

**BEFORE THE CORPORATION COMMISSION OF THE STATE OF OKLAHOMA**

IN THE MATTER OF THE APPLICATION OF )  
OKLAHOMA GAS AND ELECTRIC COMPANY )  
FOR AN ORDER OF THE COMMISSION ) Cause No. PUD 202000021  
APPROVING A RECOVERY MECHANISM FOR )  
EXPENDITURES RELATED TO THE )  
OKLAHOMA GRID ENHANCEMENT PLAN )



Rebuttal Testimony

of

Zachary Gladhill

on behalf of

Oklahoma Gas and Electric Company

September 14, 2020

Zachary Gladhill

Zachary Gladhill  
*Rebuttal Testimony*

1    **Q.     Would you please state your name and business address?**

2    A.     My name is Zachary Gladhill. My business address is 321 North Harvey, Oklahoma City,  
3           Oklahoma, 73102.

4  
5    **Q.     Are you the same Zachary Gladhill that previously filed direct testimony in this**  
6           **proceeding?**

7    A.     Yes.

8  
9    **Q.     What is the purpose of your Rebuttal Testimony?**

10   A.     I will provide rebuttal to the Responsive Testimony filed by certain intervening parties on  
11           August 25, 2020 and support the Company's Oklahoma Grid Enhancement Plan ("OGE  
12           Plan" or "Plan"). Specifically, I address those parties who claim the Company's Plan is  
13           unnneeded based on lack of customer complaints and average reliability metrics. In doing  
14           so, I explain how they have misinterpreted system-wide reliability indices in a way that  
15           does not accurately reflect our customers' full experiences, particularly those on the circuits  
16           included in the Plan. I also discuss how it is irresponsible to attempt to run an electric grid  
17           based on customer complaints or lack thereof. Finally, I explain why now is the time to  
18           act, as it takes years to implement a comprehensive plan like ours and that there is no such  
19           thing as a "do nothing, wait and see" approach.

20  
21   **Q.     To begin, please clarify what you mean by "grid enhancement."**

22   A.     In the context of this proceeding, grid enhancement covers two principle concepts: (1)  
23           transformation from traditional electric grid and its inherent limitations to a "future grid"  
24           comprised of a more resilient foundation with new technologies for customer support and  
25           reliable and efficient operations; and (2) in the process, the reliability, efficiency and  
26           flexibility of the grid will be significantly improved.

1 Q. **Please respond to the responsive testimony questioning whether the grid should be**  
2 **enhanced and modernized in the first place.**

3 A. Much of the responsive testimony questions the “need” for some or all of the enhancement  
4 as a fundamental threshold issue.<sup>1</sup> In this rebuttal, I will explain why deterioration in  
5 reliability metrics – both actual and anticipated – presage a looming deficiency that should  
6 be addressed now, not later. New technologies coupled with infrastructure hardening will  
7 enhance the performance of the grid by improving reliability, network communications,  
8 system monitoring, grid security, and automated response to outages, as well as response  
9 to expected customer demand for new power applications and services. Without certain  
10 asset replacements and new technology in place, OG&E will be handicapped in minimizing  
11 outages, in reacting quickly to control and monitor voltages and changes in customer  
12 demand for power, and in managing expected customer distributed energy resources  
13 (DER).  
14

15 Q. **Has the Company begun to invest in these types of programs?**

16 A. Yes. However, the efforts prior to the OGE Plan were largely through ordinary  
17 replacement and reactive repair programs. Such efforts were limited by available resources  
18 and in need of a more coordinated and comprehensive strategy. Our experience  
19 demonstrates these conventional efforts will be insufficient to achieve the enhanced grid  
20 we believe customers and regulators will expect in the near future. By their nature,  
21 ordinary replacement and reactive repair programs focus only on immediate operational  
22 needs, not on long-term grid efficiency, safety and resiliency. Instead, a proactive and  
23 consolidated approach is necessary. The OGE Plan presented in this proceeding draws  
24 from experience of past projects that proved individually successful,<sup>2</sup> and applies that  
25 experience to what is now a comprehensive approach in which individual projects and  
26 programs are designed and coordinated together to achieve an overarching enhancement  
27 of the grid and technological advancement. See also the Rebuttal testimony of Company  
28 Witness Dennis.

---

<sup>1</sup> Responsive Testimonies of Alexander p. 8, Ins. 8-15 - p. 20 Ins. 13-19; Alvarez p. 4, Ins. 2-4 - p. 16 Ins. 20-23; Norwood p. 9, ln. 16 - p. 14 ln. 2.

