the amount of information provided in Spire's direct case as filed in December of 2020. However, the rate case was filed and in progress as we began using the ultrasonic meter. All the installations in this test period were for Missouri West and the use of the meter was consistent with historical meter replacement and installation practices. After Spire began installing the meter and recognizing the considerable benefit, we began to consider how we could accelerate the deployment. The acceleration began in Missouri West in February 2021 and we have not yet began deployment in Missouri East. Installation and use of the new meters was evolving as the case progressed, and continues to evolve. It was not our intention to not discuss new metering technology in our direct case, it was simply that the process evolved while the case was in progress and did not seem to be a significant factor in the Company's expenses during the test period of this case.

Q. AT PAGES 3-4 OF HIS REBUTTAL, STAFF WITNESS LUEBBERT DISCUSSES THE ADDITIONAL CONTEXT SPIRE PROVIDED AT THE JUNE 9 TECHNICAL CONFERENCE REGARDING THE APPROACH SPIRE IS EMPLOYING TO REPLACE EXISTING METERING INFRASTRUCTURE. STAFF SUGGESTS THAT SPIRE HAS NOT PROVIDED VERIFICATION AND SUPPORTING DOCUMENTATION FOR THE INFORMATION DISCUSSED AT THE TECHNICAL CONFERENCE. HOW DO YOU RESPOND?

A. The presentation I made at the technical conference is attached to my testimony as Schedule JAR-SR-1. As I noted above, Spire accelerated the deployment of the new metering technology in Spire West after seeing significant benefits after this case was

filed. However, as discussed with Staff during the technical conference, Spire began studying the current meter equipment, meter reading, and billing processes in the fall of 2018. As the technical expert for Spire on metering, the detailed studies and analysis that have been performed for the last three years have overwhelmingly convinced me that this technology will eliminate significant expense and inefficiency in our current processes and provide capability that will meet the future needs of our customers. What makes this so important is that this meter incorporates safety features to prevent catastrophic events that can occur on the customer piping, which has never been available to Spire in any device that exists on our distribution system. Having spent years as an incident investigator and preparing incident reports, this is one of the most significant safety devices Spire has been able to provide. Throughout my career, Staff has demonstrated an unwaivering commitment to customer safety, including many new mandates designed to reduce the risk of harm to customers. I am stunned to see such a simple, effective safety device being questioned because of an additional $25 per meter cost.

Spire has recently provided compelling evidence of the expense and inefficiency of our current metering technology in response to recent data requests from the parties on this issue. This is information that has informed our decisions as we have rapidly evolved our strategy. I personally have been involved in several conversations with Staff about the strategy Spire was developing and have provided written updates since the fall of 2020. While I appreciate that some members of Staff have not yet seen this information, I would also point out that no one has asked for this detail until very recently.

Q. STAFF CLAIMS AT PAGE 4 OF LUEBBERT'S REBUTTAL TESTIMONY THAT SPIRE HAS PROVIDED LIMITED JUSTIFICATION FOR THE INVESTMENT IN REPLACING EXISTING METERING INFRASTRUCTURE WITH NEW TECHNOLOGY. WHAT JUSTIFICATION CAN YOU PROVIDE FOR THIS INVESTMENT?

A. I took over the role of Measurement Director for Spire in June 2018. At this time, Spire had a utility affiliate outside of Missouri that had no AMR technology. An RFP project was underway to evaluate moving to an AMI solution to improve meter reading efficiency and effectiveness in that region. While this project was being evaluated, I began a process of studying the metering practices across all of Spire's regions. This study lasted for approximately a year, and the results were remarkably similar across all of Spire. This study resulted in the development of metrics that measure the timeliness, accuracy, and effort to gather customer billing reads. These metrics are provided as a backdrop to support the findings summarized below.

- The Missouri meter population was aging, and 725,750 meters were over 10 years old and eligible for meter sampling in Missouri at the beginning of calendar year 2018. Diaphragm meter accuracy is prone to drifting over time and overall meter testing accuracy was continuing to decline, particularly in Missouri West. In calendar year 2018, 95% of the sample meter population was testing below 90% accurate in this region.

Sample Results Analysis – MO West

2018 Sample Program

Historical analysis was not available – anchored back to 2016

		Baseline from 2016				Calendar Year 2018 - 54% Complete			
Sample Rate	Accuracy Rate	Groups	Population	% of Pop	Sample Req	Groups	Population	% of Pop	Sample Req
Statistical	>89%	15	261019	79.3%	2390	5	14896	4.5%	408
7%	85% - 89%	1	399	0.1%	28	2	49486	15.0%	3978
8%	80% - 84%	2	874	0.3%	70	2	88962	27.0%	8881
9%	75% - 79%	1	26	0.0%	2	2	12638	3.8%	1138
10%	70% - 74%	1	38943	11.8%	3894	3	108097	32.8%	10810
15%	60% - 69%	0	0	0.0%	0	4	54337	16.5%	8482
20%	<59%	3	28067	8.5%	5613	2	874	0.3%	175
Total		23	329328	100.0%	11997		329290	100.0%	33872

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- The use of a variety of meter types and sizes over the years had created a meter population of over 100 unique combinations of meter and network modules in service in Missouri. A network module has a unique connection to each meter type and this resulted in Spire being required to maintain and distribute inventory and supply equipment to install and program every possible combination. This created added expense and inefficiency in the process of sustaining AMR equipment.
- It was common to replace a network module on a meter due to battery issues, malfunction, or age. Every module must be programmed accurately to the specific meter index and the record of the exchange must be accurately and timely updated to the billing system. It was common to discover programming errors or exchange data that had not been properly updated. Both issues led to consistent customer billing disruptions.

