



Entergy Services, LLC  
639 Loyola Avenue (70113)  
P.O. Box 61000  
New Orleans, LA 70161-1000  
Tel 504 576 6571  
Fax 504 576 5579

Timothy S. Cragin  
Assistant General Counsel  
Legal Services - Regulatory

June 22, 2020

**Via Electronic Delivery**

Ms. Lora W. Johnson, CMC, LMMC  
Clerk of Council  
City Hall - Room 1E09  
1300 Perdido Street  
New Orleans, LA 70112

**Re: Resolution Directing Entergy New Orleans, Inc. to Investigate and Remediate Electric Service Disruptions and Complaints and to Establish Minimum Electric Reliability Performance Standards and Financial Penalty Mechanisms – CNO Docket No. UD-17-04**

Dear Ms. Johnson:

Please find enclosed for your further handling Entergy New Orleans, LLC's ("ENO") Final Progress Report on its 2019 Reliability Plan, which is being submitted for filing in the above-referenced docket pursuant to Council Resolution R-18-98. As a result of the remote operations of the Council's office related to COVID-19, ENO submits this filing electronically and will submit the requisite original and number of hard copies once the Council resumes normal operations, or as you direct. ENO requests that you file this submission in accordance with Council regulations as modified for the present circumstances.

Thank you for your assistance with this matter.

Sincerely,

A handwritten signature in blue ink that reads "Timothy S. Cragin" with a checkmark at the end.

Timothy S. Cragin

TSC\rdm

Enclosures

cc: Official Service List (UD-17-04 via electronic mail)

**ENTERGY NEW ORLEANS, LLC'S  
FINAL PROGRESS REPORT ON 2019 RELIABILITY PLAN**

Entergy New Orleans, LLC (“ENO”) respectfully submits this Final Progress Report summarizing for the Council the results of ENO’s execution of its 2019 Reliability Plan, as well as two carryover projects from the 2018 Reliability Plan. The two projects from the 2018 Revised Reliability Plan were carried over into 2019 because they involved pole excavation work that could not be done in 2018 due to U.S. Army Corps of Engineers limits regarding work near the levees when the Mississippi River is above a certain level. Those projects were completed in mid-2019 once the Mississippi River level allowed the work to proceed. Regarding the 2019 Reliability Plan, ENO made significant progress toward completion of its 2019 Reliability Plan, which was submitted to the Council on January 18, 2019. More specifically, as of December 31, 2019, ENO had completed 92 out of 94 distribution line reliability projects targeted in its 2019 Distribution Reliability Plan. These projects included acceleration of the deployment of Distribution Automation (“DA”) through the installation of fifty new reclosers on its distribution system by July 1, 2019. These reclosers are already providing notable benefit to customers. For example, the Sewerage and Water Board of New Orleans has noted several potential outages that were avoided by the recloser installed near the Carrollton central plant. Additional details relating to the 2019 distribution line reliability projects are reflected in the charts and graphs on pages 3 through 13 below. A spreadsheet showing the progress of the Transmission portion of the 2019 Reliability Plan is set forth on page 14 below.

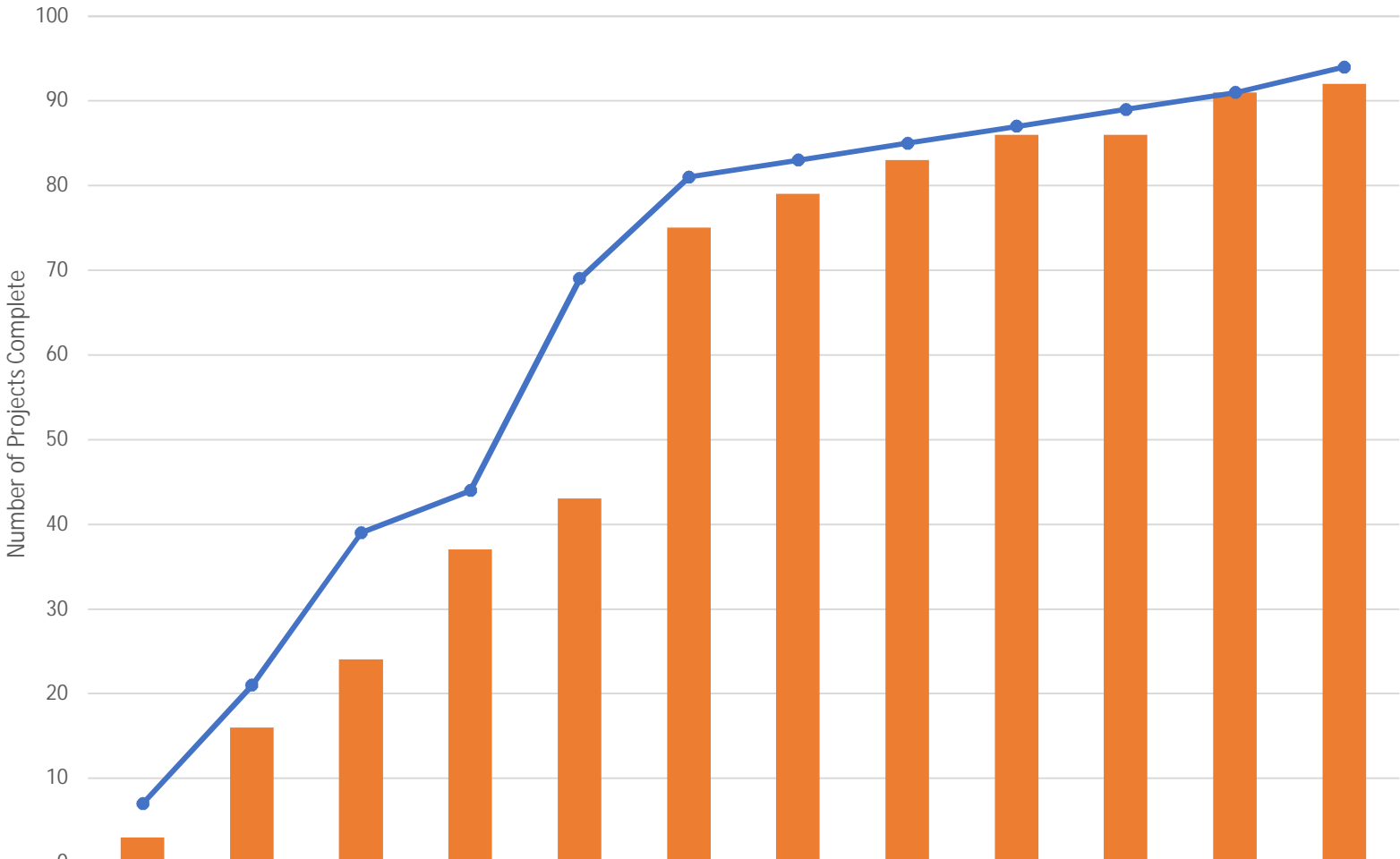
ENO identified, inspected, and designed nine FOCUS projects in 2019. As of December 31, 2019, all nine of those FOCUS projects have been completed. ENO estimates this FOCUS work has resulted in approximately 8,300 fewer Customer Interruptions.

Of the nineteen feeders scheduled for the 2019 cycle of 100% backbone and lateral inspections, as of December 31, 2019, all nineteen had been inspected, seventeen had repairs completed, and two were in the construction stage. Repairs on one of the feeders and on a portion of a second of these feeders have been carried over into 2020.

ENO has completed 98% of the 2,250 eligible pole reinforcements through its pole inspection contractor, Osmose Utility Services, Inc. (“Osmose”). The remainder of the poles have been marked as “non restorable” and will be replaced.

