



## CITIZENS' ELECTRIC COMPANY

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April 19, 2018

Ms. Rosemary Chiavetta  
Pennsylvania Public Utility Commission  
PO Box 3265  
Harrisburg, PA 17105-3265

RE: Docket M-2016-2522508

Dear Secretary Chiavetta,

Enclosed please find the 2017 Annual Reliability Report for Citizens' Electric Company.

Please contact me at 570-522-6143 or [kelchnerj@citizenselectric.com](mailto:kelchnerj@citizenselectric.com) if I can answer any questions.

Sincerely,

A handwritten signature in cursive script that reads "John A. Kelchner". The signature is written in a dark ink and is positioned below the word "Sincerely,".

John A. Kelchner, PE  
Vice President of Engineering & Operations

cc: Pennsylvania Office of Consumer Advocate  
Pennsylvania Office of Small Business Advocate  
Dave Washko (via email)  
Dan Searforce (via email)

Citizens' Electric Company  
Annual Electric Service Reliability Report  
2017

Prepared by John A. Kelchner, PE  
Vice President of Engineering & Operations  
570-522-6143

[kelchnerj@citizenselectric.com](mailto:kelchnerj@citizenselectric.com)

04/18/2018

**§ 57.195(b)(1) An overall current assessment of the state of the system reliability in the EDC's service territory including a discussion of the EDC's current programs and procedures for providing reliable electric service.**

Citizens' Electric Company experienced increases in reliability indices during 2017. Weather events throughout the year played a significant part in the increase. The Company experienced outages from spring wind, summer thunderstorms and winter snows. A positive trend emerged in the form of a reduction in outages caused by off right-of-way trees. In 2016, the Company experienced sixteen outages from this cause; in 2017, the number was just ten. The Company plans to continue its aggressive identification and removal of off right-of-way priority trees during 2018.

The Company completed its first year of successfully utilizing a tablet-based tracking tool for all inspection and maintenance activities. This tool provides near real-time status reports and allows crews to document locations visited and log their findings. Management reports provide completion statistics on a daily basis. Activities will be archived to ensure required data retention

The Company continues to participate in and gather information from various industry best practices groups. These groups include members from diverse utility groups such as the Pennsylvania Rural Electric Association, the Energy Association of Pennsylvania, and the National Rural Electric Cooperative Association. The Company will continue to implement best practices defined by these groups as appropriate.

Citizens' Electric was again recognized in 2017 as a "Tree Line USA" utility. This award from the National Arbor Day Foundation recognized the Company for the fifteenth consecutive year for its use of nationally approved trimming techniques and procedures in its vegetation management program.

The Company does not own or maintain any transmission facilities.

### Current Maintenance Programs

Program	Description	Cycle
Infrared Inspection	All substation equipment biennially, and 1/3 of all overhead lines each year.	3 years
Vegetation Management	Each year, all primary lines are visually inspected. This comprehensive field inspection allows us to identify areas that require trimming. We maintain a 4-year trimming cycle, but all areas are inspected annually to help identify unexpected “hot spots.” All areas needing attention are trimmed by the end of the 3 <sup>rd</sup> quarter.	Annual
Visual Line Inspection	All distribution lines and pole hardware are visually inspected during preparation of tree trimming contract. Line sections receiving infrared inspection are also inspected visually during that process.	Annual
Padmount Equipment Inspection	Padmounted equipment is visually inspected to identify and correct any developing problems or safety concerns.	4 Years
3Ø Padmount Transformer Oil Test	Insulating oil is tested from every 3Ø padmounted transformer on our system, and all substation power transformers.	Annual
Line Equipment Inspection	All airswitches, circuit tie switches, capacitors, regulators, and reclosers are visually inspected. Where applicable, proper operation of control equipment is verified and counter readings are recorded.	Annual
Pole Inspection and Treatment	Poles are inspected and treated at the ground line. External and/or internal decay inhibitors are applied where appropriate.	10 Years
Danger & Reject Pole Replacements	Replace condemned poles identified during pole inspection.	As needed, annually
Substation Equipment Inspection	Entire station is visually inspected. Equipment batteries are tested, communications equipment operation is verified, fans are tested, various gauge and counter readings are recorded. An infrared inspection is performed on all equipment twice a year.	Monthly
Recloser Maintenance	Change oil, check and adjust mechanism, check contacts, test operation.	5 Years

**§ 57.195(b)(2) A description of each major event that occurred during the year being reported on, including the time and duration of the event, the number of customers affected, the cause of the event and any modified procedures adopted to avoid or minimize the impact of similar events in the future.**

Date	Time	Duration of Event (Minutes)	# of Customers Affected	Cause
5/27/2017	8:06 AM	75	1,015	A squirrel caused a fault on the high voltage jumper feeding a self-protected distribution transformer, causing an interruption of the circuit.
7/3/2017	7:19 AM	61	1,411	A squirrel contacted energized pole hardware, causing an interruption of the circuit.
7/4/2017	5:53 AM	90	1,411	A squirrel contacted energized pole hardware, causing an interruption of the circuit. This was approximately 1 block from the location of the outage 1 day prior. Wildlife protection is in place at these poles.
9/30/2017	12:46 PM	84	998	A dead off right-of-way tree came down onto a three-phase line during breezy conditions causing a circuit lockout. Winds at the time of the outage were between 20 and 30 mph.