- The network modules were replaced on meters without corresponding meter age information. It was common for a network module to be replaced and then within a short period of time the meter would be exchanged on a subsequent visit for the meter sampling program.
- The mechanical components in the operation of the meter diaphragm, meter index, and network module were prone to frequent breakage. During calendar year 2019, 9,333 meters were replaced because they quit accurately registering usage across Spire Missouri.
- Below are metrics that represent the field activities completed to read, repair, maintain or replace customer meter equipment. In Calendar Year 2020, Spire completed 148,310 field activities on customer premises for this purpose. Below is a summary of these field activities by year since 2017.

Spire Mo East	Field Activities Completed by Type				
Field Activity Type	2017	2018	2019	2020	2021 (YTD)
Meter Repair	21046	19517	18651	22085	7112
Meter Exchange	24485	30508	28542	24287	8524
Meter Read / Investigation	3539	4686	4031	2862	1801
Module Repair / Replacement	23041	26708	26987	22346	15429
Total	72111	81419	78211	71580	32866
Spire Mo West	Field Activities Completed by Type				
Field Activity Type	2017	2018	2019	2020	2021 (YTD)
Meter Repair	18397	13790	9297	8835	2909
Meter Exchange	18984	27412	20290	19856	22318
Meter Read / Investigation	50170	49078	48781	43353	29178
Module Repair / Replacement	65482	68450	13994	4686	161
Total	153033	158730	92362	76730	54566

- Despite completing 148,310 field activities to repair meters in calendar year 2020, 40,986 customer bills were estimated because a billing read was not available.
- It has been common for as many as 40,000 bill reads each month in Missouri to be flagged as suspect and require review. This is due to the combination of two factors:
    1. Aging meter equipment has frequently operated erratically making the billing process be increasingly suspicious of reads that differ from "normal."
    2. Evaluating reads provided once a month makes it extremely difficult to profile what is "normal."

As the Measurement Director for Spire, the facts gathered during this study made it clear that the current diaphragm metering equipment was failing our customers. These performance metrics support my characterization of the existing equipment as obsolete. I began to look at ways that we could simplify, standardize, and modernize our meter equipment.

Q. PLEASE EXPLAIN HOW THE ULTRASONIC METERING TECHNOLOGY SIMPLIFIES, STANDARDIZES, AND MODERNIZES SPIRE'S METERING EQUIPMENT?

A. Each of the concerns I discuss above are addressed by the features discussed below, and all of the following benefits come with the installation of the meter <u>with no network</u>. A single meter type could replace over 100 unique combinations of meter and module configurations.

- The meter uses ultrasonic measurement technology, which is 20 times more accurate than diaphragm technology, and the accuracy does not degrade over time.

- The ultrasonic meter has no moving parts, which greatly improves the reliability of the meter.
- The ultrasonic meter has an integrated network module which makes the meter one unit and eliminates the disparate vintages of meter and module.
- The integrated module is programmed at production to the meter and eliminates the programming accuracy of the meter to the module by Spire technicians.
- The ultrasonic meter measures usage in real-time and has a built-in internal shut-off valve. This allows for the following safety benefits described in the information provided at the technical conference.
    - Auto shut-off for high flow on the customer system.
    - Remote shut-off when hazardous condition is reported or discovered in the customer premise.
    - Auto shut-off if the meter reaches a temperature of 176 degrees.
    - Auto shut-off for high inlet pressure is coming in the next generation.

The decision to use the ultrasonic meter was a meter equipment decision that provides increased efficiency and savings to our customers right now at an incremental cost of just $25 per unit. That equates to about $1.35 a year for customers to get the benefit of accuracy and enhanced safety measures. When evaluating the facts documented above, this decision was obvious without yet having a final plan for when or how Spire was going to deploy an AMI network, and is based solely on the benefits of the meter installed in AMR mode with no network. This evaluation and decision is typical of equipment decisions that are made at Spire every day to better serve our customers. The Company does not typically share the details of those decisions with Staff in the context

of day-to-day operations. But the benefits of deploying the ultrasonic meter have been so obvious that we have accelerated the rate at which we replace meters. That has been a recent development and Spire agrees that more extensive conversations with Staff are warranted as this strategy evolves.

Q. AT P. 5 OF LUEBBERT'S REBUTTAL, STAFF CHALLENGES SPIRE'S CLAIM THAT CURRENT DIAPHRAGM METERING TECHNOLOGY IS OBSOLETE, AND STATES THAT SPIRE PROVIDED NO DOCUMENTATION IN SUPPORT OF ITS CLAIM THAT SPIRE'S CURRENT VENDOR WILL DISCONTINUE MANUFACTURING THE METER IN 2021. IS THIS ACCURATE?

A. Schedule JAR-R2, attached to my Rebuttal Testimony, is an Itron Product Information Letter received by Spire in September 2020 that contains the "end of life" announcement for METRIS and I-250 gas meters. This letter supports Spire's assertion that as of March 30, 2021, Itron will end production of all METRIS gas meters, and effective December 31, 2021, Itron will end production of all I-250 gas meters. This letter should make it readily apparent that the cessation of production of residential diaphragm meters is a true indicator of product obsolescence. As a utility provider, Spire must start planning and making business decisions years in advance to provide safe, reliable, and affordable natural gas. As I discussed at the June 9 technical conference, the diaphragm meter is an aged mechanical device that is rendered obsolete by the capability provided in the ultrasonic meter. Just because someone continues to make a VCR does not mean it is prudent to continue to buy it. Fundamentally, the ultrasonic meter provides a clear and simple safety device in the auto shutoff valve that is not available in diaphragm

metering. The value of this device is so compelling as to render existing meter technology obsolete. In my experience managing gas safety issues, I cannot imagine the case being made that Spire should not deploy this technology because the meter that is already there is not old enough. The upgrade in meter capabilities with the ultrasonic meter is clear and compelling.