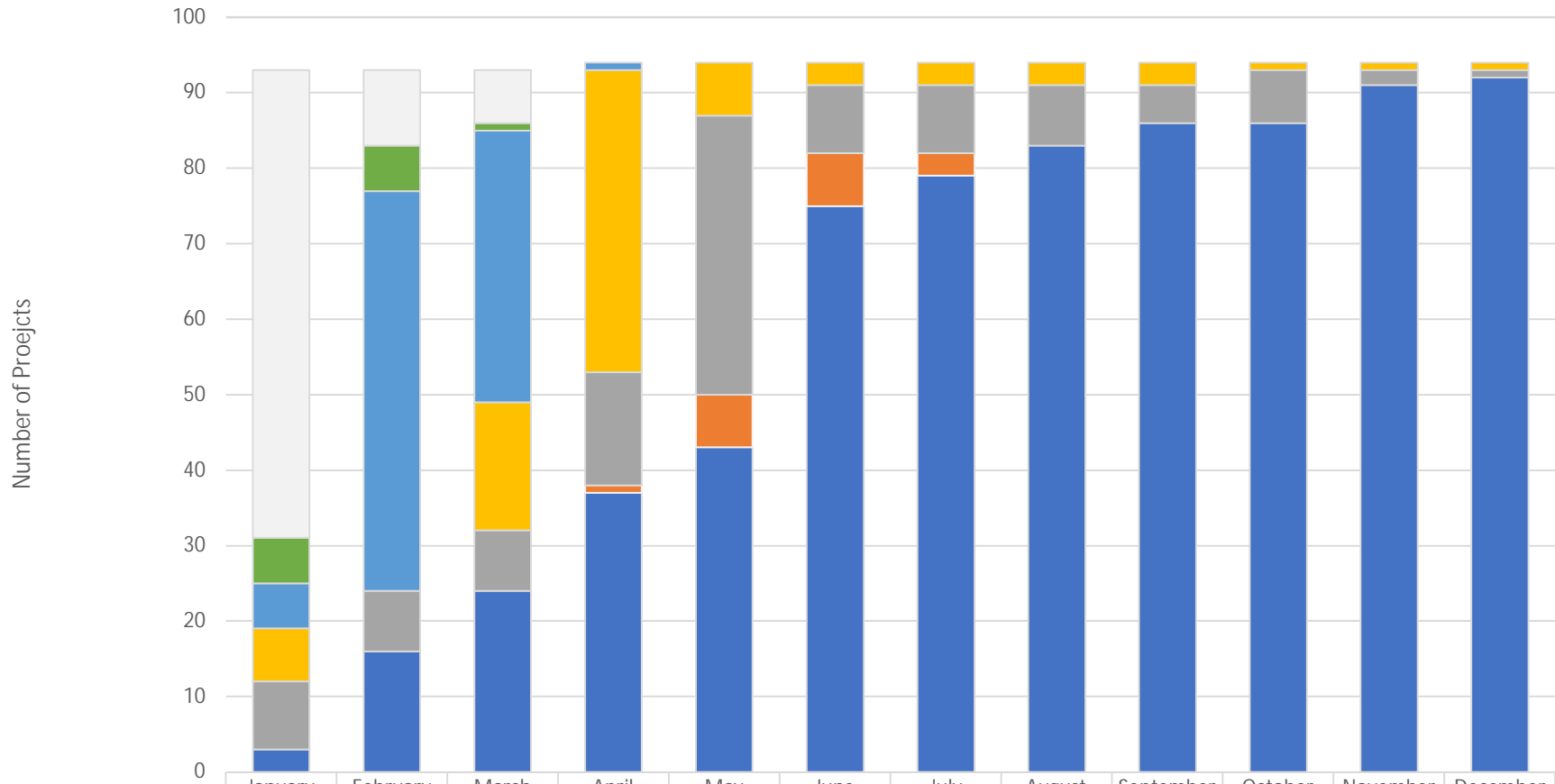
Finally, our Fix-It-Now (“FIN”) reliability crew continues to work on performing infrared inspections of distribution facilities to identify and prevent outages that could result from imminent failure conditions and investigating repeat outages to assess and repair the fundamental cause of the outage. Given previous years’ investments along with the execution of baseline distribution reliability programs, as of December 31, 2019, there has been a notable positive effect on distribution line reliability. ENO saw an approximately 20% decrease in distribution-line-related customer interruptions in 2018 as compared to 2017, and an additional 9% decrease in 2019 as compared to 2018. When Transmission-related customer interruptions are taken into account, distribution and transmission-related customer interruptions in 2019 decreased by almost 25% compared to 2018. In addition to the graphs below related to ENO’s 2019 Reliability Plan execution, ENO is attaching a PowerPoint deck that shows in more detail the significant progress made in distribution reliability in recent years.

### ENO 2019 Distribution Reliability Plan Project Progress



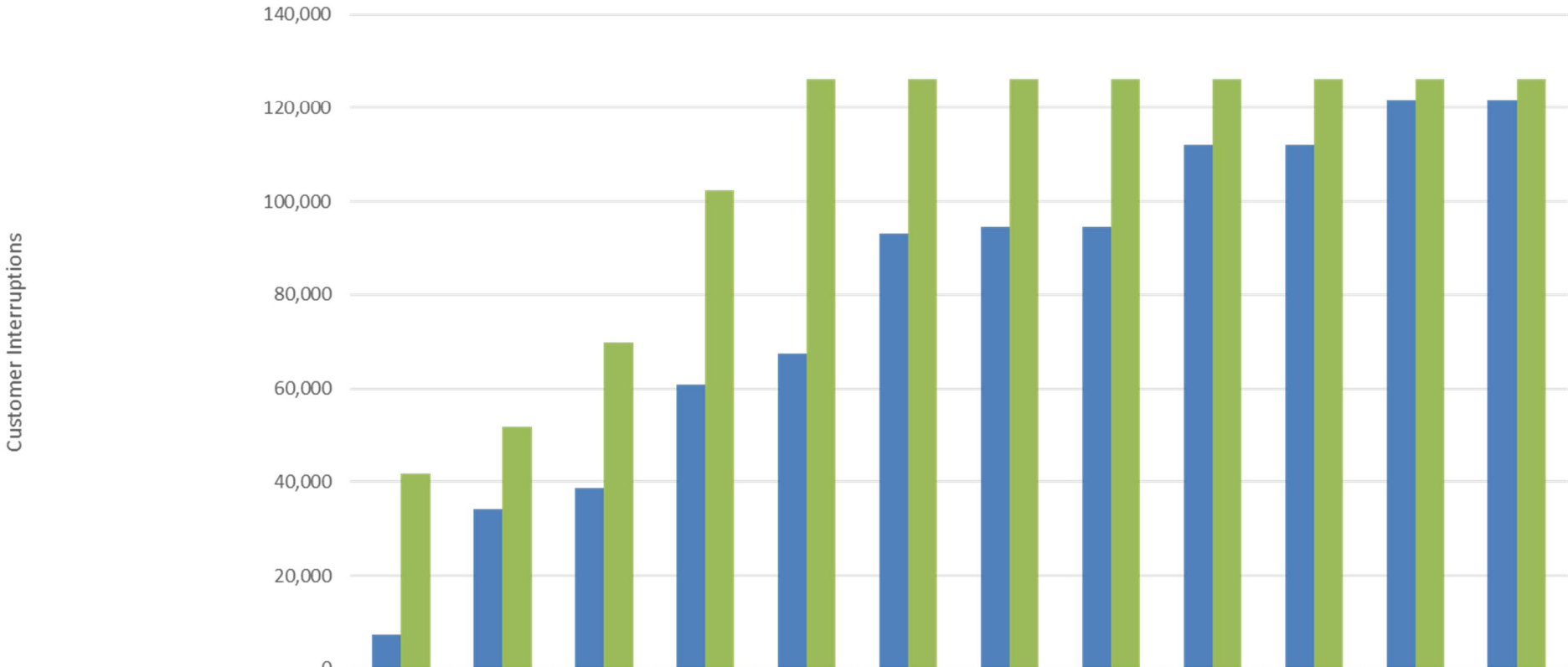
Actual Complete	3	16	24	37	43	75	79	83	86	86	91	92
Target Complete	7	21	39	44	69	81	83	85	87	89	91	94

