WestPenn Power
A FirstEnergy Company

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January 18, 2019

VIA FEDEX OVERNIGHT

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street, 2nd Floor North
Harrisburg, PA 17105-3265

Re: Petition of West Penn Power Company for Approval of Modification of its Long-Term Infrastructure Improvement Plan;
Docket No. ~~M-2018-3000949~~

Dear Secretary Chiavetta:

Enclosed for filing is the *Petition of West Penn Power Company for Approval of Modification of its Long-Term Infrastructure Improvement Plan* ("Petition"). A copy of West Penn Power Company's Long-Term Infrastructure Improvement Plan as modified accompanies its Petition as West Penn Exhibit No. 1.

West Penn's Long-Term Infrastructure Improvement Plan was approved by the Commission by Order entered February 11, 2016, at Commission Docket No. ~~P-2015-2508942~~ P-2015-2508948

Copies of the enclosed Petition and West Penn Exhibit No. 1 have been served on the persons and in the manner shown on the enclosed Certificate of Service, as required by 52 Pa. Code §121.4(b). This filing is made by express delivery and is deemed filed today.

Respectfully submitted,

John L. Munsch

Enclosures

cc: Per Certificate of Service
Daniel Searfoorce, Office of Technical Utility Services (w/encl.)
Paul T. Diskin, Director, Office of Technical Utility Services (w/encl.)

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Petition of West Penn Power Company	:	
Petition for Approval of Modification of	:	**Docket No. ~~M-2018-3000949~~**
its Long-Term Infrastructure	:	P-2015-2508948
Improvement Plan		

West Penn Power Company Petition for Approval of Modification of its Long-Term Infrastructure Improvement Plan

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West Penn Power Company ("West Penn" or the "Company") files this Petition for Modification of its Long-Term Infrastructure Improvement Plan ("LTIIP") in response to the Opinion and Order of the Pennsylvania Public Utility Commission ("PUC" or "Commission") entered September 20, 2018 ("LTIIP Review Order") at the above docket. The LTIIP Review Order directed West Penn to file a modified or new LTIIP addressing issues outlined in the LTIIP Review Order. This Petition is filed pursuant to Section 1352 of the Pennsylvania Public Utility Code ("Code"),[1] pursuant to Commission regulations relating to LTIIPs,[2] and pursuant to the Commission's Final Implementation Order[3] and Supplemental Implementation Order[4] concerning LTIIPs. The proposed LTIIP modifications accompany this Petition as West Penn Exhibit No. 1 ("First Revised LTIIP"). As set forth in its First Revised LTIIP, West Penn proposes a substantial change to its current Commission-approved LTIIP which constitutes a "*major modification*" as defined in Commission regulations concerning LTIIPs and requires that "the utility shall file a separate petition for modification."[5]

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[1] 66 Pa.C.S. § 1352.
[2] 52 Pa. Code § 121.1 *et seq.*
[3] *Implementation of Act 11 of 2012*, Docket No. M-2012-2293611, entered August 2, 2012.
[4] *Supplemental Implementation Order*, Docket No M-2012-2293611, entered September 15, 2016.
[5] 52 Pa. Code § 121.5(a)

In its LTIIP Review Order the Commission determined that the Company is substantially adhering to the schedule and expenditures outlined in its LTIIP and meeting or exceeding plan goals, in terms of projects completed, in a reasonable and effective manner. The Commission further determined, however, that the Company's LTIIP is not designed to adequately maintain and improve the efficiency, safety, adequacy and reliability of the Company's distribution system, and should be modified to improve storm hardening, system resiliency, and reliability. The Commission further proposed actions that the Company may consider in modifying the LTIIP. Consistent with these directives, the First Revised LTIIP will allow West Penn to continue to strengthen, upgrade and modernize its distribution system through various infrastructure improvement initiatives described in detail in Appendix A of the First Revised LTIIP.

As explained below, West Penn's First Revised LTIIP contains all of the elements required by Section 1352(a)(1)-(6) of the Code and 52 Pa. Code § 121.3 and, therefore, satisfies all of the requirements for Commission approval set forth in Section 1352(a)(7) of the Code and 52 Pa. Code § 121.4(e)(1)-(4). Accordingly, West Penn respectfully requests that the Commission approve the First Revised LTIIP submitted as West Penn Exhibit No. 1 to this Petition.

I. INTRODUCTION AND BACKGROUND

1. West Penn provides electric distribution service to approximately 726,000 customers in a certificated service territory encompassing all or portions of twenty-three counties in western and central Pennsylvania. West Penn is a "public utility" and an "electric distribution company" ("EDC") as those terms are defined in the Code.[6] West Penn, Metropolitan Edison

[6] *See* 66 Pa.C.S. §§ 102 and 2803.

Company, Pennsylvania Electric Company and Pennsylvania Power Company (collectively, the "Companies") are the four subsidiaries of FirstEnergy Corp. that furnish electric distribution service as public utilities and EDCs in Pennsylvania.

2. The names and address of the Company's attorney authorized to receive all notices and communications regarding this filing follows:

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3. On February 14, 2012, former Governor Corbett signed into law Act 11 of 2012 ("Act 11"), which amended the Public Utility Code in several respects, including the addition of Subchapter B to Chapter 13 (66 Pa.C.S. §§ 1350-1360), which authorizes the Commission to approve petitions for implementation of a distribution system improvement charge ("DSIC") filed by EDCs and other types of utilities. Subchapter B sets forth various requirements that must be satisfied by a qualifying utility in order to establish a DSIC and recover the fixed costs of DSIC-eligible property. Section 1351 defines "eligible property" in general as "[p]roperty that is part of a distribution system and eligible for repair, improvement and replacement of infrastructure under this subchapter" and provides further:

> (1) For electric distribution companies, eligible property shall include:
>
> (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 electric distribution company must relocate its facilities.

(vi) Other related capitalized costs.

4. Section 1352 of the Public Utility Code requires that a utility submit an LTIIP "in order to be eligible to recover costs under section 1353 (relating to distribution system improvement charge)." In addition, Section 1352 provides that an LTIIP should include the following information:

> (1) Identification of the types and age of eligible property owned or operated by the utility for which the utility would seek recovery under this subchapter.
>
> (2) An initial schedule for the planned repair and replacement of eligible property.
>
> (3) A general description of the location of the eligible property.
>
> (4) A reasonable estimate of the quantity of eligible property to be improved.
>
> (5) Projected annual expenditures to implement the plan and measures taken to ensure that the plan is cost effective.
>
> (6) The manner in which the replacement of aging infrastructure will be accelerated and how the repair, improvement or replacement will ensure and maintain adequate, efficient, safe, reliable and reasonable service.

5. On August 2, 2012, the Commission entered the Final Implementation Order to explain how it intended to implement the provisions of Subchapter B. In particular, the Final Implementation Order sets forth the Commission's expectation with regard to the contents of an LTIIP by reference to the six elements specifically identified in Section 1352(a) of the Code. The Final Implementation Order also provides guidance to utilities for meeting the Commission's standards for LTIIP approval and discusses the procedures the Commission would follow in reviewing petitions seeking approval of proposed LTIIPs. In that regard, the Commission: (a) stated that an LTIIP would be assigned to the Bureau of Technical Utility Services ("TUS") for

analysis and a recommendation to the Commission;[7] (b) provided that interested parties may file comments within 20 days of the filing of an LTIIP;[8] and (c) established a period of 120 days for review of each proposed LTIIP.[9]

6. On May 27, 2014, the Commission entered a Final Order adopting the LTIIP regulations that are set forth at 52 Pa. Code §§ 121.1-121.8.[10] The LTIIP regulations adopt and expand upon the requirements set forth in the Final Implementation Order by providing that an LTIIP should include the following eight major elements, as stated in Section 121.3(a):

(1) Identification of types and age of eligible property owned and operated by the utility for which it is seeking DSIC recovery;

(2) An initial schedule for planned repair and replacement of eligible property;

(3) A general description of the location of the eligible property;

(4) Reasonable estimate of the quantity of eligible property to be improved or repaired;

(5) Projected annual expenditures and means to finance the expenditures;

(6) A description of the manner in which infrastructure replacement will be accelerated and how repair, improvement or replacement will maintain adequate, efficient, safe, reliable and reasonable service to customers;

(7) A workforce management and training program designed to ensure that the utility will have access to a qualified workforce to perform work in a cost-effective, safe and reliable manner;

(8) A description of a utility's outreach and coordination activities with other utilities, Department of Transportation and local governments regarding their planned maintenance/construction projects and roadways that may be impacted by the LTIIP.

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[7] Final Implementation Order, p. 20.

[8] *Id.* The review period of 20 days stated in the Final Rulemaking Order was subsequently expanded to 30 days in the LTIIP regulations. *See* 52 Pa. Code § 121.4(c).

[9] *Id.*

[10] *Review of Long-Term Infrastructure Improvement Plan – Final Rulemaking Order*, Docket No. L-2012-2317274, (May 23, 2014). The LTIIP regulations became effective upon publication in the *Pennsylvania Bulletin* on December 20, 2014. *See* 44 Pa.B. 7856.

7. In Section 121.4(e) of the LTIIP regulations, the Commission provided the criteria it would use to review LTIIPs submitted for its approval, as follows:

> (e) The Commission will review the filed LTIIP and determine if the LTIIP:
>
> (1) Contains measures to ensure that the projected annual expenditures are cost-effective.
> (2) Specifies the manner in which it accelerates or maintains an accelerated rate of infrastructure repair, improvement or replacement.
> (3) Is sufficient to ensure and maintain adequate, efficient, safe, reliable and reasonable service.
> (4) Meets the requirements of § 121.3 (relating to LTIIP).

8. Section 121.5 of the LTIIP regulation covers modifications of an LTIIP. It provides that if a utility elects to modify a Commission-approved LTIIP during its term to incorporate a major modification of any of the elements in §121.3(a) (relating to LTIIP), the utility shall file a separate petition for modification. Section 121.5(a) provides that parties shall have 30 days to file comments to the petition. A "major modification" is defined at 52 Pa. Code §121.2 as a change to a utility's previously approved LTIIP which meets at least one of the following criteria:

> (i) Eliminates a category of eligible property from the LTIIP.
> (ii) Extends the schedule for repair, improvement or replacement of a category of eligible property by more than 2 years.
> (iii) Increases the total estimated cost of the LTIIP by more than 20%.
> (iv) Otherwise reflects a substantial change to the current Commission-approved LTIIP.

The Company's First Revised LTIIP is a substantial change to the current Commission-approved LTIIP and constitutes a "major modification" for the purposes of filing an LTIIP modification.

II. WEST PENN'S LONG-TERM INFRASTRUCTURE IMPROVEMENT PLAN AND DISTRIBUTION SYSTEM IMPROVEMENT CHARGE

9. On October 19, 2015, at Docket No. P-2015-2508942, West Penn petitioned the Commission for approval of its current LTIIP. West Penn's LTIIP was approved by the Commission on February 11, 2016. The Commission determined that the Company's LTIIP met the requirements of Section 1352 of the Code and contained the eight major elements set forth in Section 121.3(a) of the Commission's LTIIP regulations.

10. On February 16, 2016, West Penn filed its Petition to establish and implement a DSIC Rider into the Company's tariff with an effective date of July 1, 2016. The filing was made pursuant to 66 Pa. C.S. § 1353 and was docketed at the continuing docket of the LTIIP filing, P-2015-2508942. The DSIC tariff was approved by Order entered June 9, 2016, and the DSIC tariff was implemented effective July 1, 2016.

III. LTIIP REVIEW ORDER DIRECTING NEW OR MODIFIED LTIIP

11. In its LTIIP Review Order, the Commission determined that the Company has substantially adhered to the schedule and expenditures outlined in its Commission-approved LTIIP. The Commission further determined, however, that the Company's LTIIP is not designed adequately to maintain and improve the efficiency, safety, adequacy and reliability of the Company's distribution system.

