DIRECT TESTIMONY OF
JASON A. CASH
ON BEHALF OF KINGSPORT POWER COMPANY
D/B/A AEP APPALACHIAN POWER
BEFORE THE TENNESSEE PUBLIC UTILITY COMMISSION
DOCKET NO. 21-00107

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND POSITION.

A. My name is Jason A. Cash. My business address is 1 Riverside Plaza, Columbus, Ohio 43215. I am employed by AEPSC as Director of Regulatory Accounting Services. AEPSC is a wholly-owned subsidiary of AEP, which provides centralized professional and other services to the subsidiaries of AEP. AEP is the parent company of KgPCo.

Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND BUSINESS EXPERIENCE.

A. I graduated with a Bachelor of Science degree with a major in accounting from The Ohio State University in 2000. In 2000, I joined AEPSC and have held several positions within the Accounting organization, including general ledger accounting and financial reporting for Ohio Power Company and AEPSC. From 2008 through 2013, I worked in AEPSC's Transmission Accounting department where I was promoted to Supervisor of Transmission Accounting in 2013. From 2014 through 2019, I worked in AEPSC's Accounting Policy & Research department as a Staff Accountant and was later promoted to Senior Staff Accountant in 2019. In 2019, I was promoted to the position of Accounting Senior Manager within AEPSC's Corporate Accounting department. In 2021, I was promoted to my current position as Director of Regulatory Accounting Services.

Q. PLEASE BRIEFLY DESCRIBE YOUR DUTIES AND RESPONSIBILITIES AS DIRECTOR OF REGULATORY ACCOUNTING SERVICES.

A. My responsibilities include providing the AEP electric operating subsidiaries with accounting support for regulatory filings, including the preparation of depreciation studies and testimony. I also monitor regulatory proceedings and legislation for accounting implications and assist in determining the appropriate regulatory accounting treatment.

Q. FOR WHOM ARE YOU TESTIFYING IN THIS PROCEEDING?

A. I am testifying on behalf of KgPCo.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE ANY REGULATORY COMMISSIONS?

A. Yes. See KgPCo Exhibit No. 1 (JAC), which details my rate case experience.

Q. HAVE YOU HAD ANY FORMAL TRAINING RELATING TO DEPRECIATION AND UTILITY ACCOUNTING?

A. Yes. I am a member of the Society of Depreciation Professionals (SDP) and was a former at-large director for the SDP. I have completed training courses offered by the SDP, which include Depreciation Fundamentals, Life and Net Salvage Analysis, and Analyzing the Life of Real World Property. These training classes included topics such as an introduction to plant and depreciation accounting, data requirements and collection, depreciation models, life cycle analysis, current regulatory issues, actuarial life analysis, net salvage analysis, and simulation life analysis.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. The purpose of my testimony is to recommend revised depreciation accrual rates for the Company's electric plant in service based on a depreciation study for electric utility plant in service at December 31, 2020. The depreciation rates determined by the study are intended to provide recovery of invested capital, cost of removal, and credit for salvage over the expected life of the property.

Q. ARE YOU SPONSORING ANY EXHIBITS IN THIS PROCEEDING?

A. Yes. I am sponsoring the following exhibits:

- KgPCo Exhibit No. 1 (JAC) – Rate Case Experience
- KgPCo Exhibit No. 2 (JAC) - Depreciation Study Report
- KgPCo Exhibit No. 3 (JAC) – APCo 2019 Depreciation Study Report

Q. WERE THESE EXHIBITS PREPARED OR ASSEMBLED BY YOU OR UNDER YOUR DIRECT SUPERVISION?

A. Yes.

Q. ARE YOU SPONSORING ANY MFRs?

A. No.

Q. PLEASE EXPLAIN WHY THE COMPANY IS PROPOSING TO REVISE DEPRECIATION RATES IN THIS CASE.

A. The depreciation study proposes updated depreciation rates for the Company's Transmission, Distribution and General property due to changes in mortality characteristics and net salvage estimates from the 2014 depreciation study.

Q. PLEASE EXPLAIN THE DEFINITION OF DEPRECIATION AS USED IN PREPARING YOUR DEPRECIATION STUDY.

A. The definition of depreciation that I used in preparing the study is the same that is used by the FERC and the National Association of Regulatory Utility Commissioners. That definition is:

> Depreciation, as applied to depreciable electric plant, means the loss in service value not restored by current maintenance, incurred in connection with the consumption or prospective retirement of electric plant in the course of service from causes which are known to be in current operation and against which the utility is not protected by insurance. Among the causes to be given consideration are wear and tear, decay, action of the elements, inadequacy, obsolescence, changes in the art, changes in demand and requirements of public authorities.
>
> Service value means the difference between original cost and the net salvage value (net salvage value means the salvage value of the property retired less the cost of removal) of the electric plant.

Q. HOW DO THE DEPRECIATION STUDY RATES AND ANNUAL ACCRUALS COMPARE WITH KGPCO'S CURRENT RATES AND ACCRUALS?

A. A comparison of KgPCo's current rates and accruals to the depreciation study's rates and accruals for transmission, distribution and general plant is shown below on Table 1 and is based on total Company depreciable plant balances at December 31, 2020.

Table 1 - Depreciation Rates and Accruals
Kingsport Power Company
Based on Plant In Service at December 31, 2020

	Existing		Study		
Functional Plant Group	Rates	Accruals	Rates	Accruals	Difference
Transmission	1.49%	$666,816	2.50%	$1,117,506	$450,690
Distribution	3.58%	$6,928,418	3.24%	$6,264,726	($663,692)
General	2.46%	$226,966	2.68%	$247,187	$20,221
Total Depreciable Plant	3.16%	$7,822,200	3.08%	$7,629,419	($192,781)

Based on results of the depreciation study, a decrease in KgPCo's annual depreciation expense due to a change in depreciation rates of $192,781 using depreciable plant balances at December 31, 2020 is recommended. The depreciation rate changes are necessary because of changes in average service lives and net salvage estimates used to calculate KgPCo's depreciation rates.

The accrual amounts in the above table result from applying the applicable depreciation rates to depreciable balances at December 31, 2020. They do not represent the depreciation accruals that the Company is requesting to be included in its cost of service, which is based on a test year ending June 30, 2021. The annual depreciation accruals that KgPCo requests in cost of service in this proceeding are calculated and supported by Company witness Wayne Allen and result from his application of the recommended depreciation rates to the adjusted plant in service balances at test year end.

Q. PLEASE BRIEFLY DESCRIBE THE METHODS AND PROCEDURES USED IN THE STUDY.

A. The methods and procedures are fully described in the depreciation study report labeled KgPCo Exhibit No. 2 (JAC). In summary, all of the property included in the depreciation report was considered on a group plan. Under the group plan, depreciation is accrued upon the basis of the original cost of all property included in each depreciable plant group instead of individual items of property. Upon retirement of any depreciable property, its full cost, less any net salvage realized, is charged to the accumulated provision for depreciation regardless of the age of the particular item retired. Also under this plan, the dollars in each primary plant account are considered as a separate group for

depreciation accounting purposes and an annual depreciation rate for each account is determined. In this study, the plant groups consist of the individual primary plant accounts for transmission, distribution and general plant property. The depreciation rates were calculated by the average remaining life method, which is the same method that was used to calculate the Company's current depreciation rates. The average remaining life method recovers the original cost of the plant, adjusted for net salvage, less accumulated depreciation, over the average remaining life of the plant.

The average service lives of KgPCo's transmission, distribution and general plant account 390 were determined by using APCo's mortality analysis for the identical plant accounts. The net salvage for each transmission, distribution and general property account for KgPCo were also determined by using APCo's results by plant account. This approach is similar to the depreciation study filed in Docket No 16-00001.

Q. PLEASE EXPLAIN WHY IT WAS NECESSARY TO USE THE DEPRECIATION PARAMETERS FOR KGPCO THAT WERE DETERMINED BY THE LATEST DEPRECIATION STUDY PERFORMED FOR APCO.