## Project Status



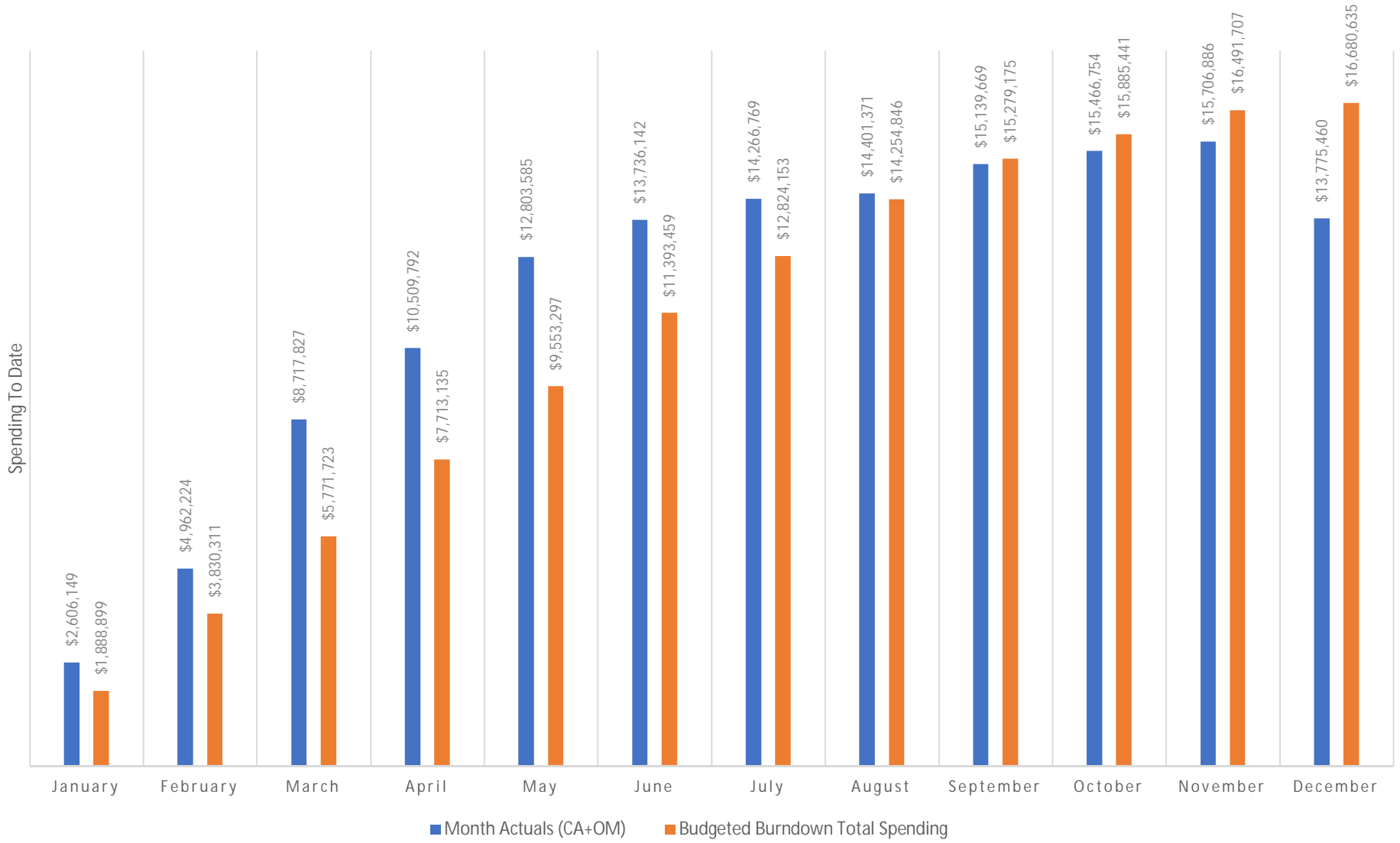
	January	February	March	April	May	June	July	August	September	October	November	December
Not Started	62	10	7									
Inspection	6	6	1									
Design	6	53	36	1								
Construction Queue	7		17	40	7	3	3	3	3	1	1	1
Construction	9	8	8	15	37	9	9	8	5	7	2	1
Commissioning				1	7	7	3					
Complete	3	16	24	37	43	75	79	83	86	86	91	92

### Customer Interruptions Avoided



	January	February	March	April	May	June	July	August	September	October	November	December
■ CI Avoided of Construction Complete	7,194	34,141	38,653	60,779	67,432	93,076	94,662	94,662	112,120	112,120	121,768	121,768
■ CI Avoided of Designed Projects	41,709	51,869	69,869	102,280	126,231	126,231	126,231	126,231	126,231	126,231	126,231	126,231

## ENO Reliability Spend



Program / Project Name	% Work Complete	Actuals YTD (CA + OM)	Total Budgeted	Explanation of Variance
Distribution Automation Acceleration	100%	\$3,592,357	\$3,500,000	Additional pole replacements required to ensure proper clearances
Focus	100%	\$681,438	\$670,000	Higher than estimated contract labor costs
2018 Backbone	100%	\$385,770	\$450,000	
2019 Fix-It-Now Crew / 100% Backbone & Lateral	82%	\$4,433,350	\$4,550,000	
Pole Replacements	95%	\$3,446,461	\$3,950,000	Slowed pole replacements to account for other identified urgent reliability work
Carryover Projects from 2018	--	\$989,001	\$387,987	Late invoices received for contract work
Other Strategic Reliability / Infrastructure	--	\$2,998,539	\$2,595,000	Additional projects identified needing urgent work
Summary	%	\$16,526,916	\$16,102,987	