<sup>2</sup> See my Direct Testimony p. 5, ln. 22 – p. 6 ln. 31, where I describe the Company’s programs for advanced metering infrastructure (“AMI”), system hardening and technology growth.

**Timing of the OGE Plan**

1  
2  
3 **Q. Mr. Alvarez and others assert in responsive testimony that the OGE Plan is not**  
4 **needed at this time. Do you believe that this the right time to begin such an extensive**  
5 **effort?**

6 A. Yes. As our experience in Arkansas demonstrates, the OGE Plan can be successfully  
7 implemented only with several years of planning and effort. By beginning this  
8 comprehensive plan now, the Company is seeking to avoid a technology and reliability  
9 crisis in future years. Reacting to demands and emergencies of the moment is less efficient  
10 than comprehensive planning and can perhaps push the organization towards satisfying the  
11 short-term request rather than planning for long-term needs.

12  
13 **Q. What is your response to the notion that OG&E should defer the cost of grid**  
14 **enhancement by letting the equipment fail before making repair and replacement?**

15 A. This is apparently one of the alternatives that Mr. Norwood is proposing,<sup>3</sup> but I do not  
16 believe the Commission should or would consider it as a responsible solution. As I  
17 discussed in my Direct testimony, the costs associated with reactive replacements exceed  
18 those of proactive replacements. Further, reactive repair does nothing to improve our  
19 customers' quality of service, nor does it advance the grid for the future. In my view, the  
20 best power outage is one that never happens. The OGE Plan and its proactive approach  
21 seeks to get ahead of the problem and prevent future issues before they arise.

22  
23 **Q. Some of the witnesses presenting responsive testimony claim<sup>4</sup> that because customers**  
24 **are not complaining about service or requesting grid enhancement, they will not**  
25 **benefit from the OG&E Plan and do not want the Company to pursue it. What is**  
26 **your response?**

27 A. That contention is erroneous. Our customers care about reliable service now and in the  
28 future, but they are not responsible for detecting when the grid may fail, what technology  
29 will accommodate their needs, and when that technology should be applied. That is

---

<sup>3</sup> Responsive Testimony of Norwood p. 16, lns. 7-10.

<sup>4</sup> Responsive Testimonies of Alvarez p. 32, ln. 11 – p. 33, ln. 5; Norwood p. 11, ln. 8 – p. 12, ln. 8.

1 OG&E's responsibility, and the OGE Plan is the best way for us to meet our responsibility  
2 to our customers going forward. Company Witness Dennis covers these responsibilities  
3 in more detail in her direct and rebuttal testimony. Moreover, OG&E never wants to be  
4 in the position where more of its customers are unhappy with the reliability of their service.  
5 If that happens, OG&E has presumably dropped the ball in caring for its system. OG&E  
6 cannot afford to wait that long to act.

7  
8 **Q. Is it sound policy for the Company to wait until customers are complaining about**  
9 **system failures before making improvements?**

10 **A.** No. Requiring significant customer dissatisfaction for change as a prerequisite to grid  
11 improvement is an unwise, reactive approach and a symptom of a failing system. It takes  
12 time to make significant improvements to the system. Waiting for "enough" customers to  
13 complain would put OG&E in poor standing with our responsibility and our customers.

14  
15 **Q. Mr. Bohrmann asserts<sup>5</sup> that input from consumer advocates is lacking. How do you**  
16 **respond?**

17 **A.** This proceeding presents a very high level of transparency, revealing the Company's near-  
18 term plans for investment, as well as visibility into the internal review and decision-making  
19 that results in a Plan for how best to transform the grid. The proposed Mechanism  
20 procedures require that we submit each Annual Investment Plan to stakeholders allowing  
21 for further stakeholder input as we move along the five-year deployment period.  
22 Consequently, this proceeding itself represents an unusual opportunity for constructive  
23 criticism and ongoing review. The responsive testimony that simply asks the Commission  
24 to reject the Plan before it can be implemented does not provide meaningful input.

---

<sup>5</sup> Responsive Testimony of Bohrmann p. 10, Ins. 5-8.

