PENNSYLVANIA
PUBLIC UTILITY COMMISSION
Harrisburg, PA 17120

Public Meeting held July 11, 2024

Commissioners Present:

Stephen M. DeFrank, Chairman
Kimberly Barrow, Vice Chair
Ralph V. Yanora
Kathryn L. Zerfuss
John F. Coleman, Jr

Petition of PPL Electric Utilities Corporation for Approval of Major Modifications to its Existing Long-Term Infrastructure Improvement Plan

Docket No.: P-2022-3034972

OPINION AND ORDER

BY THE COMMISSION:

Before the Pennsylvania Public Utility Commission (Commission) for consideration is the Petition of PPL Electric Utilities Corporation (PPL) for Approval of Major Modifications to its Existing Long-Term Infrastructure Improvement Plan (LTIIP) for its electric distribution operations. The Petition was filed on January 17, 2024, and

copies of the Petition were served on the statutory advocates and the parties of record from PPL's most recent base rate case proceeding.[1]

On February 6, 2024, the Office of Consumer Advocate (OCA) filed an Answer to the Petition (Answer). In its Answer, the OCA requested full evidentiary proceedings in order to fully examine and investigate PPL's Petition. OCA Answer at 3 and 4.

On February 7, 2024, via Secretarial Letter, the Commission issued a Data Request to gain further information concerning the Predictive Failure Technology (PFT) program.

On February 14, 2024, PPL's Petition was transferred from the Commission's Bureau of Technical Utility Services (TUS) to the Office of the Administrative Law Judge (OALJ) for evidentiary hearings pursuant to the OCA's Answer.

On February 16, 2024, the OCA filed comments (OCA Comments). In its Comments, *inter alia*, the OCA stated that while it had requested in its Answer that this matter be sent to the OALJ for hearings, hearings may not be necessary so long as PPL provides sufficient information to inform the review by the TUS and enable the Commission to determine if PPL's proposed modifications would accelerate infrastructure repair and replacement in a prudent and cost-effective manner as required by Act 11. OCA Comments at 8. The OCA further requested that the Commission reaffirm that the inclusion of property in the LTIIP is not dispositive of whether the cost of that project will be afforded DSIC recovery. OCA Comments at 7 and 8.

On February 21, 2024, PPL's Petition was transferred back to TUS from OALJ.

On February 22, 2024, PPL replied to the Data Request.

[1] *See*, Docket No. R-2015-2469275.

On March 8, 2024, PPL filed a letter in response to both the OCA's Answer and Comments (PPL Letter).

On March 18, 2024, via Secretarial Letter, the Commission issued a second Data Request seeking information on projected replacement of eligible property for the 2023 through 2027 LTIIP period.

On March 22, 2024, PPL replied to the second Data Request.

No other comments were filed and no hearings were held. For the reasons outlined in this Opinion and Order we will approve PPL's Petition, in part, and deny the Petition, in part.

BACKGROUND

Effective April 16, 2012, Act 11 of 2012, (Act 11) provides jurisdictional water and wastewater utilities, electric distribution companies (EDCs), and natural gas distribution companies (NGDCs) or a city natural gas distribution operation with the ability to implement a Distribution System Improvement Charge (DSIC) to recover reasonable and prudent costs incurred to repair, improve, or replace certain eligible distribution property that is part of the utility's distribution system. The eligible property for the utilities is defined in 66 Pa.C.S. §1351. Act 11 states that as a precondition to the implementation of a DSIC, a utility must file an LTIIP with the Commission consistent with 66 Pa.C.S. §1352.

The Commission promulgated regulations relating to LTIIPs at 52 Pa. Code §§ 121.1 – 121.8 that became effective December 20, 2014. In accordance with the regulations, DSIC-eligible utilities must include the following elements in its LTIIP:[2]

[2] *See,* 52 Pa. Code § 121.3.

(1) Types and age of eligible property;
(2) Schedule for its planned repair and replacement;
(3) Location of the eligible property;
(4) Reasonable estimates of the quantity of property to be improved;
(5) Projected annual expenditures and measures to ensure that the plan is cost effective;
(6) Manner in which replacement of aging infrastructure will be accelerated and how repair, improvement or replacement will maintain safe and reliable service;
(7) A workforce management and training program; and
(8) A description of a utility's outreach and coordination activities with other utilities, PennDOT and local governments on planned maintenance/construction projects.

PPL's currently approved LTIIP addressed the eight required elements of a LTIIP at the time they were approved. Therefore, we will only discuss the proposed changes from the currently approved LTIIP to the modified LTIIP.

PPL's PETITION FOR APPROVAL OF MAJOR MODIFICATION

PPL is in the business of selling and distributing electric to retail customers within the Commonwealth of Pennsylvania and is therefore a "public utility" within the meaning of Section 102 of the Public Utility Code, 66 Pa.C.S. § 102, subject to the regulatory jurisdiction of the Commission. PPL is also an EDC as that term is defined under Section 2803 of the Public Utility Code, 66 Pa.C.S. § 2803. PPL manages an electric distribution and transmission system, and default supply services, for approximately 1.5 million customers throughout its certificated service territory, which includes all or portions of 29 counties in eastern and central Pennsylvania.

PPL's current LTIIP was approved by a Commission Order entered December 22, 2022, at Docket No. P-2022-3034972 and covers the years 2023 through 2027. PPL's LTIIP proposed $511.62 million dollars in program funding. The funding was distributed over the 12 programs outlined in PPL's LTIIP. As of the end of 2023, PPL has spent a total of $105.11 million, as noted in PPL's Annual Asset Optimization Plan (AAOP) for 2023.[3]

PPL averred that under its LTIIP, it has continued its accelerated repair, improvement, and replacement of aging infrastructure. PPL also stated that since the time that the Commission originally approved the LTIIP, there have been developments affecting the design and funding of the LTIIP, including the DSIC-eligible property that PPL plans to incorporate in its LTIIP. PPL's Petition proposes modifications which include an overall increase in spending of 56.26% on the programs and initiatives over the remainder of the current LTIIP. The modification also includes a proposed new LTIIP program, PFT, with total costs of $84.44 million. The total requested increase in DSIC-eligible expenditures is $287.86 million over the next four years. In addition to the $84.44 million for the PFT program, the Petition also included a request to increase spending by another $203.42 million to modify and increase the LTIIP program spending amounts in its current 12 LTIIP program areas.