Projects by Council District: A

% Work Complete	Name	Project Phase	Customers Impacted / CI Avoided
100%	ENO 23 DA Recloser Joliet 2021 Device 73342	Complete	1100
100%	ENO 24 DA Recloser Joliet 2021 Device 23524	Complete	-
100%	ENO 41 DA Recloser Pauger 1703 Device 24914	Complete	1159
100%	ENO 46 DA Recloser Avenue C 409 Device 13988	Complete	361
100%	ENO 7 DA Recloser Napoleon 1914 Device 83910	Complete	1117
100%	ENO 8 DA Recloser Napoleon 1914 Device 62257	Complete	-
100%	ENO 9 DA Recloser Derbigny 1554 Device 23937	Complete	809
100%	ENO 12 DA Recloser Napoleon 1913 79987	Complete	1142
100%	ENO 13 DA Recloser Napoleon 1913 23329	Complete	-
100%	ENO 17 DA Recloser Joliet 2022 Device 82357	Complete	1128
100%	ENO 20 DA Recloser Napoleon 1926 Device 27724	Complete	-
100%	ENO 32 DA Recloser Southport B0526 Device 24780	Complete	757
100%	ENO 42 DA Recloser Joliet 2016 Device 24387	Complete	1100
100%	ENO 35 DA Recloser Joliet 2014 Device 23935	Complete	57
100%	ENO 39 DA Recloser Avenue C 408 Device 14267	Complete	630
100%	ENO 43 DA Recloser Joliet 2016 Device 23206	Complete	-
100%	ENO 49 DA Recloser Avenue C 410 Device 13974	Complete	247
100%	ENO 63 FOCUS FC19N008 TU19-016T Tulane Joliet 2016 LFUS 33243	Complete	96
100%	ENO 64 FOCUS FC19N009 TU19-017T Tulane Joliet 2013 LFUS 43482	Complete	57
100%	ENO 76 2018 BB Ave C 401	Complete	-
100%	ENO 77 2018 BB Ave C 403	Complete	-
100%	ENO 79 2018 BB Ave C 406 & 411	Complete	-
100%	ENO 80 2018 BB Ave C 409	Complete	-
100%	ENO 81 2018 BB Ave C 410	Complete	-
100%	ENO 82 2018 BB Ave C 403 & 411	Complete	-
100%	ENO 119 2018 BB Joliet 2027	Complete	-
100%	ENO 192 2019 FIN Market SBKR 2135	Complete	3583
100%	ENO 290 2019 FIN Napoleon SBKR 1926	Complete	2377
100%	ENO 319 2019 FIN Joliet SBKR 2026	Complete	838
15%	ENO 366 2019 FIN Market SBKR 2147	Construction	2086
100%	ENO 415 2019 FIN Pauger SBKR 1705	Complete	272
100%	ENO 485 2019 FIN Holiday (LA) SBKR W0715	Complete	240
100%	ENO 662 2019 FIN Almonaster SBKR 623	Complete	6014
100%	ENO 703 2019 FIN Curran SBKR 2215	Complete	5642
100%	ENO 752 2019 FIN Almonaster SBKR 615	Complete	2657
100%	ENO 946 2019 FIN Derbigny SBKR 1513	Complete	-
100%	ENO 1057 2019 FIN Joliet SBKR 2012	Complete	-

Projects by Council District: B

% Work Complete	Name	Project Phase	Customers Impacted / CI Avoided
100%	ENO 47 DA Recloser Napoleon 1922 Device 25472	Complete	330
100%	ENO 23 DA Recloser Joliet 2021 Device 73342	Complete	1100
100%	ENO 24 DA Recloser Joliet 2021 Device 23524	Complete	-
100%	ENO 4 DA Recloser Pauger 1712 Sw 24107	Complete	4340
100%	ENO 5 DA Recloser Pauger 1712 Sw 23020	Complete	-
100%	ENO 6 DA Recloser Market 2147 Sw 24386	Complete	1892
100%	ENO 7 DA Recloser Napoleon 1914 Device 83910	Complete	1117
100%	ENO 8 DA Recloser Napoleon 1914 Device 62257	Complete	-
100%	ENO 9 DA Recloser Derbigny 1554 Device 23937	Complete	809
100%	ENO 12 DA Recloser Napoleon 1913 79987	Complete	1142
100%	ENO 13 DA Recloser Napoleon 1913 23329	Complete	-
100%	ENO 17 DA Recloser Joliet 2022 Device 82357	Complete	1128
100%	ENO 20 DA Recloser Napoleon 1926 Device 27724	Complete	-
100%	ENO 10 DA Recloser Market 2135 Device 14496	Complete	1162
100%	ENO 11 DA Recloser Market 2135 Device 37067	Complete	-
100%	ENO 18 DA Recloser Market 2146 Device 82998	Complete	1050
100%	ENO 19 DA Recloser Market 2146 Device 67106	Complete	-
100%	ENO 21 DA Recloser Napoleon 1925 Device 86424	Complete	988
100%	ENO 30 DA Recloser Market 2137 Device 46606	Complete	729
100%	ENO 34 DA Recloser Napoleon 1911 Device 67873	Complete	578
100%	ENO 31 DA Recloser Market 2137 Device 24364	Complete	649
100%	ENO 43 DA Recloser Joliet 2016 Device 23206	Complete	-
100%	ENO 57 FOCUS FC19N001 TU19-005T Tulane Market 2147 SBKR 2147	Complete	3482
100%	ENO 113 2018 BB Napoleon 1911	Complete	-
100%	ENO 119 2018 BB Joliet 2027	Complete	-
100%	ENO 192 2019 FIN Market SBKR 2135	Complete	3583
65%	ENO 290 2019 FIN Napoleon SBKR 1926	Construction	2377
15%	ENO 366 2019 FIN Market SBKR 2147	Construction	2086
100%	ENO 415 2019 FIN Pauger SBKR 1705	Complete	272
100%	ENO 555 2019 FIN Market SBKR 2132	Complete	-
100%	ENO 613 2019 FIN Curran SBKR 2212	Complete	3292
100%	ENO 786 2019 FIN Napoleon SBKR 1915	Complete	-
100%	ENO 946 2019 FIN Derbigny SBKR 1513	Complete	-

Projects by Council District: C

% Work Complete	Name	Project Phase	Customers Impacted / CI Avoided
100%	ENO 45 DA Recloser Pauger 1709 Device 25292	Complete	760
100%	ENO 4 DA Recloser Pauger 1712 Sw 24107	Complete	4340
100%	ENO 5 DA Recloser Pauger 1712 Sw 23020	Complete	-
100%	ENO 1 DA Recloser Almonaster 623 23260	Complete	4019
100%	ENO 2 DA Recloser Almonaster 623 23276	Complete	-
100%	ENO 3 DA Recloser Almonaster 623 24682	Complete	432
100%	ENO 44 DA Recloser Holiday W0723 Device 1009	Complete	535
100%	ENO 58 FOCUS FC19N002 TU19-006T Tulane Almonaster 614 RCLR 24010	Complete	2911
100%	ENO 59 FOCUS FC19N003 N/A Tulane Almonaster 614 RCLR 25741	Complete	801
100%	ENO 60 FOCUS FC19N004 EO19-001T East Orleans Tricou 2347 SBKR 2347	Complete	482
100%	ENO 61 FOCUS FC19N006 TU19-015T Tulane Almonaster 614 LFUS 23527	Complete	151
100%	ENO 150 2019 FIN Tricou SBKR 2347	Complete	714
100%	ENO 319 2019 FIN Joliet SBKR 2026	Complete	838
100%	ENO 485 2019 FIN Holiday (LA) SBKR W0715	Complete	240
100%	ENO 555 2019 FIN Market SBKR 2132	Complete	-
100%	ENO 662 2019 FIN Almonaster SBKR 623	Complete	6014
100%	ENO 823 2019 FIN Lower Coast SBKR W1726	Complete	2966
100%	ENO 886 2019 FIN Lower Coast SBKR W1712	Complete	3072
100%	ENO 983 2019 FIN Lower Coast SBKR W1714	Complete	-

