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April 29, 2020

VIA ELECTRONIC MAIL

Rosemary Chiavetta, Secretary
Rchiavetta@pa.gov

**Re: Petition of Metropolitan Edison Company, West Penn Power Company, Pennsylvania Electric Company, and Pennsylvania Power Company for Approval of its Long-Term Infrastructure Improvement Plan
Docket No. P-2015-2508948**

Dear Secretary Chiavetta:

Pursuant to Ordering Paragraph No. 5 of the Opinion and Order entered on May 23, 2020 at the above-referenced docket, West Penn Power Company submits the enclosed cost effectiveness report.

Please contact me if you have any questions regarding this matter.

Very truly yours,



Tori L. Giesler

kbw
Enclosures

c: Brent Killian, Bureau of Investigation and Enforcement (via electronic mail)
David Washko, Bureau of Investigation and Enforcement (via electronic mail)
Daniel Searfoorce, Bureau of Technical Utility Services (via electronic mail)
John VanZant, Bureau of Technical Utility Services (via electronic mail)

COST EFFECTIVENESS REPORT WEST PENN

INTRODUCTION

Pursuant to the Pennsylvania Public Utility Commission’s (“Commission”) Opinion and Order entered on February 11, 2016¹ and the Opinion and Order entered on May 23, 2019,² West Penn Power Company (“West Penn” or the “Company”) has developed the following cost effectiveness report evaluating the Long Term Infrastructure Improvement Plan (“LTIIIP”) initiatives for the period of 2016 through 2019 (“LTIIIP I”).³

COST EFFECTIVENESS

LTIIIP Planning and Reliability

To effectively develop the LTIIIP I, West Penn defined two reliability focus areas, asset health and outage exposure, with the purpose of maintaining and improving the reliability of its distribution system and to minimize customer impact due to outages.

Asset health efforts focus on maintaining the system in a state of good repair. Distribution system components have operational lives measured in decades and in order to maintain the system in good health, a level of capital investment is required that focuses on replacing components that have reached the end of their useful life. The LTIIIP provides an opportunity to address the repair, improvement and replacement of aged infrastructure. This capital investment cannot practically occur in the short term but requires continued investment over many years. West Penn’s asset health investments (forty-three percent of LTIIIP I) are largely focused on improving circuits or replacing and rehabilitating circuits, poles, substation equipment, and underground cable. See Attachment A for a list of West Penn’s asset health initiatives.

Outage exposure efforts focus on minimizing the impact of customer outages. The maturity cycle of outage exposure reduction begins with the sectionalization of circuits, is enhanced with remote control, and ends with distribution automation. Sectionalization involves the installation of protective devices, such as reclosers and fuses, on the distribution system along with investments to create radial loops and install ties between circuits. By segmenting circuits, the impact of outages can be isolated so that fewer customers experience an outage. While sectionalization without communication and control will deliver substantial benefits, reliability impact can be increased through the deployment of supervisory control and data acquisition (“SCADA”)-enabled devices. SCADA controls allow distribution system operators to remotely isolate a fault and restore service to a portion of affected customers by transferring them to unaffected parts of the system in a matter of seconds or minutes. Frequently, sectionalization and remote control may be pursued in conjunction with one another. The final step in the outage exposure maturity process is distribution automation where, through the use of technologies, outages are automatically detected and located between two remote controlled line devices. Isolation and restoration would be performed without human intervention as the devices communicate, coordinate, and act to isolate the portion of the circuit where the fault occurred.

¹ Opinion and Order entered February 11, 2016 at Docket No. M-2015-2508948.

² Opinion and Order entered May 23, 2019 at Docket No. M-2015-2508948.

³ The Commission’s May 23, 2019 Opinion and Order also required West Penn to provide a projected calculation of the Distribution System Improvement Charge (“DSIC”) rate at the end of 2019. Please reference the Company’s January 1, 2020 DSIC rate filed at Docket No. M-2019-3014987 and the April 1, 2020 DSIC rate filed at Docket No. M-2020-3019318.

COST EFFECTIVENESS REPORT WEST PENN

Investments into outage exposure reduction are a multi-step, multi-year journey for which the levels and types of investment are dependent on the current overall state and technological maturity of a utility's system. With regard to West Penn, outage exposure investments (fifty-one percent of LTIIIP I) are targeted predominantly in the sectionalization phase with some work in the remote control phase. See Attachment A for a list of West Penn's outage exposure initiatives.

Additionally, West Penn reviewed the Company's service territory, identifying those areas with the greatest reliability challenges or risks. Factors evaluated generally included but were not limited to historical reliability, worst performing circuits, number of lockouts, number of line or equipment failures, system degradation, and public and employee safety. Next, West Penn identified the initiatives that would have the largest positive impact while modernizing the infrastructure.