1 Q. **What is your response to the assertion<sup>6</sup> that in the era of the Covid 19 pandemic, this**  
2 **is the wrong time to impose additional costs on customers?**

3 A. First, OG&E is careful anytime it considers imposing new costs on customers and that is  
4 one of the reasons our rates are very low compared to other utilities and will remain so with  
5 the implementation of the Plan. Second, one lesson the year 2020 should be teaching us is  
6 that, during the time of “stay home” warnings from health authorities and the government,  
7 the importance of reliable electric service to residential customers should be more, not less  
8 critical. For those customers who were required or who chose to work from home for  
9 weeks or even months during 2020, the importance of reliable service has been elevated to  
10 greater prominence. This is important for both residential customers and businesses that  
11 are counting on their workers to be productive from home. While some point out that  
12 residential customers’ economic damage from outages is minimal, the better approach is  
13 to think about how our residential customers (and the businesses they work for) might  
14 suffer without reliable service to power home computers, internet services, virtual  
15 schooling, work-from-home obligations, and home entertainment.

16 Also, during these difficult times, businesses, hospitals, schools and other non-  
17 residential customers have enough to worry about to continue operations. The last thing  
18 we need our customers worrying about is their power reliability.

### 19 20 **Reliability Analysis and Benefits**

21  
22 Q. **Much of the responsive testimony is devoted to the notion that OG&E’s reliability**  
23 **metrics are adequate and therefore the plan is unnecessary. Do you wish to rebut this**  
24 **notion?**

25 A. Yes, I strongly disagree. As discussed above, it is erroneous that the Company and its  
26 customers should not be concerned with the current state of the distribution grid based just  
27 on certain reliability metrics. This “no worries” approach is wrong and leads to a false  
28 sense of confidence about the future of distribution service.

---

<sup>6</sup> Responsive Testimonies of Alvarez p. 1, ln. 19 – p. 2, ln. 2, and p. 16, lns. 20-25; Champion p. 28, ln. 16 – p. 29, ln. 7; Garrett p. 26, ln. 13 – p. 28, ln. 2, and p. 35, lns. 6-18; Norwood p. 19, ln. 6 – p. 20, ln. 5.

1 Q. **Please be more specific.**

2 A. Witnesses Alexander, Norwood, Alvarez, Givens and Champion contend<sup>7</sup> that OG&E's  
3 system SAIDI and SAIFI scores demonstrate that the Company's reliability metrics are  
4 stable, if not improving and that improvement from the Plan will be only marginal.

5 SAIDI and SAIFI are by definition "system averages" for the duration and  
6 frequency of outages. Averages do not tell the complete story, particularly those that  
7 exclude storm events. OG&E cannot responsibly manage the distribution grid based only  
8 on an assessment of "average" performance.

9 Think of it this way: if I stand with one foot on a block of ice and the other foot on  
10 a hot stove, some might conclude that I am – "on average" – quite comfortable. That  
11 conclusion would be very wrong. Likewise, looking exclusively at system averages like  
12 SAIDI and SAIFI to conclude that all is well on the grid is equally incomplete. While  
13 some circuits are performing admirably, others experience chronic outages. For example,  
14 Roman Nose 47, and Jamesville 41, which I will discuss in more detail below, have a three-  
15 year circuit SAIDI average of 2,303 and 1,746 minutes respectively and Customer Minutes  
16 of Interruption (CMI) values of 490,539 minutes and 274,122 minutes, respectively. Undue  
17 reliance on system averages leads to the erroneous conclusion that all the distribution  
18 system performs equally well and within industry standards.

19 In other words, I am saying there is more to the story than mere system-averages,  
20 and the witnesses contending that grid enhancement should be rejected because SAIDI has  
21 not deteriorated are not looking close enough at the data and at the long-term consequences  
22 revealed in that data. To accurately assess the wisdom of the OGE Plan, a deeper dive into  
23 the data is necessary. While it may be comforting to look only at system averages as a  
24 snapshot in time, that is not the whole story.

---

<sup>7</sup> Responsive Testimonies of Alexander p. 8, ln. 8 – p. 9, ln. 20; Champion p. 4, lns. 22-32, p. 13; ln. 15 – p. 17, ln. 5; and p. 21, lns.3-11; Givens p. 11, ln. 3 – p. 12, ln. 6; Norwood p. 10, ln. 7 – p. 11, ln. 7, and p. 12, ln. 9 – p. 13, ln. 15.