I. PPL's PFT Program

PPL stated that it proposes to add a new program, PFT, to its LTIIP and that the purpose of the PFT program is to anticipate and proactively address potential equipment failures before they occur. PPL noted that this is achieved by installing new line

[3] AAOPs are required pursuant to 52 Pa. Code § 121.6 and must detail the actual DSIC-eligible infrastructure replaced or upgraded in the past year, as well as a projection for the infrastructure replacements for the next year. PPL's 2023 AAOP may be found at Docket No. M-2024-3047062.

monitoring sensors on the distribution voltage levels while leveraging new company processes, procedures, advanced analytics, machine learning, and real-time data capturing.

PPL stated that the new line monitoring sensors can detect fault disturbances along the feeder, thereby identifying aging or damaged equipment before they fail. PPL asserted that early detection reduces reactive replacements of failed equipment, improves reliability for customers, reduces maintenance costs associated with necessary repairs, reducing hazards to the public and employees, and provides data insights into failure trends that can support more strategic and prudent investments across the distribution system.

PPL stated that to evaluate this new technology, it began deploying PFT on select circuits across the system in 2023. PPL stated that during this test run, the PFT identified 36 deteriorated assets consisting of insulator damage, transformer issues, vegetation encroachment, conductor damage, and conductor tie wires. PPL averred that proactively identifying the issues yielded a cost savings of approximately $33,000, assuming all 36 of the identified issues would have resulted in a permanent failure. PPL stated that it estimates that the PFT program could result in an overall 10-15% improvement in SAIFI, on those circuits where PFT was deployed, over the life of the technology.[4] PPL also noted that the PFT would reduce operations and maintenance (O&M) expense by

[4] The Commission established reliability benchmarks and standards to measure the performance of each EDC. *See*, Docket No. M-00991220. The benchmarks and standards established by the Commission are based on four reliability performance metrics adopted by the Institute of Electrical and Electronic Engineers, Inc. (IEEE): SAIFI, CAIDI, SAIDI, and MAIFI. SAIFI is the system average interruption frequency index, or frequency of outages; CAIDI is the customer average interruption duration index, or duration of outages; SAIDI is the system average interruption duration index, or average number of minutes the average customer experiences in the measurement period; and MAIFI is the momentary average interruption frequency index, or occurrences of momentary customer interruptions. There is no benchmark measure for MAIFI.

approximately $9 million per year, with an approximate life expectancy of 10 to 15 years for the PFT components.

Comments

In its Answer, OCA acknowledged, *inter alia,* that PPL's requested increase of $287.86 million was based upon PPL's concern that current levels of spending are insufficient to adequately replace aging infrastructure, concern over severe weather events, connection of distributed energy resources (DER), increased supply chain costs, and the addition of the PFT program. OCA Answer at 2. OCA also recognized that the proposed increased LTIIP expenditures were meant to address the aging infrastructure/failing equipment and the PFT program as an aide to detection of same. OCA Answer at 3. In its Comments, the OCA noted that the three primary drivers for the increased projections are the PFT, Substation, and Reliability LTIIP project categories. The OCA in its Answer and Comments also noted that perhaps PPL should direct its investments more towards vegetation management issues as those are the main cause of service outages. OCA Answer at 3, OCA Comments at 5. The OCA also questioned the cost-benefit of the PFT technology. OCA Comments at 6.

PPL in its Letter stated that PFT will reduce O&M expense by $9 million annually. PPL Letter at 4. In supplemental information filed with the Commission, PPL averred that the PFT program is cost effective because the budgeted cost for the PFT program is $84.44 million and the average life expectancy of the technology is 10 to 15 years with an annual O&M expense savings of $9 million. Therefore, PPL posited that with a minimum life expectancy of 10 years, the program would be cost-effective. PPL Letter at 4. PPL also noted that the PFT technology will help it deploy vegetation management crews more effectively as evidenced by the fact that the PFT detected five vegetation management issues on the test circuits where PFT was deployed.

Resolution

Based on the Petition and supplemental information filed with the Commission, PPL's PFT program, by design, does not appear to initiate protective action to prevent an outage or fault as would a relay or other protective control system device. The PFT also does not appear to control the flow of electricity as in the case of an installed switching device. Because the PFT technology does not appear to have any control functions on any circuit where it would be installed, it should be classified as a diagnostic tool, similar to the infrared inspection program detailed in PPL's current Inspection and Maintenance Plan (I&M Plan),[5] which is not an LTIIP program.

The Commission's understanding of the PFT technology is that the detectors are mounted on the conductors and are programed to gather data and communicate information that assists in identifying potential asset failures due to various causes, but the PFT technology does not perform switching or control functions. The Commission's understanding is that once an abnormal signal is detected and sent back to the monitoring system, the signal needs to be interpreted and personnel dispatched to locate, isolate, remove and replace or repair the failing equipment. The PFT system arguably provides an indication of impending failure to which personnel must respond, research, and address the failing equipment. This indicates again that the PFT technology is a diagnostic tool and not an eligible program in an LTIIP as a repair, improvement[6] or replacement of DSIC-eligible property, as is required pursuant to 52 Pa. Code §§ 121.1 and 121.3.

[5] Pursuant to 52 Pa. Code § 57.198, all EDCs are required to file a biennial plan for the periodic inspection, maintenance, repair and replacement of facilities. PPL's current I&M Plan was approved on December 16, 2022, via Secretarial Letter, and covers the calendar years 2024 through 2025. PPL's I&M Plan is a public document and may be viewed at Docket No. M-2009-2094773.

[6] Improvement here in the sense that the PFT does not directly improve the performance nor increase the resilience of the conductor or other components of the circuit where the PFT devices are placed.

We also note that the PFT does not appear to be DSIC-eligible property as defined for EDCs in 66 Pa.C.S. § 1351 (relating to definitions of eligible property). The definition of eligible property for EDCs includes the following property: (i) poles and towers; (ii) overhead and underground conductors; (iii) transformers and substation equipment; (iv) any fixture or device related to eligible property under subparagraphs (i), (ii) and (iii), including insulators, circuit breakers, fuses, reclosers, grounding wires, crossarms and brackets, relays, capacitors, converters and condensers; (v) unreimbursed costs related to highway relocation projects where an EDC must relocate its facilities; and (vi) other related capitalized costs. As found above, the PFT technology is a diagnostic tool that does not fit this definition of eligible property and PPL has not met its burden of showing that it does. As the PFT technology is not eligible property, it cannot be included in the LTIIP, which is required by the Pennsylvania Public Utility Code, to include only eligible property. *See* 66 Pa.C.S. § 1352(a). Accordingly, the Commission rejects that portion of PPL's submitted LTIIP.