Q. STAFF ALSO TAKES ISSUE WITH SPIRE'S RESPONSE TO STAFF DATA REQUEST 0293, NOTING CONCERN WITH SPIRE'S STATEMENT THAT WHEN A METER IS OFF AND CUSTOMER SERVICE NEEDS TO BE RE-ESTABLISHED, THE METER IS REPLACED REGARDLESS OF AGE. (Luebbert Rebuttal, pg. 5.) STAFF PLACES SIGNIFICANT WEIGHT ON THE POTENTIAL FOR STRANDED INVESTMENT. IS STRANDED INVESTMENT A CONCERN IN YOUR OPINION?

A. No. Frankly, I do not understand the continued dialogue about stranded assets as a part of the spend included in this rate case. In its direct case, Spire included $4,419,631 in Account 381.100 Smart Meters and $919,416 in account 382.100 Smart Meter Installations for Spire West through December 31, 2020. The spend in this rate case is for metering installed substantially in the same way it has always been installed using the previous generation diaphragm metering. Stranding assets did not happen much differently than it has for the last 20 years in the expenses in this rate case. I agree that going forward Spire and interested parties need to continue to discuss how to handle stranding metering assets by a more aggressive upgrade program and Spire is gathering more data to have that discussion.

Q. STAFF CHALLENGES SPIRE'S STATEMENT THAT IT WILL NEED TO CHANGE ALL METERING EQUIPMENT IN SPIRE EAST BY APRIL 2025 BECAUSE ITS CURRENT CONTRACT WITH LANDIS & GYR ENDS AT THAT TIME. (Luebbert Rebuttal, pg. 5-6.) STAFF SUGGESTS THAT SPIRE HAS NOT PROVIDED DOCUMENTATION INDICATING THAT EXISTING METER DEVICES WILL NOT BE USABLE BEYOND THAT DATE. WHAT IS YOUR RESPONSE?

A. The Missouri East Landis & Gyr system will be shut down on April 1, 2025, as stipulated by the contract. Attached as Schedule JAR-SR-2 is a letter of notification of termination of meter reading services from Landis & Gyr at the end of the current contract, April 1, 2025. The Company has asked Landis & Gyr whether it would consider extending the contract beyond that time, but Landis & Gyr has refused to do so.

Q. STAFF ALSO STATES THAT SPIRE'S RESPONSE TO STAFF DR 0295.3 INDICATES THAT REPLACING THE AMR DEVICE ON EXISTING DIAPHRAGM METERS WOULD COST LESS THAN FULL METER REPLACEMENT WITH A NEW ULTRASONIC METER. STAFF CLAIMS THAT THIS COST DISPARITY WARRANTS ADDITIONAL JUSTIFICATION TO PROCEED WITH REPLACING EXISTING METERS REGARDLESS OF THE AGE OF THE METER. (Luebbert Rebuttal, pg. 6.) WHAT ARE THE CONSEQUENCES OF A RETROFIT OF THIS TYPE?

A. Staff has noted its concern with the stranding of assets several times. Now, Mr. Luebbert is proposing that Spire retro-fit modules to hundreds of thousands of

replacement-eligible meters. Under this plan, Spire would install a new module on existing diaphragm meters with the deliberate intent to strand these new assets. This would result in 30,000 to 40,000 meters with new network devices being subsequently replaced with a new meter each year to satisfy the Commission-mandated meter sampling requirements. These replacements are required because the diaphragm meter we installed the module on has a long history of degrading in accuracy over time. This would also require a second visit by a Spire employee to the property each time and replacing a virtually new network device. By Staff's logic, stranding assets is not acceptable when we have a compelling new device with enhanced safety capability, but is perfectly fine for Spire to instead install new module equipment that provides no safety enhancements and will also result in stranding of assets? I fail to understand the logic of this. Staff's suggestion would also result in higher O&M expense by requiring an unnecessary second visit by a Spire employee or contractor providing these services.

Q. IN DISCUSSING COSTS PER ULTRASONIC METER AND COSTS PER ULTRASONIC METER INSTALLATION ON PP. 6-7 OF LUEBERT'S REBUTTAL, STAFF STATES THAT IT HAS ISSUED DATA REQUESTS TO SPIRE REGARDING ALLEGED DISCREPANCIES IN COSTS BOOKED TO FERC SUBACCOUNTS VERSUS THE ACTUAL COSTS OF INSTALLATION. IS THERE IN FACT A DISCREPANCY?

A. No. What appears to be a discrepancy in the costs is due to very simple accounting principles. A meter is not purchased at the time of install. The Company purchases meters such that 3 to 6 months of inventory is available. This ensures that employees have the necessary equipment when they need it. Each year, the number of meters the

Company uses increases after the first of the year due to capacity to perform meter-sampling exchanges. The costs booked to this account during this period represent meter purchases in excess of what was installed as the inventory was being increased in advance of the start of the year.

Further, the estimated cost to perform a meter install is $107. However, each installation is not a standalone event that requires this amount of labor. If a meter is already off due to other work and a new meter is installed at the time of restoration of service, there is little or no labor charge to the meter work because little or no additional labor was required to install it. This is at the heart of the Company's opportunity-based approach targeting meters that can be replaced with little or no additional labor. In some cases there is little or no incremental labor involved in a meter replacement, and in some cases a dedicated meter exchange job costs approximately $107. The blend of work performed during this period made the average labor cost approximately $58.37 for the ultrasonic meter replacements that have already occurred. This demonstrates the value of opportunity-based upgrades and shows that, during this period, the Company was able to perform exchanges at nearly half the cost of a standalone exchange. What remains true, however, is that if we schedule a meter exchange the approximate cost of the labor to perform it is $107.