Projects by Council District: D

% Work Complete	Name	Project Phase	Customers Impacted / CI Avoided
100%	ENO 14 DA Recloser Almonaster 626 Device 49556	Complete	1169
100%	ENO 38 DA Recloser Pauger 1702 Device 23672	Complete	529
100%	ENO 41 DA Recloser Pauger 1703 Device 24914	Complete	1159
100%	ENO 45 DA Recloser Pauger 1709 Device 25292	Complete	760
100%	ENO 46 DA Recloser Avenue C 409 Device 13988	Complete	361
100%	ENO 48 DA Recloser Pontchartrain Park 506 Device D1595	Complete	99
100%	ENO 4 DA Recloser Pauger 1712 Sw 24107	Complete	4340
100%	ENO 5 DA Recloser Pauger 1712 Sw 23020	Complete	-
100%	ENO 15 DA Recloser Pontchartrain Park 503 Device 13204	Complete	1350
100%	ENO 16 DA Recloser Pontchartrain Park 503 Device 14419	Complete	-
100%	ENO 25 DA Recloser Pauger 1704 Sw 24555 DLOC 3978548919	Complete	331
100%	ENO 26 DA Recloser Pauger 1704 Sw 25297 DLOC 4012348974	Complete	727
100%	ENO 40 DA Recloser Pontchartrain Park 512 Device 14932	Complete	558
100%	ENO 50 DA Recloser Pauger 1710 Device 55549	Complete	1013
100%	ENO 1 DA Recloser Almonaster 623 23260	Complete	4019
100%	ENO 2 DA Recloser Almonaster 623 23276	Complete	-
100%	ENO 3 DA Recloser Almonaster 623 24682	Complete	432
100%	ENO 29 DA Recloser Sherwood Forest 1607 Device 23804	Complete	582
100%	ENO 36 DA Recloser Paterson 1001 Device 10123	Complete	599
100%	ENO 37 DA Recloser Paterson 1001 Device 49997	Complete	-
100%	ENO 53 DA Recloser Joliet 2017 Device 74824	Complete	-
100%	ENO 54 DA Recloser Napoleon 1923 Device 24210	Complete	-
100%	ENO 56 FOCUS AD19N001 TU19-014T Tulane Pauger 1704 LFUS F24555	Complete	263
100%	ENO 60 FOCUS FC19N004 EO19-001T East Orleans Tricou 2347 SBKR 2347	Complete	482
100%	ENO 76 2018 BB Ave C 401	Complete	-
100%	ENO 77 2018 BB Ave C 403	Complete	-
100%	ENO 79 2018 BB Ave C 406 & 411	Complete	-
100%	ENO 80 2018 BB Ave C 409	Complete	-
100%	ENO 82 2018 BB Ave C 403 & 411	Complete	-
100%	ENO 83 2018 BB Pont Park 501	Complete	-
100%	ENO 84 2018 BB Pont Park 502	Complete	-
100%	ENO 85 2018 BB Pont Park 503	Complete	-
100%	ENO 86 2018 BB Pont Park 505 & 513	Complete	-
100%	ENO 89 2018 BB Pont Park 509	Complete	-

% Work Complete	Name	Project Phase	Customers Impacted / CI Avoided
100%	ENO 129 2018 BB Pauger 1708	Complete	-
100%	ENO 130 2018 BB Pont Park 508	Complete	-
100%	ENO 131 2018 BB Pont Park 512	Complete	-
100%	ENO 242 2019 FIN Pauger SBKR 1703	Complete	3214
100%	ENO 319 2019 FIN Joliet SBKR 2026	Complete	838
15%	ENO 366 2019 FIN Market SBKR 2147	Construction	2086
100%	ENO 415 2019 FIN Pauger SBKR 1705	Complete	272
100%	ENO 662 2019 FIN Almonaster SBKR 623	Complete	6014
100%	ENO 752 2019 FIN Almonaster SBKR 615	Complete	2657

Projects by Council District: E

% Work Complete	Name	Project Phase	Customers Impacted / CI Avoided
100%	ENO 29 DA Recloser Sherwood Forest 1607 Device 23804	Complete	582
100%	ENO 60 FOCUS FC19N004 EO19-001T East Orleans Tricou 2347 SBKR 2347	Complete	482
100%	ENO 62 FOCUS FC19N007 EO19-004T East Orleans Sherwood Forest 1601 LFUS 27876	Complete	105
100%	ENO 150 2019 FIN Tricou SBKR 2347	Complete	714
100%	ENO 319 2019 FIN Joliet SBKR 2026	Complete	838
100%	ENO 415 2019 FIN Pauger SBKR 1705	Complete	272
100%	ENO 485 2019 FIN Holiday (LA) SBKR W0715	Complete	240
100%	ENO 613 2019 FIN Curran SBKR 2212	Complete	3292
100%	ENO 703 2019 FIN Curran SBKR 2215	Complete	5642

WO #s	Substation	Status	Work Description	Constr Start Date	EISD	Actual ISD	Actuals Thru Dec 31 (Full Financial)	Estimate (Full Financial)	Variance \$Est vs Actuals	Budget Variance Reason
C6PPGR0061	ALMONASTER	Complete	Replace D20 RTU with RTAC	7/8/2019	7/25/2019	8/7/2019	120,045	104,500	15,545	Original scope did not capture the unforeseen need for additional work/material that was required. (Materials \$30k over estimate)
C6PPKO1062	ALMONASTER	Deferred (Portion)	Add Standard Animal Mitigation	6/14/2019	6/25/2020		0	46,200		
C6PPDNCLAI	CLAIBORNE	Complete	Install T3 and replace T4	10/1/2018	6/1/2019	7/9/2019	6,876,547	6,162,061	714,486	Indirect costs were higher than estimated Increase in Construction cost to allow for mitigation measures to be put in place to manage operation risk during construction. Outage cancellation resulted in having additional duration for different ancillary contracts such as community interface, traffic control and field oversight.
C6PPGR0067	CURRAN	Deferred	Replace switch N9630	12/1/2020	12/31/2020		90,716	192,500		
C6PPGR0074	CURRAN	Deferred	Replace OCB #22BT-12	2/24/2020	3/5/2020	3/6/2020	101,147	148,500		
C6PPGR0075	CURRAN	Complete	Replace OCB #22T1-2	7/29/2019	8/16/2019	8/16/2019	211,702	165,000	46,702	Contractor resources were brought in due to shortage of internal labor resources. (Contractor \$45k over estimate)
C6PPGR0076	CURRAN	Complete	Replace OCB #22T1-6	10/28/2019	11/14/2019	11/15/2019	172,347	148,500	23,847	Labor & Material each \$10k over estimate.
C6PPGR0077	CURRAN	Complete	Replace OCB #22T2-6	10/8/2019	10/25/2019	10/25/2019	202,109	148,500	53,609	Labor \$36k & Materials \$11k over estimate
C6PPGR0005	CURRAN	Complete	Replace T1 Diff Panel (Note: LC LV bus diff scheme)	10/28/2019	11/14/2019	11/15/2019	240,295	165,000	75,295	Contractor resources were brought in due to shortage of internal labor resources. (Contractor \$45k & Materials \$19k over estimate)
C6PPGR0006	CURRAN	Complete	Replace T2 Diff Panel (Note: LC LV bus diff scheme)	10/8/2019	10/25/2019	10/25/2019	235,833	165,000	70,833	Contractor resources were brought in due to shortage of internal labor resources. (Contractor \$55k & Materials \$15k over estimate)
C6PPGR0058	DELTA	Complete	Replace 115kV OCB N0243	2/4/2019	2/11/2019	2/21/2019	275,596	276,000	-404	
C6PPDERBVF	DERBIGNY	Complete	Install High Security Fence	9/10/2018	5/3/2019	6/27/2019	3,544,723	3,835,000	-290,277	Contractor \$90k & Indirects \$221k under estimate
C6PPGR0057	DERBIGNY	Complete	T3 Life extension	4/1/2019	5/6/2019	5/15/2019	691,344	695,300	-3,956	
C6PPGR0057	DERBIGNY	Complete	Replace T3 Arresters	4/1/2019	5/6/2019	5/15/2019	691,344	695,300	-3,956	
C6PPKO1067	DERBIGNY	Deferred (Portion)	Add Standard Animal Mitigation	11/4/2019	12/31/2020		48,545	32,000		
C6PPGR0060	NOTRE DAME	Deferred	Replace XFMR Diff Panel on T4 Type: EM - WH HU CO11	1/6/2020	1/16/2020	2/12/2020	231,380	220,000		
C6PPBU1455	PAUGER	Complete	Replace 1709-2 Feeder Breaker	4/22/2019	5/10/2019	5/24/2019	138,623	135,000	3,623	
C6PPBU1457	PAUGER	Complete	Replace 1708-2 Feeder Breaker	4/22/2019	5/10/2019	5/24/2019	226,139	227,000	-861	
C6PPBU1460	PAUGER	Complete	1711-2 - Replace a 1970 ITE OCB with a new RMAG	4/22/2019	5/3/2019	3/14/2019	175,353	148,500	26,853	Labor \$45k over estimate
C6PPBU1465	PAUGER	Complete	T-4 - Replace the XFMR Diff panel	9/16/2019	10/4/2019	10/5/2019	127,048	220,000	-92,952	Contractor \$75k, Labor \$13k & Materials \$12k under estimate
C6PPBU1456	PAUGER	Complete	Replace OCB Main Breaker 17T4-6 and Disconnects	9/16/2019	10/4/2019	10/5/2019	301,339	148,500	152,839	Original scope did not include the unforeseen need for additional work that was required. Estimate was updated and approved on 1-21-20 for \$311K to capture additional cost. (Contractor \$21k, Labor \$48k & Materials \$70k over estimate)
C6PPBU1461	PAUGER	Deferred	Replace 17T2-6 Main T2 Breaker	10/12/2020	10/30/2020		154,260	148,500		
C6PPBU1473	PAUGER	Deferred	Replace XFMR Diff Panel on T2 Type: EM - WH HU/CO	10/12/2020	10/30/2020		40,427	330,000		
C6PPGR0095	PONTCHARTRAIN PARK	Deferred (Portion)	Add Standard Animal Mitigation	12/17/2019	12/31/2020		39,861	79,200		
Not Created	CURRAN	Stage 2	Install Transmission Breakers	TBD	6/30/2022		.	6,700,000		
Not Created	LOWER COAST	Stage 2	Install Transmission Breakers	TBD	6/30/2022		.	5,500,000		



