Exhibit No.:	
Issue(s):	Ultrasonic Meters
Witness/Type of Exhibit:	Robinett/Direct
Sponsoring Party:	Public Counsel
Case No.:	GR-2022-0179

DIRECT TESTIMONY

OF

JOHN A. ROBINETT

Submitted on Behalf of the Office of the Public Counsel

SPIRE MISSOURI, INC.

CASE NO. GR-2022-0179

August 31, 2022

DIRECT TESTIMONY

OF

JOHN A. ROBINETT

SPIRE MISSOURI
CASE NO. GR-2022-0179

Q. What is your name and what is your business address?

A. John A. Robinett, PO Box 2230, Jefferson City, Missouri 65102.

Q. By whom are you employed and in what capacity?

A. I am employed by the Missouri Office of the Public Counsel ("OPC") as a Utility Engineering Specialist.

Q. Have you previously provided testimony before the Missouri Public Service Commission?

A. Yes. Both as a former member of Commission Staff and on behalf of the OPC.

Q. What is your work and educational background?

A. A copy of my work and educational experience is attached to this testimony as Schedule JAR-D-1.

Q. What is the purpose of your direct testimony?

A. In this direct testimony, I discuss the Spire Missouri ("Spire") actions regarding ultrasonic meter deployment in relationship to the Commission's *Report and Order* in Spire's last general rate increase, Case No. GR-2021-0108. In particular, I will discuss part of OPC's concern about the ultrasonic meter infrastructure and OPC's position will then be further discussed in the direct testimony of Dr. Geoff Marke.

Q. For this case, Case No. GR-2022-0179, did you review reported plant-in service and accumulated depreciation reserve balances since Case No. GR-2021-0108 to determine if Spire followed the Commission's *Report and Order*?

A. Yes. To get an understanding of Spire's reported plant in-service and accumulated depreciation reserves, I reviewed Spire's workpapers and Staff's true-up accounting schedules from the last rate case GR-2021-0108. I also reviewed Spire's workpapers provided in this current case and asked for plant-in-service and accumulated depreciation reserves through March 31, 2022 in data request 8519. I have put together the following tables that show first the plant-in-service and how it has changed over the four points in time (September 30, 2020, May 31, 2021, December 31, 2021, and March 31, 2022).

	MO WEST				
		9/30/2020	5/31/2021	12/31/2021	3/31/2022
		Plant-in-service	**Plant-in-service**	**Plant-in-service**	**Plant-in-service**
381	Meters	$44,787,910	$44,711,016	$45,611,620	$45,096,115
381.1	Smart Meters	$2,413,909	$7,262,175	$18,996,191	$22,085,108
382	Meters installation -Dist Plant	$101,396,796	$103,879,164	$106,056,943	$107,000,782
382.1	Smart Meters Installation	$288,305	$2,832,808	$6,911,136	$8,114,232
397.1	Comm Equip - MGE ERT	$43,638,822	$41,090,402	$40,339,103	$40,210,470
	MO EAST				
		9/30/2020	5/31/2021	12/31/2021	3/31/2022
		Plant-in-service	**Plant-in-service**	**Plant-in-service**	**Plant-in-service**
381	Meters	$142,036,934	$146,328,847	$148,005,973	$149,099,689
381.1	Smart Meters	$0	$0	$12,082,269	$18,217,769
382	Meters installation -Dist Plant	$0	$0	$0	$0
382.1	Smart Meters Installation	$0	$0	$3,029,308	$4,106,367
397.2	Comm Equip- AMRs	16,624,220	16,624,220	16,624,200	16,770,415

Similarly I put together a table to track the reserve changes over these same four points in time.