For the most part, the programs that were considered for inclusion in West Penn's LTIIIP I were those designed to have the greatest impact on the overall health of the system and to improve reliability. However, it was necessary that LTIIIP I also consider initiatives where asset health is the primary focus and reliability improvement would be minimal or have no impact to system-wide reliability as these initiatives were necessary to improve customer service or reduce future reliability impacts. For example, the Customers Experiencing Multiple Interruptions initiative improves infrastructure where clusters of customers experienced frequent or repeated outages, improving reliability and service specific to those customers, but will have minimal impact to system wide reliability. Initiatives such as Replace Substation Batteries proactively replaced batteries in the substation to mitigate the mis-operation of substation protective equipment, avoiding potential large scale customer outages.

To measure reliability performance, West Penn projected the reliability benefit expected, in terms of system average interruption duration index ("SAIDI"), as a result of implementing each LTIIIP I initiative. The projected SAIDI benefit, or the SAIDI benefit expected over time as a result of improving the infrastructure within a certain year or period of years, is typically based on historical reliability performance (i.e., three to five years) of the circuit or specific location where infrastructure improvement is to be performed. To effectively measure the actual SAIDI benefits, the historical reliability performance of the circuit or location is compared to performance of the same circuit or location after the infrastructure improvement is made. Note that many factors influence the realization of reliability benefits and as such, reliability benefits are not necessarily realized within the year improvement is made or even in the immediate years following but rather, takes several years to yield measurable results. Therefore, it is reasonable to expect that it will take upwards of five years to adequately measure actual SAIDI benefits and fully realize the impact of investments made. Finally, achieving the projected level of reliability assumes that the same factors, such as weather, system degradation, or work practices, occurring during the period of time upon which the reliability projection was calculated, remains the same during the timeframe evaluated for actual reliability benefit. As such, changes to any factor may cause the assumptions to change resulting in actual performance that is different than projected performance.

Table 1 below identifies the Commission-approved and actual capital investment made by West Penn during LTIIIP I. Additionally, it identifies the projected SAIDI benefits expected over time as a result of the investments made during the period of 2016 through 2019. Finally, Table 1 identifies the actual SAIDI benefits achieved as of year-end 2019 for infrastructure improvements made during the period of 2016 through 2018. SAIDI benefits are not available for infrastructure improvements made in 2019 as enough time has not elapsed to experience measurable reliability improvement. Over the next several years,

**COST EFFECTIVENESS REPORT
WEST PENN**

SAIDI benefits are expected to grow for infrastructure improvements made in 2019 and continue to grow for investments made during the period of 2016 through 2018.

Table 1: Commission-Approved/Actual Capital Investment and Projected/Actual SAIDI Benefit

Reliability Focus Area	2016-2019			
	Approved Capital Investment (\$M)	Projected SAIDI Benefit ⁴	Actual Capital Investment (\$M)	Actual SAIDI Benefit
Asset Health	\$44.34	18.632	\$45.77	12.464
Outage Exposure	\$54.41	16.159	\$54.12	-3.444
Other ⁵	\$5.76	N/A	\$6.02	N/A

NOTE: To adequately measure actual SAIDI benefits and fully realize the impacts of investments made, it requires a period of time. As such, SAIDI benefits are expected to materialize in future years for significant infrastructure improvements made in 2019 and continue to grow for investments made during the period of 2016 through 2018.

When comparing West Penn’s projected and actual SAIDI benefit, the Company has achieved approximately twenty-six percent of the total projected SAIDI minutes expected from the infrastructure improvements made during LTIP I. Although actual SAIDI benefits for the Outage Exposure focus area are currently negative (i.e., performance of the circuit is worse post-infrastructure improvement as compared to before), it is expected that the SAIDI benefits will right size themselves in the coming years and achieve the reliability benefit projected. The negative performance is attributable to challenging weather experienced during the period of 2016 through 2018. Further, forty-eight percent of West Penn’s total capital investment was made in 2019 which corresponds with thirty percent of the total projected SAIDI benefit expected as a result of LTIP I. The fact that the SAIDI benefits projected from the 2019 investments have not yet had time to materialize combined with the SAIDI benefits achieved thus far from 2016 through 2018 infrastructure improvements suggests that West Penn’s LTIP I investment is on track to successfully achieve the SAIDI benefit expected.

Contractor Acquisition

Another area where the Company pursued cost effectiveness was in contractor acquisition. In the event that resources are necessary to supplement the Company’s workforce, FirstEnergy’s Utilities Sourcing (“Utilities Sourcing”) department employs its Contractor of Choice (“COC”) program to ensure the Company secures a skilled labor force and specialized equipment in order to complete projects on schedule and at consistent market pricing. Upon receiving a project requisition, Utilities Sourcing uses PowerAdvocate, an enterprise software solution that automates the sourcing process, to create a contractor bid package which includes project scope, bill of material and schedule. Under the COC Guidelines, COCs have a specified period to propose a cost that does not exceed the Company’s contractor bid package. If the COC proposal is less than or equal to the Company’s contractor bid package, then the

⁴ The total projected benefits should not be considered a reduction to current or average SAIDI performance as some benefits are targeted to offset system degradation.