A. Both APCo and KgPCo have similar operating conditions and the use of APCo data provides a robust source of retirements, removal cost and salvage. For this reason, it is the recommendation of the Company to continue to use the mortality curve, average service life and net salvage information for APCo from its most recent depreciation study approved by the Virginia State Corporation Commission in the 2017-2019 Triennial Review Base Rate Case No. PUR-2020-00015.

Q. DID YOU PERFORM THE DEPRECIATION STUDY SUBMITTED BY APCO IN CASE NO. PUR-2020-00015?

A. Yes. I performed the depreciation study that APCo submitted and provided the analysis and recommendations that resulted from that study.

Q. HOW WERE THE METHODS AND PROCEDURES USED IN APCO'S DEPRECIATION STUDY APPLIED TO THE COMPANY'S PLANT IN SERVICE BALANCES?

A. APCo's average service lives for the transmission, distribution and general plant were determined using statistical procedures similar to those used in the insurance industry in studies of human mortality. The historical retirement experience of property groups was studied and retirement characteristics of the property were described using the Iowa-type retirement dispersion curves. APCo's transmission, distribution and general plant mortality characteristics were used to calculate depreciation rates for KgPCo.

APCo's net salvage for each property group was determined based on actual historical experience for transmission, distribution and general plant accounts. Similar to the method used for mortality characteristics, APCo's transmission, distribution and general plant net salvage percentages were used to calculate depreciation rates for KgPCo.

Q. PLEASE EXPLAIN THE RESULTS OF YOUR STUDY FOR KGPCO'S TRANSMISSION PLANT.

A. The depreciation rate for transmission plant increased from 1.49% to 2.50%. The increase was mainly due to a decrease in the average service life for accounts 352, 353,

and 355 and an increase in the net salvage ratio for all accounts. The increase was partially offset by an increase in the average service life for accounts 354 and 356.

Q. PLEASE EXPLAIN THE RESULTS OF YOUR STUDY FOR KGPCO'S DISTRIBUTION PLANT.

A. The depreciation rate for distribution plant decreased from 3.58% to 3.24%. The decrease was primarily due to an increase in the average service life for accounts 362, 364, 366, 368, 369, 371 and 373 combined with a decrease in the net salvage ratio for accounts 361 and 370. The decrease was partially offset by a decrease in the average service life for accounts 367 and 370 and an increase in the net salvage ratio for accounts 362, 364, 365, 368, 369, 371 and 373.

Q. PLEASE EXPLAIN THE RESULTS OF YOUR STUDY FOR KGPCO'S GENERAL PLANT.

A. The depreciation rate for general plant increased from 2.46% to 2.68%. The increase was mostly caused by an increase in the net salvage ratios for accounts 390 and 397. The increase was partially offset by an increase in the average service life for account 390.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.

Exhibit No. 1 (JAC)

RATE CASE EXPERIENCE OF JASON A. CASH					
No.	**Year**	**Company**	**Commission**	**Case, Cause or Docket No.**	**Items Provided/Filed**
1.	2015	Transource West Virginia, LLC	Federal Energy Regulatory Commission	Docket No. ER15-2114-000	Testimony and Depreciation Study
2.	2016	Kingsport Power Company	Tennessee Regulatory Authority	Docket No. 16-00001	Testimony and Depreciation Study
3.	2016	Transource Pennsylvania, LLC and Transource Maryland, LLC	Federal Energy Regulatory Commission	Docket No. ER17-419-000	Testimony and Depreciation Study
4.	2017	Kentucky Power Company	Public Service Commission of Kentucky	Case No. 2017-00179	Testimony and Depreciation Study
5.	2017	Indiana Michigan Power Company	Michigan Public Service Commission	Case No. U-18370	Testimony and Depreciation Study
6.	2017	Indiana Michigan Power Company	Indiana Utility Regulatory Commission	Cause No. 44967	Testimony and Depreciation Study
7.	2018	Appalachian Power Company and Wheeling Power Company	Public Service Commission of West Virginia	Case Nos. 18-0645-E-D and 18-0646-E-42T	Testimony and Depreciation Study
8.	2019	Appalachian Power Company and Wheeling Power Company	Public Service Commission of West Virginia	Case No. 19-0063-E-PC	Testimony

RATE CASE EXPERIENCE OF JASON A. CASH					
No.	**Year**	**Company**	**Commission**	**Case, Cause or Docket No.**	**Items Provided/Filed**
9.	2019	AEP Texas Inc.	Public Utility Commission of Texas	Docket No. 49494	Testimony and Depreciation Study
10.	2019	Indiana Michigan Power Company	Indiana Utility Regulatory Commission	Cause No. 45235	Testimony and Depreciation Study
11.	2019	Indiana Michigan Power Company	Michigan Public Service Commission	Case No. U-20359	Testimony and Depreciation Study
12.	2019	Southwestern Electric Power Company	Arkansas Public Service Commission	Docket No. 19-008-U	Adopted the Testimony and Depreciation Study of Company witness David Davis in Addition to Filing Sur-Surrebuttal Testimony
13.	2020	Appalachian Power Company	Virginia State Corporation Commission	Case No. PUE-2020-00015	Testimony and Depreciation Study
14.	2020	Ohio Power Company	Public Utilities Commission of Ohio	Case No. 20-585-EL-AIR	Testimony and Depreciation Study
15.	2020	Appalachian Power Company	Public Service Commission of West Virginia	Case No. 20-0675-E-PC	Testimony
16.	2020	Southwestern Electric Power Company	Public Utility Commission of Texas	Docket No. 51415	Testimony and Depreciation Study
17.	2020	Southwestern Electric Power Company	Louisiana Public Service Commission	Docket No. U-35441	Testimony and Depreciation Study

RATE CASE EXPERIENCE OF JASON A. CASH					
No.	**Year**	**Company**	**Commission**	**Case, Cause or Docket No.**	**Items Provided/Filed**
18.	2021	Public Service Company of Oklahoma	Oklahoma Corporation Commission	Cause No. PUD 202100055	Testimony and Depreciation Study
19.	2021	Indiana Michigan Power Company	Indiana Utility Regulatory Commission	Cause No. 45576	Testimony and Depreciation Study
20.	2021	Southwestern Electric Power Company	Arkansas Public Service Commission	Docket No. 21-070-U	Testimony and Depreciation Study

Exhibit No. 2 (JAC)

KINGSPORT POWER COMPANY

DEPRECIATION STUDY REPORT

OF

ELECTRIC PLANT IN SERVICE

AT

DECEMBER 31, 2020

DEPRECIATION STUDY REPORT

Table of Contents

I. INTRODUCTION

This report presents the results of a depreciation study of Kingsport Power Company's (KgPCo) depreciable electric utility plant in service at December 31, 2020. The study was prepared by Jason A. Cash, Director of Regulatory Accounting Services at American Electric Power Service Corporation (AEPSC). The purpose of the depreciation study was to develop appropriate annual depreciation accrual rates for each of the primary plant accounts that comprise the functional groups for which KgPCo computes its annual depreciation expense.

The recommended depreciation rates are based on the Average Remaining Life Method of computing depreciation. Further explanation of this method is contained in Section II of this report.

The definition of depreciation used in my Study is the same as that used by the Federal Energy Regulatory Commission (FERC) and the National Association of Regulatory Utility Commissioners:

> "Depreciation, as applied to depreciable electric plant, means the loss in service value not restored by current maintenance, incurred in connection with the consumption or prospective retirement of electric plant in the course of service from causes which are known to be in current operation and against which the utility is not protected by insurance. Among the causes to be given consideration are wear and tear, decay, action of the elements, inadequacy, obsolescence, changes in the art, changes in demand and requirements of public authorities."
>
> "Service value means the difference between original cost and the net salvage value (net salvage value means the salvage

value of the property retired less the cost of removal) of the electric plant." (FERC Accounting and Reporting Requirements for Public Utilities and Licensees, ¶15.001.)