	MO WEST				
		9/30/2020	5/31/2021	12/31/2021	3/31/2022
		Accumulated Depreciation Reserves	**Accumulated Depreciation Reserves**	**Accumulated Depreciation Reserves**	**Accumulated Depreciation Reserves**
381	Meters	$7,326,310	$6,591,553	$6,316,271	$4,892,520
381.1	Smart Meters	$0	$145,234	$3,100,685	$3,398,584
382	Meters installation -Dist Plant	$46,548,080	$48,455,225	$50,109,071	$50,676,426
382.1	Smart Meters Installation	$0	$30,599	$1,069,932	$1,171,100
397.1	Comm Equip - MGE ERT	$9,664,186	$8,496,986	$8,931,013	$9,362,983
	MO EAST				
		9/30/2020	5/31/2021	12/31/2021	3/31/2022
		Accumulated Depreciation Reserves	**Accumulated Depreciation Reserves**	**Accumulated Depreciation Reserves**	**Accumulated Depreciation Reserves**
381	Meters	$35,723,734	$36,982,460	$35,014,578	$36,090,559
381.1	Smart Meters	$0	$0	$146,023	$323,290
382	Meters installation -Dist Plant	$0	$0	$0	$0
382.1	Smart Meters Installation	$0	$0	$37,541	$37,541
397.2	Comm Equip- AMRs	$7,309,379	$8,787,087	$10,080,082	$10,635,847

Q. What was the price of the new ultrasonic meters being installed that was included in Case No. GR-2021-0108?

A. Spire's response to Staff data request 0431 from Case No. GR-2021-0108 indicates a meter unit cost for a new ultrasonic meter was $178. Taxes and overheads raised the cost to approximately $200.

Q. What are the current plant balances of ultrasonic meters for Spire Missouri West and Spire Missouri East?

A. In response to OPC data request number 8519 for plant-in-service and accumulated depreciation reserves as of March 31, 2022, Spire responded that plant-in service for Spire Missouri West Meter-ultrasonic was $22,085,108 with an accumulated depreciation reserve of $3,398,584. Plant-in-service for Spire Missouri East was $18,217,769 with an accumulated depreciation reserve of $323,290.

Q. How does the balances at March 31, 2022 compare to Spire's balances at the true-up of Case No. GR-2021-0108?

A. Review of Staff's true-up accounting schedules in Case No. GR-2021-0108 shows Spire Missouri West and Spire Missouri East had plant-in-service values for ultrasonic meters of $7,262,175 and $0.00 as of May 31, 2021, respectively. Balances of $22,085,108 for Spire Missouri West and $18,217,769 for Spire Missouri East from OPC data request number 8519 are through March 31, 2022; these large increases in plant-in-service for ultrasonic meters occurred just a mere 10 months since Staff's True-up schedules from Case No. GR-2021-0108.

Q. How many meters does the plant-in-service balance indicate are installed or in inventory for Spire Missouri East and Spire Missouri West?

A. Based on the $200 per meter value from Staff data request number 0431 in Case No. GR-2021-0108 using $22,085,108 for Spire Missouri West equates to 110,426 meters in-service and inventory. Spire Missouri East's balance of $18,217,769 equates to 91,089 in-service and inventory.

Q. Were meters an issue in the last rate case?

A. Very much so. OPC witness Dr. Geoff Marke and I discussed in our testimonies our concerns related to the deployment of ultrasonic meters and with the disconnect between recommended depreciable lives from the actual lives being experienced by Spire Missouri. Ultimately these issues were taken before the Commission for a decision in that case.

Q. Did the Commission highlight any finding or expectations for Spire's next rate case?

A. Yes. At pages 56 and 57 of the Commission's *Report and Order* in Case No. GR-2021-0108, the Commission, in its decision on issue 24 Depreciation, provides the following observation.

> Lastly, the Commission is presented in this case with evidence that the real-world life expectancy of Spire Missouri's diaphragm meters is falling short of the historical life expectancy of diaphragm meters assigned for depreciation purposes. Stranded assets result when a meter with expected life is replaced earlier than the expiration of its expected service life. Although it came to light during testimony regarding ultrasonic meters, this situation of stranded assets was not created by the introduction of ultrasonic meters. Because the stranded assets issue was discovered tangential to another issue in the case, it did not receive sufficient attention from the parties for the Commission to make an informed finding. Therefore, the Commission will allow the evidence on this issue to continue to develop and will look forward to Spire Missouri's proposed solution in its next rate case.

The Commission clearly asked for, and expects, a solution to be presented in this current case.

Q. Why are you addressing ultrasonic meters again in this case?

A. First and foremost I am addressing ultrasonic meters again in this case to avoid being accused of hindsight analysis or "Monday morning quarterbacking" in future rate cases. Identifying this issue in the last case; with the very likely position of a reserve shortfall has allowed the issue to be tracked as it continues.