Q. AT PAGE 7 OF LUEBBERT'S REBUTTAL, STAFF CRITICIZES SPIRE FOR NOT PROVIDING AN ESTIMATE FOR THE ADDITIONAL COSTS RELATED TO AMI TECHNOLOGY OR A TIMEFRAME FOR EXPECTED EXPENDITURES. WHAT WAS SPIRE'S RATIONALE FOR NOT PROVIDING AN ESTIMATE OR TIMELINE?

A. In response to Staff data request 0293, Spire stated that "The overall capabilities and timing of delivering those capabilities will dictate the deployment timing and expenditures". The overall design of the system simply has not developed far enough to provide such estimates at this time." Staff also noted that in a separate response to OPC data request 2064, Spire Missouri went on to state that, "The scope and extent of the software required will be dictated by the network hardware that is deployed. The network strategy and design is still being studied and the projected cost cannot yet be provided."

Mr. Luebbert appears to conflate an overall AMI deployment strategy with a metering equipment decision. Again, Spire has decided to use next generation ultrasonic meter equipment that provides compelling benefits to customers, without AMI capabilities. That decision stands on its own. The overall AMI deployment strategy is still being studied and developed and, as such, the decisions necessary to fully define the cost and effort have not yet been made. When Spire has a plan with sufficient detail to understand all the costs and all the resulting benefits, we will plan our next steps. This information will be shared with Staff and OPC as we plan that step. The Company anticipates completing this analysis over the next year and looks forward to a robust conversation around the benefits of continuing to move our services into the future.

Q. STAFF FURTHER CLAIMS AT PAGE 7 OF LUEBBERT'S REBUTTAL THAT SPIRE PROVIDED STAFF WITH ANALYSIS REGARDING PLANS TO INSTALL NEW DEVICES THAT WERE NOT SUPPORTED WITH SUBSTANTIAL DOCUMENTATION, AND STAFF LISTS SEVERAL "DISCLAIMERS" THAT STAFF ALLEGES CREATE DOUBT AS TO THE

ACCURACY AND RELIABILITY OF THE ESTIMATES. DO YOU AGREE WITH STAFF'S ANALYSIS?

A. No, I do not. The analysis provided to Staff represents typical estimates used to model the high-level financial impact of a large-scale program like this. This kind of estimate requires synthesis of thousands of individual transactions into units that create the budget level impact of a program of this scale and duration. It is essential in the transparency of the estimate to call out assumptions that were made to build the estimate. The tactical execution of the program cannot be built until the high-level directional impact of the overall program has been established, which also allows identification of factors that could negatively or positively impact program results. That is what this model does. The use of the model clearly identified that an ultrasonic meter upgrade program yielded the best results for our customers.

Q. MR. LUEBBERT STATES THAT "SPIRE MISSOURI SHOULD HAVE PROVIDED JUSTIFICATION FOR REPLACING EXISTING ASSETS WITH NEW TECHNOLOGY WHICH INCLUDES FULLY SUPPORTED COST BENEFIT ANALYSES ESPECIALLY IN AN INSTANCE WHEN THE EXISTING ASSETS ARE BEING REPLACED REGARDLESS OF AGE WHICH INCREASES THE POSSIBILITY OF SUBSTANTIAL STRANDED ASSETS." (Luebbert Rebuttal, pg. 8.) WILL YOU PLEASE RESTATE YOUR POSITION REGARDING THE POTENTIAL FOR "STRANDED ASSETS" AS A RESULT OF SPIRE'S METER REPLACEMENTS?

A. Again, the investment included in this filing did not represent a replacement program that stranded assets. Looking forward, Staff is seeing stranded assets as a future issue

and the Company agrees that a further discussion is warranted on that issue. However, stranded assets are not an issue that has occurred in the expenses involved in this case, and should therefore not be a factor in disallowing any of these expenses. The Company recognizes that this may become an issue during the period these rates are in effect, and looks forward to having further discussions with the parties on this matter prior to its next general rate case.

Q. STAFF'S ULTIMATE RECOMMENDATION IS THAT THE AMOUNTS SPIRE BOOKED TO FERC SUBACCOUNTS NOT BE INCLUDED IN OR RECOVERED IN RATES DUE TO SPIRE'S LACK OF SUPPORT PROVIDED TO DATE. HOW DO YOU RESPOND?

A. The $4,419,631 at issue in this proceeding is the same meter spend that Spire would have incurred using the previous diaphragm meter technology during this period except for the ultrasonic meter cost of an additional $25 per unit. It appears Staff is under the impression that no meters needed to be installed during the test period, which is not correct. The Company must install and replace meters every day Rather, the Company selected a new metering device, with improved technology to deliver safety, accuracy and reliability benefits to customers, at an incremental cost of $25. Based upon my years of interaction the Gas Safety Staff, I cannot comprehend the idea that we would deny these kinds of benefits over a $25 cost disparity.

Q. TURNING TO OTHER ISSUES IN MR. LUEBBERT'S REBUTTAL, HE DESCRIBES SPIRE'S EXISTING METERING INFRASTRCTURE. IS STAFF WITNESS LUEBBERT'S DESCRIPTION OF SPIRE'S EXISTING METERING INFRASTRUCTURE AN ACCURATE CHARACTERIZATION?

A. No, not entirely. Staff witness Luebbert states that "the existing metering infrastructure consists of diaphragm meters paired with Automated Meter Reading ("AMR") devices. AMR devices allow for one-way communication from the meter to the utility." (Luebbert Rebuttal, pg. 2.)