Schedule I of this report shows the recommended depreciation accrual rates by primary plant accounts and composited to functional plant classifications. Schedule II compares depreciation expense using rates approved by the Tennessee Public Utility Commission (Commission) and rates recommended by the depreciation study. Schedule III shows a comparison of the current mortality characteristics that were used to compute the recommended depreciation rates and the mortality characteristics used to determine the existing depreciation rates and accruals for Transmission, Distribution and General Plant Functions. A comparison of KgPCo's current functional group composite depreciation rates and accruals to recommended functional group rates and accruals based on December 31, 2020 depreciable plant balances follows:

Table 1 - Depreciation Rates and Accruals
Kingsport Power Company
Based on Plant In Service at December 31, 2020

	Existing		Study		
Functional Plant Group	Rates	Accruals	Rates	Accruals	Difference
Transmission	1.49%	$666,816	2.50%	$1,117,506	$450,690
Distribution	3.58%	$6,928,418	3.24%	$6,264,726	($663,692)
General	2.46%	$226,966	2.68%	$247,187	$20,221
Total Depreciable Plant	3.16%	$7,822,200	3.08%	$7,629,419	($192,781)

Based on Total Company Depreciable Plant In-Service as of December 31, 2020, I am recommending a decrease in depreciation rates that result in an decrease in annual depreciation expense of $192,781. The depreciation rate changes are necessary because of changes in average service lives and net

salvage estimates used to calculate KgPCo's recommended depreciation rates. KgPCo's current approved depreciation rates are based on a 2016 Order in Docket No. 16-00001 dated October 19, 2016.

II. DISCUSSION OF METHODS AND PROCEDURES USED IN THE STUDY

1. Group Method

All of the depreciable property included in this report was considered on a group plan. Under the group plan, depreciation expense is accrued upon the basis of the original cost of all property included in each depreciable plant account. Upon retirement of any depreciable property, its full cost, less any net salvage realized, is charged to the accrued depreciation reserve regardless of the age of the particular item retired. Also, under this plan, the dollars in each primary plant account are considered as a separate group for depreciation accounting purposes and an annual depreciation rate for each account is determined. The annual accruals by primary account were then summed, to arrive at the total accrual for each functional group. The total accrual divided by the original cost yields the functional group accrual rate.

2. Determination of Depreciation Rates by the Average Remaining Life Method

KgPCo's current depreciation rates are based on the Average Remaining Life Method. The Average Remaining Life Method recovers the original cost of the plant, adjusted for net salvage, less accumulated depreciation, over the average remaining life of the plant. By this method, the annual depreciation rate for each account is determined on the following basis:

$$\text{Annual Depreciation Expense} = \frac{(\text{Orig. Cost} \times \text{Net Salvage Ratio}) - \text{Accumulated Depreciation}}{\text{Average Remaining Life}}$$

$$\text{Annual Depreciation Rate} = \frac{\text{Annual Depreciation Expense}}{\text{Original Cost}}$$

3. Methods of Life Analysis

Depending upon the type of property and the nature of the data available from the property accounting records, one of three life analyses was used to arrive at the historically realized mortality characteristics and service lives of the depreciable plant investments. The life analysis methods used for KgPCo were determined by using Appalachian Power Company's (APCo) mortality analysis from its recent rate filing in Virginia Case No. PUR-2020-0015 for the identical plant accounts since APCo and KgPCo have similar operating conditions and the use of APCo data provides a robust source of retirements, removal cost and salvage. APCo, like KgPCo is a subsidiary of AEP. The life analysis methods used are identified and described as follows:

Actuarial Analysis - Transmission, Distribution and General Plant

This method of analyzing past experience represents the application to industrial property of statistical procedures developed in the life insurance field for investigating human mortality. It is distinguished from other methods of life estimation by the requirement that it is necessary to know the age of the property at the time of its retirement and the age of survivors, or plant remaining in service; that is, the installation date must be known for each particular retirement and for each particular survivor.

The application of this method involves the statistical procedure

known as the "annual rate method" of analysis. This procedure relates the retirements during each age interval to the exposures at the beginning of that interval, the ratio of these being the annual retirement ratio. Subtracting each retirement ratio from unity yields a sequence of annual survival ratios from which a survivor curve can be determined. This is accomplished by the consecutive multiplication of the survivor ratios. The length of this curve depends primarily upon the age of the oldest property. Normally, if the period of years from the inception of the account to the time of the study is short in relation to the expected maximum life of the property, an incomplete or stub survivor curve results.

While there are a number of acceptable methods of smoothing and extending this stub survivor curve in order to compute the area under it from which the average life is determined, the well-known Iowa Type Curve Method was used in this study.

By this procedure, instead of mathematically smoothing and projecting the stub survivor curve to determine the average life of the group, it was assumed that the stub curve would have the same mortality characteristics as the type curve selected. The selection of the appropriate type curve and average life is accomplished by plotting the stub curve, superimposing on it Iowa curves of the various types and average lives drawn to the same scale, and then determining which Iowa type curve and average life best matches the stub.

The Actuarial Method of Life Analysis was used for the following accounts:

352.0 Transmission Structures & Improvements

353.0 Transmission Station Equipment

354.0 Transmission Towers and Fixtures

355.0 Transmission Poles & Fixtures

356.0 Transmission Overhead Conductor & Devices

362.0 Distribution Station Equipment

367.0 Distribution Underground Conductor

368.0 Distribution Line Transformers

369.0 Distribution Services

370.0 Distribution Meters

371.0 Distribution Installation on Customer Premises

390.0 General Structures & Improvements

The result of the actuarial analysis for the above accounts is detailed in the depreciation study work papers.

Simulated Plant Record Analysis – Transmission and Distribution Plant

The "Simulated Plant Record" (SPR) method designates a class of statistical techniques that provide an estimate of the age distribution, mortality dispersion and average service life of property accounts whose recorded history provides no indication of the age of the property units when retired from service. For each such account, the available property records usually reveal only the annual gross additions, annual retirements and balances with no indication of the age of either plant retirements or annual plant balances. For this study, the "Balances method" of analysis was used.

The SPR Balances Method is a trial and error procedure that attempts to duplicate the annual balance of a plant account by distributing the actual annual gross additions over time according to an assumed

mortality distribution. Specifically, the dollars remaining in service at any date are estimated by multiplying each year's additions by the successive proportion surviving at each age as given by the assumed survivor characteristics. For a given year, the balance indicated is the accumulation of survivors from all vintages and this is compared with the actual book balance. This process is repeated for different survivor curves and average life combinations until a pattern is discovered which produces a series of "simulated balances" most nearly equaling the actual balances shown in a company's books.

This determination is based on the distribution producing the minimum sum of squared differences between the simulated balance and the actual balances over a test period of years.

The iterative nature of the simulated method makes it ideally suited for computerized analysis. For each analysis of a given property account, the computer program provides a single page summary containing the results of each analysis indicating the "best fit" based on criteria selected by the user.

The results of my analysis using the Balance Method is shown in the depreciation study work papers. The analysis also shows the value of the Index of Variation of the difference that is calculated according to the Balances Method where a lower value for the Index of Variation indicates better agreement with the actual data.

The SPR Method of Life Analysis was utilized for the following accounts:

357.0 Transmission Towers & Fixtures

358.0 Transmission Poles & Fixtures

361.0 Transmission Structures & Improvements

364.0 Distribution Poles, Towers & Fixtures

365.0 Distribution OH Conductor & Devices

366.0 Distribution Underground Conduit

373.0 Street Lighting & Signal Systems

Vintage Year Accounting

In 1998, the Company began using a vintage year accounting method for general plant accounts 391 to 398 in accordance with Federal Energy Regulatory Commission Accounting Release Number 15 (AR-15). This accounting method requires the amortization of vintage groups of property over their useful lives. AR-15 also requires that property be retired when it meets its average service life.

As a result, my recommendation for these accounts is that the current useful life approved by this Commission be retained and used to continue amortization of the account balances.

4. Final Selection of Average Life and Curve Type

The final selection of average life and curve type for each depreciable plant account analyzed by the Actuarial and SPR Methods was primarily based on the results of the mortality analyses of APCo's past retirement history.