Therefore, we find that the PFT program should not be permitted to be part of PPL's LTIIP and is not eligible for recovery under the DSIC. However, this is not to say that the PFT program is not a valuable diagnostic tool that PPL can utilize to determine where it may direct infrastructure improvement investments. PPL has provided evidence that the PFT program may be positive from a cost-benefit perspective. However, as a novel diagnostic tool it is not appropriate for this program to be afforded inclusion in the LTIIP and be considered DSIC-eligible property as would standard distribution assets described in 66 Pa.C.S. § 1351. PPL may seek recovery on its investment in the PFT program through a base rate proceeding where the program can be subject to a prudency review by all interested parties.

II. PPL Reliability Programs

PPL averred that it proposes to update its projected capital expenditures for various programs set forth in the LTIIP, all of which amount to an increase in total LTIIP spending of more than 20%. PPL stated that its revised total projected capital spending for existing LTIIP projects, *i.e.,* not including the PFT program, for the five-year period of the LTIIP has increased from $511.62 million to $715.04 million. PPL provided the following reasons for the projected increases in spending for its existing LTIIP programs:

- PPL determined that the level of spending in the current LTIIP was insufficient to maintain reliability when considering changes in operating conditions.
- PPL concluded that it must do more to address aging infrastructure and trends regarding more frequent and severe weather events, increased interconnections of distributed energy resources (DERs), and increased supply chain costs and constraints in order to continue providing safe, reliable, adequate, and reasonable service.
- PPL stated the total increase in spending in its existing LTIIP programs is being driven largely by additional and necessary investments in the program categories of: New Electronic Reclosers; Low Tension Network Primary Cable, Equipment and Structures; Substation; Reliability; and Protection and Control.
- PPL averred that the increase in spending is partly due to the potential available funding for projects under the Infrastructure Investment and Jobs Act (IIJA). PPL stated that its Grid of the Future infrastructure project application was selected by the U.S. Department of Energy (DOE) to potentially receive up to $49.5 million in federal funding through the IIJA and PPL noted that it proposes to update its LTIIP to reflect the additional projects that could be completed with that potential IIJA funding.

Table 1 below shows PPL's existing LTIIP projected spending. Table 2 below shows PPL's modified LTIIP proposed spending. Table 3 below shows the spending difference in millions and the increases or decreases in PPL's proposed program spending.

Table 1: PPL's Existing LTIIP Program Spending

	Millions of dollars invested					
	2023	2024	2025	2026	2027	Total
Poles	$17.33	$18.96	$17.33	$17.33	$17.33	$88.28
New Electronic Reclosers	$5.07	$4.69	$4.13	$3.63	$ -	$17.52
Distribution Animal Guarding	$0.50	$0.50	$0.50	$0.50	$0.50	$2.50
Failed Equipment	$34.77	$34.03	$35.18	$36.64	$36.03	$176.64
Underground Cable Replacement	$0.42	$1.11	$1.67	$1.59	$1.59	$6.37
Low Tension Network Primary Cable, Equipment and Structures	$0.60	$1.54	$0.38	$2.40	$2.40	$7.32
Substation	$3.04	$7.71	$14.05	$13.31	$13.08	$51.19
LTN Upgrades	$3.12	$12.60	$7.63	$8.19	$ -	$31.54
Reliability	$4.08	$2.00	$2.00	$2.00	$2.00	$12.08
System Reliability Improvement Projects	$12.77	$8.11	$13.79	$17.80	$13.29	$65.76
Unreimbursed Highway Relocations	$6.16	$4.90	$3.92	$2.83	$2.83	$20.64
Protection and Control	$4.70	$6.06	$7.35	$6.83	$6.83	$31.77
Total	**92.56**	**$102.21**	**$107.92**	**113.05**	**95.88**	**$511.62**

Table 2: PPL's Proposed Modified LTIIP Program Spending

	Millions of dollars invested					
	2023	2024	2025	2026	2027	Total
Poles	$11.40	$19.70	$17.11	$19.32	$17.74	$85.27
New Electronic Reclosers	$1.03	$10.10	$7.55	$7.28	$7.00	$32.96
Distribution Animal Guarding	$0.20	$0.34	$0.32	$0.31	$0.32	$1.49
Failed Equipment	$42.85	$42.44	$34.12	$34.68	$35.69	$189.78
Underground Cable Replacement	$0.52	$4.36	$1.98	$1.50	$2.03	$10.39
Low Tension Network Primary Cable, Equipment and Structures	$0.54	$3.76	$4.56	$4.25	$4.45	$17.56
Substation	$11.25	$26.94	$28.12	$30.24	$27.80	$124.35
LTN Upgrades	$6.87	$10.55	$11.56	$13.94	$ -	$42.93
Reliability	$9.19	$32.97	$7.13	$5.84	$6.91	$62.04
System Reliability Improvement Projects	$19.23	$11.52	$12.66	$4.13	$3.67	$51.21
Unreimbursed Highway Relocations	$8.87	$4.50	$4.92	$4.07	$3.71	$26.08
Protection and Control	$3.34	$21.73	$13.47	$14.82	$17.63	$70.99
Predictive Failure Technology	$ -	$46.13	$38.32	$ -	$ -	$84.44
Total	**$115.29**	**$235.04**	**$181.82**	**$140.39**	**$126.94**	**$799.48**

Table 3: Differences in Program Spending Between Existing and Modified LTIIP

Figures are in Millions of dollars				
LTIIP III	MODIFIED LTIIP III	Difference	% Increase/Decrease	Program
88.28	85.27	($3.01)	**-3.41%**	Poles
17.52	32.96	$15.44	**88.13%**	New Electronic Reclosers
2.5	1.49	($1.01)	**-40.40%**	Distribution Animal Guarding
176.64	189.78	$13.14	**7.44%**	Failed Equipment
6.37	10.39	$4.02	**63.11%**	Underground Cable Replacement
7.32	17.56	$10.24	**139.89%**	Low Tension Network Primary Cable, Equipment and Structures
51.19	124.35	$73.16	**142.92%**	Substation
31.54	42.93	$11.39	**36.11%**	LTN Upgrades
12.08	62.04	$49.96	**413.58%**	Reliability
65.76	51.21	($14.55)	**-22.13%**	System Reliability Improvement Projects
20.64	26.08	$5.44	**26.36%**	Unreimbursed Highway Relocations
31.77	70.99	$39.22	**123.45%**	Protection and Control
0	84.44	$84.44		Predictive Failure Technology
511.62	**799.48**	**$287.86**	**Difference**	**Total**
		56.26%	**% Increase**	

Table 4 below shows PPL's existing eligible property replacement schedule. Table 5 below shows PPL's modified LTIIP eligible property replacement schedule.