# ANALYSES OF ENO'S DISTRIBUTION RELIABILITY IMPROVEMENTS

APRIL 2, 2020



# Executive Summary

- ENO FOLLOWS INDUSTRY STANDARDS FOR MEASURING ITS RELIABILITY PERFORMANCE
- ENO'S DISTRIBUTION RELIABILITY PERFORMANCE HAS CONSISTENTLY IMPROVED FROM 2016 - 2019
- ENO'S BASELINE RELIABILITY PROGRAMS HAVE DRIVEN IMPROVED RELIABILITY PERFORMANCE

# Measures of Reliability

## Differences between customer interruptions and outages

Network	CI	CM	DEVICE ID	FIRST CALL DATE TIME	TROUBLE CLEAR TIME	DEVICE TYPE	Cause Desc	FEEDER
East Orleans	1,398	29,358	2217	3/9/2020 11:20:52 AM	3/9/2020 11:41:37 AM	Substation Breaker	Vehicle	2217
East Orleans	93	8,835	621	2/5/2020 1:23:12 PM	2/5/2020 2:58:18 PM	Substation Breaker	Equipment Failure - Connector Sleeve	621

Network	CI	CM	DEVICE ID	FIRST CALL DATE TIME	TROUBLE CLEAR TIME	DEVICE TYPE	Cause Desc	FEEDER ID	Remarks
Orleans	1,288	46,368	21967	2/5/2020 2:25:00 AM	2/5/2020 3:01:00 AM	Disconnect Switch	Vehicle	2024	car broke pole; shield wire down
Orleans	37	12,839	24830	3/8/2020 11:26:00 AM	3/8/2020 5:13:00 PM	Disconnect Switch	Vehicle	615	Crew on site working PID IN PRO

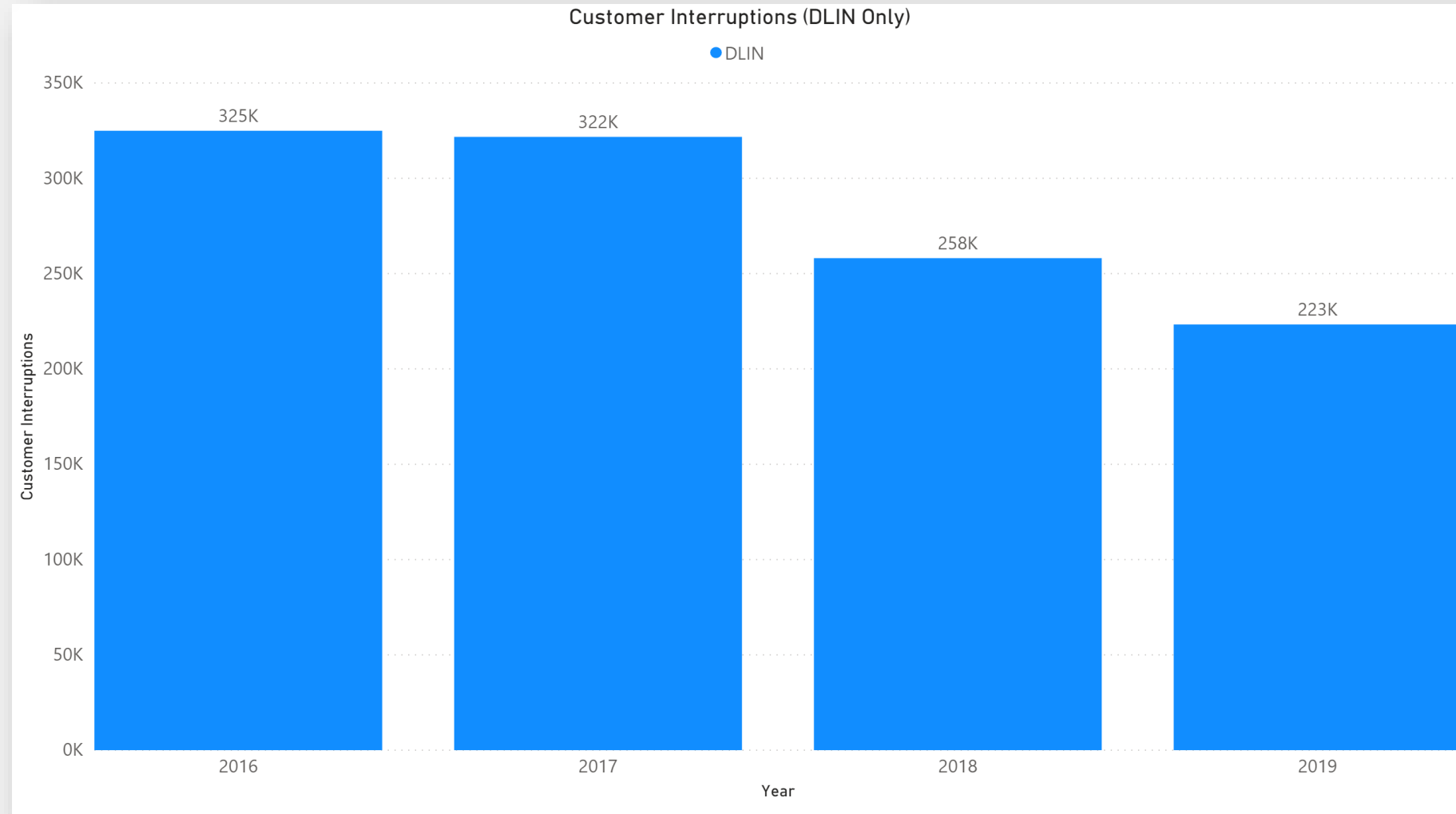
Network	CI	CM	DEVICE ID	FIRST CALL DATE TIME	TROUBLE CLEAR TIME	DEVICE TYPE	Cause Desc	FEEDER ID	Remarks
Orleans	2,308	308,046	24010	2/27/2019 12:10:00 AM	2/27/2019 5:57:00 AM	Recloser	Equipment Failure - Crossarm	614	CROSS ARM BRC
Orleans	15	1,050	24387	7/1/2019 3:05:00 PM	7/1/2019 4:15:28 PM	Recloser	Lightning	2016	

