

**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)



Supplemental Direct Testimony

Of

Kandace Smith

on behalf of

Oklahoma Gas and Electric Company

July 31, 2020

1 Q. **Please state your name, position, by whom you are employed, and your business**
2 **address.**

3 A. My name is Kandace Smith. I am the Manager of Grid Modernization for Oklahoma Gas
4 and Electric Company (“OG&E”). My business address is 321 N. Harvey, Oklahoma City,
5 Oklahoma, 73102.
6

7 Q. **Are you the same Kandace Smith who filed Direct Testimony in this Cause?**

8 A. Yes.
9

10 Q. **What is the purpose of your Supplemental Direct Testimony?**

11 A. The purpose of my Supplemental Direct Testimony is to present the 2021 Annual
12 Investment Plan (2021 Plan) and the 2021 Scope of Work (2021 SOW) attached as
13 Supplemental Direct Exhibits KS-1 and KS-2.
14

15 Q. **Were the 2021 Plan and the 2021 SOW developed in the same manner as described in**
16 **your Direct Testimony?**

17 A. Yes. Both the 2021 Plan and the 2021 SOW were developed utilizing the process set forth
18 in my Direct Testimony and in the same manner used for 2020. ¹
19

20 Q. **Please describe the guiding principles for the 2021 Plan and the selected work**
21 **activities.**

22 A. There are four guiding principles that provided the foundation for selection of projects in
23 the 2021 Plan. These guiding principles are outlined below.

- 24 • Select projects with proven reliability or resiliency benefits
- 25 • Select projects with guaranteed flexibility or efficiency benefits
- 26 • Select projects that provide a foundation for situational awareness and increased
27 visibility

¹ Please note that the 2021 Scope of Work is presented differently from the 2020 Scope of work due to a software change; however, the content is consistent.

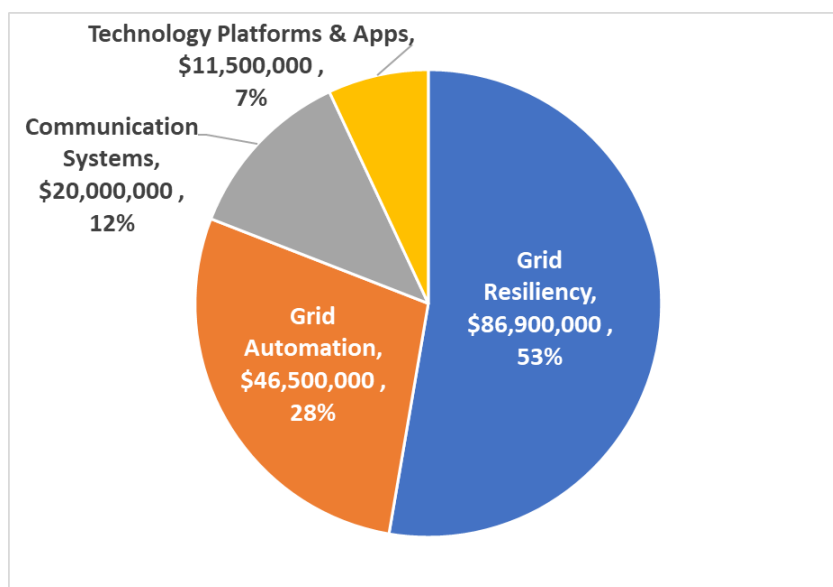
- Optimize projects within the plan year by selecting projects with positive net present value when considering a portion (10 percent) of the avoided economic harm benefits.

After reviewing each distinct work activity in the list of potential investments, it was determined 26 activities fit within the 2021 Plan guiding principles and the associated technology was mature enough to gain the desired value for each activity. Circuit and associated substation work activities were limited to the top 250 circuits, when ranked by criticality and condition.

Q. Please describe the 2021 Annual Investment Plan.

A. The estimated cost for the 2021 Annual Investment Plan is approximately \$164.9 million and is expected to be distributed amongst the categories of investment as shown in Chart 1. The planned scope includes 54 substations, 79 circuits, as well as mobile substations, oil filled stepdown replacement, faulted circuit indicator pilot, 5 technology platforms and applications projects, and initial replacement and modernization of the communication systems.