12. Pursuant to 52 Pa. Code § 121.7(d), the Commission directed the Company to file a modified or new LTIIP including expenditures and programs designed to adequately maintain and improve the efficiency, safety, adequacy and reliability of the distribution system. Further, the LTIIP Review Order included a list of proposed methods and actions that the Commission suggested the Company consider when developing its modified or new LTIIP. The Commission

also suggested extending the term of the LTIIP beyond its current term which concludes with year-end 2020.

IV. DESCRIPTION OF THE COMPANY'S FIRST REVISED LTIIP

13. The Company's First Revised LTIIP, prepared by the Company to address the Commission's concerns expressed in the LTIIP Review Order, is contained in Exhibit 1 hereto. As described in the First Revised LTIIP, the Companies assembled a team of reliability engineers to consider and formulate LTIIP modifications. Augmenting the existing, ongoing internal review of the Company's LTIIP projects, expenditures, and reliability performance, the Companies developed strategies for long-term reliability maintenance and improvement. The Companies also engaged an independent consultant, PA Consulting Group, Inc., to help ascertain the most meaningful adjustments to each of the Companies' plans to accomplish the result envisioned in the Commission's proposed methods and actions outlined in its LTIIP Review Order.

14. For 2019 and beyond, West Penn proposes to take a two-fold approach to address the Commission's concerns, proposed methods and actions of the LTIIP Review Order. First, the Company is proposing modifications to its LTIIP for the year 2019. The LTIIP modifications will increase overall spending in 2019 by transferring the capital expenditures currently planned for 2020 into 2019 and supplementing those amounts with additional capital in 2019. Second, as anticipated by Section 121.5(c) of the Commission's regulations,[11] the Company currently plans to formulate and submit for Commission approval no later than 120 days prior to the expiration of its First Revised LTIIP a new LTIIP spanning the five-year period of 2020 through 2024 which will include programs and expenditures designed to maximize sustained reliability over the long-term.

[11] 52 Pa. Code § 121.5(c).

15. In the short-term, this strategy will allow West Penn to accelerate the realization of reliability improvements from the additional capital spend in 2019, and establish a foundation for long-term, sustainable infrastructure improvements. With this strategy, West Penn will continue to provide reliability advancements, customer service improvements, and meet the needs and demands of its customers into the future.

16. A comparison of annual expenditures of the original approved LTIIP as compared to the proposed First Revised LTIIP is shown in Figures 3 and 4 of the First Revised LTIIP. As shown in Figures 3 and 4, which are illustrated below, the modification of the LTIIP will result in an increase in 2019 expenditures in the approximate amount of $33.7 million

Figure 3. West Penn's approved LTIIP

Annual Expenditures (in millions of dollars)						
Approved LTIIP	**2016**	**2017**	**2018**	**2019**	**2020**	**Total**
	$17.36	$20.85	$15.45	$17.16	$17.52	$88.34

Figure 4. West Penn's proposed First Revised LTIIP

Annual Expenditures (in millions of dollars)						
Actual/Modified LTIIP	**2016**[12]	**2017**[13]	**2018**[14]	**2019**	**2020**	**Total**
	$18.91	$17.66	$18.59	$50.85	TBD[15]	$106.01

17. Programs targeted for accelerated capital investment are those designed to have the greatest impact on reliability per dollar spent. The projected reliability benefit of the modified LTIIP is illustrated in Figure 5 of Section V of the First Revised LTIIP. Figure 5 projects

[12] Actuals
[13] Actuals
[14] Preliminary actuals to be finalized with West Penn's Annual Asset Optimization Plan to be filed by March 1, 2019.
[15] The Company currently plans to formulate and submit for Commission approval no later than 120 days prior to the expiration of the Second Revised LTIIP, a new LTIIP for the five-year period spanning 2020 through 2024 with programs and expenditures designed to maximize sustained reliability over the long-term. 2020 capital expenditures and units will be determined as part of the 2020 to 2024 plan.

anticipated benefits of improvements in SAIDI and SAIFI for each of the Company's LTIIP programs. Programs will be prioritized to maximize the reliability and operating benefits to the Company's customers. The effectiveness of the projects and programs that compose the LTIIP will be reviewed periodically to ensure that they remain prudent and cost-effective. Reliability and equipment failure trends will be analyzed on an ongoing basis as well to assess the impact of future investments. The Company may re-prioritize, alter completion dates, and add or remove projects based on engineering analyses to maximize the reliability and operating benefits to the affected circuits, while taking into consideration the overall impact to reliability and operational improvement and the costs and benefits to customers.

18. In Section V of the First Revised LTIIP, the Company responds sequentially to the Commission's concerns and proposed actions contained in the Commission's 2018 Order.

19. The Company's First Revised LTIIP covers 25 categories of infrastructure improvements. The categories of distribution-related equipment and facilities and costs are shown in Appendix A of the First Revised LTIIP. The program categories are as follow:

- Add additional circuit phases/install single phase circuit ties
- Customers experiencing multiple interruptions ("CEMI")
- Enhanced overcurrent protection
- Line Rehabilitation – distribution
- Line Rehabilitation – sub transmission
- Miscellaneous substation equipment -replace transformer arresters, insulators, switches
- Purchase emergency replacement and emergency mobile transformers
- Overcurrent Protection and capacity review
- Recloser install/replacement- automation preparation

- Reliability improvement (N-1 contingency) - line
- Reliability Improvement (N-1 contingency) – substation
- Replace substation batteries
- Replace substation reclosers
- Sub transmission breaker replacement
- Sub transmission modernization and automation
- Sub transmission protection and controls
- System reliability improvement projects -automation preparation – line
- System reliability improvement projects -automation preparation -substation
- System reliability improvement projects – including worst performing circuits
- Thermography/infrared inspection follow up
- URD cable replacement
- URD – replace failed cable
- Underground substation exit replacement
- Unreimbursed highway relocation
- Wood pole replacement

20. For each of the asset categories West Penn provides estimates of the number of replacements, reinforcements, conversions or other improvements that will be made over the modified LTIIP's final year. West Penn also provides the following:

- A description of the program and its purpose;
- A description of how the Company identifies equipment for replacement within each asset category and the appropriate course of action for implementing the replacements;
- The scope of the program, including a reasonable estimate of the amount of property to be improved, where such a quantification is applicable;

- The location of planned replacements, where improvements are to be achieved by replacing existing property; and
- The total amount projected to be spent by the Company annually and over the remaining life of the LTIIP.

21. Individual elements of the proposed initiatives that will be implemented in each asset category will be subject to some degree of change as contemporaneous analysis and planning takes place and better estimates of the cost and time to complete each project are developed. Additionally, some projects included in the First Revised LTIIP depend upon third-party actions or decisions, such as permitting, access to public rights-of-way, contractor or equipment availability or, in the case of highway relocations, construction plans by state, county and municipal governments that may not yet be developed or are subject to change. These factors may affect the allocation of investment funds within or between the stated asset categories and may affect the timing or prioritization of investments within the remaining term of the First Revised LTIIP.

A. Identification of Types and Age of Property to be Improved, Repaired and Replaced

22. Section 121.3(a)(1) of the LTIIP regulations calls for the identification of the types and ages of the eligible property covered by the Plan. The descriptions in each asset category in Appendix A identify the type and age of the eligible property in that category to the extent that age is a relevant or identifiable factor. For example, the program "Miscellaneous Substation Equipment – Replace Transformer Arresters, Insulators, Switches" identifies older or obsolete substation equipment, such as switches, lightning arresters, insulators, current transformers, potential transformers and voltage regulators, the age of which is expected to over 40 years old.

B. Schedule for Planned Repair and Replacement of Eligible Property

23. In accordance with Section 121.3(a)(2) of the LTIIP regulations, West Penn's First Revised LTIIP includes schedules of the timing of planned repairs and replacements of eligible property. The schedules are described on an individual program basis in Appendix A.

C. General Description of the Location of Eligible Property

24. The individual program or project descriptions identify the location of the affected eligible property by its location within an operating area demarcated by the applicable Company Operations Center.

D. Estimate of Quantity of Eligible Property

25. The individual program or project descriptions also identify the quantity of the affected eligible property, with the degree of specificity that is possible and practical for the nature of the work involved, by each Company operating area, demarcated by its respective Operations Center.

E. Projected Annual Expenditures

26. Appendix A to West Penn's First Revised LTIIP contains a table of "Cost Summary by Year" showing the projected annual expenditures over the remaining term of the First Revised LTIIP. The table shows cumulative projected annual and total expenditures for all eligible distribution property. Information about expenditures for individual programs is also included in the sections describing those programs.

F. Acceleration of Infrastructure Improvement and Maintenance of Customer Service

27. Section 121.3(6) of the LTIIP regulations provides that an LTIIP should describe "the manner in which infrastructure replacement will be accelerated and how repair, improvement or replacement will ensure and maintain adequate, efficient, safe, reliable, and reasonable service

to customers." West Penn's First Revised LTIIP reflects the Company's advancement and acceleration of its infrastructure repair and replacement programs designed to address the LTIIP Review Order. The First Revised LTIIP explains why projects are being undertaken in terms of possible improvements in customer service and reliability. For example, the "Line Rehabilitation - Distribution" program is designed to improve reliability on circuits based on customer count, reliability of the circuits, worst performing circuit status, and field inspections.

G. Workforce Management and Training Plan for Performance of Work in Cost Effective, Safe and Reliable Manner

28. Section 121.3(a)(7) of the LTIIP regulations requires utilities to include a workforce management and training plan as a part of an LTIIP. A comprehensive description of West Penn's programs for ensuring a qualified workforce is set forth in its LTIIP Modification. For purposes of providing the information required for its First Revised LTIIP, West Penn's workforce is considered to include employees of West Penn and employees of various contractors that will be retained to work on LTIIP projects.

H. Description of the Utility's Outreach and Coordination Activities with Third Parties

29. In accordance with Section 121.3(a)(8) of the regulations, the First Revised LTIIP describes how the Company plans to reach out to, and coordinate with, other utilities, the Pennsylvania Department of Transportation and local governments with respect to work to be performed pursuant to the LTIIP that might affect or implicate those entities' roadways or other property and their construction and maintenance schedules.

I. Implementation of Company's DSIC

30. Upon approval of its First Revised LTIIP, West Penn will recover the fixed costs of eligible property placed in-service pursuant to its First Revised LTIIP through the DSIC. West

Penn's current DSIC was approved by the Commission in an Opinion and Order entered June 9, 2016, at Docket No. P-2015-2508942.

IV. CONCLUSION

WHEREFORE, for the reasons set forth above, West Penn Power Company requests that the Commission enter an order by the end of the 120-day review period finding and determining that its First Revised LTIIP: (1) satisfies all of the criteria set forth at 52 Pa. Code § 121.4(e)(1)-(4); (2) meets the legal standard set forth in Section 1352(a)(7) for approval of an LTIIP; and, therefore (3) should be approved without revision and without the need to refer this matter to the Office of Administrative Law Judge. Additionally, if the Commission were to determine that comments, if any, submitted with respect to West Penn's First Revised LTIIP present material factual issues that merit assigning this case to the Office of Administrative Law Judge pursuant to the procedure outlined in the Final Implementation Order, the Company further requests that the Commission, at the time of such assignment, authorize West Penn to file written direct testimony to address such issues and other matters deemed relevant.

Respectfully submitted,

John L. Munsch
(PA Attorney I.D. No. 31489)
FirstEnergy Service Company
800 Cabin Hill Drive
Greensburg, PA 15601
(724) 838-6210

Attorney for
West Penn Power Company

Dated: January 18, 2019

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Re: Petition of West Penn Power Company for Approval of Modification of its Long-Term Infrastructure Improvement Plan; Docket No. ~~M-2018-3000949~~

P-2015-2508948

VERIFICATION

Linda L. Moss, President, Pennsylvania Operations, FirstEnergy Service Company, hereby states that the facts set forth above-referenced Petition are true and correct to the best of her knowledge, information and belief and that she expects the Company to be able to prove the same at a hearing held in this matter. The statements herein are made subject to the penalties of 18 Pa. C.S. § 4904.