Q. WHAT ISSUES DO YOU SEE WITH STAFF'S CHARACTERIZATION?

A. Staff's depiction of current metering infrastructure is overly simplistic and fails to capture the numerous types of diaphragm meters utilized by both Spire East and Spire West, the unique programming and retrofitting required for each individual type of diaphragm meters, and the significant hardware and software limitations that create inefficiencies and threaten the accuracy and inconsistency of the Company's bill reads.

Q. PLEASE EXPLAIN THE CURRENT STATE OF SPIRE'S METERING INFRASTRUCTURE FOR SPIRE EAST.

A. Spire's current meter infrastructure consists of 18 different types of diaphragm meters in Missouri East. Each meter type is retrofitted to an L&G AMR that is uniquely connected based on the manufacturer and which must be programmed to the unique index of the meter. The Landis & Gyr AMR devices are at the end of their useful life, and of a type and model that will not be supported by Landis & Gyr beginning April 1, 2025. As a result, Spire will not be able to collect reads from any of these meters after April 1, 2025 and each of these meters must be upgraded with a new module or meter by that date. Moreover, many of the diaphragm meters themselves are up to 35 years old, and 16 of the 18 types used in Spire East are no longer used for meter installation or replacement.

Q. PLEASE EXPLAIN THE CURRENT STATE OF SPIRE'S METERING INFRASTRUCTURE FOR SPIRE WEST.

A. In Spire West, there 12 different types of diaphragm meters that are retrofitted to Itron ERT ("Encoder Receiver Transmitter") modules. Again, each module is specific to the meter manufacturer and must be programmed uniquely to each meter index. The current ERT modules are a blend of several generations of module technology. The 40G ERTs are obsolete and have been replaced to the point that they exist on less than 1% of Missouri West meters. The 100G ERTs are an improvement but are still woefully behind in ERT technology. This becomes problematic because over 90% of Spire Missouri West meters have a 100G ERT. This means that current meter reading software and hardware is limited in capability when trying to read these modules. 500G ERT technology is the current standard, and the ultrasonic meters or ERTs modules installed in Missouri West are 500G. As I indicated in my Rebuttal Testimony at pp. 15-16, to date ultrasonic meters have only been installed in Spire West to date.

Q. WHAT ARE THE EFFICIENCY AND ACCURACY LIMITATIONS OF HAVING MULTIPLE TYPES OF METERS AND MODULES?

A. The current diaphragm meter technology requires the Company to sustain equipment for 30 unique meter combinations. This includes replacement inventory, as well as hardware and software to install and program the modules. In each region, the Company has been constantly replacing broken or obsolete modules and then replacing broken or obsolete meters. This has been an increasingly inefficient and costly set of processes to maintain the consistency and accuracy of our customer bill reads.

Q. STAFF WITNESS LUEBBERT STATES AT P. 2 OF HIS REBUTTAL TESTIMONY THAT SPIRE MISSOURI HAS BEGUN INSTALLATION OF NEW ULTRASONIC METERS THAT HAVE INTEGRATED NETWORK DEVICES, WHICH WOULD ALLOW SPIRE TO FULLY IMPLEMENT AMI IN THE FUTURE. IS STAFF PLACING UNNECESARY EMPHASIS ON THE USE OF FUTURE NETWORK AND AMI CAPABILITIES AND DE-EMPHASIZING EXISTING BENEFITS?

A. Yes. The superior uses and benefits of the ultrasonic meter are not dependent upon its network or AMI capabilities. This meter was selected for next-generation metering based on the capabilities it provides at the time of installation, without a network and operating in AMR mode. The day an ultrasonic meter is installed without an AMI network, in AMR mode, it provides the following capabilities that do not exist with a diaphragm meter. The benefits below are substantial and provide unique safety features that do not exist today.

- Auto-shut for high flow and temperature.
- Remote shut-off using handheld device in the event of an emergency at the customer premise.
- Increased accuracy of 0.1% versus 2.0% that does not degrade over time.
- Improved reliability due to no moving parts in the meter.
- Reduced size, which increases installation flexibility and provides improved customer aesthetics.

These capabilities make the ultrasonic meter far superior to the diaphragm meter, even if a network is never installed. These benefits, combined with the elimination of the

many inefficient processes around sustaining 30 different meter combinations, make the move to the ultrasonic meter an obvious choice for the benefit of Spire's customers. Staff appears to be focused on future development of AMI network over existing benefits of ultrasonic metering device technology.

Q. HAS SPIRE CONSIDERED THE POTENTIAL FUTURE BENEFITS OF NETWORK AND AMI CAPABILITIES?

A. Yes, of course. The Company did evaluate future capabilities to confirm that this meter will also provide the future capability to leverage the improvements an AMI network could provide. However, the Company is still studying an overall AMI network and the capabilities it will provide to Spire customers. This study will evaluate the full cost and effort to deploy this technology and the benefits this capability will provide currently and to meet the future needs of Spire customers. Spire will present those findings and the supporting detail to Staff when that study has been completed. Notably, any costs associated with network and AMI capabilities are not at issue in this current proceeding.

Q. STAFF WITNESS LUEBBERT'S REBUTTAL AT P. 3 NOTES THAT MOVING TO AMI TECHNOLOGY WILL REQUIRE ADDITIONAL CAPITAL COSTS. IS STAFF ONCE AGAIN FOCUSING INAPPROPRIATELY ON AMI NETWORK CAPABILITIES?

A. Yes. Again, Spire is not installing this meter because it needs an AMI network to make it useful. The ultrasonic meter provides significant benefit without a network. The Company is not currently proposing an AMI network and is still studying the implementation cost and benefits of such a network. However, there is no doubt that the ultrasonic meter provides capabilities in AMR mode that cannot be achieved with a

diaphragm meter attached to a network module. Other technology for full AMI capability will be considered in its own study that evaluates the cost and effort against the benefits of the capability it might deliver.