Q. What issues did you raise in the last case related to meters?

A. My direct, rebuttal, surrebuttal, and live testimony primarily focused on the plant-in-service and accumulated depreciation reserve of the mechanical meters as well as the discrepancies between the recommended depreciable lives for meters and the lives that Spire said it had been experiencing for many years. Additionally I identified the likelihood of creating a stranded asset based on Spire switching metering technology.

My direct testimony in Case No. GR-2021-0108 focused on the current plant-in-service balances and accumulated depreciation reserves for existing meter infrastructure as of September 30, 2020. Additionally, I addressed the position taken in my testimony and the Commission's order from a depreciation authority order case, Case No. GO-2020-0416, that set the expected lives for the new ultrasonic meters to 20 years. The final discussion from my direct testimony in Case No. GR-2021-0108 was my concern related to the similar functionality of the new ultrasonic meters to the existing mechanical meters until the secondary investment of the new network could unlock the remote disconnect function of the new meters. Below is the section of direct testimony from Case No. GR-2021-0108 where I discussed my concerns with Spire's ultrasonic meters (which I here refer to as advanced meter infrastructure or "AMI" meter) investments.

Q. What concerns do you have about the smart meter investment for Spire Missouri?

A. As was laid out in the OPC's response to Staff's recommendation filed in the Depreciation Authority Order Case GO-2020-0416, I have serious concerns related to the capabilities of the replacement smart meters when compared to the current used meters. Attached as Schedule JAR-D-2 is OPC's response. Included in that response are attached data requests with answers provided by Spire in Case No. GO-2020-0416 that confirm the proposed smart meter system will consist of two components: the meters and a network. As is identified by Spire in its response to OPC data request 8511, issued in Case No. GO-2020-0416, Spire's current system can read the new AMI meters but does not appear to be able to send signals to the AMI meters to trigger, for example, a remote shutoff:

> DR8511 - Does Spire currently have software capable of sending and receiving signals from AMI meters or will that be an additional investment.
>
> **Response**: The AMI system comes with a vendor provided network management software system. This software replaces and modernizes the meter reading and billing systems we utilize today. There will be investment to configure this software for Spire and integrate it with our existing systems. This software will be utilized to manage AMI technology for all Spire customers. The AMI meter

> equipment can be read by the Company's current system until the AMI network and network software are deployed.
>
> Therefore based on the information provided by Spire, it will not be able to fully utilize the AMI technology until the investment in the AMI network and AMI software integration has occurred.[1]

Q. What meter topics were the focus of your rebuttal testimony in Case No. GR-2021-0108?

A. In my rebuttal testimony my first focus was on the recommended changes in depreciation rates for the new ultrasonic meters that were being proposed the Spire's depreciation consultant and by Staff's depreciation engineers. In that testimony I had pointed out that neither Staff nor Spire's consultant had provided evidence of the need to change rates that were just set as part of a depreciation authority case. Furthermore, in my rebuttal testimony in Case No. GR-2021-0108 I highlighted the fact that neither Spire Missouri West nor Spire Missouri East had experienced any retirements of the new ultrasonic meters.

The final point of discussion from my rebuttal was an update and discussion of existing meter infrastructure; communication equipment's plant-in-service; and accumulated depreciation reserves along with a discussion of the large potential for a reserve deficiency related to the existing mechanical meters due to Spire beginning the conversion to ultrasonic meters on both the East and West side of the state. The final point I discussed was that no party had addressed how to deal with the potential unrecovered plant that could, and would likely, exist with the switching from mechanical meters to ultrasonic meters. This portion of rebuttal testimony in Case No. GR-2021-0108 follows.

[1]Case No. GR-2021-0108 OPC Direct Testimony of John A. Robinett page 8 line16 through page 9 line 16.

Q. Do you have concerns related to the current meter investment based on parties' current positions?

A. Yes. If the Commission orders Spire's meter recommendation to begin the conversion to ultrasonic smart meters, then it will generate a very large problem that even Spire has not addressed in its testimony to this point. No parties' depreciation recommendations, including mine on behalf of OPC, take into account that the current diaphragm meter technology may be no longer being placed into service and may begin being retired at an accelerated pace. Currently all the parties' depreciation recommendations place a depreciation rate consistent with currently ordered live of roughly 32-35 years. The Commission may need to get creative in its order to address a potentially large stranded asset that could arise directly related to the Commission's decision on Spire's future meter infrastructure. The purpose of this testimony is just to make the Commission aware that a large issue may exist, which has not been properly addressed or reflected in any parties' testimony.