III. NET SALVAGE

1. Net Salvage

The net salvage percentages used in this report for Transmission,

Distribution and General Plant were based on APCo's results by plant account combined with the judgment of the analyst. These percentages are expressed as percent of original cost. To determine gross salvage, gross removal and net salvage percentages for individual plant accounts, original cost retirements, salvage and removal were taken from APCo's account history which detailed these amounts by account for the period 2001 to 2019. Gross salvage and cost of removal percentages were calculated using the data from this nineteen year time period for each account. The salvage and removal percentages for each account were then netted to determine a net salvage percentage for each account.

The net salvage percentages were converted to net salvage ratios (1 minus the net salvage percentage) and appear in Column IV on Schedule I and were used to determine the total amount to be recovered through depreciation. The same net salvage was also reflected in the determination of the calculated depreciation requirement, which was used to allocate accumulated depreciation at the functional group to the accounts comprising each group.

2. Net Salvage Ratios

The net salvage ratios shown on Schedule I of this report may be explained as follows:

a. Where the ratio is shown as unity (1.00), it was assumed that the net salvage in that particular account would be zero.

b. Where the ratio is less than unity, it was assumed that the salvage exceeded the removal costs. For example, if the net salvage were 20%, the net salvage ratio would be expressed as .80.

c. Where the ratio is greater than unity, it was assumed that the salvage was less than the cost of removal. For example, if the net salvage were minus 5%, the net salvage ratio would be expressed as 1.05.

IV. CALCULATION OF DEPRECIATION REQUIREMENT AT DECEMBER 31, 2020

A calculation of a depreciation requirement (theoretical reserve) for each plant account using the average service life, curve type and net salvage amount in this study is provided in Column VI of Schedule I.

V. STUDY RESULTS

Transmission, Distribution and General Plant results are discussed below. In addition, Transmission, Distribution and General Plant average service life, retirement dispersion pattern and net salvage percentages used to calculate each primary plant account depreciation rate are shown on Schedule III where the mortality characteristics and net salvage values for the current rates are also shown. The changes to the mortality characteristics follow trends shown by historical retirement experience. Gross salvage and gross cost of removal percentages were based on APCo's historical experience for each account for the period 2001-2019.

Transmission Plant

The depreciation rate for transmission plant increased from 1.49% to 2.50%. The increase was mainly due to a decrease in the average service life for accounts 352, 353, and 355 and an increase in the net salvage ratio for all accounts. The increase was partially offset by an increase in the average service

life for accounts 354 and 356.

Distribution Plant

The depreciation rate for distribution plant decreased from 3.58% to 3.24%. The decrease was primarily due to an increase in the average service life for accounts 362, 364, 366, 368, 369, 371 and 373 combined with a decrease in the net salvage ratio for accounts 361 and 370. The decrease was partially offset by a decrease in the average service life for accounts 367 and 370 and an increase in the net salvage ratio for accounts 362, 364, 365, 368, 369, 371 and 373.

General Plant

The depreciation rate for general plant increased from 2.46% to 2.68%. The increase was mostly caused by an increase in the net salvage ratios for accounts 390 and 397. The increase was partially offset by an increase in the average service life for account 390.

VI. EXPLANATION OF COLUMN HEADINGS – SCHEDULE I

Schedule I shows the determination of the recommended annual depreciation accrual rate by primary plant accounts by the straight line remaining life method. An explanation of the schedule follows:

Column I	-	Account number.
Column II	-	Account title.
Column III	-	Original Cost at December 31, 2020
Column IV	-	Net Salvage Ratio.
Column V	-	Total to be Recovered (Column III) * (Column IV).
Column VI	-	Calculated Depreciation Requirement.
Column VII	-	Allocated Accumulated Depreciation – accumulated depreciation (book reserve) spread to each account on the basis of the Calculated Depreciation Requirement shown in Column VI.
Column VIII	-	Remaining to be Recovered (Column V - Column VII).
Column IX	-	Average Remaining Life.
Column X	-	Recommended Annual Accrual Amount.
Column XI	-	Recommended Annual Accrual Percent or Depreciation Rate (Column X/Column III).

KINGSPORT POWER COMPANY
SCHEDULE I - CALCULATION OF DEPRECIATION RATES BY THE REMAINING LIFE METHOD
BASED ON PLANT IN SERVICE AT DECEMBER 31, 2020
AVERAGE LIFE GROUP (ALG) METHOD ACCRUAL RATES

Acct. No.	Account Title	Original Cost	Net Salvg. Ratio	Total to be Recovered	Calculated Depreciation Requirement	Accumulated Depreciation	Remaining to Be Recovered	Avg. Remain Life	Annual Accrual Amount	Annual Accrual Percent
(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)	(IX)	(X)	(XI)
TRANSMISSION PLANT										
352	Structures & Improvements	1,400,061	1.20	1,680,073	331,586	358,811	1,321,262	48.16	27,435	1.96%
353	Station Equipment	33,800,188	1.10	37,180,207	9,358,146	9,310,363	27,869,844	32.18	866,061	2.56%
354	Towers & Fixtures	761,812	1.19	906,556	571,299	765,561	140,995	27.74	5,083	0.67%
355	Poles & Fixtures	5,912,950	1.20	7,095,540	1,356,139	1,638,555	5,456,985	29.93	182,325	3.08%
356	OH Conductor & Devices	2,750,803	1.08	2,970,867	1,097,448	1,401,364	1,569,503	42.88	36,602	1.33%
	Total Transmission Plant	44,625,814	**1.12**	49,833,244	12,714,618	13,474,654	36,358,590	32.54	1,117,506	2.50%
DISTRIBUTION PLANT										
361	Structures & Improvements	6,502,593	1.10	7,152,852	753,614	684,720	6,468,132	44.73	144,604	2.22%
362	Station Equipment	35,441,427	1.19	42,175,298	4,978,352	5,720,312	36,454,986	44.10	826,644	2.33%
364	Poles, Towers, & Fixtures	30,263,568	1.72	52,053,337	12,874,991	19,720,967	32,332,370	30.11	1,073,808	3.55%
365	OH Conductor & Devices	42,997,541	1.18	50,737,098	11,150,806	10,060,683	40,676,415	27.31	1,489,433	3.46%
366	Underground Conduit	7,433,578	1.00	7,433,578	2,690,734	3,398,200	4,035,378	36.37	110,953	1.49%
367	Underground Conductor	10,086,977	1.00	10,086,977	3,231,114	2,595,666	7,491,311	34.66	216,137	2.14%
368	Line Transformers	29,382,101	1.21	35,552,342	7,746,134	13,554,321	21,998,021	27.37	803,727	2.74%
369	Services	13,376,314	1.28	17,121,682	5,713,132	6,327,327	10,794,355	23.32	462,880	3.46%
370	Meters	6,372,807	1.06	6,755,175	882,603	-764,399	7,519,574	13.04	576,654	9.05%
371	Installations on Custs. Prem.	2,788,601	1.21	3,374,207	1,036,478	2,531,808	842,399	11.09	75,960	2.72%
373	Street Lighting & Signal Sys.	8,928,638	1.33	11,875,089	4,704,945	5,153,357	6,721,732	13.89	483,926	5.42%
	Total Distribution Plant	193,574,145	**1.26**	244,317,636	55,762,903	68,982,962	175,334,674	27.99	6,264,727	3.24%
GENERAL PLANT										
390	Structures & Improvements	4,881,956	0.92	4,491,400	232,009	521,773	3,969,627	42.68	93,009	1.91%
391	Office Furniture & Equipment	153,628	1.00	153,628	79,757	79,281	74,347	16.83	4,418	2.88%
393	Stores Equipment	31,797	1.00	31,797	5,264	4,448	27,349	37.55	728	2.29%
394	Tools Shop & Garage Equip.	1,561,449	1.10	1,717,594	614,435	632,685	1,084,909	22.48	48,261	3.09%
395	Laboratory Equipment	25,365	1.00	25,365	18,698	20,793	4,572	7.89	579	2.28%
397	Communication Equipment	2,390,600	1.08	2,581,848	605,037	510,165	2,071,683	22.97	90,191	3.77%
398	Miscellaneous Equipment	194,265	1.00	194,265	96,547	93,654	100,611	10.06	10,001	5.15%
	Total General Plant	9,239,060	**1.00**	9,195,896	1,651,747	1,862,799	7,333,097	29.67	247,187	2.68%
	Total Depreciable Plant	**247,439,019**		**303,346,776**	**70,129,268**	**84,320,415**	**219,026,361**		**7,629,421**	3.08%

Note: As proposed and approved as part of settlement in Docket No. 16-00001, it is the recommendation of this study to use the mortality curve, average service life and net salvage information selected for APCo. Both Companies have similar operating conditions and the use of APCo data provides a robust source of retirements, removal cost and salvage.