Table 4: PPL's Current LTIIP Eligible Property Replacement

PPL Current LTIIP 2023-2027	2023	2024	2025	2026	2027
Poles	6,000-7,500	6,000-7,500	6,000-7,500	6,000-7,500	6,000-7,500
New Electronic Reclosers	210-250	170-200	110-140	50-70	0
Distribution Animal Guarding	240-360	240-360	240-360	240-360	240-360
Failed Equipment	Scope and locations determined as requests are received				
Underground Cable Replacement	25-100	75-150	135-225	100-200	100-200
Low Tension Network Primary Cable, Equipment and Structures	6-20	6-20	6-20	6-21	6-21
Substation	10-26	41-70	70-109	66-104	65-102
Low Tension Network (LTN) Upgrades	21	159	102	195	0
Reliability	10-25	10-25	10-25	10-25	10-25
System Reliability Improvements Projects	6-12	6-12	6-12	6-12	6-12
Unreimbursed Highway Relocations	Scope and locations determined as requests are received				
Protection and Control	2-6	59-89	72-108	67-100	67-100

Table 5: PPL's Modified LTIIP Eligible Property Replacement

PPL Modified LTIIP 2023-2027	2023	2024	2025	2026	2027
Poles	6,000-7,500	6,000-7,500	6,000-7,500	6,000-7,500	6,000-7,500
New Electronic Reclosers	130-160	120-250	120-200	120-200	120-200
Distribution Animal Guarding	240-360	240-360	240-360	240-360	240-360
Failed Equipment	Scope and locations determined as requests are received				
Underground Cable Replacement	25-100	220-320	135-225	100-200	100-200
Low Tension Network Primary Cable, Equipment and Structures	6-20	6-20	6-20	6-21	6-21
Substation	10-26	41-70	70-109	66-104	65-102
Low Tension Network (LTN) Upgrades	21	159	102	195	0
Reliability	10-25	100-135	20-35	20-35	20-35
System Reliability Improvements Projects	6-12	6-12	6-12	6-12	6-12
Unreimbursed Highway Relocations	Scope and locations determined as requests are received				
Protection and Control	2-6	79-101	104-114	121-139	94-118
Predictive Failure Technology	0	3,800-4,400	4,100-4,500	0	0

Comments

The OCA in its Comments noted that the implementation of PFT is only a portion of the proposed increases in expenditures in the LTIIP, and that PPL has not adequately addressed the remaining increases. The OCA further commented that prior to Commission approval of this modification, PPL should provide additional specifics as to the location of these changed investments, and the expected benefit for each selected location. OCA comments at 5. OCA in its Answer questioned if the proposed investments were being targeted to the correct areas of need, given PPL's issues with tree-related outages. OCA Answer at 3. The OCA also expressed concern at how PPL's

budget for the Substations project category significantly increased without a satisfactory explanation. OCA Comments at 6. The OCA also requested that the Commission reaffirm in its Order that inclusion of property in an LTIIP is not dispositive whether the costs of that property will be afforded DSIC recovery. OCA comments at 8.

PPL in its Letter and in supplemental information filed with the Commission provided information on the locations of LTIIP reliability and substation projects. PPL also provided more detail on the reasons for the significant increase in expenditures for the Substations project category. PPL noted that it needs to replace substation equipment on an accelerated schedule to avoid increased failures based on trending and analysis. PPL Letter at 2. PPL also noted that significant changes in supply chain market conditions with inflation are causing upward pressures on pricing of components such as transformers. PPL Letter at 3. PPL averred that its proposed LTIIP modifications will help with vegetation management efforts and vegetation-caused outages. PPL Letter at 3 and 4. PPL stated that it is using data analytic models to identify poor performing and vulnerable assets to assess failure risks across its system. Based on these models and known failure rates, PPL stated that it is targeting these accelerated investments to replace nearly 70% of all high-risk circuit breakers, 48% of all high-risk substation getaways, 30% of tie cables, and 13% of all high-risk transformers through the end of 2027. PPL Letter at 4.

Resolution

PPL in its Petition, Letter, and supplemental information filed with the Commission has provided sufficient information justifying the requested increase in expenditures for its existing LTIIP projects. The increased expenditures should allow PPL to continue its improvements to its infrastructure and to address the high-risk infrastructure that may fail and cause service outages and worsening reliability. Therefore, we shall approve the modification to PPL's LTIIP for its existing LTIIP

project categories, which represents a total increase of $203.42 million. This total does not include the PFT program. We also reaffirm that approval of property for inclusion in an LTIIP is not dispositive of whether it will receive DSIC approval for cost recovery in the future.

In reviewing the Petition and resulting Answer and Comments, the Commission also reviewed PPL's historical vegetation management and O&M expenses in conjunction with PPL's historical LTIIP expenditures.[7] We also reviewed PPL's reliability performance over the course of PPL's LTIIPs. PPL has had a Commission-approved LTIIP and DSIC from 2013 to present.[8] Our review has revealed some potentially concerning trends, especially in regard to vegetation management and in the duration of outages experienced by customers.

As shown in Figure 1 below, PPL has maintained SAIFI performance of benchmark or better since 2013, which is an indication that its LTIIP programs may be successful in reducing the number of customers impacted by service outages. However, as shown in Figure 2 below, PPL's CAIDI has worsened since 2013. This is also shown in Figure 3 below, which represents the total minutes of time customers are interrupted (CMI) each year from 2015 through 2023. Figure 4 details the number of outage events that have occurred on PPL's system from 2015 through 2023. What the data in Figures 1 through 4 indicate is that while PPL has lessened the number of customers impacted by each outage event, PPL customers are experiencing more outage events each year and the outages are of a much longer duration.