Q. Does OPC have a recommendation on how to address this issue?

A. There are several options/tools in the Commission's toolbox that could be used to address this potential concern. OPC is still internally discussing what the preferred method may be to recommend and hopes to present that recommendation in surrebuttal testimony.[2]

Q. What meter topics were included in your surrebuttal testimony in Case No. GR-2021-0108?

A. Specifically my surrebuttal testimony discussed the large disparity in the actual life of the meters that had been occurring versus the continued recommendation of Spire's depreciation consultant of 33-35 years. I also addressed how Spire had been aware of the situation for some time. That testimony is below:

Q. Has Spire answered any other Staff data requests that lead you to believe a reserve deficiency may already exist and will only worsen with the decision to fully covert to ultrasonic meters?

A. Yes. Spire's response to Staff data request 0443 specifically questions 14 and 15

14. Has Spire Missouri retired the existing diaphragm meters that were removed for testing within the meter sampling process which meet the

[2] Case No. GR-2021-0108 Rebuttal Testimony of John A. Robinett page 12 line1 through line 18.

accuracy standard? Explain and cite any adjustments Spire Missouri made within this case to account for the retirements.

Spire has been retiring most existing diaphragm meters that were removed for testing and met the accuracy standard for years. [emphasis added] This has been the case in all regions and is consistent across the industry. **For some time, there has been a disconnect between the asset depreciation and the practical life of a meter**. [emphasis added] Spire agrees that this needs to be analyzed and that further conversations and discussions with Staff and other interested parties are beneficial. Meters removed for accuracy testing have been retired when still testing accurately for the following reasons:

• Fundamentally the Company has found that refurbishing a meter is not cost effective when all of the cost factors are considered from the time a meter is removed to the time it is delivered to be reinstalled.

• The meter condition was such that refurbishment simply was not possible or practical.

• The meter was of a type and size that is no longer used by Spire. For example, meters sized below a capacity of 250 CFH are no longer used in any Spire region.

15. Does Spire Missouri intend to retire the existing diaphragm meters that were removed for testing within the meter sampling process which meet the accuracy standard? If not, explain why it is not appropriate to do so.

Yes the meter is retired. [3]

Finally in my surrebuttal from Case No. GR-2021-0108, I discussed the various options the Commission had available to potentially work towards remedying the potential unrecovered balance for the mechanical meters. That testimony is below:

Q. Do you have any suggestions for the Commission on how to handle the remaining plant balance for the diaphragm meters and the communication equipment ERT and AMI?
A. Yes, the Commission has several options with how to handle the potentially large reserve shortfall for current meters. First, the Commission could essentially punt the issue to a future rate case, as no parties have really discussed how the stranded asset should be handled and all parties will have

[3] Case No. GR-2021-0108 OPC Surrebuttal Testimony of John A. Robinett page 14 lines 1 through line 32

> a better understanding of the true magnitude of the shortfall in the next rate case. In this scenario, the Commission would just order a depreciation rate consistent with the current recommendations of all the parties. A second option the Commission could employ is a depreciation rate adjustment to account for the extremely truncated life expectancy of the remaining in-service and inventoried diaphragm meters and electronic reading devices. This adjustment will increase the depreciation expense to be collected over the remaining life period of the existing meter; however, this will greatly increase the depreciation expense from current levels and drive up the revenue requirement in this case. The main issue is that there is currently no set plan for meter replacements with a full conversion date to set new depreciation rates to in order to match the recovery to the period the meters are expected to remain in-service. The next option for the Commission to consider would be to create a regulatory asset for the remaining uncollected balance. In this scenario, the Commission would have multiple decisions it needs to make, the first being to determine whether the regulatory asset should still be in rate base and getting a return on and of the investment. Second, the Commission would need to determine over what period of time the recovery is to take place, which would create the amortization period and define the yearly amortization expense associated with the diaphragm meter regulatory asset. An additional option for the Commission to consider could be a disallowance of a portion of the remaining investment needed to be recovered due to the Company's operation that created a reserve shortfall without making depreciation recommendations to make up for the realized disconnect in depreciation lives to actual experience that Spire has known about "for some time". Finally, the Commission could do a hybrid method of increasing depreciation rates slightly to recover a higher percentage before meters are completely retired and still create a regulatory asset and set up amortization of the allowed asset amount to be recovered over a set period of time.[4]

Q. Do you continue to have the above concerns raised in your direct rebuttal, and surrebuttal testimonies in Case No. GR-2021-0108?