# Standard for Measuring Reliability

- SAIFI/Customer Interruptions (CI) – IEEE standard endorsed by Quanta Report Recommendation 6.3.1.1(a)
  - 6.3.1 – “It is recommended that ENO consider using SAIDI, along with SAIFI, as part of the metrics used in the benefit-cost analysis for evaluation and prioritization of reliability improvement projects.”
  - 6.3.1(a) – “It is recommended that ENO consider SAIDI (along with CMI and \$/CMI metrics<sup>54</sup>) to account for projects that improve reliability by reducing interruption duration (such as deployment of Fault Circuit Indicators (FCI) and sensors, manual switches, etc.), but that do not reduce interruption frequency. Using both indices would allow ENO to have a more complete perspective of the benefits derived from the implementation of its proposed reliability
- Standard SAIFI excludes Major Events and any Outages less than five (5) minutes (“Momentaries”)
- Momentaries are not included in SAIFI reporting
- MAIFI (momentaries) and SAIFI (interruptions) are two separate metrics

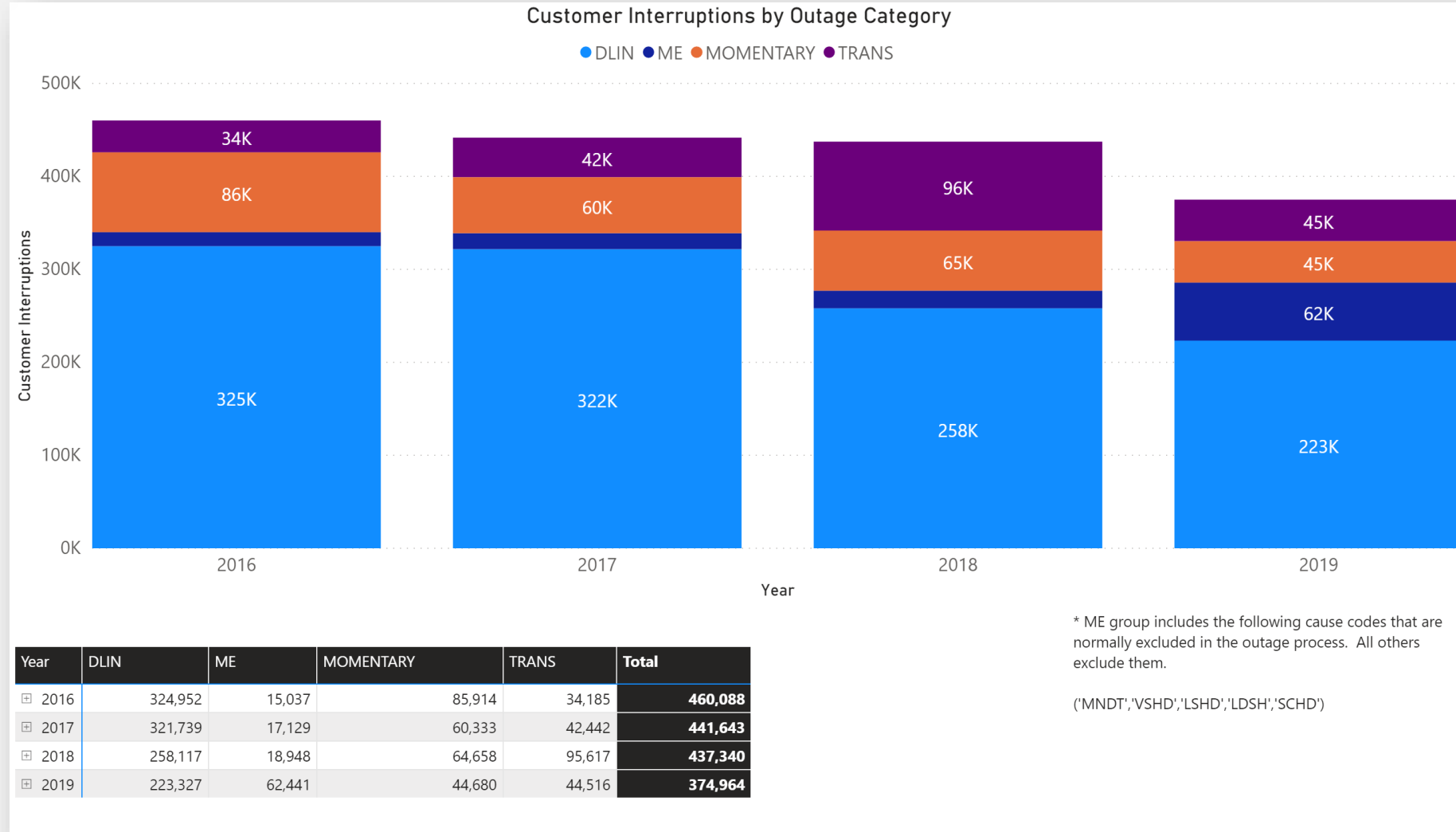
# Improvements 2016-2019

Customer interruptions on the distribution portion of the system have declined 31% from 2016 to 2019



# Improvements 2016-2019

Even when customer interruptions caused by major events, by transmission asset outages and outages less than 5 minutes (momentaries) are included, Customer interruptions have declined 21% from 2016 to 2019