1 Q. **Witness Norwood<sup>8</sup> states that the forecasted reliability improvement for the Grid**  
2 **Enhancement Plan is only approximately 0.03%. Is this an appropriate way to**  
3 **evaluate the reliability improvement for customers?**

4 A. No. First, the Grid Enhancement Plan improves the reliability of each circuit modernized  
5 by 60% which translates into an overall Oklahoma SAIDI improvement of greater than  
6 40%. Second, the reliability improvement cannot be simply evaluated by the percentage  
7 of minutes a customer is out of power. Consider your air conditioner in your vehicle or  
8 home for example. If you evaluated whether to repair your air conditioner based on the  
9 average air temperature in Oklahoma, which ranges from 62 to 58 degrees,<sup>9</sup> you would  
10 decide not to fix it. However, almost no one who lives in Oklahoma would decide to not  
11 have a working air conditioner during the extremely hot hours of an Oklahoma summer.  
12 So, it is important to understand the impact of the outage itself to a specific customer rather  
13 than look at mere averages across the board.  
14

15 Q. **Is the reliability improvement in the Grid Enhancement Plan focused on improving**  
16 **the overall Oklahoma SAIDI?**

17 A. No. While it is true that the Grid Enhancement Plan will improve overall Oklahoma  
18 SAIDI, that is not the focus of the Plan. The Grid Enhancement Plan is focused on  
19 modernizing and optimizing the grid through the six objectives outlined in my Direct  
20 Testimony. The reliability and resiliency improvement within the Plan are focused on  
21 reducing the outages experienced by specific customers who have not been afforded the  
22 reliability seen through reviewing the average overall Oklahoma SAIDI.  
23

24 Q. **What is the 3-year average overall Oklahoma SAIDI (excluding storms)?**

25 A. The 3-year average overall Oklahoma SAIDI (excluding storms) is 137 (2017 to 2019).

26 Q. **How many Oklahoma circuits have an average SAIDI greater than 137?**

27 A. SAIDI can be measured at the circuit level with the same equations utilized to calculate  
28 SAIDI at the system level. This allows for a more granular view into what specific

---

<sup>8</sup> Responsive Testimony of Norwood p. 12, lns. 11-15.

<sup>9</sup> [https://climate.ok.gov/index.php/site/page/climate\\_of\\_oklahoma](https://climate.ok.gov/index.php/site/page/climate_of_oklahoma)



1 customers are experiencing. There are 324 circuits in Oklahoma experiencing a three-year  
2 average SAIDI greater than the system average of 137. Please see the chart below which  
3 shows the count of circuits by average SAIDI.

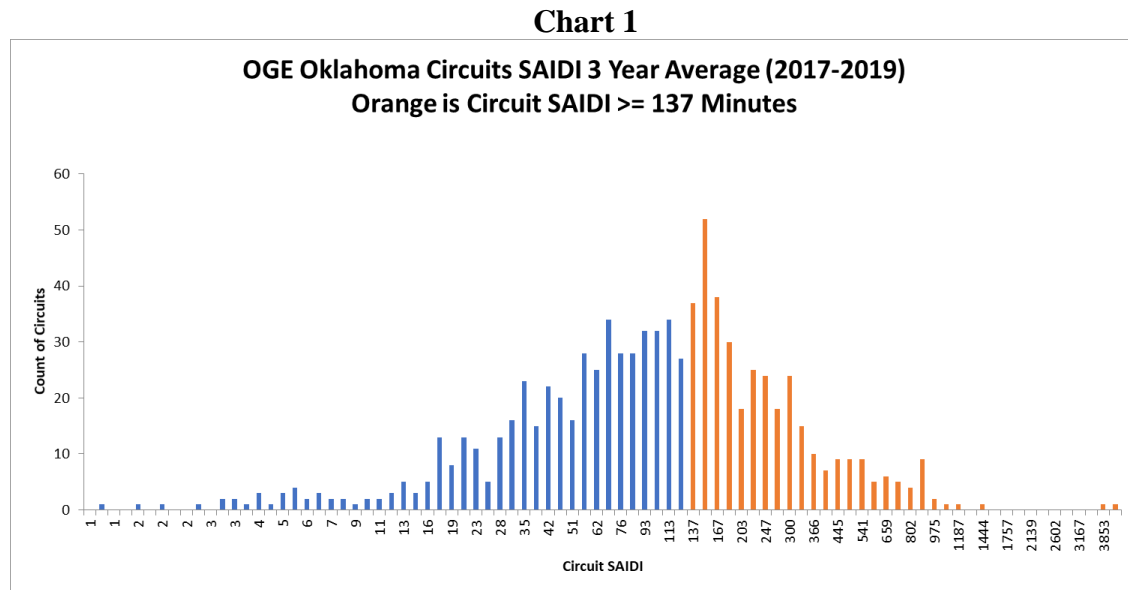
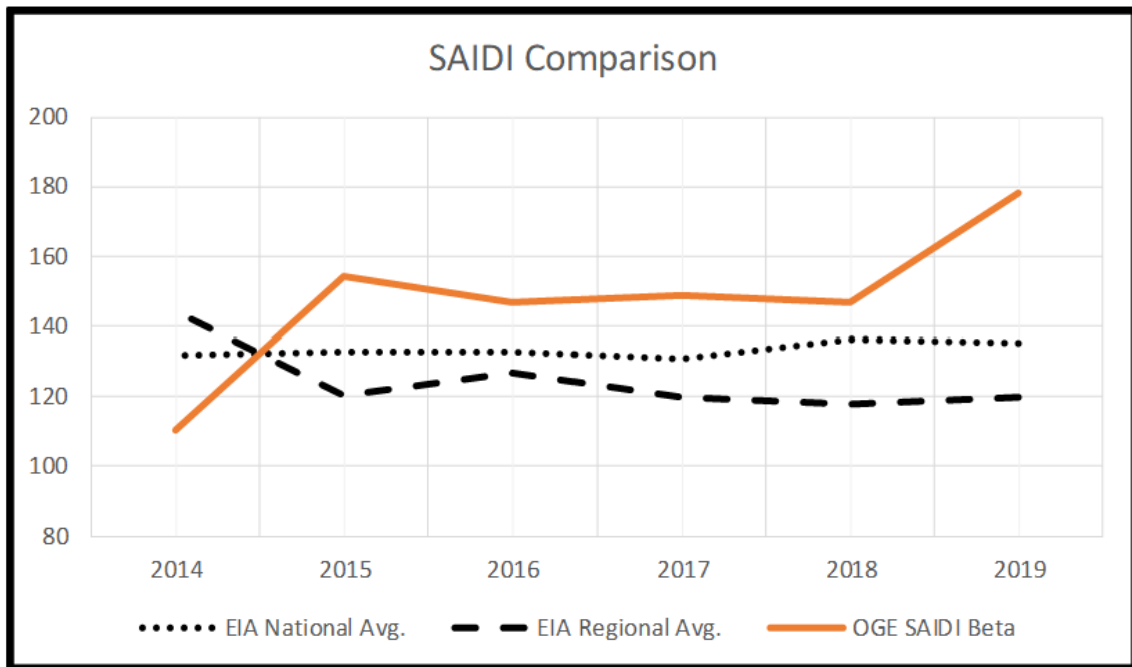