Date: January 18, 2019

Linda L. Moss

West Penn Power Company

Exhibit No. 1

First Revised Long-Term Infrastructure Improvement Plan

Docket No. ~~M-2018-3000949~~
P-2015-2508948

RECEIVED
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PA PUBLIC UTILITY COMMISSION
SECRETARY'S BUREAU

Table of Contents

I. Introduction

West Penn Power Company ("West Penn" or the "Company") submitted a petition for approval of its Long-Term Infrastructure Improvement Plan ("LTIIP") on October 19, 2015.[1] The Pennsylvania Public Utility Commission ("PUC" or "Commission") found that West Penn's LTIIP, and the manner in which it was filed, conformed to the requirements of the Final Implementation Order for Implementation of Act 11 of 2012, entered August 2, 2012, at Docket No. M-2012-2293611, and the Commission's regulations at 52 Pa. Code §§ 121.1-121.8. West Penn's LTIIP was therefore approved in a Final Order entered February 11, 2016.

The Commission initiated its periodic review of West Penn's LTIIP consistent with the Commission's regulations at 52 Pa. Code § 121.7(a)[2] via a Secretarial Letter on April 10, 2018. On September 20, 2018, the Commission entered an Opinion and Order following this review ("LTIIP Review Order")[3] in which it determined that the Company has substantially adhered to the schedule and expenditures outlined in its LTIIP however, the Commission further determined that the Company's current LTIIP is not designed adequately to ensure and maintain safe, adequate and reliable service. As such, the Commission directed the Company to file a modified or new LTIIP to include expenditures and programs designed to adequately maintain and improve the efficiency, safety, adequacy and reliability of the distribution system. Further, the Order included proposed methods and actions the Company is encouraged to consider when developing its modified or new LTIIP. The Commission also suggested extending the term of the modified LTIIP beyond the current term which concludes at year-end 2020. The Company was specifically directed to file a new or modified LTIIP within sixty days of the entry of the Order, or November 19, 2018.

A reliability team comprised of reliability engineers from Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company and West Penn (collectively, "the Companies") was formed to augment the ongoing internal review of the Companies' LTIIP projects, expenditures, and reliability performance, and to develop an overarching strategy for long-term reliability maintenance and improvement for all the Companies. Additionally, an independent consultant, PA Consulting Group, Inc., was retained to help ascertain the most meaningful alterations to the Companies' plans and to drive end results that also addressed the Commission's proposed methods and actions. To support the timeline for a detailed analysis of its proposed projects, proposed expenditures, and the resulting effect on reliability, and to develop comprehensive and coordinated plans, the Company requested, and was granted by Secretarial Letter issued on November 1, 2018, a sixty-day extension for filing a new or modified LTIIP.

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[1] *Petition of West Penn Power Company for Approval of their Long-Term Infrastructure Improvement Plan*, Docket No. P-2015-2508931.

[2] Commission Secretarial Letter issued April 10, 2018, at Docket No. M-2018-3000949.

[3] Opinion and Order entered September 20, 2018 at Docket Nos. M-2018-3000943, M-2018-3000947, M-2018-2018-3000948 and M-2018-3000949.

For 2019 and beyond, West Penn proposes to take a two-fold approach to address the Commission's concerns, proposed methods and actions of the LTIIP Review Order. First, the Company is proposing modifications to its approved LTIIP for the year 2019. The LTIIP modifications will increase overall spending in 2019 by transferring the capital expenditures currently planned for 2020 into 2019, and supplementing those amounts with additional capital in 2019. This will allow West Penn to accelerate selected existing planned projects into 2019, while adding new projects that are expected to sustain and improve reliability. Second, pursuant to the timeframe anticipated by 52 Pa. Code §121.5(c), the Company currently plans to formulate and submit for Commission approval no later than 120 days prior to the expiration of the First Revised LTIIP, a new LTIIP for the five-year period spanning 2020 through 2024, which will include programs and expenditures designed to maximize sustained reliability over the long-term.

In the short-term, this strategy will provide for West Penn an acceleration of the realization of reliability improvements from its LTIIP programs, and establish a foundation for long-term, sustainable infrastructure improvements. With this strategy, West Penn will continue to provide reliability advancements, customer service improvements, and meet the needs and demands of its customers into the future.

II. Distribution Reliability

West Penn remains actively engaged and diligently committed to continuing to perform in a manner that results in satisfactory and cost-effective reliability performance for its customers as measured by Commission-established reliability indices such as System Average Interruption Duration Index ("SAIDI"), System Average Interruption Frequency Index ("SAIFI"), and Customer Average Interruption Duration Index ("CAIDI").

The Company utilizes a multi-faceted and comprehensive approach to maintain and improve reliability of its distribution system and to minimize customer impact due to outages. This strategy is accomplished by following the FirstEnergy Distribution Inspection & Maintenance Practices[4] designed to assist in determining the need for, and prioritization of, the repair or replacement of system components and facilities; following FirstEnergy Substation Practices and Methods to ensure the reliability and integrity of substation equipment; employing other initiatives such as a circuit patrols and large outage reviews to reduce the number of customers impacted and customer minutes of interruption; and employing vegetation management practices to reduce the frequency of tree-related outages. Reliability improvement is also achieved through upgrading and modernizing the distribution system as outlined in and promoted through the Company's First Revised LTIIP.

[4] Pursuant to 52 Pa. Code § 57.198(a), every two years an electric distribution company shall file with the Commission a biennial plan for the periodic inspection, maintenance, repair and replacement of its facilities. West Penn submitted its Biennial Inspection, Maintenance, Repair and Replacement Plan for the period January 1, 2019 through December 31, 2020 on September 29, 2017, which was deemed approved pursuant to 52 Pa. Code § 57.198(i).

In 2016, West Penn not only achieved its twelve-month and three-year reliability performance standards in all three reliability indices, it also achieved benchmark performance for the CAIDI and SAIDI reliability indices, and continued to work toward achieving sustained benchmark performance. Key focus areas targeted to improve SAIDI and SAIFI, including fuse installations; selective circuit rehabilitation; supervisory control and data acquisition ("SCADA") device installations; underground residential distribution ("URD") cable replacement; and wood pole replacements and refurbishments.

In 2017, West Penn continued its focus on reducing long duration tree-related outages and line and equipment failures and experienced the benefits of circuit rehabilitation as the number of equipment and line failures continued to decrease. The Company achieved its benchmark and twelve-month reliability performance standards in CAIDI. Also, the Company achieved its twelve-month SAIDI standard. Largely due to eleven reportable outage events in 2017, the Company did not achieve its twelve-month SAIFI standard. Also, the Company experienced a 46% increase in tree-related outages. To address these factors, West Penn targeted an increase in the combined capital and maintenance expenditures for its vegetation management program of approximately $4.7 million in 2018. The Company also increased total infrastructure improvement spending by accelerating approximately $3 million of the Commission-approved LTIIP funding from 2019 and 2020 into 2018 to complement programs that minimize outage impacts and reduce equipment failure. This accelerated funding was targeted at programs to reduce equipment and line failures and modernize systems and components.

Despite severe weather challenges in the first half of the year, overall reliability performance improved in 2018. The Company achieved its twelve-month SAIDI, SAIFI and CAIDI standards, and the rolling twelve-month CAIDI benchmark in the first quarter. However, severe weather events affected the Company's progress in achieving SAIDI and SAIFI benchmark levels. Figures 1 and 2 show West Penn's twelve-month and three-year SAIDI and SAIFI performance from 2014 through 2018, respectively.

Figure 1: Historical SAIDI performance

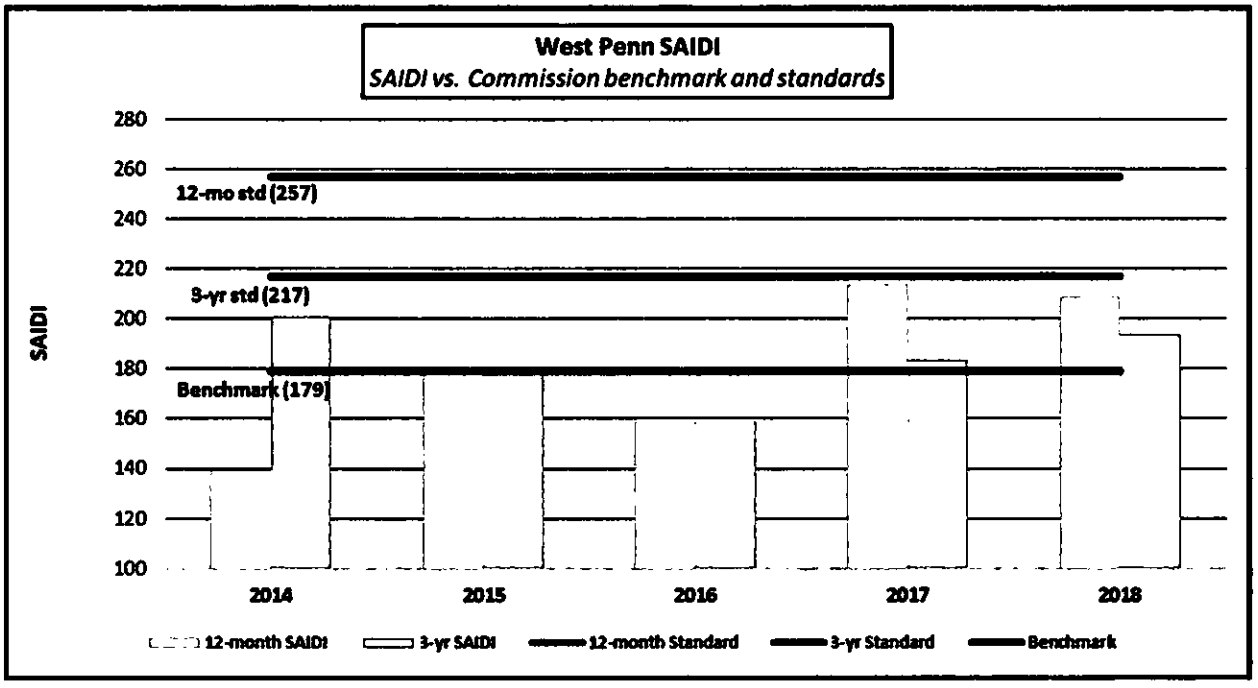
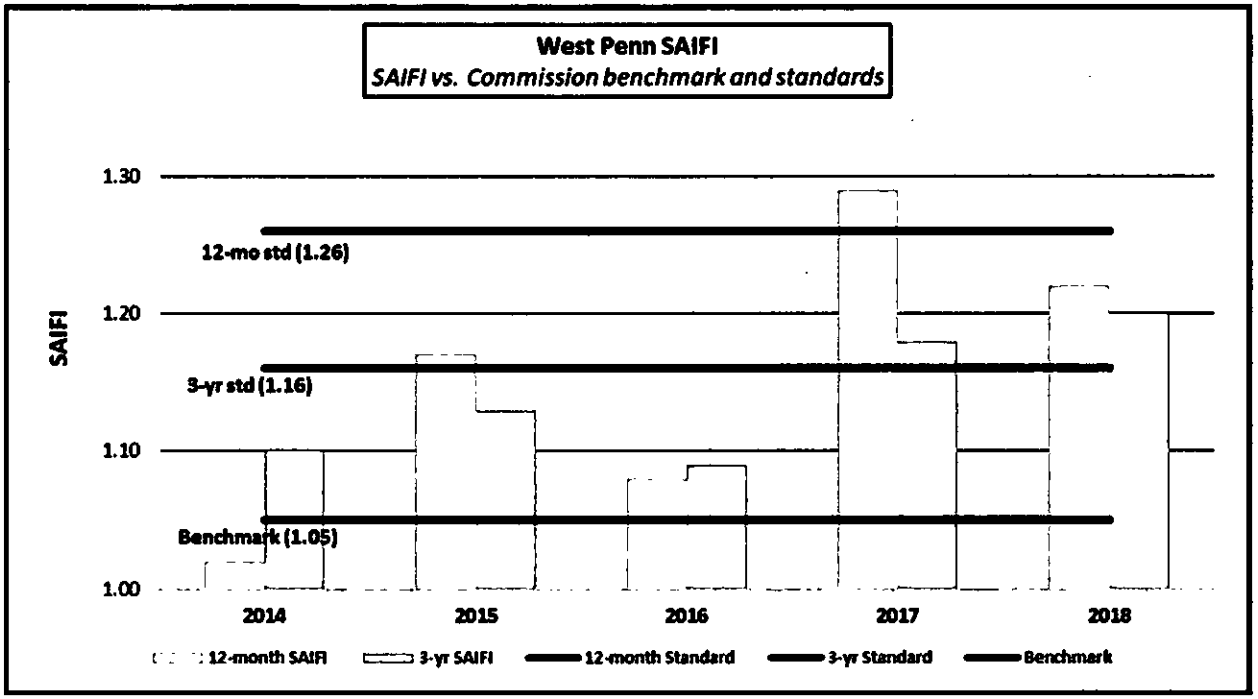