[7] Our review utilized information in PPL's filed Annual and Quarterly Reliability Reports, available at Docket Nos. M-2023-3039027, M-2016-2522508, and L-00030161. We also used actual LTIIP expenditure data provided by PPL's AAOPs, available at Dockt Nos. M-2024-3047062, M-2023-3038816, M-2022-3031185, M-2021-3024345, M-2020-3018946, M-2019-3008230, M-2018-3000259, M-2017-2591311, M-2016-2531747, M-2015-2469861, and M-2014-2413271.
[8] *See,* Docket Nos. P-2012-2325034 and P-2017-2622393.

Figure 1: PPL SAIFI 2013 through 2023

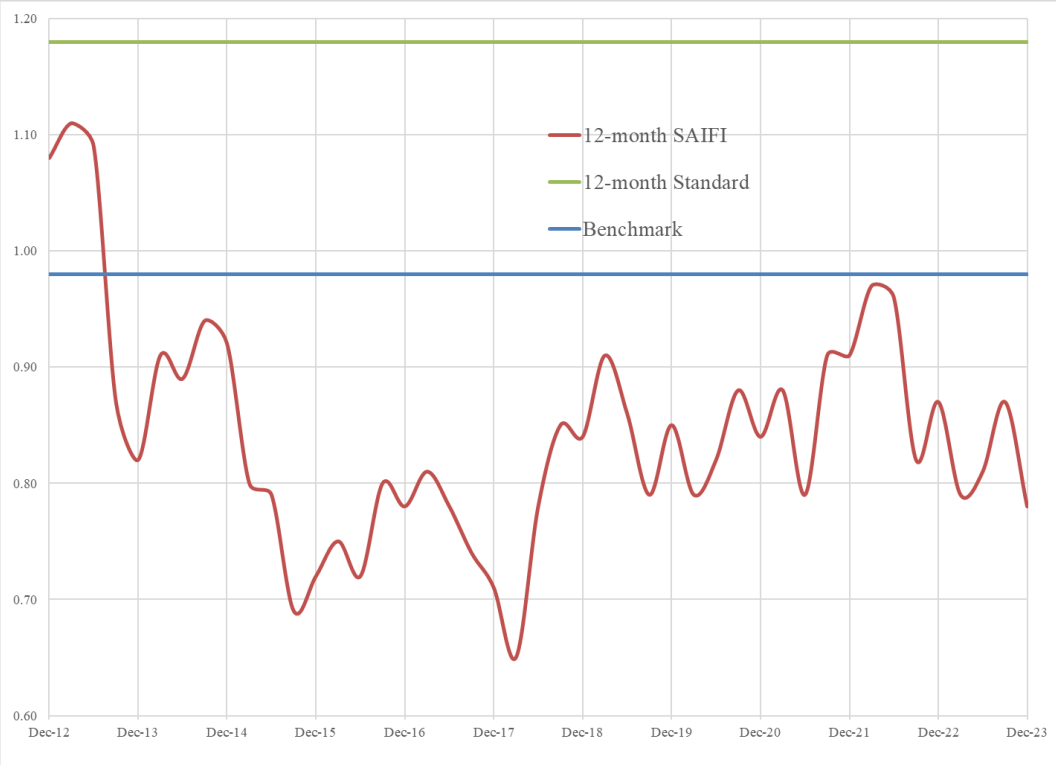


Figure 2: PPL CAIDI 2013 through 2023

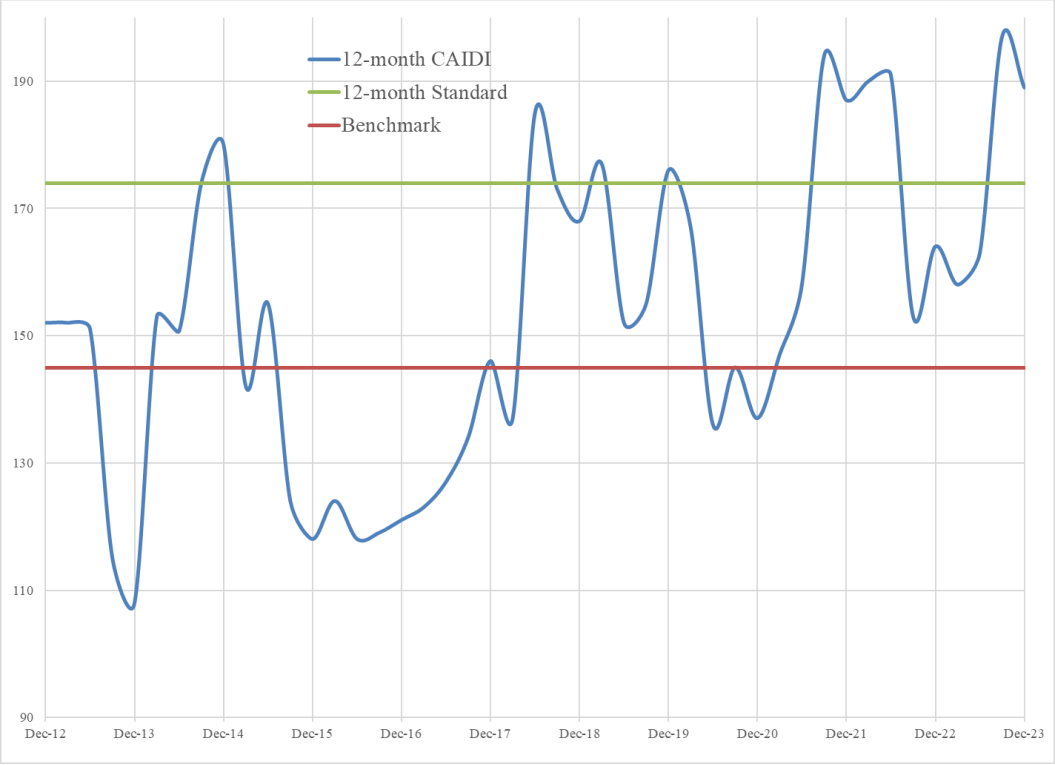


Figure 3: PPL Customer Minutes Interrupted (CMI) 2015 through 2023

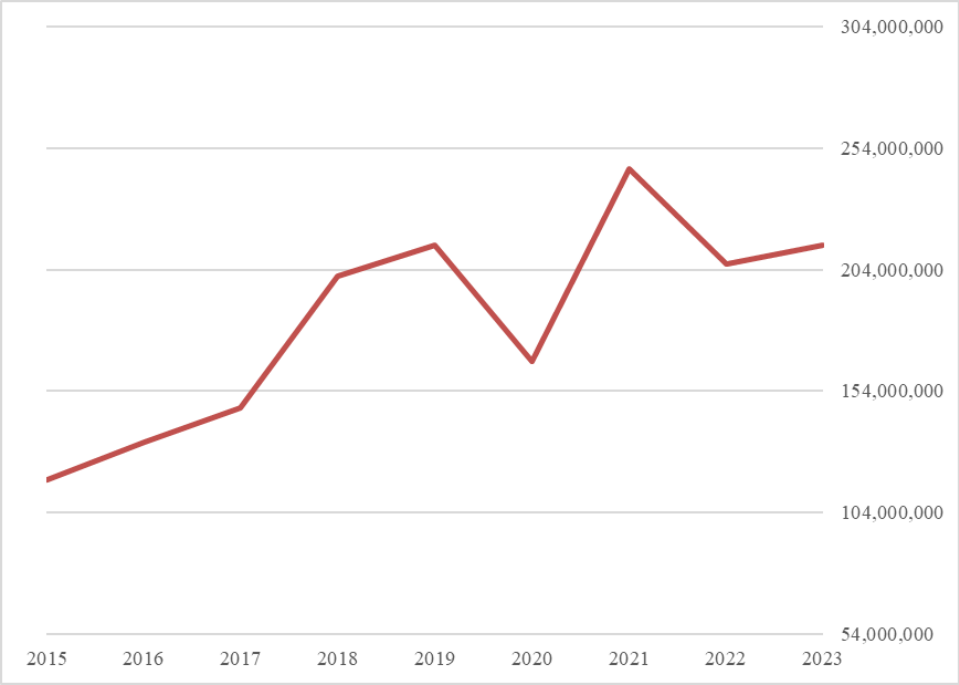


Figure 4: PPL Number of Outage Events 2025 through 2023

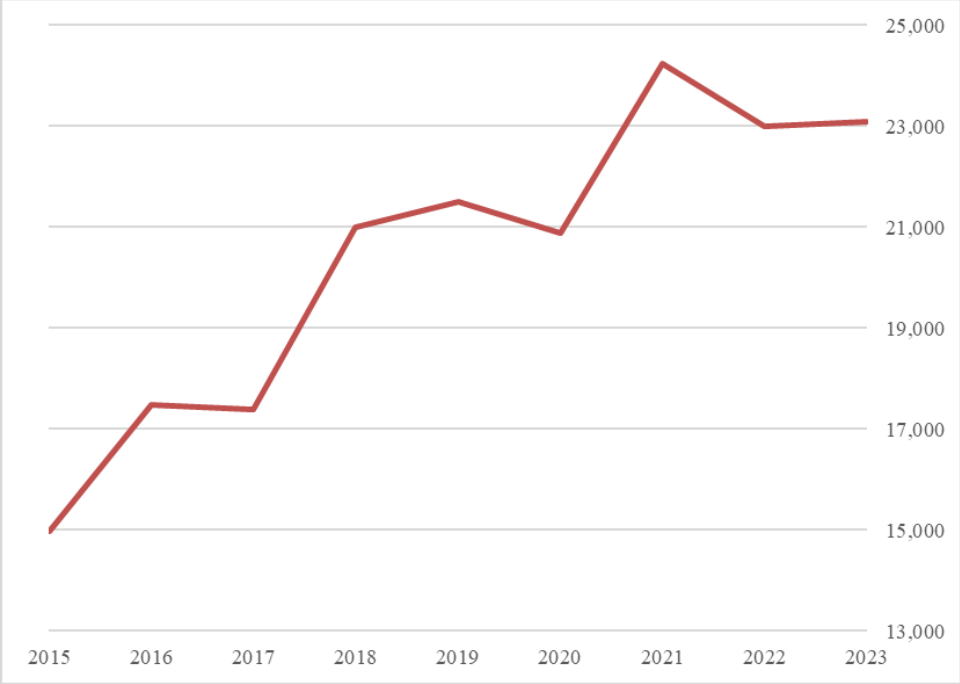


Figure 5 below details the top three causes of outage events each year from 2013 through 2023. Equipment failure as a cause has been on a slight downward trend, as should be expected given the focus of PPL's LTIIP programs. However, vegetation-caused outage events have significantly increased since 2013. Figure 6 below shows PPL's vegetation management O&M expenses for its distribution and transmission operations from 2013 through 2023. Figure 7 below shows PPL's budgeted and actual total O&M expenses for its distribution and transmission operations from 2013 through 2023 and its annual LTIIP expenditures. Note that for the increase in actual total O&M expenses in 2022, 45.9% of the increase was related to customer service call volumes and residential accounts receivable. For the increase in actual O&M expenses over budget in 2023, 86.7% of the increase was attributable to costs associated with a billing event experienced by PPL in early 2023. In other words, the increases were not related to expenditures to improve reliability.