A. Yes. I have repeated these portions of my previous testimony to incorporate my concerns in the current case as the issues discussed are still relevant to this case and are still developing as Spire continues to swap mechanical meters for ultrasonic meters.

[4] Case No. GR-2021-0108 OPC Surrebuttal Testimony of John A. Robinett page 16 line 16 through page 18 line 3

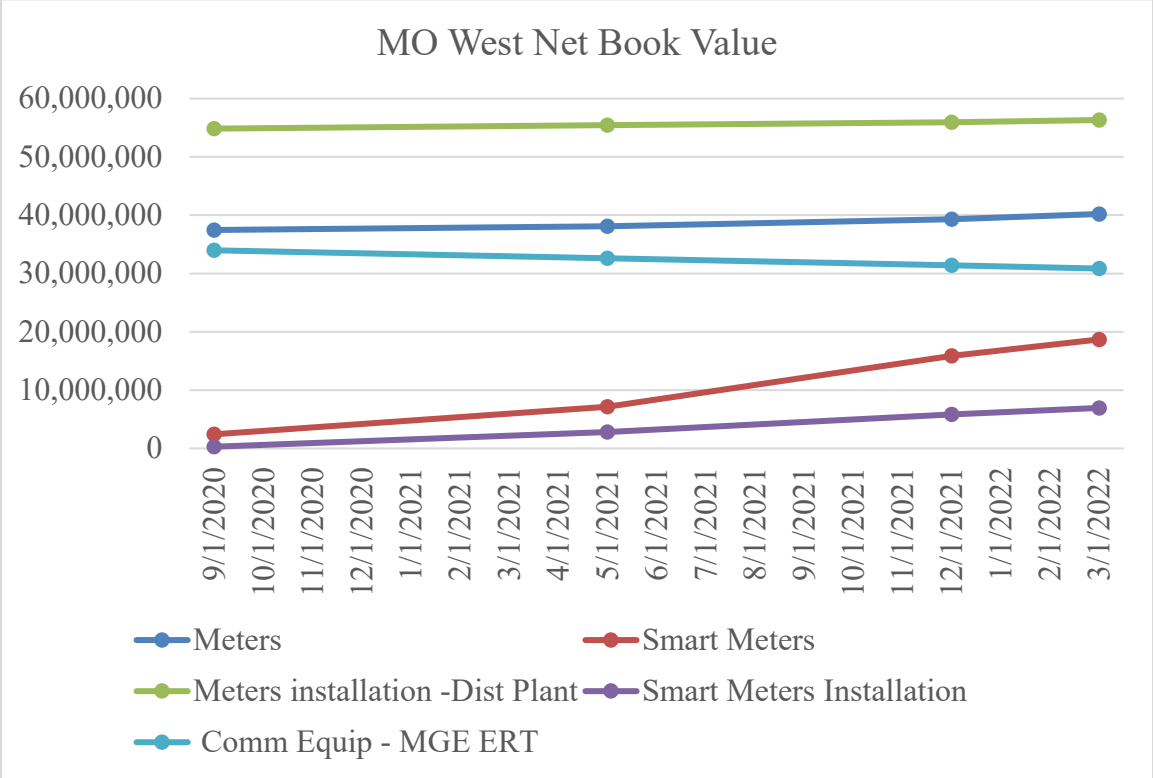
Q. What are the current plant-in-service and accumulated depreciation reserves for meters, meter installations, and meter related communication equipment?

A. The following table was created from Spire's response to OPC data request number 8519.

Numbers sourced from Spire Response to OPC DR 8519				
	MO WEST			
		3/31/2022	3/31/2022	
		PIS MO Juris	ACC RES	Net Plant
381	Meters	$45,096,115	$4,892,520	$40,203,595
381.1	Smart Meters	$22,085,108	$3,398,584	$18,686,524
382	Meters installation -Dist Pla	$107,000,782	$50,676,426	$56,324,356
382.1	Smart Meters Installation	$8,114,232	$1,171,100	$6,943,132
397.1	Comm Equip - MGE ERT	$40,210,470	$9,362,983	$30,847,487
		$222,506,707	$69,501,613	$153,005,094
	MO EAST			
		3/31/2022	3/31/2022	
		PIS MO Juris	ACC RES	Net Plant
381	Meters	$149,099,689	$36,090,559	$113,009,130
381.1	Smart Meters	$18,217,769	$323,290	$17,894,479
382	Meters installation -Dist Pla	$0	$0	$0
382.1	Smart Meters Installation	$4,106,367	$37,541	$4,068,826
397.1	Comm Equip	$10,555,565	$1,785,189	$8,770,376
397.1	Comm Equip- AMR/ERT	$16,770,415	$10,635,847	$6,134,568
		$198,749,805	$48,872,426	$149,877,379