Figure 2: Historical SAIFI performance



As part of the independent consultant's review of the Company's historical results and forward-looking plans, the methodology used to calculate the SAIFI, SAIDI, and CAIDI benefits was evaluated and determined to be appropriate and reasonable. However, the time periods historically selected to establish baseline performance and to evaluate the reliability impacts of LTIIP projects were considered insufficient to overcome the typical randomness of outages and equipment failures, thereby leading to reliability performance results which appeared to vary from the originally projected benefits. On the basis that reliability results are not always apparent immediately upon completion of LTIIP projects, and that sufficient time is required to observe the true impact of the projects, two key opportunities were identified that have the potential to improve the Company's methodology and execution going forward. The first opportunity is to increase the period used to establish the historical performance baseline. The second is to increase the post-implementation observation period used to evaluate benefits. These factors have been considered in the benefit calculation review process and in the development of the short-term and long-term LTIIP strategies.

If West Penn's First Revised LTIIP is approved, it is expected to yield continued reliability improvement through the accelerated expenditure for projects having the highest probability to maintain and improve SAIDI and SAIFI performance.

III. Requirements of the LTIIP

Pursuant to 52 Pa. Code § 121.3(a), a utility seeking to implement a distribution system improvement charge ("DSIC") mechanism or to continue a previously-approved DSIC mechanism must file an LTIIP. The LTIIP must include the eight elements listed in that regulation. The required elements and the locations within West Penn's First Revised LTIIP where they are addressed are set forth below:

52 Pa. Code § 121.3(a)(1): The descriptions of the twenty-five infrastructure improvement initiatives set forth in Appendix A identify the types and ages of DSIC-eligible property in subsections captioned "Description" and "Age of Infrastructure."

52 Pa. Code § 121.3(a)(2): The table at the front of Appendix A, captioned "Cost Summary by Year," shows the planned expenditures for 2019, as well as the total for the period of 2016-2019, for each of the infrastructure improvement initiatives discussed in Appendix A.

52 Pa. Code § 121.3(a)(3): The descriptions of each infrastructure improvement initiative in Appendix A set forth the general location of eligible property relating to each initiative in subsections titled "Anticipated Locations."

52 Pa. Code § 121.3(a)(4): Reasonable estimates of the quantity of eligible property to be improved or repaired are provided in the subsection titled "Schedule" in the description of each infrastructure improvement initiative in Appendix A.

52 Pa. Code § 121.3(a)(5): The projected annual expenditures and the manner in which West Penn expects to finance those expenditures are addressed in Section V, below. Additional detail concerning the expenditures by year is provided in Appendix A within the description of each infrastructure improvement initiative.

52 Pa. Code § 121.3(a)(6): A description of the manner in which the infrastructure repair, improvement or replacement will be accelerated and how repair, improvement or replacement will ensure and maintain adequate, efficient, safe, reliable and reasonable service to customers is addressed in Section V below.

52 Pa. Code § 121.3(a)(7): The workforce management and training programs in place for West Penn that are designed to ensure that it will have access to a qualified workforce to perform work under its LTIIP in a cost-effective, safe and reliable manner is described in Section VII, below.

52 Pa. Code § 121.3(a)(8): A description of how West Penn expects to reach out to, and coordinate with, other utilities, the Pennsylvania Department of Transportation ("PennDOT") and local governments regarding their planned maintenance/construction projects and roadways that may be impacted by the LTIIP is provided in Section VI, below.

IV. LTIIP Periodic Review Recommendations

The Commission's LTIIP Review Order included the following proposed methods and actions recommendation for consideration by the Company in the development of its new or modified LTIIP:[5]

> *Review the LTIIP SAIFI and SAIDI benefit results to determine why goals were not met.*
>
> In response, West Penn's SAIFI and SAIDI benefit results were reviewed and the challenges to reliability performance are described in Section II.
>
> *Review the methodology used to calculate the SAIFI and SAIDI benefit projections to ensure more accurate predictions.*
>
> The methodology West Penn uses to calculate the SAIFI and SAIDI benefit projections was reviewed its independent consultant. The Company's approach was found to be sound, and the methodology reasonable. Benefit projections calculated using the methodology are provided in Section V.
>
> *Following the reviews in 1 and 2, above, increase expenditures on the projects that should result in the highest SAIFI and SAIDI benefits.*

[5] LTIIP Review Order, p. 19.

LTIIP projects were reviewed internally by West Penn, the reliability team and the Company's independent consultant to identify those projects expected to offer the highest SAIFI and SAIDI benefits to both reliability sustainability and improvement, and to accelerate expenditures for these projects. The acceleration of LTIIP expenditures is summarized in Section V.

Increase overall spending on infrastructure improvement initiatives and accelerate existing planned projects for infrastructure repair and replacement.

The acceleration of LTIIP expenditures is summarized in Section V.

Maximization of the 5% DSIC cap. Assuming no overearning or base rate cases, the FirstEnergy Companies should strive to efficiently and effectively utilize the full capacity of the DSIC mechanism, as capped at 5% by statute or otherwise capped by the Commission via waiver.

The Company's proposed modified LTIIP includes an increase in planned capital investment.

Consider tree and storm hardening methods, such as more resilient aerial cable.

The Companies employ a variety of mitigating strategies to reduce tree and storm-related outages, including: cycle-based and enhanced tree trimming; removal of incompatible trees, defective overhanging limbs, and off right-of-way hazard trees; wood pole reinforcements and replacements; and line rehabilitation and relocation projects. Aerial cable is an available option that may be incorporated where it provides a net benefit to reliability and operational flexibility. As an example, aerial cable may be considered where it is impractical to maintain reasonable overhead clearance. West Penn's LTIIP infrastructure improvement initiatives are described in Appendix A.

Consider selective undergrounding for areas with continuing storm-related reliability issues.

In residential zones, undergrounding is seldom used as an option due to the potential for objectionably high costs to customers if upgrades to internal and external structures and facilities are necessary to meet code requirements. Rocky and mountainous terrain also pose barriers for undergrounding. Undergrounding inherently reduces operational flexibility with failures resulting in longer outages due to longer troubleshooting and repair times. However, selective undergrounding is an available option where it supports effective implementation of infrastructure improvement initiatives and will be used in conjunction with those infrastructure improvement initiatives, as appropriate.

Consider usage of additional smart field devices and SCADA (supervisory control and data acquisition) technologies to reduce customer density per circuit section.

West Penn accelerated expenditures for its SCADA device installation program in 2018 and in the First Revised LTIIP. Infrastructure improvement initiatives and expenditures for 2019 are provided in Appendix A.

Consider additional investment in enhanced technology and sacrificial components.

Enhanced technology is considered during the development and implementation of infrastructure improvement initiatives. SCADA devices, microprocessor-driven reclosers, and enhanced sectionalizing devices, such as TripSavers, are a few examples of enhanced technology that is being installed on the Company's network. Also, the Company employs a robust fusing strategy under which every transformer is fused and the number of customers affected is kept relatively small. Sacrificial components such as metal anodes that provide cathodic protection to metal piping and conduit are not typically applicable or used in the protection of electric distribution facilities. Enhanced technology and fusing will be incorporated into the LTIIP infrastructure improvement initiatives, where appropriate.

Consider extending the timeline of the modified LTIIP, if necessary and if not filing a new LTIIP.

With the First Revised LTIIP, the Company is proposing modifications to its LTIIP for the year 2019 in order to increase overall spending in 2019 by transferring the capital expenditures currently planned for 2020 into 2019, and supplementing those amounts with additional capital in 2019. This will allow West Penn to accelerate selected existing planned projects into 2019, while adding new projects that are expected to improve reliability. Second, the Company currently plans to formulate and submit for Commission approval, no later than 120 days prior to the expiration of the First Revised LTIIP,[6] a new LTIIP for the five-year period spanning 2020 through 2024, which will include programs and expenditures designed to maximize sustained reliability over the long-term.

V. Implementation of the LTIIP

Aggressive vegetation management, distribution automation, infrastructure improvement, and operational flexibility have been identified as keys to sustained reliability improvement. West Penn's primary LTIIP programs include SCADA device installation; substation equipment replacements and additions; and recloser installations and replacements. Details of all West Penn's LTIIP programs are provided in Appendix A.

[6] As provided for under Section 121.5(c) of the Commission's regulations, 52 Pa. Code § 121.5(c).

The proposed modifications to the approved LTIIP for 2019 include increasing overall spending in 2019, accelerated selected existing planned projects into 2019, and adding new projects that yield reliability benefits. The comparison of the approved versus the First Revised LTIIP is shown in Figure 3 and Figure 4, below.

Figure 3. West Penn's Approved LTIIP

Annual Expenditures (in millions of dollars)						
Approved LTIIP	2016	2017	2018	2019	2020	Total
	$17.36	$20.85	$15.45	$17.16	$17.52	$88.34

Figure 4. West Penn's First Revised LTIIP

Annual Expenditures (in millions of dollars)						
Actual/Modified LTIIP	2016[7]	2017[8]	2018[9]	2019	2020	Total
	$18.91	$17.66	$18.59	$50.85	TBD[10]	$106.01

The table at the front of Appendix A, captioned "Cost Summary by Year," shows the planned expenditures for 2019, as well as the total for the period of 2016-2019, for each of the infrastructure improvement initiatives discussed in Appendix A.

Priority will be given to programs having the potential to have the highest positive impact on SAIDI and/or SAIFI, including reliability sustainability and improvement, per dollar spent. The projected reliability benefit of the modified LTIIP is illustrated in Figure 5.

[7] Actuals
[8] Actuals
[9] Preliminary actuals to be finalized with West Penn's Annual Asset Optimization Plan to be filed by March 1, 2019.
[10] The Company currently plans to formulate and submit for Commission approval no later than 120 days prior to the expiration of the Second Revised LTIIP, a new LTIIP for the five-year period spanning 2020 through 2024 with programs and expenditures designed to maximize sustained reliability over the long-term. 2020 capital expenditures and units will be determined as part of the 2020 to 2024 plan.