⁵ The reliability focus area titled “Other” includes the Unreimbursed Highway Relocation initiative.

**COST EFFECTIVENESS REPORT
WEST PENN**

project is awarded to the COC. If the COC proposal is greater than the Company’s contractor bid package, both the Company and COC will share their estimating information and determine if a mutually agreeable, not-to-exceed price can be reached. If agreement is reached, then the project is awarded to the COC. If agreement is not reached the Company reserves the right to proceed immediately to a fixed price bid via the Request for Proposal (“RFP”) process. The Company does not guarantee any specific amount of volume or quantity of work to COCs and reserves the right to competitively bid projects at any time in order to maintain a cost effective approach to selecting contracted labor.

In the event that a COC is not used or the Company elects to utilize a competitive bid process, the FirstEnergy’s Utilities Sourcing Department will issue an RFP to a list of approved contractors who have a history of successfully completing projects safely, on schedule and at competitive market pricing. After a thorough bid clarification process with the contractors, the responses to the RFP are evaluated by West Penn’s engineering and project management departments and Utilities Sourcing. A contractor is selected based on available manpower and equipment resources, understanding of project scope, constructability, management and safety oversight and pricing. Upon completion of the work, a designated representative of the Company will evaluate the work performed by the contractor for compliance with project specifications. To determine ongoing selection, supplier performance is evaluated and tracked. Contractors are scored according to a contractor review survey scorecard. If there is a deficiency found in any of the scored areas, the contractor is held accountable to improve their performance. If applicable, a performance improvement plan is developed, and the Company regularly reviews progress with the contractor through sit down meetings. The table below identifies the percentage of West Penn’s total LTIIIP I investment corresponding with contractor construction labor for the period of 2016 through 2019.

Company	Percentage of LTIIIP I - Contractor Construction Labor
West Penn	35%

Materials/Equipment Procurement

Material and equipment procurement also utilize a cost-effective approach. To procure materials and equipment used in LTIIIP I, Utilities Sourcing followed a sourcing methodology devised to best leverage the buying power of FirstEnergy to maximize benefit to West Penn customers. This methodology is used when replenishing materials and equipment maintained within the warehouse used in the day-to-day and also, for infrastructure improvements to circuits including cable, wire, fuses, reclosers, crossarms, poles, etc. The same methodology is used when making large equipment purchases, such as those necessary for substation infrastructure improvements (i.e., substation transformers). Utilities Sourcing collaborates with internal departments such as engineering and project management to generate RFPs to pre-qualified suppliers. The assigned sourcing specialist uses a total evaluated bid methodology to assess the RFP responses. After evaluating the RFP responses, the sourcing specialist selects a successful vendor, awards the contract, and issues purchase orders governed by established general terms and conditions. Established contracts are continuously evaluated for supplier performance such as timely delivery, quality of materials and equipment, and competitive pricing. This sourcing strategy and process ensures cost effective, efficient, safe, ethical, sustainable, and diverse suppliers are utilized.

CONCLUSION

**COST EFFECTIVENESS REPORT
WEST PENN**

For the reasons set forth in this report, West Penn believes that the capital investment for its LTIIIP I initiatives constitute a cost effective and reasonable investment for accelerating the repair and replacement of the Company's aging distribution infrastructure while allowing West Penn to continue to provide safe and reliable service to customers. Further, West Penn is committed to building upon reliability results achieved through LTIIIP I and future LTIIIP implementations, as achieving the required level of reliability consistently requires a multi-year and multi-LTIIIP investment.

Asset Health versus Outage Exposure

West Penn's LTIIP I Initiatives

Asset Health

Add Additional Circuit Phases/Install Single Phase Circuit Ties
Customers Experiencing Multiple Interruptions
Line Rehabilitation – Distribution
Line Rehabilitation - Subtransmission
Miscellaneous Substation Equipment - Replace Transformer Arresters, Insulators, Switches
Replace Substation Batteries
Replace Substation Reclosers
Subtransmission Breaker Replacement
Subtransmission Protection and Controls
System Reliability Improvement Projects – Including Worst Performing Circuits
Thermography / Infrared Inspection Follow Up
Underground Cable Replacement and Life Extension
Underground - Replace Failed Cable
Underground Substation Exit Replacement
Wood Pole Replacement

Outage Exposure

Enhanced Overcurrent Protection
Overcurrent Protection and Capacity Review (Fuse Installation)
Purchase Emergency Replacement and Emergency Mobile Transformers
Recloser Install/Replacement – Automation Preparation
Reliability Improvement (N-1 Contingency) – Line
Reliability Improvement (N-1 Contingency) – Substation
Subtransmission Modernization and Automation
System Reliability Improvement Projects - Automation Preparation – Line
System Reliability Improvement Projects - Automation Preparation - Substation

Other

Unreimbursed Highway Relocation