Chart 2



Q. Even if Oklahoma SAIDI were better than the regional and national average as Witness Champion suggests, why would OG&E pursue the Grid Enhancement Plan?

A. OG&E is evaluating the Grid Enhancement Plan based on the experience of customers and not just state averages and as I mentioned above, our customers do not get to exclude storms from their experience. Two examples of this experience addressed in our 2020 and 2021 Investment Plans are Roman Nose 47 and Jamesville 41. Shown in the chart below, is the three-year historical performance and the forecasted 60% improvement for these two circuits.

Table 1

	Historical		Forecasted Improvement	
	SAIDI	CMI	SAIDI	CMI
Jamesville 41	1,746	274,122	1,048	164,473
Roman Nose 47	2,303	490,539	1,382	294,323

Even further, in the chart below are example customers on the Jamesville 41 and Roman Nose 47 circuits. The outage duration shown is the number of minutes each customer was out of power during 2019 along with the percentage of minutes out that

1 Witness Norwood references. For the commercial customer on Jamesville 41, the 15.2%  
2 minutes of outage time represents approximately 55 days without power. For the residential  
3 customer on Roman Nose 47, the 9.3% minutes of outage time represents approximately  
4 34 days without power.

**Table 2**

	Outage Duration	% of Minutes Out
<b>Jamesville 41</b>		
Residential Customer	1,676	0.3%
Commercial Customer	80,071	15.2%
<b>Roman Nose 47</b>		
Residential Customer	48,861	9.3%
Commercial Customer	1,604	0.3%

5 As seen in these examples, using the law of averages for Oklahoma SAIDI  
6 excluding storms is not fair to customers on circuits like Roman Nose 47 or Jamesville 41.  
7 It is not okay for these customers to experience this volume of outage time just because  
8 other customers are experiencing less.