Figure 5. West Penn's First Revised LTIIP Reliability Benefits[11]

Program[12]	2019 PROJECTED SAIDI BENEFIT	2019 PROJECTED SAIFI BENEFIT
Add Additional Circuit Phases/Install Single Phase Circuit Ties	1.3	0.0080
Customers Experiencing Multiple Interruptions ("CEMI")	0.0	0.0000
Enhanced Overcurrent Protection	2.1	0.0120
Line Rehabilitation - Distribution	1.5	0.0120
Line Rehabilitation – Subtransmission	0.0	0.0000
Miscellaneous Substation Equipment - Replace Transformer Arresters, Insulators, Switches	0.0	0.0000
Overcurrent Protection and Capacity Review	2.4	0.0120
Purchase Emergency Replacement and Emergency Mobile Transformers	0.0	0.0000
Recloser Install/Replacement – Automation Preparation	0.0	0.0000
Reliability Improvement (N-1 Contingency) - Line	1.4	0.0020
Reliability Improvement (N-1 Contingency) - Substation	0.5	0.0001
Replace Substation Batteries	0.0	0.0000
Replace Substation Reclosers	0.0	0.0000
Subtransmission Breaker Replacement	0.0	0.0000
Subtransmission Modernization and Automation	0.2	0.0020
Subtransmission Protection and Controls	0.0	0.0000
System Reliability Improvement Projects - Automation Preparation – Line	0.0	0.0000
System Reliability Improvement Projects - Automation Preparation – Substation	0.0	0.0000
System Reliability Improvement Projects – Including Worst Performing Circuits ("WPC")	1.2	0.0090
Thermography / Infrared Inspection Follow Up	0.0	0.0000
URD Cable Replacement and Life Extension	0.0	0.0000
URD - Replace Failed Cable	0.0	0.0000

[11] The SAIDI and SAIFI impacts cannot be used to calculate overall system reliability as the LTIIP investment initiatives are a sub-set of the Company's overall portfolio. Blank entries indicate no units planned for completion in 2019.

[12] Programs including CEMI; Line Rehabilitation - Subtransmission; Miscellaneous Substation Equipment - Replace Transformer Arresters, Insulators, Switches; Replace Substation Batteries; Replace Substation Reclosers; Substation Breaker Replacement; Subtransmission Protection and Controls; Thermography / Infrared Inspection Follow Up; URD Cable Replacement and Life Extension; URD – Replace Failed Cable; Underground Substation Exit Replacement; and Wood Pole Replacement exist to offset system degradation and continue the long-term sustainability of reliable electric service to customers. Benefits for all other programs will be realized after implementation of the automated distribution management system.

Program[12]	2019 PROJECTED SAIDI BENEFIT	2019 PROJECTED SAIFI BENEFIT
Underground Substation Exit Replacement	0.0	0.0000
Unreimbursed Highway Relocation[13]		
Wood Pole Replacement	0.0	0.0000
Total	10.6	0.0630

The Company may re-prioritize, alter completion dates, and add or remove projects based on engineering analyses to maximize the reliability and operating benefits to the affected circuits, while taking into consideration the overall impact to reliability and operational improvement and the costs and benefits to customers.

VI. Outreach and Coordination with Other Entities

West Penn communicates and coordinates with PennDOT, local governments, local municipalities, and other utilities and entities with regard to work that is scheduled to be performed that may affect the operations of those entities. Examples of communication and coordination efforts include press releases, public meetings, contact with local officials, and communication to customers who will experience a planned outage due to construction in their service area. However, most of the work that will be performed under West Penn's First Revised LTIIP is expected to have minimal impact on these entities' work schedules, and project-specific outreach plans are not expected to be required.

VII. Access to a Qualified Workforce

A. West Penn Workforce

The Company created Power Systems Institute ("PSI"), which is a unique, two-year program that combines classroom learning with the hands-on training needed to open the door to opportunities in the electric industry. The program was created as a way to help replace retiring line and substation employees. Upon completing the program, graduates will have a total of 1,280 hours of hands-on technical training as well as 60 hours of academic college credits. Graduates will earn an associate degree and are classified as a mid-level line or substation worker. Qualified graduates are offered positions with the Company subject to the Company's standard hiring process.

It is the Company's practice to size its workforce to accommodate a steady state workload that includes day-to-day activity and a reasonable level of storm response as projected from historical averages. For those times when workload increases above steady-state levels, the Company is

[13] The infrastructure targeted for relocation is not chosen based on age or condition but merely by its location and may or may not provide reliability benefits.

able to supplement its own resources by accessing a portfolio of affiliated resources[14] that may be able to move into the area to assist on a temporary basis. The Company also employs contractors to supplement regular status employees, particularly during construction of large capital projects.

With regard to training for qualified electrical workers, the Company adheres to the Occupational Safety and Health Administration ("OSHA") Regulation, 29 CFR 1910.269 - Electrical power generation, transmission, and distribution; American National Standards Institute; American Society for Testing Materials; and Institute of Electrical and Electronics Engineers standards. Training material leverages FirstEnergy work practices, procedures, construction standards, and the Accident Prevention Handbook.

Formal training is provided by the Workforce Development ("WFD") team. This group consist of full-time instructors supplemented by contracted instructors who are generally retired craft workers. WFD develops, conducts, and evaluates knowledge and skills training for apprentices and incumbents.

Training is provided through varying methods, which consist of hands-on, classroom, web-based and on-the-job training. The curriculum is designed to support the employee's progression and includes a formalized skills demonstration program that allows for practice to gain proficiency in critical tasks. Finally, employees are required to complete progressive testing in a controlled setting to demonstrate skill proficiency prior to advancing within the craft line. Formal and annual regulatory training mandated by agencies such as OSHA, the Department of Transportation, and the Environmental Protection Agency is managed within WFD, which ensures that all employees complete the required training within the applicable timeframes. Interpretation of training revisions is managed with the assistance of FirstEnergy and FirstEnergy Utilities Safety Division. WFD maintains the integrity of all training materials and tracks completion to ensure compliance. All training adheres to FirstEnergy policies and procedures to ensure quality, consistency and accuracy.

B. Contractor Workforce

In the event that resources are necessary to supplement the Company's workforce, FirstEnergy's Utilities Sourcing Department employs its Contractor of Choice Program to ensure FirstEnergy secures a skilled labor force and specialized equipment in order to complete projects on schedule and at competitive market pricing. Under the Contractor of Choice Guidelines, the FirstEnergy Utilities Sourcing Department will issue a request for proposal ("RFP") to a list of contractors who have a history of successfully completing projects safely, on schedule and at competitive

[14] FirstEnergy Corp.'s ("FirstEnergy") affiliated operating companies include not only those four distribution operating companies located within the Commonwealth of Pennsylvania, but an additional six operating in other jurisdictions. The consistency in standards and work practices employed across all ten of these operating companies enables streamlined resource sharing in a way that promotes both safety and cost efficiency for those companies under this umbrella.

market pricing. After a thorough bid clarification process with the contractors the responses to the RFP are evaluated by Engineering, Project Management and Supply Chain. A contractor is selected based on available manpower and equipment resources, understanding of project scope, constructability, management and safety oversight and pricing. A contractor is required to:

- Employ only persons known by the contractor to be experienced, qualified, reliable and trustworthy; and
- Have in writing a series of safe work practices, procedures and programs pertinent to the work being done.

Upon completion of the work, a designated representative of the Company will evaluate the work performed by the contractor before final acceptance.

Supplier diversity is a core value inherent to all of the Company's business operations.

VIII. Summary

This First Revised LTIIP was designed to meet the recommendations and requirements of the Commission's LTIIP Review Order by providing for accelerated capital investment in projects and programs designed to adequately maintain and improve the efficiency, safety, adequacy and reliability of the Company's distribution system and projected to result in the highest SAIFI and SAIDI benefits. West Penn's First Revised LTIIP also contains all of the elements required by 52 Pa. Code § 121.3(a).

Appendix A

Cost Summary by Year

Infrastructure Improvement Initiative	Actual/Planned Annual Expenditures (in millions of dollars)					
	2016[15]	2017[16]	2018[17]	2019	2020[18]	Total
Total	**$18.91**	**$17.66**	**$18.59**	**$50.85**	**TBD**	**$106.01**
Add Additional Circuit Phases/Install Single Phase Circuit Ties	$0.25	$-	$-	$2.10	TBD	$2.35
CEMI	$0.30	$0.16	$0.57	$0.50	TBD	$1.53
Enhanced Overcurrent Protection	$3.88	$2.92	$2.16	$5.70	TBD	$14.66
Line Rehabilitation - Distribution	$2.35	$2.94	$3.65	$3.10	TBD	$12.04
Line Rehabilitation - Subtransmission	$-	$-	$-	$3.40	TBD	$3.40
Miscellaneous Substation Equipment - Replace Transformer Arresters, Insulators, Switches	$0.05	$0.09	$0.22	$1.41	TBD	$1.77
Overcurrent Protection and Capacity Review	$5.85	$3.71	$4.65	$4.00	TBD	$18.21
Purchase Emergency Replacement and Emergency Mobile Transformers	$-	$-	$-	$3.00	TBD	$3.00
Recloser Install/Replacement – Automation Preparation	$0.03	$-	$-	$2.00	TBD	$2.03
Reliability Improvement (N-1 Contingency) - Line	$-	$-	$-	$1.00	TBD	$1.00
Reliability Improvement (N-1 Contingency) - Substation	$-	$-		$1.80	TBD	$1.80
Replace Substation Batteries	$0.09	$0.25	$0.10	$0.25	TBD	$0.69
Replace Substation Reclosers	$0.09	$0.31	$0.45	$0.45	TBD	$1.30
Subtransmission Breaker Replacement	$-	$-	$-	$1.00	TBD	$1.00
Subtransmission Modernization and Automation	$3.02	$3.41	$2.57	$2.60	TBD	$11.60
Subtransmission Protection and Controls	$-	$-	$-	$2.80	TBD	$2.80
System Reliability Improvement Projects - Automation Preparation - Line	$-	$-	$-	$3.00	TBD	$3.00
System Reliability Improvement Projects - Automation Preparation - Substation	$-	$-	$-	$2.40	TBD	$2.40
System Reliability Improvement Projects – Including WPCs	$0.11	$0.38	$0.79	$3.00	TBD	$4.28
Thermography / Infrared Inspection Follow Up	$-	$-	$-	$0.50	TBD	$0.50
URD Cable Replacement and Life Extension	$0.62	$0.90	$0.55	$1.50	TBD	$3.57
URD - Replace Failed Cable	$-	$-	$-	$1.65	TBD	$1.65
Underground Substation Exit Replacement	$0.30	$0.60	$0.46	$0.25	TBD	$1.61
Unreimbursed Highway Relocation	$0.91	$0.93	$1.32	$1.44	TBD	$4.60
Wood Pole Replacement	$1.06	$1.06	$1.11	$2.00	TBD	$5.23

[15] Actuals
[16] Actuals
[17] Preliminary actuals to be finalized with West Penn's Annual Asset Optimization Plan to be filed by March 1, 2019.

[18] The Company currently plans to formulate and submit for Commission approval no later than 120 days prior to the expiration of the First Revised LTIIP, a new LTIIP for the five-year period spanning 2020 through 2024 with programs and expenditures designed to maximize sustained reliability over the long-term. 2020 capital expenditures and units will be determined as part of the 2020 to 2024 plan.

Add Additional Circuit Phases/Install Single Phase Circuit Ties

Description

This program will identify single phase line sections with capacity, performance and/or reliability concerns. Loading and reliability issues will be address by upgrading existing single-phase line segments to two or three phase operation conductors, constructing additional circuit ties, and line relocations. Consideration will be given to selective undergrounding, use of aerial tree cable, and relocating lines to more accessible locations. Size and scope of these projects will vary. Unit of measure will be based on the number of projects completed. The program will primarily target poor performing areas in the zone 3[19] portion of the distribution system. Some of this work was previously completed in other LTIIP initiatives (*e.g.*, line rehabilitations/fuse installation).

Identification and Justification

This program will improve operating performance and flexibility by alleviating protective devices loading, improving circuit voltage, and reducing the number of customers impacted by a distribution outage. Projects will be identified through the circuit review process, past reliability performance, and recommendations from operations personnel. This program will also improve operating efficiency, voltage profile and overall circuit performance.

Age of Infrastructure

The age of the existing facilities will vary on a project by project basis, typical age of the distribution pole plant is 44 years.

Schedule

Actual/Planned Circuits						
	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	1	-	-	-	-	**1**
Actual/Modified	1	-	-	14-28	TBD	**15-29**

Actual/Planned Annual Expenditures (in millions)

	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	$0.12	$-	$-	$-	$-	**$0.12**
Actual/Modified	$0.25	$-	$-	$2.10	TBD	**$2.35**

[19] Zone 3 is all two-phase and single-phase portions of a circuit.