KINGSPORT POWER COMPANY
SCHEDULE II - COMPARE DEPRECIATION EXPENSE USING CURRENT AND STUDY RATES
ANNUAL DEPRECIATION RATES AND ACCRUALS BY THE REMAINING LIFE METHOD
BASED ON PLANT IN SERVICE AT DECEMBER 31, 2020

ACCT. NO. (1)	ACCOUNT TITLE (2)	ORIGINAL COST (3)	CURRENT APPROVED RATE (4)	ANNUAL ACCRUAL (5)	STUDY RATE (6)	STUDY ACCRUAL (7)	DIFFERENCE (DECREASE) (8)
TRANSMISSION PLANT							
352	Structures & Improvements	1,400,061	1.04%	14,561	1.96%	27,435	12,874
353	Station Equipment	33,800,188	1.49%	503,623	2.56%	866,061	362,438
354	Towers & Fixtures	761,812	0.12%	914	0.67%	5,083	4,169
355	Poles & Fixtures	5,912,950	2.14%	126,537	3.08%	182,325	55,788
356	OH Conductor & Devices	2,750,803	0.77%	21,181	1.33%	36,602	15,421
	Total Transmission Plant	**44,625,814**	**1.49%**	**666,816**	**2.50%**	**1,117,506**	**450,690**
DISTRIBUTION PLANT							
361	Structures & Improvements	6,502,593	1.93%	125,500	2.22%	144,604	19,104
362	Station Equipment	35,441,427	2.48%	878,947	2.33%	826,644	(52,303)
364	Poles, Towers, & Fixtures	30,263,568	5.36%	1,622,127	3.55%	1,073,808	(548,319)
365	Overhead Conductor & Devices	42,997,541	2.99%	1,285,626	3.46%	1,489,433	203,807
366	Underground Conduit	7,433,578	1.75%	130,088	1.49%	110,953	(19,135)
367	Underground Conductor	10,086,977	1.76%	177,531	2.14%	216,137	38,606
368	Line Transformers	29,382,101	4.03%	1,184,099	2.74%	803,727	(380,372)
369	Services	13,376,314	3.84%	513,650	3.46%	462,880	(50,770)
370	Meters	6,372,807	4.20%	267,658	9.05%	576,654	308,996
371	Installations on Custs. Prem.	2,788,601	10.77%	300,332	2.72%	75,960	(224,372)
373	Street Lighting & Signal Sys.	8,928,638	4.96%	442,860	5.42%	483,926	41,066
	Total Distribution Plant	**193,574,145**	**3.58%**	**6,928,418**	**3.24%**	**6,264,726**	**(663,692)**
GENERAL PLANT							
390	Structures & Improvements	4,881,956	1.71%	83,481	1.91%	93,009	9,528
391	Office Furniture & Equipment	153,628	2.82%	4,332	2.88%	4,418	86
393	Stores Equipment	31,797	2.22%	706	2.29%	728	22
394	Tools Shop & Garage Equipment	1,561,449	3.12%	48,717	3.09%	48,261	(456)
395	Laboratory Equipment	25,365	3.17%	804	2.28%	579	(225)
397	Communication Equipment	2,390,600	3.32%	79,368	3.77%	90,191	10,823
398	Miscellaneous Equipment	194,265	4.92%	9,558	5.15%	10,001	443
	Total General Plant	**9,239,060**	**2.46%**	**226,966**	**2.68%**	**247,187**	**20,221**
	Total Depreciable Plant	**247,439,019**	**3.16%**	**7,822,200**	**3.08%**	**7,629,419**	**-192,781**

Note: As proposed and approved as part of settlement in Docket No. 16-00001, it is the recommendation of this study to use the mortality curve, average service life and net salvage information selected for APCo. Both Companies have similar operating conditions and the use of APCo data provides a robust source of retirements, removal cost and salvage.

KINGSPORT POWER COMPANY
SCHEDULE III - COMPARISON OF MORTALITY CHARACTERISTICS
DEPRECIATION STUDY AS OF DECEMBER 31, 2020

(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
		Existing Rates (See note, below)					Current Study Rates				
		Average Service Life (Years)	Iowa Curve	Salvage Factor	Cost of Removal Factor	Net Salvage Factor	Average Service Life (Years)	Iowa Curve	Salvage Factor	Cost of Removal Factor	Net Salvage Factor
TRANSMISSION PLANT											
352.0	Structures & Improvements	62	R4.0	5%	15%	-10%	60	R3.0	2%	22%	-20%
353.0	Station Equipment	45	R1.5	28%	13%	15%	43	R2.0	11%	21%	-10%
354.0	Towers & Fixtures	68	R3.0	25%	35%	-10%	75	R4.0	0%	19%	-19%
355.0	Poles & Fixtures	42	R0.5	5%	20%	-15%	37	L1.5	6%	26%	-20%
356.0	Overhead Conductor & Devices	64	R3.0	30%	18%	12%	68	R4.0	0%	8%	-8%
DISTRIBUTION PLANT											
361.0	Structures & Improvements	50	R3.0	4%	16%	-12%	50	R5.0	0%	10%	-10%
362.0	Station Equipment	40	R1.0	7%	9%	-2%	50	L0.5	5%	24%	-19%
364.0	Poles, Towers, & Fixtures	28	R0.5	17%	77%	-60%	40	R0.5	13%	85%	-72%
365.0	Overhead Conductor & Devices	35	L0.0	24%	32%	-8%	35	R0.5	18%	36%	-18%
366.0	Underground Conduit	50	S4.0	0%	0%	0%	57	R4.0	0%	0%	0%
367.0	Underground Conductor	55	R0.5	0%	0%	0%	51	R2.5	0%	0%	0%
368.0	Line Transformers	27	R0.5	9%	24%	-15%	35	L0.0	7%	28%	-21%
369.0	Services	30	R0.5	1%	22%	-21%	35	L1.5	1%	29%	-28%
370.0	Meters	25	S6.0	10%	20%	-10%	15	L1.0	13%	19%	-6%
371.0	Installations on Custs. Prem.	10	R0.5	3%	23%	-20%	16	L0.0	1%	22%	-21%
373.0	Street Lighting & Signal Sys.	20	R0.5	9%	16%	-7%	23	R0.5	3%	36%	-33%
GENERAL PLANT											
390.0	Structures & Improvements	42	R2.5	36%	11%	25%	45	R2.5	20%	12%	8%
391.0	Office Furniture & Equipment	35	SQ	0%	0%	0%	35	SQ	0%	0%	0%
393.0	Stores Equipment	45	SQ	0%	0%	0%	45	SQ	0%	0%	0%
394.0	Tools Shop & Garage Equipment	35	SQ	0%	10%	-10%	35	SQ	0%	10%	-10%
395.0	Laboratory Equipment	30	SQ	0%	0%	0%	30	SQ	0%	0%	0%
397.0	Communication Equipment	30	SQ	0%	1%	-1%	30	SQ	0%	8%	-8%
398.0	Miscellaneous Equipment	20	SQ	0%	0%	0%	20	SQ	0%	0%	0%

Note: Kingsport Power Company's existing depreciation rates are from the Order from Docket No. 16-00001 dated October 19, 2016. Only Net Salvage Factors are available from that Order.