9  
10 **Q. Witness Alvarez<sup>11</sup> states he does not agree that OG&E's reliability with storms is**  
11 **twice as bad as the national average. Do you agree?**

12 **A.** No. In Witness Alvarez's analysis, he removes the years 2013 and 2015 in his comparison.  
13 While it is true that these years were high volume of storm years, it is not valid to remove  
14 them from the analysis. Other utilities will have experienced varying levels of storms  
15 which is included in the national average, so it would not be appropriate to remove the  
16 large storm years just from OG&E's reliability averages. This is exactly why OG&E is  
17 using average reliability values across multiple years to account for the varying volume of  
18 storms. It is not appropriate to remove specific years with higher volumes of storms.

---

<sup>11</sup> Responsive Testimony of Alvarez p. 32, lns. 1-9.

1 Q. **Will customers on non-modernized circuits experience reliability benefits from the**  
2 **Grid Enhancement Plan?**

3 A. Yes. Although the more significant reliability benefits will impact the customers on the  
4 circuits or substations that are being modernized, customers on other circuits will see an  
5 improved response time due to our ability to more quickly locate and isolate outages. This  
6 reduced outage time will correlate to additional reliability benefits that customers on non-  
7 modernized circuits will experience.

8  
9 **Replacing an Aging Infrastructure**

10  
11 Q. **How should the Commission assess the status of the distribution grid in its evaluation**  
12 **of the OGE Plan?**

13 A. The responsive testimony questioning the need to improve the grid misses the point I  
14 presented in my direct testimony: aging infrastructure is quietly and inexorably eroding the  
15 grid from within and will soon emerge as a major contributor to systemic decline. While  
16 – on average – the grid may be performing adequately at this particular time, we know that  
17 a substantial portion of equipment failure is due to aging.

18 When equipment fails, we use cause codes to help us better understand the method  
19 of failure. Since 2013, the classification aging infrastructure cause codes have averaged  
20 73% of all equipment failures on the distribution system. In terms of minutes, those same  
21 failures have equated to more than 125 million minutes of interruption.

22  
23 Q. **You referenced Chart 1 from your direct as demonstrating the deterioration in**  
24 **reliability of the aging equipment in the distribution system. Mr. Givens asserts<sup>12</sup>**  
25 **that your regression analysis underlying the trend in deterioration reflected in Chart**  
26 **1 is flawed. Do you have a response?**

27 A. Yes, I disagree. The regression analysis OG&E used is similar to the method Mr. Givens  
28 used, except OG&E used all available data to project possible future outcome and did not  
29 exclude any annual data. The OG&E method is valid.

---

<sup>12</sup> Responsive Testimony of Givens p. 7, ln. 12 – p. 11, ln. 2.

1           It is worth noting that even the calculations Mr. Givens presents in his responsive  
2 testimony demonstrate deterioration due to aged equipment. Mr. Givens performed  
3 additional regression analysis using several different methods to estimate forecasted values  
4 out to year 2026. In each instance, the models with the best correlation all showed an  
5 increase in future deterioration on the distribution system. While OG&E's estimates were  
6 up to 72% increase in deterioration, based on a 2008 start date, his models, using a 2009  
7 start date, had 46%, 37.7%, 22.6%, 22.3% and 14.2% increases with the best fit model at  
8 a 46% increase. What this tells us is that OG&E is correct in its assertion that the current  
9 trends in deterioration are increasing and they will significantly add to our customer  
10 outages. Using Mr. Givens' regression model with a 46% increase, the aging equipment  
11 SAIDI for 2026 is forecast to be 17.3 minutes higher than 2019.

12  
13 **Q. Is it true that age related failures are not always reflected in SAIDI statistics?**

14 **A.** Yes. One should not conclude that SAIDI is an indication of how the grid will perform  
15 going forward. Without an accelerated effort of replacement, the grid will only get older  
16 and less reliable. Meanwhile, other efforts by the Company to increase reliability can only  
17 do so much. For example, we know that vegetation management is effective to increase  
18 reliability and that it is a cost-effective method to that end. But there are only so many  
19 trees we can trim and eventually the increasing age of the grid will emerge as a prominent  
20 contributor to failure.<sup>13</sup> Additionally, vegetation management does nothing to enable  
21 automation or prepare the grid for the operational challenges it will face in the near future.

22           The problem the OGE Plan addresses is that replacing old equipment cannot be  
23 accomplished overnight and must begin now to have a meaningful effect when age  
24 becomes a critical issue and reliability begins to deteriorate. By removing causes of failure  
25 from the system we can achieve a long-term solution and better focus resources on other  
26 areas of the grid that are affecting reliability and safety.