Anticipated Locations (2019)

Operations Center	Total
Arnold	3
Boyce	3
Butler	3
Charleroi	3
Jeannette	3
State College	3
Waynesboro	3
Total	**21**

Comments

West Penn has refined its reliability strategy after reviewing actual reliablity benefits from previously completed work. Future work will focus on projects with the greatest reliability benefits given the updated strategy.

CEMI

Description
Reliability improvements that focus on clusters of customers that experience frequent or repeated outages.

Identification and Justification
This program provides a means to reduce the frequency of outages at the customer level that might not be otherwise addressed when targeting overall system metrics. Examples of projects that may be completed include replacing overhead conductor, constructing tie line, installing reclosers, cutouts, and/or transformers, as well as installing fuses or animal guards. Consideration will be given to selective undergrounding, use of aerial tree cable, and relocating lines to more accessible locations. Line segments identified for this program will be those in which customers have experienced more than five interruptions in the previous two-year period.

Age of Infrastructure
In general, the age of the infrastructure will not be known until specific projects are identified. The age of the existing facilities will vary on a project by project basis, typical age of the distribution pole plant is approximately 44 years.

Schedule

Actual/Planned CEMI Projects						
	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	20-30	20-30	20-30	20-30	20-30	**100-150**
Actual/Modified	29	21	40	30-40	TBD	**120-130**

Actual/Planned Annual Expenditures (in millions)

	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	$0.16	$0.16	$0.17	$0.17	$0.18	**$0.84**
Actual/Modified	$0.30	$0.16	$0.57	$0.50	TBD	**$1.53**

Anticipated Locations (2019)

Operations Center	Total
Arnold	5
Boyce	5
Butler	5
Charleroi	5
Jeannette	5
State College	5
Waynesboro	5
Total	**35**

Comments
Updated for revised quantities and budget based on expected reliability benefits to be gained.

Enhanced Overcurrent Protection

Description
Install new electronic reclosers with SCADA control at targeted substations. The installation of this equipment is the initial step in the plan to develop a larger scale distribution automation system.

Identification and Justification
West Penn will install new electronic reclosers with SCADA control. This equipment utilizes single pole tripping and will limit the number of customers affected during an outage to only the impacted phase(s). Adding SCADA control to electronic reclosers in select substations with existing SCADA capabilities will provide better monitoring and allow remote switching. Circuits will be selected based on past reliability performance, SCADA availability and customers served. This program aims to improve reliability by replacing technologically obsolete equipment, reducing customers affected per incident as well as reducing outage durations. This program also provides the fundamental building block for distribution automation by providing SCADA control and Smart Grid ready devices at the substation.

Age of Infrastructure
The work encompassed by this initiative involves the installation of new equipment designed to enhance or modernize service to customers. The infrastructure targeted for enhancement is not chosen based on age or condition but by reliability performance.

Schedule

Actual/Planned Recloser Installations						
	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	25-30	28-32	18-22	23-27	23-27	**117-138**
Actual/Modified	25	28	18	60-76	TBD	**131-147**

Actual/Planned Annual Expenditures (in millions)

	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	$3.53	$3.71	$2.47	$3.09	$3.09	**$15.89**
Actual/Modified	$3.88	$2.92	$2.16	$5.70	TBD	**$14.66**

Anticipated Locations (2019)

Operations Center	Total
Arnold	8
Boyce	5
Butler	16
Charleroi	17
Jeannette	14
State College	0
Waynesboro	10
Total	**70**

Comments

West Penn has refined its reliability strategy after reviewing actual reliablity benefits from previously completed work. Future work will focus on projects with the greatest reliability benefits given the updated strategy.

Line Rehabilitation – Distribution

Description
Refurbish the three-phase backbone of the distribution system. This will include zone 1[20] as well of portions of the three phase lines leading to available adjacent circuit tie points. Work may include replacing porcelain cutouts; installing fusing and animal protection on existing transformers, and reclosers; replacing deteriorated and obsolete equipment; installation/replacement of lightning protection, crossarms, switches, poles, guying and other miscellaneous hardware and equipment.

Identification and Justification
Large impact distribution outages are caused when a fault occurs on a distribution circuit that has a significant number of customers. Faults can affect components including but not limited to cutouts, lightning arresters, crossarms, capacitors, reclosers, insulators, transformers, and connectors. To prevent these faults, circuit inspections will identify any equipment deficiencies and other opportunities to prevent outages. The number of items identified for replacement will vary based on circuit size and condition. Projects will be prioritized using the following criteria:

- Customer count
- Reliability history of the circuit (SAIDI, SAIFI, and CAIDI)
- WPC status
- Field inspections

Age of Infrastructure
The components of these circuits have an average age of 40 to 50 years, though some of the components may have been installed prior to the 1950s. The age of the specific equipment that will be replaced will not be known until it is identified through the inspection process.

Schedule

Actual/Planned Lines for Distribution Rehabilitation						
	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	35-45	45-50	35-45	55-65	55-65	**225-270**
Actual/Modified	38	44	36	35-45	TBD	**153-163**

Actual/Planned Lines for Subtransmission Rehabilitation						
	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	-	250-350	50-100	-	-	**300-450**
Actual/Modified	-	137	110	-	-	**247**

[20] Zone 1 is the primary lockout zone.

Actual/Planned Annual Expenditures (in millions)

	2016	2017	2018	2019	2020	Total
Approved	$2.49	$4.30	$2.32	$3.72	$3.72	**$16.55**
Actual/Modified	$2.35	$2.94	$3.65	$3.10	TBD	**$12.04**

Anticipated Locations (2019)

Operations Center	Total
Arnold	0
Boyce	6
Butler	7
Charleroi	4
Jeannette	6
State College	5
Waynesboro	8
Total	**36**

Comments

This program was formerly named Line Rehabilitation and included both distribution and subtransmission lines through 2018. For 2019, this program was adjusted to include only distribution lines.

Line Rehabilitation – Subtransmission

Description
Approximately 40% of West Penn's distribution customers are served by substations with the source voltage provided from the subtransmission system, 25-46 kilovolt ("kV"). This system also provides service to numerous commercial and industrial customers. West Penn currently operates a network of over 2,700 circuit miles of subtransmission lines. This initiative involves a rehabilitation of the subtransmission system and will include the replacement/installation of switches, poles, insulators, lightning arresters, cross-arms, guying and other related equipment and material.

Identification and Justification
Large impact distribution outages are caused by the loss of the source voltage to the substations served from the sub-transmission system. Approximately half of the subtransmission circuits miles are built on poles sharing distribution circuits. Equipment failures often result in outages to the underbuilt distribution facilities. In 2018, outages resulting from the subtransmission system account for approximately 10% of the total customers interrupted. Projects will be prioritized using the following criteria:

- Field inspections
- SAIFI/CAIDI/SAIDI impact
- Consequence of failure
- Outage history

Age of Infrastructure
The average age of the subtransmission pole plant and associated facilities is estimated to be over 44 years.

Schedule

Actual/Planned Lines for Subtransmission Rehabilitation						
	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	-	-	-	-	-	-
Actual/Modified	-	-	-	150-250	TBD	**150-250**

Actual/Planned Annual Expenditures (in millions)

	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	$-	$-	$-	$-	$-	$-
Actual/Modified	$-	$-	$-	$3.40	TBD	**$3.40**

Anticipated Locations (2019)
Locations for the program will be determined based on inspection results.

Comments

This is a new program. Subtransmission lines were previously included as part of the Line Rehabilitation program. Subtransmission line units and expenditures through 2018 are included in the Line Rehabilitation – Distribution program.

Miscellaneous Substation Equipment - Replace Transformer Arresters, Insulators, Switches

Description
Programmatic replacement of older/obsolete substation equipment, including switches, lightning arresters, insulators, current transformers, potential transformers, voltage regulators, and other material and equipment to prevent future maintenance concerns and to maintain reliable service.

Identification and Justification
Candidates for replacement are identified based on age and/or maintenance condition, both indicators of potential failures. Once identified, replacement of these facilities is coordinated and aligned with the replacement of other assets at the substation with in the five-year planning window.

Age of Infrastructure
Targeted equipment is typically comprised of obsolete, past standard, and equipment with a history of failure. While the specific age will vary, most of the targeted equipment is expected to be over 40 years.

Schedule

Actual/Planned Substation Equipment Replacements						
	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	25-30	25-30	25-30	25-30	25-30	**125-150**
Actual/Modified	48	25	62	105-135	TBD	**240-270**

Actual/Planned Annual Expenditures (in millions)

	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	$0.12	$0.12	$0.13	$0.13	$0.13	**$0.63**
Actual/Modified	$0.05	$0.09	$0.22	$1.41	TBD	**$1.77**

Anticipated Locations (2019)

Operations Center	Total
Arnold	10
Boyce	29
Butler	13
Charleroi	24
Jeannette	31
State College	1
Waynesboro	13
Total	**121**

Comments
Formerly named Replace Transformer Arresters, this program was renamed to include additional obsolete equipment.

Overcurrent Protection and Capacity Review

Description
This program will involve the review of the reliability, capacity and operating performance of the existing distribution circuits. This initiative will address the potential need for the removal, upgrade, and replacement of the existing over current protection, sectionalizing and voltage regulation equipment on the circuit. This review process will also result in the identification of projects for various other LTIIP initiatives. Such as phase additions, capacity upgrades, circuit additions, tie lines, etc.

Identification and Justification
A coordination review will also be completed on the targeted circuits. Circuits for this program will be selected based on customer load growth, customer count, past reliability performance, and average customers per fuse. This program aims to improve SAIFI, SAIDI, and CAIDI by both reducing number of customers impacted, the frequency of outages as well as the duration.

Age of Infrastructure
The work encompassed by this initiative involves the installation new equipment designed to enhance or modernize service to customers. The average age of the equipment varies across the system and will be upgraded as required to complete this initiative. The infrastructure targeted for enhancement is chosen based condition and reliability performance.

Schedule

Actual/Planned Over-current Protection Installations						
	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	60-80	60-80	60-80	60-80	60-80	**300-400**
Actual/Modified	81	60	101	95-125	TBD	**337-367**

Actual/Planned Annual Expenditures (in millions)

	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	$2.69	$2.70	$2.85	$2.94	$3.21	**$14.39**
Actual/Modified	$5.85	$3.71	$4.65	$4.00	TBD	**$18.21**

Anticipated Locations (2019)

Operations Center	Total
Arnold	10
Boyce	9
Butler	12
Charleroi	23
Jeannette	11
State College	16
Waynesboro	14
Total	**95**

Comments

Formerly named Fuse Installation, this program was renamed to include projects in addition to fuses.

Purchase Emergency Replacement and Emergency Mobile Transformers

Description
This program includes emergency replacement of 46/12, 34.5/12, 25/12 and 138/12kV substation transformers, based on failures, advanced diagnostics, and/or maintenance condition. Also, emergency mobile transformers are required to facilitate maintenance and provide emergency backup in event of failure.

Identification and Justification
Due to long lead times associated with the purchase of large power transformers, it is critical to maintain the appropriate number of emergency transformers to address future failures. These transformers may be used while a replacement unit progresses through the procurement process. Over the past five years, West Penn has experienced approximately two to three transformer failures per year.

Age of Infrastructure
West Penn has approximately 752 power transformers, providing service to over 716,000 customers. These power transformers have an average age of 45 years. Over half of these transformers are over 40 years old.

Schedule

Actual/Planned Transformer Replacements and Purchases						
	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	-	-	-	-	-	-
Actual/Modified	-	-	-	3	TBD	3

Actual/Planned Annual Expenditures (in millions)

	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	$-	$-	$-	$-	$-	$-
Actual/Modified	$-	$-	$-	$3.00	TBD	$3.00

Anticipated Locations (2019)
Emergency transformers are available for use across the West Penn footprint.