Figure 5: PPL Top 3 Reported Outage Causes 2004 through 2023

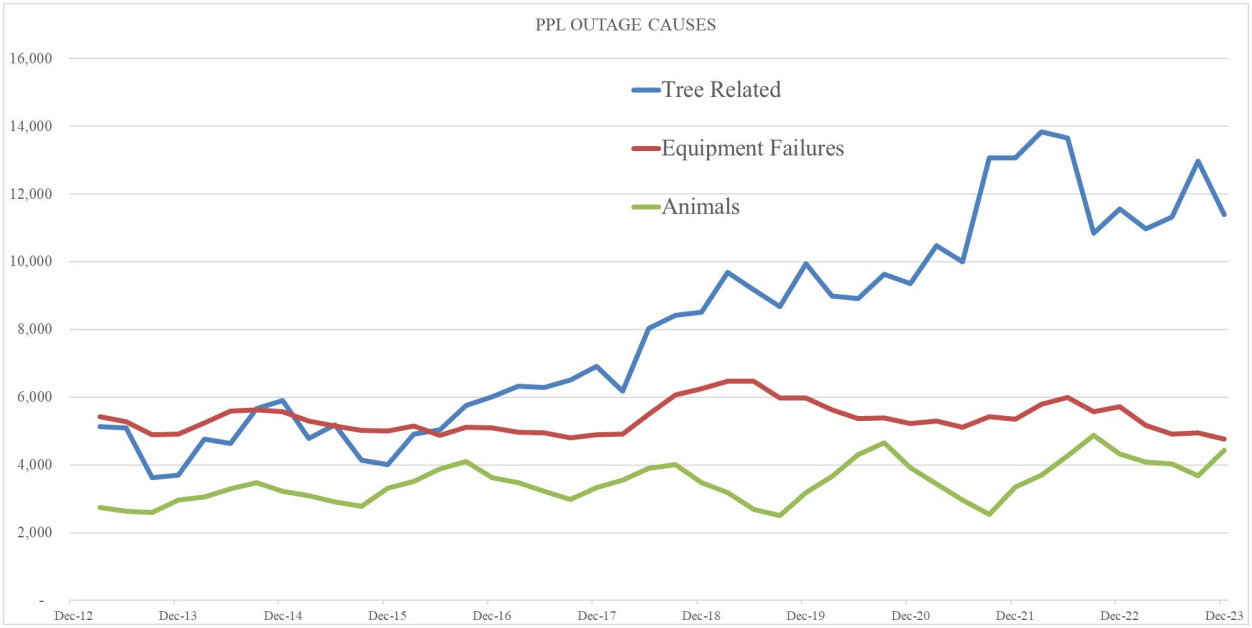


Figure 6: PPL Vegetation Management O&M Expenses 2013 through 2023

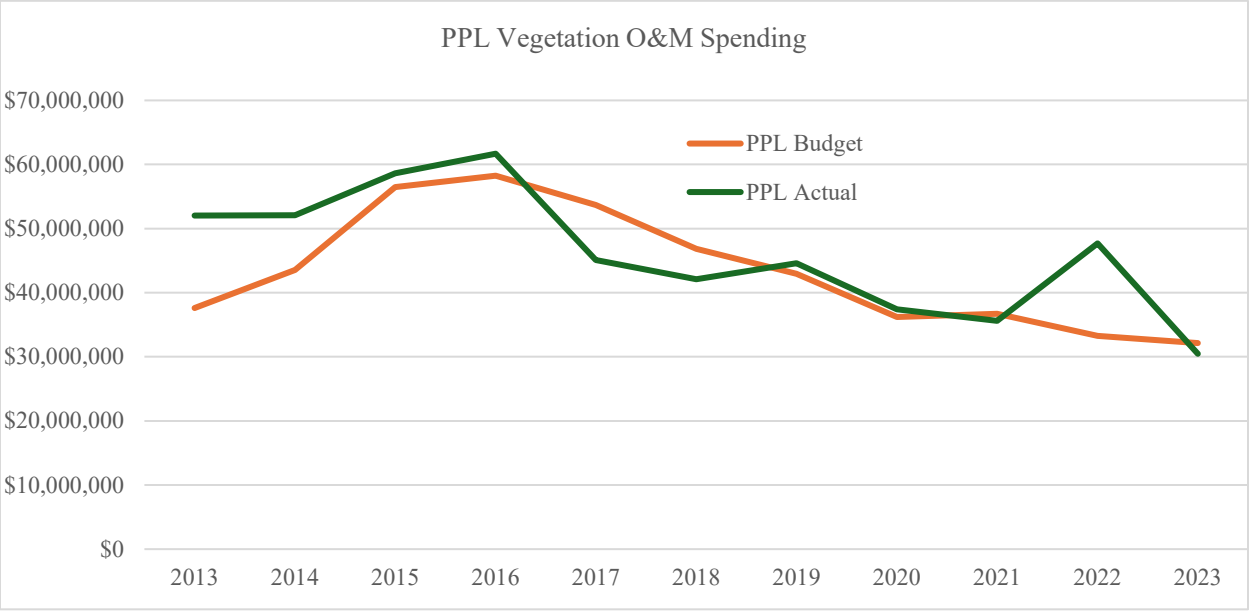
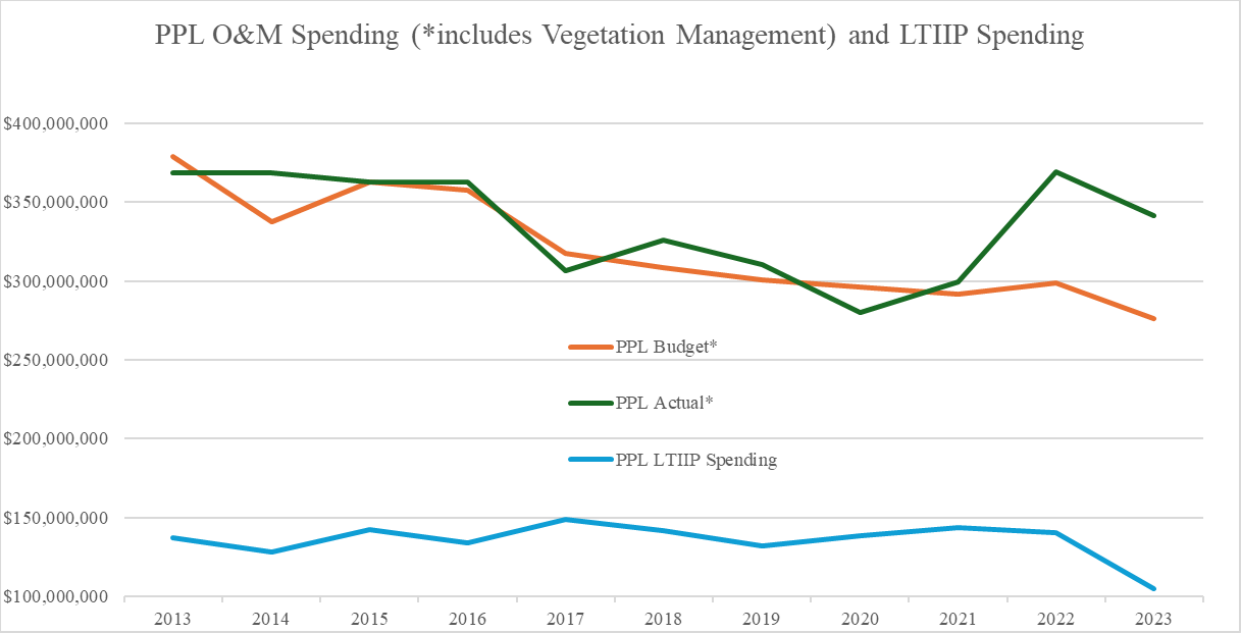


Figure 7: Total O&M Expenses Budgeted and Actual Compared to Actual LTIIP Spending 2013 through 2023



As can be seen in Figures 6 and 7 above, PPL has been decreasing its overall O&M expenses and its vegetation management expenses since 2013. Meanwhile, as

shown in Figure 5 above, annual vegetation-caused outages have approximately doubled since 2013. The Commission notes that the DSIC is not intended to displace or impact a company's baseline (meaning pre-DSIC and pre-LTIIP) budgets for O&M and capital improvements. In fact, the DSIC and LTIIP are to reflect an acceleration of infrastructure replacement over the utility's historic level of capital improvement, or to maintain an already accelerated rate of infrastructure replacement.[9] The issue of PPL's apparent decreasing O&M expenditures, including vegetation management expenditures, are beyond the scope of this Petition and Order, but we highlight these issues here for such consideration as may be warranted by parties to PPL's next base rate case.[10] In terms of PPL's worsening CAIDI, TUS staff will continue to monitor the issue and in particular will review PPL's next I&M Plan which is to be filed in October 2024.