Note: It is the recommendation of this study to use the mortality curve, average service life and net salvage information selected for APCo. Both Companies have similar operating conditions and the use of APCo data provides a robust source of retirements, removal cost and salvage.

Exhibit No. 3 (JAC)

APPALACHIAN POWER COMPANY

DEPRECIATION STUDY REPORT

OF

ELECTRIC PLANT IN SERVICE

AT

DECEMBER 31, 2019

DEPRECIATION STUDY REPORT

Table of Contents

I. INTRODUCTION

This report presents the results of a depreciation study of APCo's depreciable electric utility plant in service at December 31, 2019. The study was prepared by Jason A. Cash, Accounting Senior Manager at AEPSC. The purpose of the depreciation study was to develop appropriate annual depreciation accrual rates for each of the primary plant accounts that comprise the functional groups for which APCo computes its annual depreciation expense.

The proposed depreciation rates that were calculated in this study are based on the Average Remaining Life Method of computing depreciation. Further explanation of this method is contained in Section II of this report.

The definition of depreciation used in the study is the same as that used by the FERC and the National Association of Regulatory Utility Commissioners:

> "Depreciation, as applied to depreciable electric plant, means the loss in service value not restored by current maintenance, incurred in connection with the consumption or prospective retirement of electric plant in the course of service from causes which are known to be in current operation and against which the utility is not protected by insurance. Among the causes to be given consideration are wear and tear, decay, action of the elements, inadequacy, obsolescence, changes in the art, changes in demand and requirements of public authorities."
>
> "Service value means the difference between original cost and the net salvage value (net salvage value means the salvage value of the property retired less the cost of removal) of the electric plant." (FERC

Accounting and Reporting Requirements for Public Utilities and Licensees, ¶15.001.)

Schedule I of this report provides the calculated depreciation accrual rates by primary plant accounts and functional plant classifications including steam production plant rates at December 31, 2019. Schedule II compares depreciation expense to rates approved by the Commission and rates calculated by the depreciation study using electric utility plant in service balances at December 31, 2019. Schedule III compares the Transmission, Distribution and General mortality characteristics that were used to compute the existing and calculated study depreciation rates and accruals. Schedule IV provides the estimated generation plant retirement dates used to calculate depreciation rates.

A comparison of APCo's current functional group composite depreciation rates and accruals to the depreciation study functional group rates and accruals are provided below by Table 1 (see Schedule II for detail by plant account):

Table 1 - Depreciation Rates and Accruals
Based on Plant In Service at December 31, 2019
(Total Company)

	Existing		Study		
Functional Plant Group	**Rates**	**Accruals**	**Rates**	**Accruals**	**Difference**
Steam Production	3.52%	192,610,208	4.22%	230,985,286	38,375,078
Hydraulic Production	2.15%	5,755,064	4.76%	12,747,639	6,992,575
Other Production	3.36%	16,681,789	4.08%	17,699,280	1,017,491
Transmission	1.75%	59,452,026	2.45%	83,118,086	23,666,060
Distribution	3.72%	153,781,590	3.34%	138,083,054	(15,698,536)
General	2.11%	5,845,904	2.94%	8,162,160	2,316,256
Total Depreciable Plant	**3.06%**	**434,126,581**	**3.45%**	**490,795,505**	**56,668,924**

Based on total Company Depreciable Plant In-Service as of December 31, 2019,

the Company is proposing an increase in depreciation rates that would produce an annual increase in depreciation expense of $56,668,924 when applying the Virginia depreciation rates to the total Company depreciable plant in service balances. The depreciation rate changes are necessary because of changes in investment, average service lives and net salvage estimates used to calculate APCo's current depreciation rates.

With the exception of Transmission plant, APCo's current depreciation rates are based on the order in Case No. PUE 2011-00037. The Transmission plant depreciation rates were last approved in Case No. PUE 2006-00065.

II. DISCUSSION OF METHODS AND PROCEDURES USED IN THE STUDY

1. Group Method

All of the depreciable property included in this report was considered on a group plan. Under the group plan, depreciation expense is accrued upon the basis of the original cost of all property included in each depreciable plant account. Upon retirement of any depreciable property, its full cost, less any net salvage realized, is charged to the accrued depreciation reserve regardless of the age of the particular item retired. Also, under this plan, the dollars in each primary plant account are considered as a separate group for depreciation accounting purposes and an annual depreciation rate for each account is determined. The annual accruals by primary account were then summed to arrive at the total accrual for each functional group. The total accrual divided by the original cost yields the functional group accrual rate.

2. Determination of Depreciation Rates by the Average Remaining Life Method

APCo's current depreciation rates are based on the Average Remaining

Life Method. The Average Remaining Life Method recovers the original cost of the plant, adjusted for net salvage, less accumulated depreciation, over the average remaining life of the plant. By this method, the annual depreciation rate for each account is determined on the following basis:

$$\text{Annual Depreciation Expense} = \frac{(\text{Orig. Cost})\ (\text{Net Salvage Ratio}) - \text{Accumulated Depreciation}}{\text{Average Remaining Life}}$$

$$\text{Annual Depreciation Rate} = \frac{\text{Annual Depreciation Expense}}{\text{Original Cost}}$$

3. Methods of Life Analysis

Depending upon the type of property and the nature of the data available from the property accounting records, one of three life analyses was used to arrive at the historically realized mortality characteristics and service lives of the depreciable plant investments. These methods are identified and described as follows:

Life Span Analysis

The life span analysis was employed for Production Plant. APCo's investment in production plant includes steam, hydraulic and other generating plants. The life-span method of analysis is particularly suited to specific location property, such as a generating plant, where the surviving investments are likely to be retired in total at a future date.

The key elements in the life span analysis are the age of the surviving investments, the projected retirement date of the facility and the expected interim

retirements. Interim retirements are those that are expected to occur between the date of the depreciation study and the expected final retirement date of the generating plant. Examples of interim retirements include fans, pumps, motors, a set of boiler tubes, a turbine rotor, etc. The interim retirement history for each primary production plant account was analyzed and the results of those analyses were used to project future interim retirements.

The age of the surviving investments was obtained from APCo's property accounting records. The Company provided the retirement dates used in the life-span analysis for Steam Production Plant, Hydraulic Production Plant and Other Production Plant. A discussion of the life analyses for Steam Production, Hydraulic Production and Other Production Plants follows.

Steam Production Plant

APCo's depreciable investments in Steam Production Plant are the Amos, Clinch River, and Mountaineer plants. The Amos plant is located in St. Albans, West Virginia and includes three generating units. The Clinch River plant is located in Carbo, Virginia and consists of two operating generating units that were converted to use natural gas in 2016. The Mountaineer plant is located in New Haven, West Virginia and has one unit. With the exception of Clinch River Units 1 and 2, all of APCo's steam production plant is coal fired. The generating units, capacities, fuel type and estimated retirement dates are shown on Schedule IV – Estimated Generation Plant Retirement Dates.

The proposed expected retirement dates used in this depreciation study for APCo's coal-fired steam generation plants are the same retirement dates that were proposed by the Company in the depreciation study filed with Case No. PUE 2011-00037 and later approved by the Commission. As previously stated, the Company

also converted Clinch River Units 1 and 2 to burn natural gas in 2016 and estimates that the converted units will be retired in 2025. The retirement dates are shown below on Table 2 (and also on Schedule IV):

Table 2 - Estimated Steam Plant Retirement Dates

Plant	Capacity (MW)	Year Installed	Year Retired	Life Span (Years)
Steam Production Plant				
Mountaineer				
Unit 1	1,300	1980	2040	60
Amos				
Unit 1	800	1971	2032	61
Unit 2	800	1972	2032	60
Unit 3	1,300	1973	2033	60
Clinch River				
Unit 1	235	1958	2025	67
Unit 2	235	1958	2025	67

APCo retired Clinch River Unit 3 (and the coal related portions of Clinch River Units 1 and 2), Glen Lyn, Kanawha River and APCo's share of the Sporn Plant in 2015-16. In 2019, the Company recorded a pretax expense of approximately $93 million related to APCo's retired coal generation assets. Consequently, there are no depreciable balances those facilities reflected in this study.