Comments
This is a new program.

Recloser Install/Replacement – Automation Preparation

Description
Install new electronic reclosers and replacement of selected hydraulic reclosers with SCADA-ready three phase devices in preparation for a distribution automation system.

Identification and Justification
Circuits in high density areas with solid ties to adjacent circuits will be identified for the future Smart Grid initiative. These new "state of the art" devices will be SCADA ready and provide the foundation for a distribution automation system.

Age of Infrastructure
The average age of the existing reclosers are typically over 15 years and lack the technology required to support distribution automation.

Schedule

	Actual/Planned Recloser Replacements					
	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	1	-	-	-	-	**1**
Actual/Modified	1	-	-	30	TBD	**31**

Actual/Planned Annual Expenditures (in millions)

	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	$0.28	$-	$-	$-	$-	**$0.28**
Actual/Modified	$0.03	$-	$-	$2.00	TBD	**$2.03**

Anticipated Locations (2019)

Operations Center	**Total**
Arnold	0
Boyce	0
Butler	0
Charleroi	20
Jeannette	10
State College	0
Waynesboro	0
Total	**30**

Comments

Formerly named Recloser Replacement, this program was renamed to include recloser installations in preparation for distribution automation.

Reliability Improvement (N-1 Contingency) Line

Description
This program will address large-scale projects to improve system resiliency by providing the infrastructure and system capacity necessary to overcome a single outage event.

Identification and Justification
Distribution load studies will be performed to identify the system impact of a specific failure of a single component of the distribution and subtransmission system. Projects will be prioritized by assessing the customer impact of the single contingency event with respect to number of customers impacted, outage duration, and probability of failure. Projects may vary significantly in cost and scope, and ill affect the number of planned projects.

Age of Infrastructure
The work associated with this program typically involves the installation of new facilities necessary to provide increased capacity and additional infrastructure to improve the resilience of the distribution system.

Schedule

	Actual/Planned Line Projects					
	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	-	-	-	-	-	-
Actual/Modified	-	-	-	1-2	TBD	**1-2**

Actual/Planned Annual Expenditures (in millions)

	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	$-	$-	$-	$-	$-	**$-**
Actual/Modified	$-	$-	$-	$1.00	TBD	**$1.00**

Anticipated Locations (2019)

Operations Center	Total
Arnold	0
Boyce	0
Butler	0
Charleroi	0
Jeannette	0
State College	1
Waynesboro	0
Total	**1**

Comments
This is a new program.

Reliability Improvement (N-1 Contingency) - Substation

Description
This program will provide substation infrastructure necessary to overcome a single outage event.

Identification and Justification
Distribution load studies will be performed to identify the system impact of a specific failure of a single component of the distribution system. Projects will be prioritized by assessing the customer impact of the single contingency event with respect to number of customers impacted, outage duration, and probability of failure. Projects may vary significantly in cost and scope, and will affect the number of planned projects. Examples include new circuits, capacitors, transformers, capacity upgrades and new substations.

Age of Infrastructure
With power transformers having an average age of 45 years, the work associated with this program typically involves the installation of new facilities necessary to provide increased capacity and additional infrastructure to improve the resilience of the distribution system. The age of the existing components at risk will vary by project.

Schedule

	Actual/Planned Substation Projects					
	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	-	-	-	-	-	**1**
Actual/Modified	-	-	-	1-2	TBD	**1-2**

Actual/Planned Annual Expenditures (in millions)

	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	$-	$-	$-	$-	$-	**$-**
Actual/Modified	$-	$-	$-	$1.80	TBD	**$1.80**

Anticipated Locations (2019)

Operations Center	Total
Arnold	0
Boyce	0
Butler	0
Charleroi	0
Jeannette	1
State College	0
Waynesboro	0
Total	**1**

Comments
This is a new program.

Replace Substation Batteries

Description
Replace substation batteries that are nearing the end of useful life.

Identification and Justification
This program will provide for the replacement of substation batteries reaching the end of their useful life. Battery replacements will be determined based on annual inspection and testing. If the batteries are not replaced, there is potential for mis-operation of substation protective equipment potentially resulting in large scale customer outages.

Age of Infrastructure
The average age of the batteries that are targeted for replacement is more than 22 years.

Schedule

Actual/Planned Battery Replacements						
	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	6-10	6-10	6-10	6-10	6-10	**30-50**
Actual/Modified	7	14	9	12-20	TBD	**42-50**

Actual/Planned Annual Expenditures (in millions)

	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	$0.22	$0.23	$0.24	$0.24	$0.25	**$1.18**
Actual/Modified	$0.09	$0.25	$0.10	$0.25	TBD	**$0.69**

Anticipated Locations (2019)
Locations and quantities for this program to be determined based on condition test results.

Operations Center	**Total**
Arnold	1
Boyce	1
Butler	TBD
Charleroi	2
Jeannette	TBD
State College	TBD
Waynesboro	TBD
Total	**12-20**

Comments
Updated for revised quantities and budget based on expected reliability benefits to be gained.

Replace Substation Reclosers

Description
Replace substation reclosers that are nearing the end of useful life.

Identification and Justification
This program will provide for the replacement of substation reclosers that are nearing the end of their reliable operating life. This will ensure proper operation to clear line faults and work properly with upstream and down line equipment to prevent unnecessary outages. Substation recloser replacements will be determined based on time in service, and the number of operations.

Age of Infrastructure
In general, the age of the reclosers that will be replaced will not be known until it is identified through the inspection process. However, the average age of all reclosers is approximately 22 years.

Schedule

Actual/Planned Recloser Replacements						
	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	15	15	15	15	15	**75**
Actual/Modified	25	30	44	15-20	TBD	**114-119**

Actual/Planned Annual Expenditures (in millions)

	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	$0.31	$0.32	$0.33	$0.35	$0.36	**$1.67**
Actual/Modified	$0.09	$0.31	$0.45	$0.45	TBD	**$1.30**

Anticipated Locations (2019)

Operations Center	**Total**
Arnold	3
Boyce	1
Butler	2
Charleroi	2
Jeannette	3
State College	3
Waynesboro	2
Total	**16**

Comments

Updated for revised quantities and budget based on expected reliability benefits to be gained.

Subtransmission Breaker Replacement

Description
Programmatic replacements of 25-46kV oil circuit breakers to maintain reliable distribution service to customers. Replacement of obsolete oil circuit breakers with modern breakers will improve performance of the subtransmission network. This network provides the source for approximately 40% of West Penn's distribution customers.

Identification and Justification
Candidates for replacement are identified based on obsolescence, availability of vendor support, age, and maintenance history. Once identified, replacement of these facilities is coordinated and aligned with the replacement of other assets at the substation with in the five-year planning window.

Age of Infrastructure
Breakers targeted for this initiative are typically 40-60 years old or have a history of poor performance.

Schedule

Actual/Planned Breaker Replacements						
	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	-	-	-	-	-	-
Actual/Modified	-	-	-	6-8	TBD	6-8

Actual/Planned Annual Expenditures (in millions)

	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	$-	$-	$-	$-	$-	$-
Actual/Modified	$-	$-	$-	$1.00	TBD	$1.00

Anticipated Locations (2019)

Operations Center	Total
Arnold	0
Boyce	2
Butler	0
Charleroi	0
Jeannette	4
State College	0
Waynesboro	2
Total	**8**

Comments
This is a new program.

Subtransmission Modernization and Automation

Description
Replace aged electro-mechanical relay controls and switches on existing automated Subtransmission switching locations with newer technology and add group-operated SCADA controlled reclosers and air switches.

Identification and Justification
The work encompassed by this initiative involves replacing obsolete control technology and the installation of new SCADA controlled equipment designed to enhance or modernize service to customers. The installation of automated switches and reclosers with SCADA control will provide enhanced sectionalizing for larger blocks of customers at the substation source level. The SCADA controlled switches are designed to allow for remote switching to sectionalize and restore large blocks of customers leading to reduced outage durations.

Age of Infrastructure
The relay controls targeted for replacement are generally older than 15 years and consist of past standard technology. The average life span is typically 40 years. The work encompassed by this initiative involves replacing obsolete control technology with new SCADA controlled equipment designed to enhance or modernize service to customers.

Schedule

Actual/Planned Reclosers and Switches						
	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	45	65	45	-	-	**155**
Actual/Modified	56	72	49	20-30	TBD	**197-207**

Actual/Planned Annual Expenditures (in millions)

	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	$2.95	$4.77	$2.96	$-	$-	**$10.68**
Actual/Modified	$3.02	$3.41	$2.57	$2.60	TBD	**$11.60**

Anticipated Locations (2019)

Operations Center	Total
Arnold	0
Boyce	0
Butler	9
Charleroi	3
Jeannette	2
State College	12
Waynesboro	0
Total	**26**

Comments

West Penn has refined its reliability strategy after reviewing actual reliablity benefits from previously completed work. Future work will focus on projects with the greatest reliability benefits given the updated strategy.

Subtransmission Protection and Controls

Description
Programmatic replacements of protection and control equipment to maintain reliable service to customers. Replacement of electro-mechanical relays with modern micro-processor controlled relays will enhance ability for self-diagnostics, as well as continuous monitoring of the health of the device. This new technology will also provide load and fault data to assist the planning and reliability process.

Identification and Justification
Candidates for replacement are identified based on obsolescence, availability of vendor support, and age. Once identified, replacement of these facilities is coordinated and aligned with the replacement of other assets at the substation with in the five-year planning window. Failure of this equipment typically results in over tripping of upstream devices resulting in unnecessary outages for large blocks of customers.

Age of Infrastructure
Relays targeted for this initiative are typically 40-60 years old or have a history of poor performance.

Schedule

Actual/Planned Protection and Controls Projects						
	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	-	-	-	-	-	-
Actual/Modified	-	-	-	16-20	TBD	**16-20**

Actual/Planned Annual Expenditures (in millions)

	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	$-	$-	$-	$-	$-	$-
Actual/Modified	$-	$-	$-	$2.80	TBD	**$2.80**

Anticipated Locations (2019)
Locations for the program will be determined using the methodology detailed above.

Comments
This is a new program.

System Reliability Improvement Projects - Automation Preparation - Line

Description
Improvement projects to distribution circuits to provide capacity necessary to implement a distribution automation system. This program addresses long term projects, needed to provide the infrastructure necessary to support distribution automation. These projects will include upgrading capacity of existing circuits, constructing new tie lines, installing addition circuits, and adding substations.

Identification and Justification
West Penn, in the long-term, plans to implement a distribution automation system with the initial plan to target approximately 200 circuits servicing approximately 50% of our distribution customers. Each year, distribution reliability, planning and operating supervisors meet to propose system improvement projects to facilitate this plan. Viable projects are approved by engineering and vetted against other projects for scheduling based on historical reliability, potential benefit, and cost. Projects may span multiple years and are listed based on in-service date. Examples include, but not limited to, circuit rebuilds, new tie line construction, new circuits, and new substations.

Age of Infrastructure
The work associated with this program typically involves the installation of new facilities necessary to provide increased capacity and additional infrastructure to improve the resilience of the distribution system. The age of the existing components at risk will vary by project.

Schedule

Actual/Planned Automation Preparation - Line Projects						
	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	-	-	-	-	-	-
Actual/Modified	-	-	-	40-50	TBD	**40-50**

Actual/Planned Annual Expenditures (in millions)

	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	$-	$-	$-	$-	$-	$-
Actual/Modified	$-	$-	$-	$3.00	TBD	**$3.00**

Anticipated Locations (2019)

Operations Center	Total
Arnold	6
Boyce	6
Butler	6
Charleroi	10
Jeannette	12
State College	0
Waynesboro	6
Total	**46**

Comments
This is a new program.

System Reliability Improvement Projects - Automation Preparation – Substation

Description
Large scale improvement projects to distribution substations to provide capacity necessary to implement a distribution automation system. This program addresses long term projects, needed to provide the infrastructure necessary to support distribution automation. These projects will include substation support for upgrading capacity of existing circuits, installing addition circuits, installing SCADA, and adding substations.