Chart 1: Investment by Category



1 Q. **What are the estimated quantifiable benefits associated with the 2021 Plan?**

2 A. The 2021 Plan is expected to provide an estimated \$108.4 million in avoided cost of service
3 benefits as well as \$362.8 million in avoided economic harm benefits. It is also expected to
4 yield an estimated 18.2 minutes of storm excluded SAIDI reduction, while reducing
5 approximately 9,200,000 customer minutes of interruption during storms with an overall
6 SAIDI improvement of 29.6 minutes. The Plan is also expected to result in the reduction of
7 approximately 3,174 work hours and reduced isolation time² of 20,102 hours.

8
9 Q. **What are the combined costs and benefits associated with the 2020 and 2021 Plans?**

10 A. The 2020 and 2021 Plans are estimated to cost approximately \$245.7 million with estimated
11 benefits of approximately \$824.7 million. At the end of 2021, customers will see
12 approximately 27.6 minutes of storm excluded SAIDI reduction across the state, a reduction
13 of approximately 35,600,000 customer minutes of interruption during storms, and an overall
14 SAIDI improvement of 71.8 minutes. The two plan years combined are also expected to
15 yield approximately 5,200 avoided hours of work and 32,100 minutes of reduced isolation
16 time.

17
18 Q. **Does this conclude your testimony?**

19 A. Yes.

² Reduced isolation time results from the ability to remotely operate switches to more efficiently isolate outages to the smallest number of customers thus reducing the time to isolate outages and minimizing customer impact.

Oklahoma 2021 Investment Plan

Forecasted Spend	
Grid Resiliency	\$ 86,900,000
Grid Automation	\$ 46,500,000
Communication Systems	\$ 20,000,000
Technology Platforms & Apps	\$ 11,500,000
	\$ 164,900,000

Forecasted Substation & Circuit Projects		
Project ID	Substation	Circuit(s)
1	Western Ave	21, 27, 28
2	Otter	41
3	Midway	31, 63
4	Lone Oak	64, 71
5	Belle Isle Sta	22, 26, 28
6	Wilshire	22, 23
7	Sulphur	23, 29
8	Bixby	22, 29
9	Wewoka	21, 24
10	Bellcow	21, 50
11	SW 5th St	23, 64
12	South Ada	24, 29
13	Meloud	22
14	Tennessee	26, 31, 35
15	Fixico	29, 46
16	Thirty Eights St	23, 25
17	Key West	46, 47
18	Lone Grove	22, 23
19	Southgate	24
20	Fairmont	29
21	Bristow	21
22	Russett	21
23	Jumper Creek	25, 27
24	Inglewood	21, 23
25	Vian	22
26	Morrison Tap	22
27	Maysville	21, 22
28	Pearson	21
29	Wells	49
30	Prairie Point	21
31	Dale	29
32	Rosedale Tap	24
33	Warwick	41
34	Letha	21

Forecasted Substation & Circuit Projects (continued)		
Project ID	Substation	Circuit(s)
35	Vanoss	22
36	Cushing Tap	49
37	Davis	21, 22
38	WR Airport	21
39	Lakeside	22
40	Oak Grove	21
41	Rush Creek	22
42	Pennsylvania	36
43	Tishomingo	21
44	Jensen Rd	63
45	Eighty Fourth St	29
46	Reno	31
47	NE 10th St	26
48	Meridian	24, 28
49	Mission Hill	24
50	Heavener	22
51	Remington	21
52	Ardmore	24
53	Lightning Creek	31
54	Boyd	23

Additional Forecasted Projects	
Project ID	Project Name
55	Mobile Substations
56	Oil Filled Stepdown Replacement
57	FCI Pilot
58	Field Area Network Backbone
59	Field Area Network Management
60	Digital Field Services Management
61	ADMS Upgrade
62	Advanced EMS Apps
63	GIS Substation Model
64	Landing Page for SOM