Q. ON PAGE 3 OF HER REBUTTAL TESTIMONY, STAFF WITNESS EUBANKS NOTES THAT SPIRE IS NOT CURRENTLY NOTIFYING CUSTOMERS PRIOR TO INSTALLATION OF AN ULTRASONIC METER AT THEIR PREMISES. DO YOU VIEW PRIOR NOTICE AS PRACTICAL?

A. Yes, but only in some cases. Most meter replacements are performed on an opportunistic basis, when other work is already being performed at the customer premises. Work plans for these locations are not developed until the night before the work is to take place, making advanced notice impractical. For customer-requested work, appointments are typically booked within a few days of the service visit, again making advanced notice difficult. However, the Company is open to provided additional information about ultrasonic meter replacements to customers when replacements are part of planned work, such as a scheduled main replacement project.

IV. CONCLUSION

Q. DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?

A. Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Spire Missouri Inc.'s d/b/a Spire Request for Authority to Implement a General Rate Increase for Natural Gas Service Provided in the Company's Missouri Service Areas	))))	**Case No. GR-2021-0108**

AFFIDAVIT

STATE OF MISSOURI)
) SS.
CITY OF ST. LOUIS)

James Andrew Rieske, of lawful age, being first duly sworn, deposes and states:

1. My name is James Andrew Rieske. I am Director, Measurement at Spire Missouri Inc. My business address is 700 Market St., St. Louis, Missouri, 63101.

2. Attached hereto and made a part hereof for all purposes is my rebuttal testimony on behalf of Spire Missouri Inc.

3. Under penalty of perjury, I declare that my answers to the questions contained in the foregoing surrebuttal testimony are true and correct to the best of my knowledge and belief.

/s/ James A. Rieske
James Andrew Rieske

7/13/2021
Date

New metering technology coming to the communities we serve

Ultrasonic meter customer benefits

Spire’s commitment to service and safety

For more than 160 years, we’ve been finding new and better ways to serve our customers. And the advanced metering infrastructure (AMI) project provides endless opportunities for us to continue that legacy well into the future.

Diaphragm vs Ultrasonic Meter

Benefits of Ultrasonic Meters

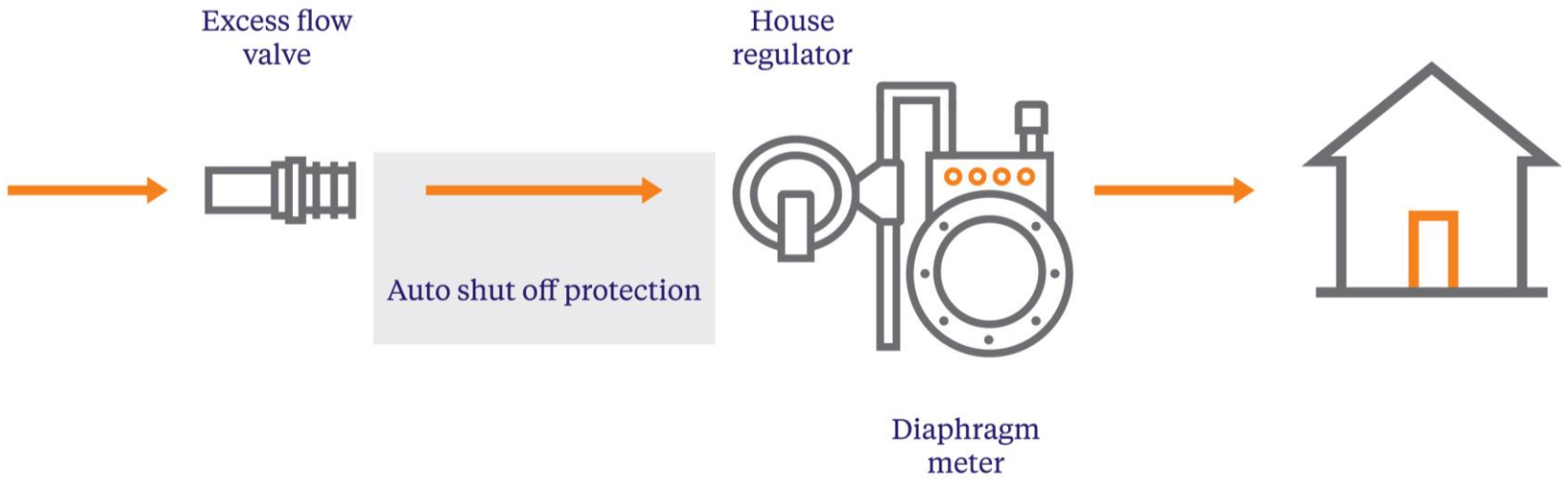
Existing diaphragm meter technology is obsolete and is difficult to sustain supply. Diaphragm meter manufacturers have notified Spire that they will stop being manufactured in the near future.

Customers will immediately realize all of these benefits when the ultrasonic meter is installed.