Depreciation rates for Amos, Clinch River, and Mountaineer plants are calculated by plant account.

Hydraulic Production Plant

APCo's investment in Hydraulic Production plant consists of the Buck, Byllesby, Claytor, Leesville, London, Marmet, Niagara, Smith Mountain and

Winfield plants. The plants consist of a number of generating units that have been placed into commercial operation over the period from 1903 through 1965. There was no change in the estimated retirement year for the listed hydraulic plants in the current depreciation study versus the prior commission approved depreciation study.

In April 2017, APCo sold the Reusens Hydro facility to Eagle Creek Renewable Energy, LLC. The sale resulted in a gain for APCo. This study included the gain on the sale in Smith Mountain Hydro Plant's accumulated depreciation balance, which increased accumulated depreciation and reduced depreciation rates for Smith Mountain.

The hydraulic plants, capacities, estimated year to be retired and life span are shown on Table 3 below (and also on Schedule IV):

Table 3 - Estimated Hydraulic Plant Retirement Dates

Plant	Capacity (MW)	Year Installed	Year Retired	Life Span (Years)
Hydraulic Production Plant				
Buck	8.5	1912	2024	112
Byllesby	21.6	1912	2024	112
Claytor	75.0	1939	2041	102
Niagara	2.4	1906	2024	118
Leesville	50.0	1964	2040	76
London	14.4	1935	2044	109
Marmet	14.4	1935	2044	109
Winfield	14.8	1938	2044	106
Smith Mountain	586.0	1965	2040	75

Other Production Plant

APCo's depreciable investment in Other Production plant consists of the Ceredo and Dresden plants. The other production plants, capacities, estimated year to be retired and life span are shown on Table 4 below (and also on Schedule IV):

Table 4 - Estimated Other Production Plant Retirement Dates

Plant	Capacity (MW)	Year Installed	Year Retired	Life Span (Years)
Other Production Plant				
Ceredo	505.0	2001	2041	40
Dresden	580.0	2012	2047	35

APCo acquired the Ceredo Plant from a subsidiary of Reliant Energy. This generating plant is a natural gas, simple cycle power plant with a nominal generating capacity of 505 megawatts. AEP's Pro Serve Subsidiary built the plant for Columbia Energy. It was completed and began commercial operation in 2001. There was no change in the estimated retirement year for Ceredo plant in the current depreciation study versus the prior depreciation study.

The Dresden Plant was acquired in 2007. The Dresden Plant is a natural gas combined cycle plant with a nominal generating capacity of 580 megawatts. When acquired, the Dresden Plant was under construction and was subsequently completed in 2012 when the plant was placed in service. Since the Dresden Plant was not completed until 2012, it was not included in the Company's prior depreciation study.

The Company estimates that the Dresden Plant will have a 35 year life, which is the same life that was used for the calculation of the Company's current depreciation rates. The depreciation study depreciation rates for Dresden continue to be based on the same 35 year life, including net salvage.

Actuarial Analysis – Transmission, Distribution and General Plant

The actuarial method of analyzing past experience represents the application to industrial property of statistical procedures developed in the life insurance field for investigating human mortality. It is distinguished from other methods of life estimation by the requirement that it is necessary to know the age of the property at the time of its retirement and the age of survivors, or plant remaining in service; that is, the installation date must be known for each particular retirement and for each particular survivor.

The application of this method involves the statistical procedure known as the "annual rate method" of analysis. This procedure relates retirements during each age interval to exposures at the beginning of that interval, the ratio of these being the annual retirement ratio. Subtracting each retirement ratio from unity yields a sequence of annual survival ratios from which a survivor curve can be determined. This is accomplished by the consecutive multiplication of the survivor ratios. The length of this curve depends primarily upon the age of the oldest property. Normally, if the period of years from the inception of the account to the time of the study is short in relation to the expected maximum life of the property, an incomplete or stub survivor curve results.

While there are a number of acceptable methods of smoothing and extending the stub survivor curve in order to compute the area under it from which the average life is determined, the well-known Iowa Type Curve Method was used

in this study.

By this procedure, instead of mathematically smoothing and projecting the stub survivor curve to determine the average life of the group, it was assumed that the stub curve would have the same mortality characteristics as the type curve selected. The selection of the appropriate type curve and average life is accomplished by plotting the stub curve, superimposing on it Iowa curves of the various types and average lives drawn to the same scale, and then determining which Iowa type curve and average life best matches the stub.

The Actuarial Method of Life Analysis was used for the following accounts:

352.0 Transmission Structures & Improvements
353.0 Transmission Station Equipment
354.0 Towers and Fixtures
355.0 Transmission Poles & Fixtures
356.0 Transmission Overhead Conductor & Devices
362.0 Distribution Station Equipment
367.0 Distribution Underground Conductor
368.0 Distribution Line Transformers
369.0 Distribution Services
370.0 Distribution Meters
371.0 Distribution Installation on Customer Premises
390.0 General Structures & Improvements

The result of the actuarial analysis for the above accounts is detailed in the depreciation study work papers.

<u>Simulated Plant Record Analysis – Transmission and Distribution Plant</u>

The “Simulated Plant Record” (SPR) method designates a class of statistical techniques that provide an estimate of the age distribution, mortality dispersion and average service life of property accounts whose recorded history provides no indication of the age of the property units when retired from service. For each such account, the available property records usually reveal only the annual gross additions, annual retirements and balances with no indication of the age of either plant retirements or annual plant balances. For this study, the “Balances method” of analysis was used.

The SPR Balances Method is a trial and error procedure that attempts to duplicate the annual balance of a plant account by distributing the actual annual gross additions over time according to an assumed mortality distribution. Specifically, the dollars remaining in service at any date are estimated by multiplying each year’s additions by the successive proportion surviving at each age as given by the assumed survivor characteristics. For a given year, the balance indicated is the accumulation of survivors from all vintages and this is compared with the actual book balance. This process is repeated for different survivor curves and average life combinations until a pattern is discovered which produces a series of “simulated balances” most nearly equaling the actual balances shown in a company’s books.

This determination is based on the distribution producing the minimum sum of squared differences between the simulated balance and the actual balances over a test period of years.

The iterative nature of the simulated methods makes them ideally suited for computerized analysis. For each analysis of a given property account, the computer program provides a single page summary containing the results of each analysis indicating the “best fit” based on criteria selected by the user.

The results of the analysis using the Balance Method is shown in the

depreciation study work papers. The analysis also shows the value of the Index of Variation of the difference that is calculated according to the Balances Method where a lower value for the Index of Variation indicates better agreement with the actual data.

The SPR Method of Life Analysis was utilized for the following accounts:

357.0 Transmission Underground Conduit
358.0 Transmission Underground Conductor
361.0 Transmission Structures & Improvements
364.0 Distribution Poles, Towers & Fixtures
365.0 Distribution OH Conductor & Devices
366.0 Underground Conduit
373.0 Street Lighting & Signal Systems

Vintage Year Accounting – General Equipment

In 1998, the Company began using a vintage year accounting method for general plant accounts 391 to 398 in accordance with Federal Energy Regulatory Commission Accounting Release Number 15 (AR-15). This accounting method requires the amortization of vintage groups of property over their useful lives. AR-15 also requires that property be retired when it meets its average service life.

The depreciation study maintains the currently approved useful life for these accounts to continue amortization of the account balances.

4. Final Selection of Average Life and Curve Type

The final selection of average life and curve type for each depreciable plant account analyzed by the Actuarial and SPR Methods was primarily based on the results of the mortality analyses of past retirement history.

III. NET SALVAGE

1. Net Salvage - Steam Production Plant

The net salvage analysis for steam production plant included a review of the Company's experienced functional interim retirement, salvage and removal history for the period 1996-2019. This interim salvage analysis calculates annual life to date salvage, removal and net salvage percentages as compared to original cost retirements.