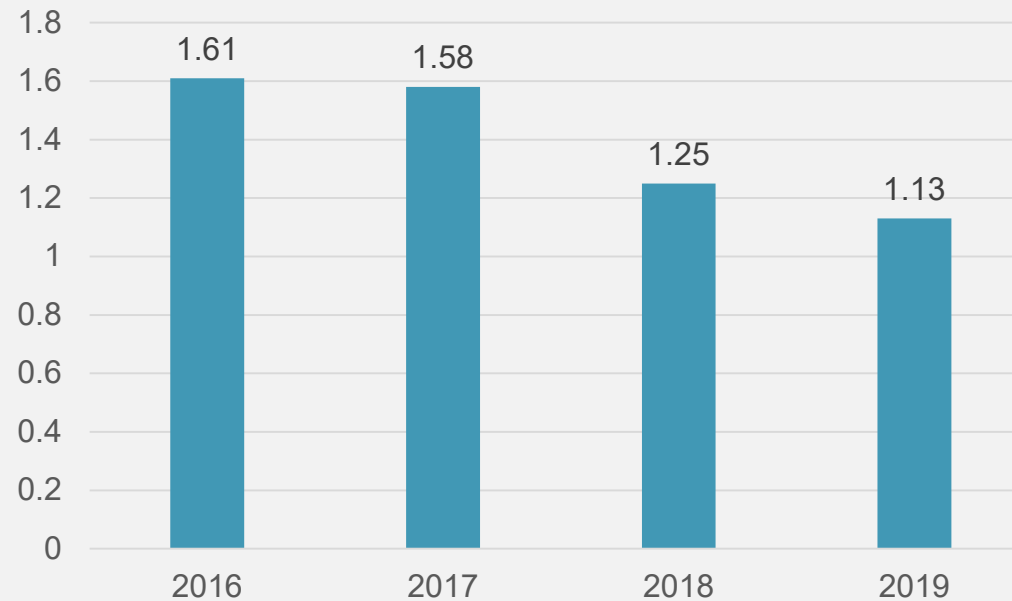


# Improvements 2016-2019

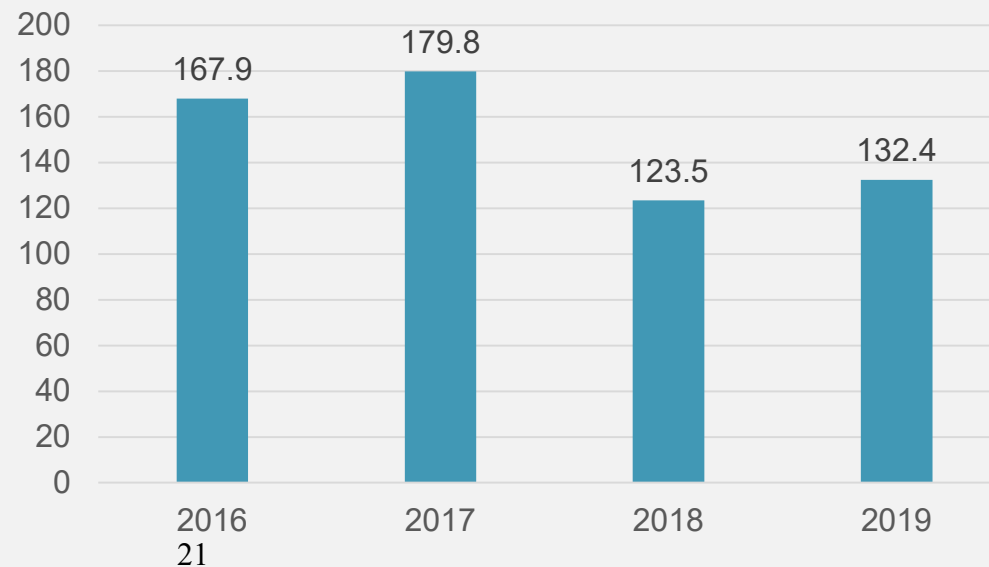
- SAIFI has improved 29% from 2016-2019
- SAIDI has improved 21% from 2016-2019

\*Per Regulatory Filing Requirements:  
Included are sustained Distribution outages. Excluding outages due to Major Events, Government Mandates, Shed Events, Customer Equipment, Late Calls and Mismatched Customers.

## SAIFI

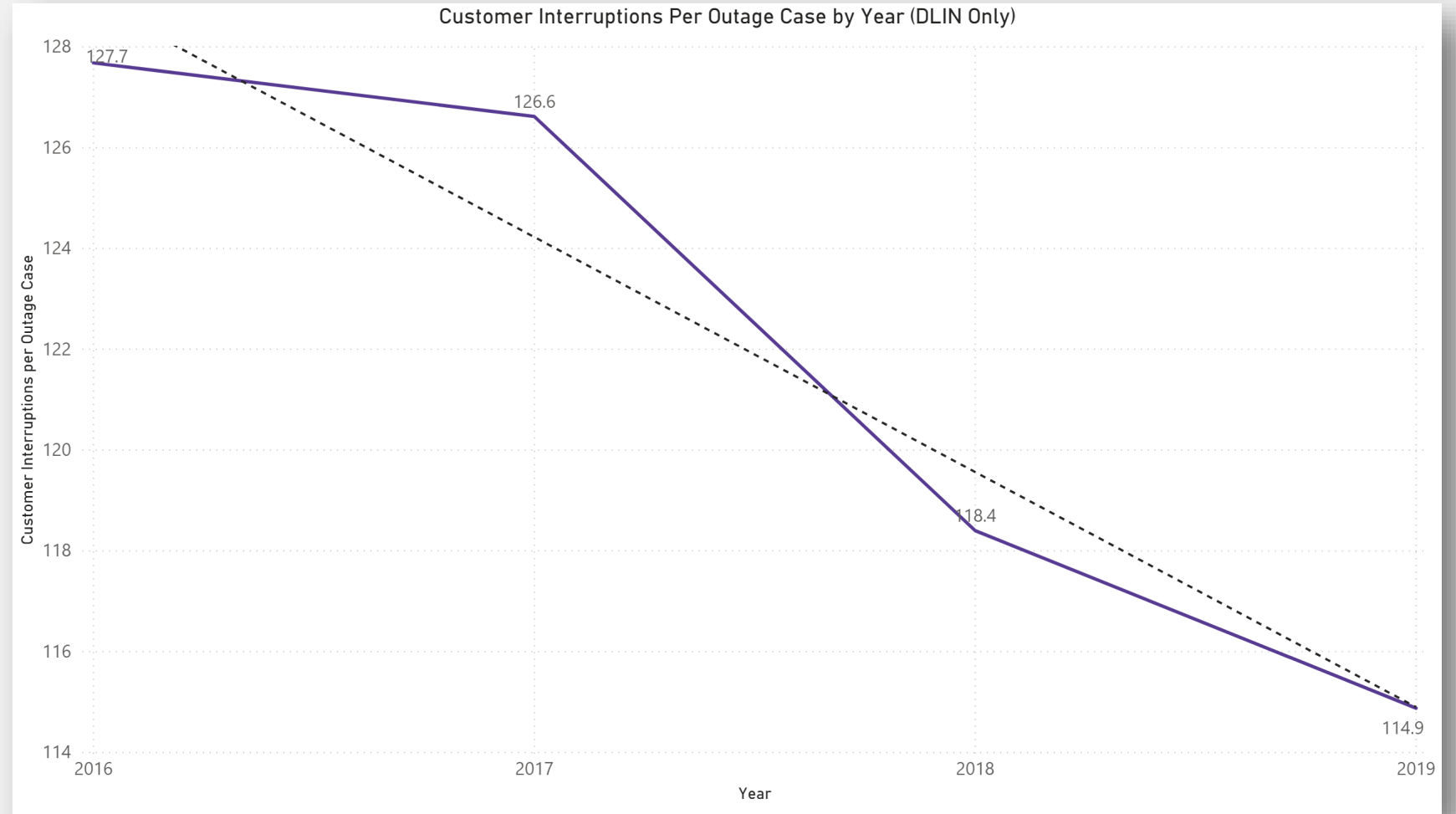


## SAIDI












# Improvements 2016-2019

- Sectionalizing and distribution automation improvements



# Investments in Improvements

## Key Components of ENO's Baseline Reliability Plan

-  100% Backbone and Lateral Inspections
-  Fix It Now Reliability Crew
-  FOCUS Program
-  Pole Program
-  DA Program
-  Underground Cable Renewal Program
-  Equipment Inspection Program
-  Internal Program
-  Vegetation Management



# Investments in Improvements

## 100% Backbone and Lateral Inspections

For the 17 feeders completed in 2019, early performance results are positive

Outage count in 2019 was reduced by roughly 13% over the average from the prior three years

Number of customers interrupted in 2019 was reduced by roughly 32% over the average of the prior three years

Outage count in 2020 (YTD as of 3/14) was reduced by roughly 57% over the average from the prior four years

Number of customer interruptions in 2020 (YTD as of 3/14) was reduced by roughly 79% over the average from the prior four years

# Investments in Improvements

## FOCUS Program

For the 46 FOCUS devices that were worked in the 2016 – 2018 program years, the performance results were found to be very positive



The outage count after the device ISD was, on average, roughly **69% reduced** from the outage count for the 3 years prior to the device ISD.



The number of customers interrupted after the device ISD was, on average, roughly **67% reduced** from the number of customers interrupted for the 3 years prior to the device ISD.

# Investments in Improvements

## Legacy\* Backbone Program

For the 14 Backbone feeders that were worked in the 2016 – 2018 program years, the performance results were found to be very positive



The outage count after the device ISD was, on average, roughly **60% reduced** from the outage count for the 3 years prior to the device ISD.



The number of customers interrupted after the device ISD was, on average, roughly **63% reduced** from the number of customers interrupted for the 3 years prior to the device ISD.

\* Beginning in 2019 this program was expanded to target reviewing 100% of backbone and laterals over eight year period

# Conclusion

- Quanta Report Recommendations and ENO's Baseline Reliability Program have been implemented.
- ENO's Distribution Infrastructure investments have resulted in a 31% improvement in Customer Interruptions over the last three years 2016-2019.