27           Finally, it makes no sense to place new technology and other smart grid equipment  
28 on systems that are inherently beyond useful life and that will only cause stress on those

---

<sup>13</sup> This is why the proposal by Mr. Alvarez that the Company should simply increase its tree trimming, and the proposal by Mr. Alexander that the Company could simply use mobile substations in the event of failure, are not valid solutions. Responsive Testimonies of Alexander p. 14, lns. 3-11; and Alvarez p. 19, lns. 15-25.

1 newly installed technologies. In other words, the new technologies may create substantial  
2 reliability improvement, but without installing those new technologies on replacement  
3 infrastructure, those reliability improvements may never occur.  
4

5 Q. **Mr. Alvarez criticizes the OGE Plan by contending that new equipment is just as**  
6 **vulnerable to storms and that the customers will end up paying twice for equipment**  
7 **damaged or destroyed in storms.<sup>14</sup> Do you agree?**

8 A. No, I do not. Major storms can and do damage and destroy equipment of any vintage, but  
9 old equipment certainly is more susceptible to storm damage than new. Also, preventing  
10 catastrophic storm damage is not the crux of the OGE Plan. Old equipment is more difficult  
11 to maintain (lack of spare parts, expertise to assemble, troubleshoot) than new equipment  
12 and very old equipment can be very unreliable, particularly under stress. Repeated repair  
13 of aged equipment is wasteful, and it absorbs available resources.

14 In our experience, from work done in Arkansas, the modernized circuits have been  
15 able to withstand significant storms. For example, during the 1<sup>st</sup> year of deployment of our  
16 Arkansas Series I work, which was concentrated on the Ft. Smith area, a storm with  
17 sustained windspeeds of 60 mph hit the metro area. At the time, the area consisted of a  
18 mix of modernized and non-modernized circuits, so we were able to see the impact of these  
19 investments on our customers.

20 For the modernized circuits, there was no structural damage, while the non-  
21 modernized circuits saw structural damage to 86 poles and 100 crossarms. The modernized  
22 circuits experienced 89% fewer customer minutes of interruption than those on nearby non-  
23 modernized circuits, and only 4% of customers on modernized circuits experienced a  
24 sustained outage, while 50% of customers on non-modernized circuits experienced a  
25 sustained outage.

---

<sup>14</sup> Responsive Testimony of Alvarez p. 12, ln. 16 – p. 13, ln. 23.

1 Q. **Related to Arkansas results, several witnesses, including Mr. Alvarez, take issue with**  
2 **your reliance on Arkansas results as a predictor of success in Oklahoma under the**  
3 **OGE Plan.<sup>15</sup> What is your response?**

4 A. While many of the witnesses criticize the assumptions used to model or predict the  
5 performance of our grid in coming years, the Arkansas data provides a foundation of actual,  
6 not forecasted performance of the same investments we are making in Oklahoma. To  
7 suggest that there is a better dataset to use than our actual performance of the investments  
8 we are making on our actual system does not make sense.  
9

10 Q. **Mr. Alvarez<sup>16</sup> challenges your position that a proactive approach to replacement of**  
11 **old equipment is less expensive than repairing as it breaks. How do you respond?**

12 A. That is simply incorrect. What Mr. Alvarez is describing is a reactive approach that in  
13 most cases is not considered best practice. Reactive maintenance is an unplanned,  
14 unscheduled event that catches you by surprise and disrupts everything you had planned  
15 for the day. Depending on the outage effect, this type of maintenance often leads to  
16 complaints from customers and ill will towards the provider. Continual reactive repairs  
17 are only acceptable if quality of the service is not of concern. Given we are providing life  
18 sustaining, life enhancing energy to our customers, a quality product is of utmost  
19 importance to OG&E. By proactively replacing poor performing assets through the Plan,  
20 the resources once used to find replacement parts, rebuilding, repairing and installing can  
21 now be reallocated to a better purpose.  
22

23 Q. **Why doesn't the Company replace the aging equipment in the ordinary course of**  
24 **business, instead of deploying the OGE Plan?<sup>17</sup>**

25 A. First, we know that replacement of aging infrastructure and hardening of the distribution  
26 grid is highly effective in improving reliability. To comprehensively enhance and protect  
27 the distribution grid for now and the immediate future requires an extraordinary and

---

<sup>15</sup> Responsive Testimonies of Alexander p. 12, ln. 4 – p. 13, ln. 1; Alvarez p. 7, ln. 12 – p. 9, ln. 5; Givens p. 14, ln. 14 – p. 15, ln. 4.

<sup>16</sup> Responsive Testimony of Alvarez p. 5, lns. 9-12, and p. 12, ln. 16 – p. 13, ln. 23.