2021 Investment Descriptions

Supplemental Direct Exhibit KS-1

Category	
Grid Resiliency	Grid Resiliency
Investment Type	Description
UG Cable Replacement	Replace unjacketed concentric neutral cable on circuits with the highest reliability impact.
Transformer Load Management	Replace distribution transformers that are overloaded according to engineering guide E204 for at least 40 hours per year.
Substation Transformer Replacement	Replace poor performing substation transformers that are nearing end of life.
Substation Breaker Replacement	Replace substation breakers that are obsolete (GE FGD, Westinghouse ESC, PRC, TSC, ES, and ESV. This included replacement of obsolete PCRs, Capacitor Switchers, and replacing substation transformer fuses with FISS.
River Crossing Reinforcement	Reinforce river crossings, to prevent washout.
Oil Filled Stepdown Replacement	Replace Oil Filled stepdown transformers with padmount transformers. For substations that are stepdowns only the entire substation will be replaced. Intellirupters and regulators will be added on an as needed basis.
OH Conductor Replacement	Replace obsolete overhead conductor (8S3, 3X3, 7W3) on circuits with the highest customer count associated with obsolete overhead conductor.
Mobile Subs	Purchase three mobile substations. 138 X 69 kV Delta – 37735 / 21790 X 12580 / 7260 kV Gnd Wye with Load Tap Changer 25 MVA ODAF @ 95° C Rise, and 138 X 69 kV Delta – 26.18 / 15.12 X 13.09 / 7.56 kV Gnd Wye with Load Tap Changer 25 MVA ODAF @ 95° C Rise
Lightning Outage Reduction	Bring circuits up to current lightning protection standards by installing new lightning arrestors on circuits with the highest risk for outages caused by lightning.
Distribution Line Reliability	Survey circuits with the highest condition and criticality rank and upgrade facilities to improve reliability.
Animal Protection - TransGaurd Fence	Add protective fence around substation equipment at substations with the highest risk for outages caused by animals.
Animal Protection - Cover Up	Add advanced cover up at substations with the highest risk for outages caused by wildlife.
Category	
Grid Automation	Grid Automation
Investment Type	Description
Substation Relay Replacement	Replace relays with technical bulletins from the manufacturer which have limited parts available or have known mis-operation issues.
Substation Enclosures	Adding Control Houses, Protection Control Cabinets, and/or Battery Cabinets in locations where they are needed.
Smart Lateral Fuses	Install tripsavers on all laterals except ones with small load or minimal exposure.
Small SCADA	Install SCADA at substations where it does not exist today. This is a smaller standalone cabinet option for a SCADA installation at smaller substations. This will allow for better coordination and visibility of distribution automation.
S4/AD Meter Replacement	Replace S4 and AD meters in distribution substations to enable remote data accessibility.
New SCADA	Install SCADA at substations where it does not exist today. This will allow for better coordination and visibility of distribution automation.
Network	Adding or upgrading the network connection to facilitate SCADA additions.
GPS Clock	Adding GPS clock or replacing obsolete GPS clock four use with new SCADA and/or relay replacements.
FCI Pilot	Conduct a pilot to understand the state of the FCI equipment for consideration in future years of Grid Enhancement.
Fault Location SCADA Inputs	Install SCADA points to allow for remote fault location analysis in the DMS system (aka FLISR).
Automated Circuit Tie Lines	Install automated switches at normal open locations, behind stepdown transformers, and in areas that will allow commercial and industrial load to be isolated from residential load.
Add Communications to Regulators	Add communications to existing regulator stations to allow for greater voltage control.

Supplemental Direct Exhibit KS-1

Category	Communication Systems	
Communication Systems		



Investment Type	Description
Field Area Network Management	Planning and evaluation of new tooling capabilities: 1. Network Modeling, Monitoring and Maintenance 2. Specific fiber management software
Field Area Network Backbone	Replace and update a portion of the legacy microwave 6GHz transport backbone infrastructure with fiber/11GHz microwave links. Planning and design for logical FAN backbone routing design

Category	Technology Platforms & Applications	
Technology Platforms & Applications		



Investment Type	Description
Landing page for SOM	Simple web page with single integration into ADMS SOM
GIS Substation Modeling	Phase I - Outstanding Substations modeled in ADMS
Digital Field Service Management (DFSM)	Upgrade CADS software and hardware to a current and supported version to increase resiliency and scalability. Implement Pragma Field for mobile field users. The upgrade and Pragma Field implementation will enable future Grid Enhancement capabilities such
Advanced EMS Apps	Implement new Transmission System Operator tools for Operator Log, Switch Order Management, Automated Substation Entry Logging, and Voltage Stability Analysis, for enhanced situational awareness.
ADMS Upgrade	DEV and TEST environment in service with Planned Outage and Epilog Pro functionality.

PUD 202000021

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SUPPLEMENTAL DIRECT TESTIMONY EXHIBIT KS-2

FILED ON:
July 31, 2020

**SUBMITTED TO THE COURT CLERK UNDER
SEAL**