**§ 57.195(b)(3) A table showing the actual values of each of the reliability indices (SAIFI, CAIDI, SAIDI, and if available, MAIFI) for the EDC’s service territory for each of the preceding 3 calendar years. The report shall include the data used in calculating the indices, namely the average number of customers served, the number of sustained customer minutes interruptions, the number of customers affected and the minutes of interruption. If MAIFI values are provided, the number of customer momentary interruptions shall also be reported.**

Year	SAIFI	SAIDI	CAIDI	Avg # of Customers Served	# of Interruptions	# of Customers Interrupted	Customer Interruption Minutes
2017	0.45	84	185	7,035	58	3,180	588,067
2016	0.26	28	108	6,963	52	1,787	192,235
2015	0.19	18	91	6,909	41	1,333	121,876

**§ 57.195(b)(4) A breakdown and analysis of outage causes during the year being reported on, including the number and percentage of service outages, the number of customers interrupted, and customer interruption minutes categorized by outage cause such as equipment failure, animal contact, tree related, and so forth. Proposed solutions to identified service problems shall be reported.**

Outage Cause	Number of Interruptions	% of Interruptions	Number of Customers Affected	Customer Interruption Minutes
On R/W Trees	5	9	65	6,387
Animals	10	17	39	2,251
Equipment	13	22	181	13,928
Off R/W Trees	10	17	596	222,488
Weather	15	26	2135	286,053
Vehicle	0	0	0	0
Other	5	9	164	56,960
<b>Total</b>	<b>58</b>		<b>3,180</b>	<b>588,067</b>

As discussed on page one, the Company experienced a significant increase in outages caused by weather. It sustained five outages from this cause in 2016, and fifteen in 2017. Many of these occurred during a particularly stormy month of August, when thunderstorms on several occasions brought wind and lightning through the area.

Significant outages occurred on August 19th, 2017 affecting 568 customers (short of the 704 required for consideration as a major event) for approximately two hours. These outages were the results of strong winds (44 mph peak) and lightning bringing limbs and/or full trees down onto primary lines at several locations.

The Company continues to build its system to standards that typically exceed the NESC and to monitor industry best-practices regarding storm-hardening. The Company is also continuing its efforts to address off right-of-way trees and the outages they cause. It is aggressively working with property owners to secure permission for removal of target trees as they are identified, and is dedicating significant effort to address the continued Ash tree issues being observed again this year.

**§ 57.195(b)(6) A comparison of established transmission and distribution inspection and maintenance goals/objectives versus actual results achieved during the year being reported on. Explanations of any variances shall be included.**

<b>Program</b>	<b>Goal</b>	<b>Completed</b>	<b>Comment</b>
Infrared Inspection	Substation and 1/3 of all overhead lines	100%	All planned areas were inspected.
Vegetation Management	Entire System (9 circuits), as needed	100%	9 circuits inspected, trimmed as needed.
Visual Line Inspection	Entire System (9 circuits)	100%	9 circuits inspected.
Padmount Equipment Inspection	223	100%	221 locations inspected. Quantity revised to reflect actual quantity in service at time of inspection.
3Ø Padmount Transformer Oil Test	41	100%	42 transformers tested. Quantity revised to reflect actual quantity in service at time of inspection.
Line Equipment Inspection	156	100%	157 locations inspected. Quantity revised to reflect actual quantity in service at time of inspection.
Pole Inspection and Treatment	705	100%	690 poles inspected. Quantity revised to reflect actual quantity in service at time of inspection.
Danger and Reject Pole Replacement	“Danger” poles identified: 0 “Reject” poles identified: 9	100%	9 reject poles replaced.
Substation Equipment Inspection	12 Monthly Inspections	100%	12 inspections completed.
Recloser Maintenance	8 Reclosers	100%	Completed maintenance on 8 units.