Q. How has this issue developed since Case No. GR-2021-0108?

A. Based on the current plant-in-service and accumulated depreciation reserves I prepared the following graphs to show how the net plant has changed since Spire's direct work papers provided in Case GR-2021-0108.



What is important to understand from this graph of the net book value or undepreciated balances related to the meters, meter installations, and meter communication equipment is the following:

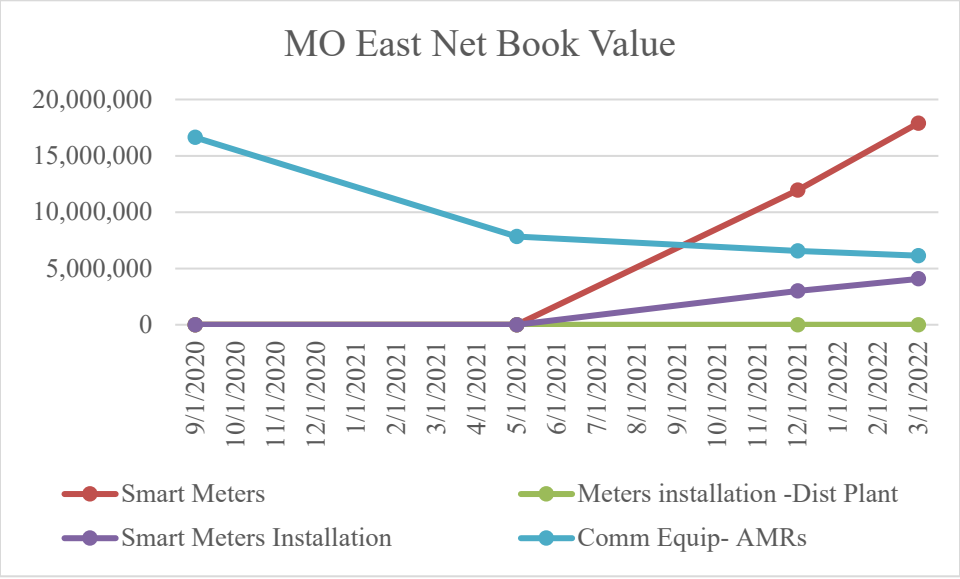
- Smart Meters and Smart Meter installations are increasing at a rapid pace because Spire is systematically replacing current mechanical meters with ultrasonic meters.
- Existing meter communication equipment net book value is decreasing meaning depreciation annual accrual is still outpacing the retirements of in-service infrastructure as the net plant is declining as retirements occur.
- Two outliers are starting to develop as mechanical meters and meter installation accounts are still increasing in net plant.

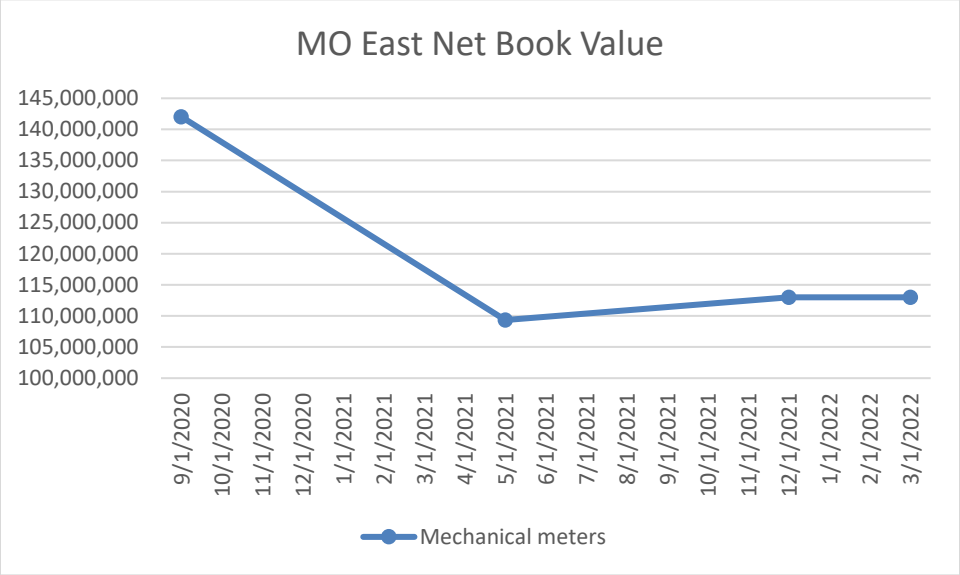
Q. Why do you consider the mechanical meter and meter installations in Spire Missouri West as outliers?