- Safety
- Accuracy
- Reliability
- Availability
- Size

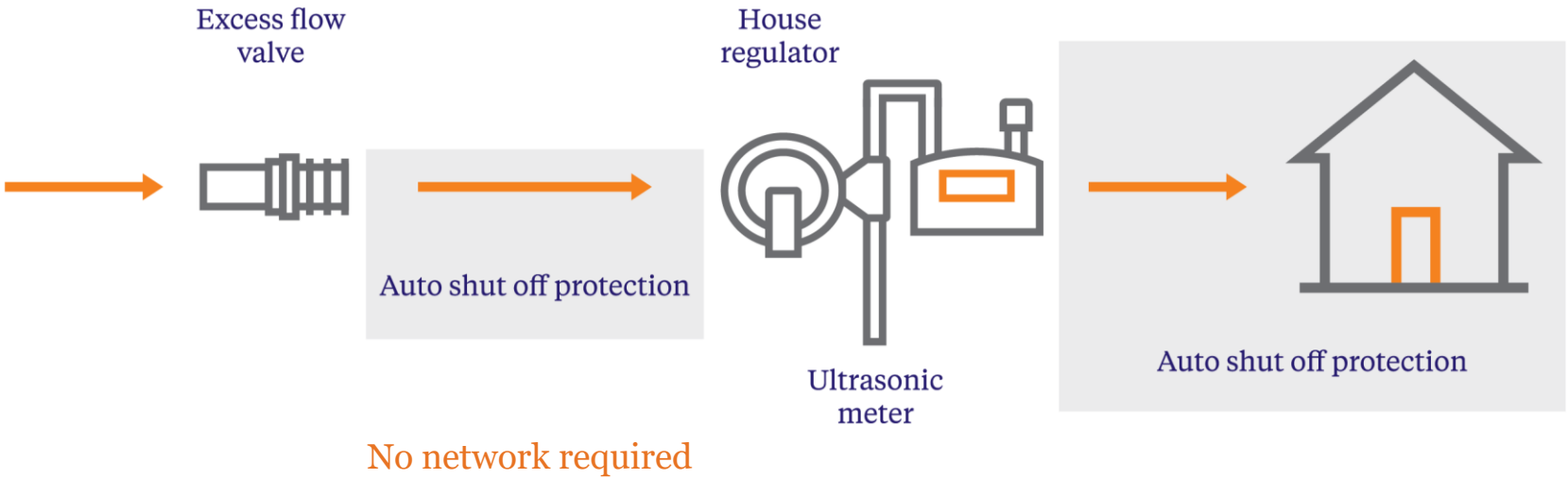
Current customer safety

Currently, the auto shut off protection provided by an excess flow valve and a diaphragm meter is limited to the piping between the excess flow valve and the house regulator.



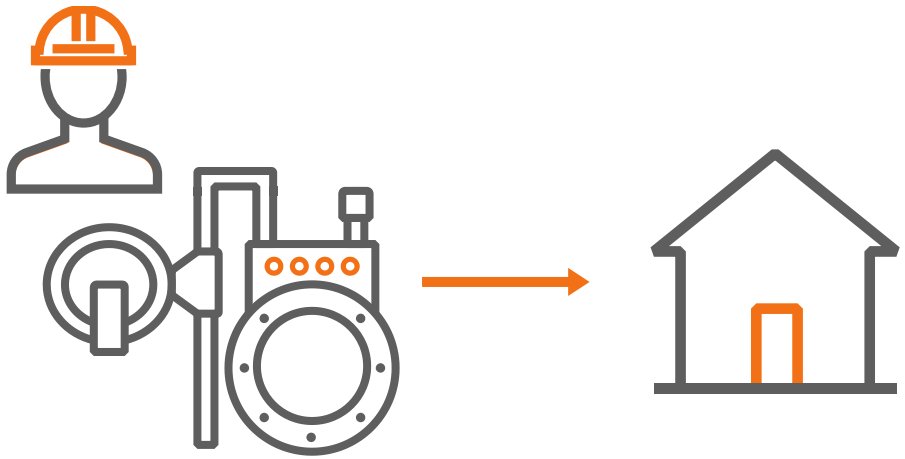
Enhanced customer safety

Beyond the initial auto shut off protection—limited to the piping between the excess flow valve and the house regulator—an ultrasonic meter uses advanced technology to activate additional auto shut off capabilities including all piping in the customer's home.



Current employee and customer safety

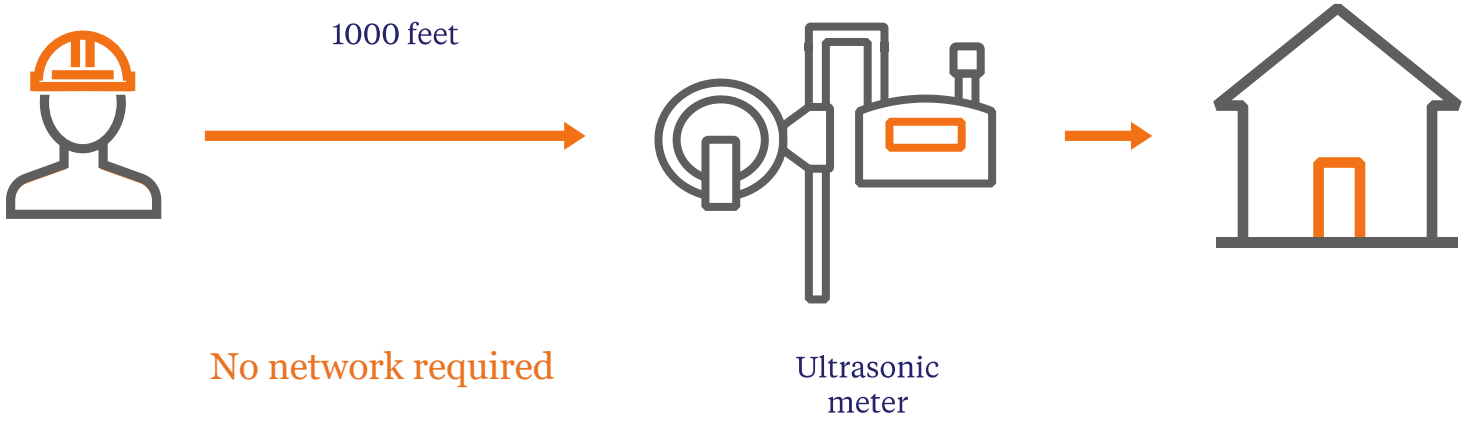
Currently, if a customer with a diaphragm meter system experiences a slower gas leak—a leak lacking the pressure to activate the auto shut off capability—a field service technician must be at the meter to manually shut off the gas.