Identification and Justification
West Penn, in the long-term, plans to implement a distribution automation system with the initial plan to target approximately 200 circuits servicing approximately 50% of the distribution customers. Each year, distribution reliability, planning and operating supervisors meet to propose system improvement projects to facilitate this plan. Viable projects are approved by engineering and vetted against other projects for scheduling based on historical reliability, potential benefit, and cost. Projects may span multiple years and are listed based on in-service date. Examples include new circuits, SCADA additions, capacity upgrades and new substations.

Age of Infrastructure
The work associated with this program typically involves the installation of new facilities necessary to provide increased capacity and additional infrastructure to improve the resilience of the distribution system. The age of the existing components at risk will vary by project.

Schedule

Actual/Planned Automation Preparation - Substation Projects						
	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	-	-	-	-	-	-
Actual/Modified	-	-	-	8-12	TBD	**8-12**

Actual/Planned Annual Expenditures (in millions)

	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	$-	$-	$-	$-	$-	$-
Actual/Modified	$-	$-	$-	$2.40	TBD	**$2.40**

Anticipated Locations (2019)

Operations Center	Total
Arnold	0
Boyce	1
Butler	0
Charleroi	1
Jeannette	1
State College	4
Waynesboro	1
Total	**8**

Comments
This is a new program.

System Reliability Improvement Projects - Including WPCs

Description
Reliability projects associated with distribution circuits with a history of poor performance. This program addresses specific projects to improve poor performing circuits and other potential reliability issues.

Identification and Justification
Each year distribution reliability, planning and operating supervisors meet to propose projects to improve WPC's. Viable projects are approved by engineering and vetted against other projects for scheduling based on historical reliability, potential benefit, and cost. Examples include, but not limited to, circuit rebuilds, new tie line construction, and the construction of new distribution circuits.

Age of Infrastructure
The actual age of the equipment that will be replaced will not be known until it is identified through the inspection process. In general, the average age of equipment is approximately 40-50 years. However, the work encompassed by this initiative involves the installation of new equipment designed to enhance or modernize service to customers.

Schedule

Actual/Planned Circuits for Remediation						
	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	6	6	6	6	6	**30**
Actual/Modified	6	8	7	16-24	TBD	**37-45**

Actual/Planned Annual Expenditures (in millions)

	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	$0.62	$0.62	$0.62	$0.62	$0.62	**$3.10**
Actual/Modified	$0.11	$0.38	$0.79	$3.00	TBD	**$4.28**

Anticipated Locations (2019)

Operations Center	Total
Arnold	3
Boyce	3
Butler	3
Charleroi	3
Jeannette	3
State College	3
Waynesboro	3
Total	**21**

Comments

Formerly named Enhanced WPC Remediation, this program was renamed to broaden the scope beyond WPCs to include other reliability improvement projects.

Thermography / Infrared Inspection Follow Up

Description
Utilize infrared thermography to inspect approximately one third of the three-phase mainline approximately 1200-1500 circuit miles annually and perform remediation on issues found during that inspection. Issues found will be prioritized based on the temperature readings of the thermographic images. Work performed after prioritization will be based on safety, the number of customers impacted and the duration of the potential outages.

Identification and Justification
Outages linked to component failure can often be traced back to overheating of the component. This heating can become progressively worse over time. Periodic thermographic inspection of components can identify problems with these components before they fail thus preventing outages. Since the items are identified through the inspection process quantities are estimated based on historical performance.

Age of Infrastructure
The components of these circuits have an average age of 20 to 30 years, though some of the components may have been installed prior to the 1950s. In general, the age of the specific equipment that will be replaced will not be known until it is identified through the inspection process.

Schedule

Actual/Planned Thermography Projects						
	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	-	-	-	-	-	-
Actual/Modified	-	-	-	170	TBD	**170**

Actual/Planned Annual Expenditures (in millions)

	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	$-	$-	$-	$-	$-	$-
Actual/Modified	$-	$-	$-	$0.50	TBD	**$0.50**

Anticipated Locations (2019)
Locations for the program will be determined based on inspection results.

Comments
This is a new program that was previously completed as part of the Line Rehabilitation program.

URD Cable Replacement and Life Extension

Description
Programmatic replacement and/or treatment of bare concentric neutral primary voltage cable across the West Penn service territory.

Identification and Justification
The targeted type of cable was manufactured without an insulating jacket around the concentric neutral wires that are on the outside perimeter of the cable. The neutral conductors corrode and fail prematurely. The corrosion results in poor voltage quality and underground primary faults caused by unevenly stressed cable insulation. Replacement and/or treatment of this cable should reduce the length of customer outages (CAIDI) since the Company will no longer have to spend the extra time to locate a fault and make repairs to the degraded neutral conductors.

Age of Infrastructure
The URD cable which will be targeted for replacement in this program was installed prior to 1986 and is typically 35-55 years old.

Schedule

	Actual/Planned Feet of Cable Replacement					
	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	7,920	7,920	7,920	34,320	34,320	**92,400**
Actual/Modified	13,019	8,392	11,765	25,000	TBD	**58,176**

Actual/Planned Annual Expenditures (in millions)

	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	$0.44	$0.45	$0.47	$1.72	$1.73	**$4.81**
Actual/Modified	$0.62	$0.90	$0.55	$1.50	TBD	**$3.57**

Anticipated Locations (2019)
Locations for the program will be determined using the methodology detailed above.

Comments
Updated for revised quantities and budget based on expected reliability benefits to be gained.

URD - Replace Failed Cable

Description
Replace bare concentric neutral primary voltage cable across the West Penn service territory.

Identification and Justification
The targeted type of cable was manufactured without an insulating jacket around the concentric neutral wires that are on the outside perimeter of the cable. The neutral conductors corrode and fail prematurely. The corrosion results in poor voltage quality and underground primary faults caused by unevenly stressed cable insulation. Another failure mode of this cable involves moisture penetration into the insulation resulting in degradation of the of the dielectric strength. Improvement in design and manufacturing technology resulted in an industry change, and West Penn discontinued the use of bare concentric neutral cable in 1986. This program will target the replacement of bare concentric neutral cable that have experience failures prior to making repairs. When cable failures occur, typically an alternate source can be utilized to isolate failed section of conductor and restore service to all customers. The current repair process involves excavation and splicing the existing cable. Rather investing the time and man-power to repair a past standard cable that it is approaching end of life, this program will install new cable, in conduit. Replacement of this failing cable is part of a long-term plan to renew our aging URD assets.

Age of Infrastructure
The URD cable which will be targeted for replacement in this program was installed prior to 1986 and is typically 35-55 years old.

Schedule

Actual/Planned Feet of Failed Cable Replacement						
	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	-	-	-	-	-	-
Actual/Modified	-	-	-	24,000	TBD	**24,000**

Actual/Planned Annual Expenditures (in millions)

	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	$-	$-	$-	$-	$-	$-
Actual/Modified	$-	$-	$-	$1.65	TBD	**$1.65**

Anticipated Locations (2019)
Locations for the program will be determined using the methodology detailed above.

Comments
This is a new program.

Underground Substation Exit Replacement

Description
Replace aging 12kV underground substation exit cables.

Identification and Justification
The cable targeted for replacement was manufactured without an insulating jacket around the concentric neutral wires that are on the outside perimeter of the cable. The neutral conductors corrode prematurely and fail. The corroded concentric neutral of this early vintage underground conductor results in poor voltage quality and underground primary faults caused by unevenly stressed cable insulation. This program aims to reduce the interruptions (SAIFI) to a circuit associated with the cable as well as the long interruption times associated with the replacement (SAIDI). This program is expected to be completed in 2019.

Age of Infrastructure
The cable which will be targeted for replacement in this program was installed prior to 1986 and is generally 40 years or older in age.

Schedule

Actual/Planned Substation Exit Replacements						
	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	10	13	-	-	-	**23**
Actual/Modified	7	13	10	3	TBD	**33**

Actual/Planned Annual Expenditures (in millions)

	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	$0.62	$0.81	$-	$-	$-	**$1.43**
Actual/Modified	$0.30	$0.60	$0.46	$0.25	TBD	**$1.61**

Anticipated Locations (2019)

Operations Center	Total
Arnold	0
Boyce	0
Butler	0
Charleroi	0
Jeannette	0
State College	0
Waynesboro	3
Total	**3**

Comments

West Penn has refined its reliability strategy after reviewing actual reliablity benefits from previously completed work. Future work will focus on projects with the greatest reliability benefits given the updated strategy.

Unreimbursed Highway Relocation

Description
Recover the unreimbursed costs of distribution facility relocations in support of highway and bridge construction projects.

Identification and Justification
Highway and bridge relocation and construction projects occur throughout the year and across the West Penn service territory. These projects are sponsored by PennDOT, as well as individual counties and municipalities. Reimbursement amounts are calculated based on PennDOT DM-5 manual guidelines. Historically West Penn collects 40% of the overall relocation costs from the entity making the request for equipment relocation.

Age of Infrastructure
The infrastructure targeted for relocation is not chosen based on age or condition but merely by its location. Despite that fact, replacement of infrastructure with newer equipment may result in reliability improvement.

Schedule

	Actual/Planned Average Number of Projects					
	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	25-30	25-30	25-30	25-30	25-30	**125-150**
Actual/Modified	27	53	70	25-30	TBD	**175-180**

Actual/Planned Annual Expenditures (in millions)

	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	$1.44	$1.44	$1.44	$1.44	$1.44	**$7.20**
Actual/Modified	$0.91	$0.93	$1.32	$1.44	TBD	**$4.60**

Anticipated Locations (2019)
Locations for the program will be determined using the methodology detailed above.

Comments
Updated for revised quantities and budget based on expected reliability benefits to be gained.

Wood Pole Replacement

Description
Accelerate the replacement of poles identified as non-restorable during the annual West Penn distribution pole inspection process.

Identification and Justification
This program is the systematic replacement of wood poles that have been identified by a qualified inspector to have degraded beyond restorable condition (cannot be reinforced). These poles are identified during annual inspections of the distribution network. The program ultimately contributes to storm hardening efforts and aims to improve public and employee safety as well as contribute to service reliability. West Penn inspects approximately 54,000 poles per year, from which a historical trend indicates a 0.5% rejection rate.

Age of Infrastructure
In general, the age of the poles that will be replaced is unknown until they are identified through the inspection process. The average age of pole plant will vary based on current backlog of poles targeted for replacement. The current backlog of poles has an average age of 61 years.

Schedule

	Actual/Planned Pole Replacements					
	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	270	270	270	520	520	**1,850**
Actual/Modified	271	273	280	520-545	TBD	**1,344-1,369**

Actual/Planned Annual Expenditures (in millions)

	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Approved	$1.37	$1.41	$1.45	$2.74	$2.79	**$9.76**
Actual/Modified	$1.06	$1.06	$1.11	$2.00	TBD	**$5.23**

Anticipated Locations (2019)

Operations Center	Total
Arnold	2
Boyce	128
Butler	139
Charleroi	144
Jeannette	67
State College	65
Waynesboro	0
Total	**545**

Comments
Updated for revised quantities and budget based on expected reliability benefits to be gained.

RE: Periodic Review of West Penn Power Company's Long-Term Infrastructure Improvement Plan; PaPUC Docket No. ~~M-2018-3000949~~ P-2015-2508918

CERTIFICATE OF SERVICE

I hereby certify and affirm that I have this day served copies of West Penn Power Company's Petition for Approval of Modification of its Long-Term Infrastructure Improvement Plan on the following persons in the manner specified below, in accordance with the requirements of 52 Pa. Code § 1.54:

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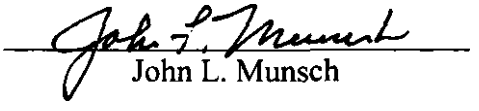
John L. Munsch

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SHIP DATE: 18JAN19
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