A. The accounts plant-in-service and accumulated depreciation reserves are not acting as I would expect them to as Spire has started replacing the mechanical meters infrastructure. I would expect the net book values to begin to decrease since the account should be switching to a dying account as the Company switches technology. I would not expect that the plant-in-service in these accounts to generally continue to increase as the graph shows is occurring. At the same time accumulated depreciation reserves have decreased which means retirements of original cost are outpacing accumulation of depreciation reserve. That means that net plant has increased and will likely continue until the point that reserves zero out and go negative.

Q. Do you see similar trends in Spire Missouri East?

A. Yes. Even though graphs of the data look vastly different, the same trends exist for the most part. I split the information into two graphs for Spire Missouri East due to scaling concerns with mechanical meters.





While an initial decline is seen in net book value for mechanical meters, the last two data points are again trending upward. The upward trend means plant-in-service less the accumulated depreciation reserve is increasing; two possible explanations for this are that plant-in-service is increasing faster than depreciation accrual or retirement rates are out pacing the annual depreciation accrual driving down reserve or some combination of both.

As expected with the replacement of mechanical meters with ultrasonic meters, net plant for ultrasonic meters and their installations is increasing. Additionally shown is the steady decline of meter communication equipment as depreciation accrual appears to be sufficient at this very moment to handle the retirements that have occurred in the last 18 months.

Q. Is Spire replacing the current in-service meters on an as needed basis as was discussed in their testimony in Case No. GR-2021-0108?

A. I am not certain. What is obvious is the large ramp up in plant-in-service that has occurred since the true-up of Case No. GR-2021-0108 as was described above in the estimated in-service/inventory numbers of meters.

Q. How many meters have been replaced by ultrasonic meters in Spire Missouri East since the conclusion of Case No. GR-2021-0108?

A. I don't know. More discovery is needed to ascertain this information but I have provided an estimate of in-service and inventoried meters based on the original cost as of March 31, 2022 as provided by Spire in response to OPC data request number 8519.

Q. Do you have a recommendation to the Commission regarding the treatment of ultrasonic meters or mechanical meters?

A. No. My testimony is to highlight and provide the Commission with current balances for plant-in-service and accumulated depreciation reserves of the mechanical meters and new ultrasonic meters and meter communications equipment. Please see Dr. Geoff Marke's testimony for his recommendation on treatment of the current net book value.

Q. Does this conclude your direct testimony?

A. Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Spire Missouri, Inc. d/b/a Spire's Request for Authority to Implement a General Rate Increase for Natural Gas Service Provided in the Company's Missouri Service Areas	))))	Case No. GR-2022-0179

AFFIDAVIT OF JOHN A. ROBINETT

STATE OF MISSOURI)
) **ss**
COUNTY OF COLE)

John A. Robinett, of lawful age and being first duly sworn, deposes and states:

1. My name is John A. Robinett. I am a Utility Engineering Specialist for the Office of the Public Counsel.

2. Attached hereto and made a part hereof for all purposes is my direct testimony.

3. I hereby swear and affirm that my statements contained in the attached testimony are true and correct to the best of my knowledge and belief.

John A. Robinett
Utility Engineering Specialist

Subscribed and sworn to me this 31st day of August 2022.

NOTARY PUBLIC NOTARY SEAL STATE OF MISSOURI

TIFFANY HILDEBRAND
My Commission Expires
August 8, 2023
Cole County
Commission #15637121

Tiffany Hildebrand
Notary Public

My Commission expires August 8, 2023.