**§ 57.195(b)(7) A comparison of budgeted versus actual transmission and distribution operation and maintenance expenses for the year being reported on in total and detailed by the EDC's own functional account code or FERC account code as available. Explanations of any variances 10% or greater shall be included.**

<b>Program</b>	<b>Budget \$</b>	<b>Actual \$</b>	<b>Comment</b>
Infrared Inspection		7,381	Not budgeted individually. 100% completed.
Vegetation Management	162,000	177,102	A significant number of priority Ash trees were identified and removed during the year. This contributed to an exception of the budgeted amount. To help mitigate ongoing contractor price pressure, the Company continued its plan to solicit bids earlier in the year for 2017.
Visual Line Inspection		374	Not budgeted individually. 100% completed.
Padmount Equipment Inspection		13,675	Not budgeted individually. 100% completed.
3Ø Padmount Transformer Oil Test		3,937	Not budgeted individually. 100% Completed.
Line Equipment Inspection		12,714	Not budgeted individually. 100% completed.
Pole Inspection and Treatment	26,790	34,266	100% completed. Overran budgeted amount by 28% due to higher than anticipated contractor costs.
Substation Equipment Inspection		868	Not budgeted individually. 100% completed.
Recloser Maintenance		8,168	Not budgeted individually. 100% completed.
<b>Total</b>		<b>258,485</b>	

**57.195(b)(8) A comparison of budgeted versus actual transmission and distribution capital expenditures for the year being reported on in total and detailed by the EDC's own functional account code or FERC account code as available. Explanations of any variances 10% or greater shall be included.**

<b>Project</b>	<b>Budget Amount \$</b>	<b>Actual Expenditures \$</b>	<b>Variance \$</b>	<b>Comment</b>
General Construction	761,192	739,739	-21,453	
Transformers	119,203	67,540	-51,663	Due to the nature of new connections in 2017, fewer new transformers were needed than budgeted.
Meters	83,595	93,444	14,009	The Company continued its accelerated mechanical meter replacement program, necessitating a higher meter cost than originally budgeted.
Rebuild Moore – Smoketown Rd.	181,260	92,832	-88,428	As a result of off-the-job injuries, two linemen were unavailable for a significant period. This reduced the workforce available to work on this project during 2017. The uncompleted work was carried over to 2018.
UG Replacement – Wyndham Hills	144,106	201,263	57,157	This project was expanded to include replacement of an additional section of underground cable.
<b>Total</b>	<b>1,289,356</b>	<b>1,194,818</b>	<b>-90,378</b>	

**§ 57.195(b)(9) Quantified transmission and distribution inspection and maintenance goals/objectives for the current calendar year detailed by system area (that is, transmission, substation and distribution).**

<b>Program</b>	<b>Goal</b>
Infrared Inspection	Substation and 3 circuits
Vegetation Management	Entire System (9 circuits), as needed
Visual Line Inspection	Entire System (9 circuits)
Padmount Equipment Inspection	203 Locations
3Ø Padmount Transformer Oil Test	42 Transformers
Line Equipment Inspection	157 Locations
Pole Inspection and Treatment	725 Poles
Danger and Reject Poles	To be determined from pole inspections
Substation Equipment Inspection	12 Monthly Inspections
Recloser Maintenance	8 Reclosers

All goals are in the substation and distribution areas. The Company does not own or operate any transmission facilities.

**§ 57.195(b)(10) Budgeted transmission and distribution operation and maintenance expenses for the current year in total and detailed by the EDC's own functional account code or FERC account code as available.**

(These items are not budgeted by FERC account.)

<b>Program</b>	<b>Budget \$</b>	<b>Comment</b>
Infrared Inspection	N/A	Not budgeted individually
Vegetation Management	\$182,000	
Visual Line Inspection	N/A	Not budgeted individually
Padmount Transformer Inspection	N/A	Not budgeted individually
3Ø Padmount Transformer Oil Test	\$3,500 (estimated)	Not budgeted individually
Line Equipment Inspection	N/A	Not budgeted individually
Pole Inspection and Treatment	\$36,000	
Danger and Reject Poles	N/A	Not budgeted individually
Substation Equipment Inspection	N/A	Not budgeted individually
Recloser Maintenance	N/A	Not budgeted individually
Total		

**§ 57.195(b)(11) Budgeted transmission and distribution capital expenditures for the current year in total and detailed by the EDC's own functional account code or FERC account code as available.**

(These items are not budgeted by FERC account.)

<b>Project</b>	<b>Budget Amount \$</b>
General Construction	822,241
Transformers	53,772
Meters	110,293
Supplee Mill Road Relocation	181,260
Rt. 15 Reconductor 1	83,189
UG Replacement – Wyndham Hills 3	99,315
Total	\$1,350,070

**§ 57.195(b)(12) Significant changes, if any, to the transmission and distribution inspection and maintenance programs previously submitted to the Commission.**

No significant changes.