Diaphragm meter

Enhanced employee and customer safety

Ultrasonic meters provide enhanced safety for employees and customers by allowing a field service technician to shut off a customer's gas from a distance when slower gas leaks don't activate the auto shut off capabilities.



Hazard Prevention Without a Network

- Internal shut-off valve
  - Shuts off on detection of 500 cubic foot/hour flow rate for approximately 10 seconds, providing automatic protection against explosion from open customer fuel runs
- Temperature sensor
  - Activates on detection of external temperatures of 176° F or greater
  - Decreases severity and duration of fires
- Remote shut-off from 1000 feet away
  - Reduces risk of harm to first responders
- Pressure sensor
  - On low pressure systems, prevents overpressurized gas from reaching customers on low pressure systems (can prevent Merrimack Valley incidents)

Accurate & Reliable

- Ultrasonic meter reads are 20 times more accurate than diaphragm meters (+/- 0.1% vs. +/- 2%)
- Reliability
  - Moving parts in diaphragm meter typically cause degradation of accuracy due to wear/moisture
  - Ultrasonic meters eliminate device wear, mechanical failure and billing errors

Available & Cost-Effective Protection

- EFV installation: $1,500 cost to customer to install
  - Little incentive to switch
- New ultrasonic installation: only $25 more than comparable diaphragm
- Availability
  - Metal components in diaphragm meters are increasing in cost and decreasing in availability
  - Our primary supplier is discontinuing manufacture of residential or small commercial diaphragm meters in 2021
  - The switch to ultrasonic metering is nearing completion in Europe, and is beginning throughout the U.S.

Ultrasonic Meter Transition

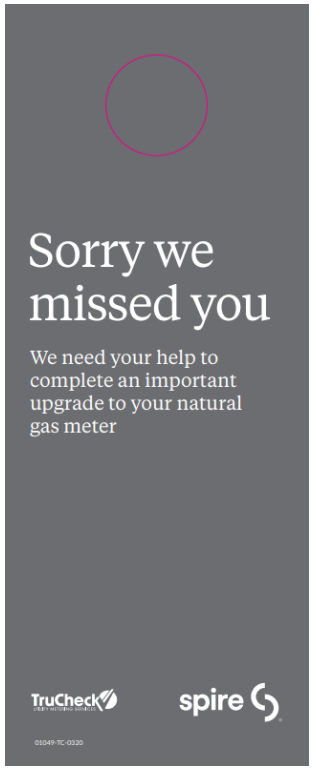
Ultrasonic meters are installed when:

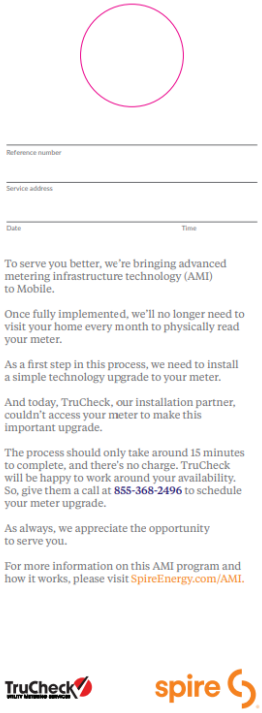
- A meter is scheduled for replacement
- The meter is sample eligible and it can be replaced when the customer service is already interrupted
- Meter is replaced as part of main or service replacement project
- New installations
- Over 60% of Missouri meters are more than 10 years old, and must be replaced per Commission rules (20 CSR 4240-10.030(19)).

Diaphragm vs. Smart Meter

Planned customer communications

Door tags





Postcards

Network Benefits

- Currently Studying Network Technology Options
- Access to Detailed Daily and Hourly Usage Information
  - Energy usage and efficiency analysis
  - Take control of usage and savings
- Company Benefits
  - Ability to deploy AI and analyze system wide usage patterns
  - Accurately model load profiles, peak day, and peak hour requirements
- Additional Safety Benefits:
  - Quicker reaction to potentially hazardous situations
  - Ability to shut meters down remotely from our office
  - Potential for automation

Landis+Gyr
30000 Mill Creek Avenue
Suite 100
Alpharetta, GA 30022
Phone: 678-258-1500

manage energy better

Patrick Robinson
Vice President - Measurement
Spire Energy
700 Market St
Saint Louis, MO 63101

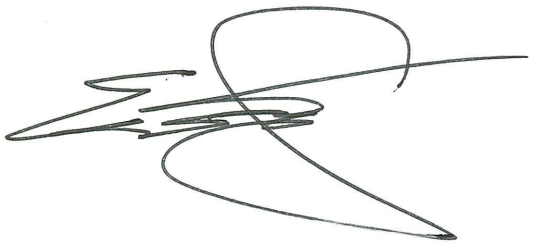
RE: Automated Meter Reading Services Agreement Termination

Spire Missouri Inc., f/k/a Laclede Gas Company, («Company») and Landis+Gyr entered into that certain Automated Meter Reading Services Agreement, dated March 11, 2005, as amended from time to time («Agreement»).

Pursuant to Section 6 of that certain Amendment to Automated Meter Reading Services Agreement dated July 1, 2017 ("Amendment") this letter operates as Landis+Gyr's written notice to Company that the Agreement will not renew at the end of the Term ending on March 31, 2025. As such, the Agreement will have an effective termination date of April 1, 2025.

If you have any questions, please reach out to Andrew Frech, Key Accounts Director, at (312) 415-2892 or andrew.frech@landisygyr.com

Sincerely,



Eric Seiter
Vice President - Customer Delivery
Landis+Gyr