The Commission has considered the modifications proposed to PPL's existing LTIIP programs in concert with PPL's reliability metrics, outage causes and customer interruptions. The Commission has noted the decrease in equipment failure-caused outages and the increase in vegetation-caused outages and CMI since 2013. PPL should review its O&M expenditures and focus efforts there on reducing CAIDI and CMI. We note that increases in eligible property replacement and improvements should benefit both system reliability and the number of customer interruptions. As noted above, the Commission has determined that the PFT equipment is not eligible property as defined in 66 Pa.C.S. §1351 (relating to definitions of eligible property) and we shall deny the inclusion of PFT equipment and PFT installation charges in PPL's modified LTIIP. With consideration to PPL's proposed spending, reliability metrics, outage causes and CMI the Commission has determined that the modifications proposed to PPL's existing 12 LTIIP programs should lead to improvements to reliability and existing equipment. Therefore,

[9] *See*, *Implementation of Act 11 of 2012 Final Implementation Order*, Order entered August 2, 2012, at Docket No. M-2012-2293611, page 24.
[10] We will serve copies of this Order upon the Statutory Advocates and the Commission's Bureau of Investigation and Enforcement.

the Commission will approve the proposed modification of PPL's existing LTIIP programs and spending, but shall deny the inclusion of the PFT program in the modified LTIIP.

We note that PPL's Petition included red-lined and "clean" versions of its modified LTIIP as Appendix A and Appendix B, respectively. PPL, within its instant Petition and in supplemental information provided, produced several updated tables that delineated the updated amounts of materials and expenditures. So that it is clear for all interested parties to understand the eligible property and projected expenditures in PPL's modified LTIIP, we shall direct PPL to file a "clean" version of its modified LTIIP that removes the property and expenditures related to the PFT program and incorporates all of the updated tables for spending and eligible property.[11]

MODIFIED LTIIP SUMMARY

Commission review of an LTIIP must determine if the LTIIP:[12]

- Contains measures to ensure that the projected annual expenditures are cost-effective.
- Specifies the manner in which it accelerates or maintains an accelerated rate of infrastructure repair, improvement or replacement.
- Is sufficient to ensure and maintain adequate, efficient, safe, reliable and reasonable service.
- Meets the requirements of 52 Pa. Code § 121.3(a).

[11] *See,* Ordering Paragraph 4.
[12] *See,* 52 Pa. Code § 121.4(e).

The utility has the burden of proof to demonstrate that its proposed LTIIP and associated expenditures are reasonable, cost effective and designed to ensure and maintain sufficient, safe, adequate, reliable, and reasonable service to consumers.[13]

The Commission has reviewed PPL's modified LTIIP, supplemental information filed, and any resulting comments. The Commission finds that, with the PFT program removed, PPL has met its burden of proof by demonstrating that its modified LTIIP contain measures to ensure that the projected annual expenditures are cost-effective, specify the manner in which the LTIIPs accelerate or maintain an accelerated rate of infrastructure repair, improvement, or replacement, are sufficient to ensure and maintain adequate, safe, reliable, and reasonable service, and meet the requirements of 52 Pa. Code § 121.3(a). Accordingly, PPL's modified LTIIP is approved, in part, and denied, in part.

The Commission finds PPL's modified LTIIP, with the PFT program removed, and manner in which it was filed conform to the requirements of Act 11 and our Regulations. The plan, as partially approved herein, is designed to maintain safe, adequate and reliable service and, as such, PPL shall be required to comply with the infrastructure placement schedule and elements of the plan; **THEREFORE,**

IT IS ORDERED:

1. That the Petition of PPL Electric Utilities Corporation for Approval of Major Modifications to its Existing Long-Term Infrastructure Improvement Plan is approved, in part, and denied, in part.

[13] *See,* 52 Pa. Code § 121.4(d).

2. That the addition of Predictive Failure Technology to PPL Electric Utilities Corporation's Major Modifications to its Existing Long-Term Infrastructure Improvement Plan is denied, consistent with this Opinion and Order.

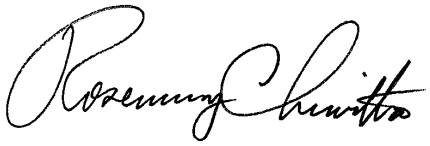
3. That the modifications to the existing approved programs in PPL Electric Utilities Corporation's existing Long-Term Infrastructure Improvement Plan is approved, consistent with this Opinion and Order.

4. That within thirty (30) days of the entry of this Opinion and Order, PPL Electric Utilities Corporation shall submit an updated final version of its modified Long-Term Infrastructure Improvement Plan to Docket No. P-2022-3034972 that removes the information related to the Predictive Failure Technology and incorporates any updated tables and clarifying information provided by PPL Electric Utilities Corporation in its responses to the Data Requests of the Commission, and that the Commission's Bureau of Technical Utility services shall review the filing and prepare a Secretarial Letter upon determining its sufficiency.

5. That a copy of this Opinion and Order be served upon the Office of Consumer Advocate, the Office of Small Business Advocate, the Commission's Bureau of Investigation and Enforcement, and the Commission's Bureau of Audits.

6. That upon the issuance of the Secretarial Letter pursuant to Ordering Paragraph 4, the proceeding related to the Long-Term Infrastructure Improvement Plan at Docket No. P-2022-3034972 be marked closed.

BY THE COMMISSION,



Rosemary Chiavetta
Secretary

(SEAL)

ORDER ADOPTED: July 11, 2024
ORDER ENTERED: July 11, 2024