<sup>17</sup> Responsive Testimonies of Alexander p. 17, lns. 3-20; Bohrmann p. 38, ln. 1 – p. 39, ln. 6; Champion p. 20, lns. 2-15.

1 accelerated effort that must begin now. Consequently, a core element of the OGE Plan is  
2 the proactive, accelerated replacement of aged equipment. But as I have discussed and as  
3 witness Dennis discusses, existing resources are simply insufficient to accomplish this goal.  
4

### 5 **Rapidly Changing Technology**

6  
7 **Q. Is this case all about reliability?**

8 A. No, reliability is important but just as important is the ultimate goal of grid enhancement:  
9 the technological transformation to a grid that is not based on last-century technology.  
10 While no one can see the future, we do know that technology is changing rapidly, and there  
11 are many technological changes that have and will improve grid operation and efficiency,  
12 while also contributing to reliability. If we do not implement the technology available to  
13 us, we are at great risk of being unable to respond to new challenges and new expectations  
14 from our customers.  
15

16 **Q. Please provide an example of how technology has changed the way you operate.**

17 A. We began deployment of our Smart Grid project in 2009 and invested nearly \$350 million  
18 in system-wide advanced metering infrastructure (“AMI”). This transformed a significant  
19 part of our operations. Prior to AMI, we were required to send technicians to literally walk  
20 through our customers’ property to collect data, meter by meter, to see how much power  
21 our customers were actually using. We now have millions of data points we collect daily  
22 and no longer have the expense of manual, door-to-door data collection. Our operations  
23 are now substantially much more efficient, and our customers have opportunities to control  
24 their power usage as desired.  
25

26 **Q. Why do you propose further technological improvements?**

27 A. Smart Grid was only an initial step in what we can accomplish. The technological  
28 improvements in Grid Enhancement leverage the technology deployed during Smart Grid  
29 to streamline our operations and provide customer value. The remote visibility to our  
30 customer’s meter allowed us to not only eliminate a truck roll to read each customer’s  
31 meter each month, but also allowed us to begin proactively communicating with our



1 customers about interruptions in power. The technology investments in Grid Enhancement  
2 will provide increased visibility into our system, enabling real time system data, and the  
3 ability to remotely operate many assets in our system that historically would require a truck  
4 roll. Additionally, using these technologies, and the smart meter deployment completed  
5 during Smart Grid, coupled with our existing Outage Management System, will improve  
6 reliability and further automate our system.

7  
8 **Q. How will these technological improvements mesh with the foundational**  
9 **improvements to the grid you described?**

10 A. Coupled with the replacement of aging infrastructure, the technological improvements will  
11 better prepare our distribution system for the future, including the unexpected, by not only  
12 improving reliability but by improving operational efficiency and customer service, as well  
13 as preparing the system to respond to changing demand for DER, electric vehicles and  
14 work-at-home load.

15  
16 **Q. Does smart equipment also reduce outages and improve reliability?**

17 A. Yes. OG&E estimates that Arkansas customers for Series I have seen an estimated  
18 7,000,000 fewer minutes of interruption so far in 2020 due to automation. Additionally,  
19 other utilities around the country are also experiencing benefits from smart devices. In a  
20 recent Wall Street Journal article<sup>18</sup>, smart switches installed on the Florida Power and Light  
21 system prevented 546,000 outages during Hurricane Irma.

22  
23 **Q. Do these technological improvements take time?**

24 A. Yes, they take years to implement and that is why we are presenting the OGE Plan as a  
25 five-year project. The Company cannot afford to wait until a technological or operational  
26 crisis arises to begin this work.

---

<sup>18</sup> Fitch, Asa. "The Key to Keeping the Lights On: Artificial Intelligence." *The Wall Street Journal*. February 7, 2020, 10:02AM EST.

1 Q. **Do you have any final remarks before concluding your testimony?**

2 A. Yes. I respectfully request the Commission ignore certain intervenors' claims our Plan is  
3 unneeded based on a lack of customer complaints and erroneous interpretations of  
4 reliability indices. Instead, I encourage the Commission to consider the "do nothing until  
5 it is too late approach" as an irresponsible way to run the power delivery system and such  
6 an approach ignores the concerning trends and corresponding effects of aging  
7 infrastructure. Finally, I respectfully request the Commission support us in our goal to  
8 transform the grid in an effort to deliver significant benefits to our customers both now and  
9 in the future, while maintaining some of the lowest rates in the country.

10  
11 Q. **Does this conclude your Rebuttal Testimony?**

12 A. Yes.