While this type of analysis was used to determine the net salvage applicable to interim retirements for steam production plant, the most significant net salvage amounts for generating plants occurs at the end of their life. Therefore, to assist in establishing total net salvage applicable to steam generating plant, APCo contracted with Brandenburg Industrial Service Company (Brandenburg) to prepare conceptual demolition cost estimates in 2017 for its steam production plants. The 2017 Brandenburg cost estimates (the estimates were dated January 2018) were inflated to each plant's estimated retirement year to bring the estimated cost to the date of the plant's retirement. The estimates of demolition costs were incorporated into the net salvage ratios for Steam Production Plant. Brandenburg's demolition cost estimates do not include Asset Retirement Obligation (ARO) amounts associated with the removal of asbestos or any cost associated with the final disposition of landfills and ash ponds.

2. Net Salvage - Hydraulic Plant

The Hydraulic Plant negative net salvage percentage of -24% is based on an analysis of interim net salvage rates for the period from 1996 to 2019. The negative net salvage rate changed from -13% in the 2010 depreciation study to -24% in this study.

3. Net Salvage – Other Production Plant

The interim net salvage analysis for other production plant included a review of the Company's experienced functional interim retirement, salvage and removal history for the period 2006 - 2019.

The results of the interim net salvage analysis for Other Production Plant was combined with a terminal net salvage estimate to produce a net salvage ratio used in the depreciation rate calculation. Similar to Steam Production Plant, APCo contracted with Brandenburg to prepare conceptual demolition cost estimates in 2017 for its Ceredo and Dresden plants. The 2017 Brandenburg cost estimate were inflated to each plant's retirement year to bring the estimated terminal net salvage cost to the final retirement date. The estimates of demolition costs were incorporated into the net salvage ratios for Other Production Plant.

4. Net Salvage – Transmission, Distribution and General Plant

The net salvage percentages used in this report for Transmission, Distribution and General Plant are expressed as percent of original cost and are based on the Company's experience combined with the judgment of the analyst. The net salvage analysis included a review of the Company's experienced interim

retirement, salvage and removal history by account for the period 2001-2019 (for several accounts history was not available for this entire period). The salvage and removal percentages for each account were then netted to determine a net salvage percentage for each account.

The net salvage percentages were converted to net salvage ratios (1 minus the net salvage percentage) and appear in Column IV on Schedule I and were used to determine the total amount to be recovered through depreciation. The same net salvage ratio was also reflected in the determination of the calculated depreciation requirement (theoretical reserve).

5. Net Salvage – Ratios

The net salvage ratios shown in Column IV on Schedule I of this report may be explained as follows:

a. Where the ratio is shown as unity (1.00), it was assumed that the net salvage in that particular account would be zero.

b. Where the ratio is less than unity, it was assumed that the salvage exceeded the removal costs. For example, if the net salvage was 20%, the net salvage ratio would be expressed as .80.

c. Where the ratio is greater than unity, it was assumed that the salvage was less than the cost of removal. For example, if the net salvage was minus 5%, the net salvage ratio would be expressed as 1.05.

IV. CALCULATION OF DEPRECIATION REQUIREMENT AT DECEMBER 31, 2019

A calculation of a depreciation requirement (theoretical reserve) for each plant account using the average service life, curve type and net salvage amount in this study is provided in Column VI of Schedule I.

V. STUDY RESULTS

Production, Transmission, Distribution and General plant results are discussed below. In addition, Transmission, Distribution and General Plant average service life, retirement dispersion pattern and net salvage percentages used to calculate each primary plant account depreciation rate are shown on Schedule III. The mortality characteristics and net salvage values for the current rates are also shown. The changes to the mortality characteristics follow the trends shown by historical retirement experience. Gross salvage and gross cost of removal percentages for Transmission, Distribution and General plant were largely based on the history of the account for the period 2001-2019.

Steam Production Plant

The depreciation rate for steam production plant increased from 3.52% to 4.22%. The increase in depreciation rates for steam production plant is primarily due to the increase in plant in service balances for both the Amos and Mountaineer plants since the last approved depreciation study. Plant in service increased by approximately $1.8 billion, with $1.7 billion occurring at the Amos Plant, since depreciation rates were last changed. The increase in steam production plant was partially offset by the depreciation rates being proposed by APCo for Clinch River Units 1 and 2. The current depreciation rates being used for Clinch River Units 1 and 2 are reflective of a 2019 estimated retirement date when the plant had all 3

units in operation and also burned coal as their fuel. The depreciation rates proposed for Clinch River Units 1 and 2 in this case use a 2025 estimated retirement date, which is when the Company expects to retire both units.

As in the prior study, terminal demolition costs are included in the depreciation rates. The estimates of terminal demolition costs were developed by Brandenburg.

Hydraulic Production Plant

The depreciation rate for hydraulic production plant increased from 2.15% to 4.76% due to an increase in the net salvage ratio (1 minus the net salvage rate) from 1.13 to 1.24. Also contributing to the increase was an increase in plant investment of approximately $66.1 million along with a decrease in average remaining life since APCo last changed depreciation rates.

The increase in the Hydraulic plant depreciation rates was slightly offset by the sale of the Reusens Hydro plant in 2017 at a gain. The gain on sale was recorded in accumulated depreciation (increased accumulated depreciation) and was used in the current study to calculate depreciation rates for Smith Mountain Hydro plant (decreased the remaining amount APCo needs to recover for that facility).

Other Production Plant

The depreciation rate for other production plant increased from 3.36% to 4.08% mainly due to the study's comparison of the current depreciation rate used for Dresden Plant of 2.86% and the recommended study rate of 3.25%. The Dresden Plant rate was not included in the Company's last approved depreciation

study since the plant was not in service as of the date of that study.

Transmission Plant

The depreciation rate for transmission plant increased from 1.75% to 2.45% due to an increase in the net salvage ratio for accounts 352, 353, 354, 355 and 356 and a decrease in the average service life for accounts 354, 356, 357 and 358. The increase was partially offset by increases in the average service life for accounts 352 and 353.

The current depreciation rates for Transmission plant were approved by the Commission in Case No. PUE 2006-00065.

Distribution Plant

The depreciation rate for distribution plant decreased from 3.72% to 3.34% due to an increase in average service life for accounts 361, 362, 364, 366, 368, 369, 371 and 373 and a decrease in the net salvage for account 370. The decrease was partially offset by increases in the net salvage ratio for accounts 361, 362, 364, 365, 368, 369, 371 and 373 and a decrease in the average service life for accounts 365, 367 and 370.

The current depreciation rates for Distribution plant were approved by the Commission in Case No. PUE 2011-00037.

General Plant

The depreciation rate for general plant increased from 2.11% to 2.94% due to an increases in the net salvage ratio for accounts 390, 391, 392, 394, and 397.

The increase was partially offset by an increase in the average service life for account 390.

The current depreciation rates for General plant were approved by the Commission in Case No. PUE 2011-00037.

SCHEDULE I – EXPLANATION OF COLUMN HEADINGS

Schedule I shows the determination of the annual depreciation accrual rate by primary plant accounts by the straight line remaining life method. An explanation of the schedule follows:

Column I	-	Account number
Column II	-	Account title
Column III	-	Original Cost at December 31, 2019
Column IV	-	Net Salvage Ratio
Column V	-	Total to be Recovered (Column III) * (Column IV).
Column VI	-	Calculated Depreciation Requirement
Column VII	-	Allocated Accumulated Depreciation – APCo's VA accumulated depreciation (book reserve)
Column VIII	-	Remaining Amount (Column V - Column VII)
Column IX	-	Average Remaining Life
Column X	-	Annual Accrual Amount
Column XI	-	Annual Accrual Percent or Depreciation Rate (Column X/Column III)

APPALACHIAN POWER COMPANY
SCHEDULE I - CALCULATION OF DEPRECIATION RATES BY THE REMAINNG LIFE METHOD
BASED ON PLANT IN SERVICE AT DECEMBER 31, 2019

VA

ACCT NO (I)	ACCOUNT TITLE (II)	ORIGINAL COST (III)	NET SALVG. RATIO (IV)	TOTAL TO BE RECOVERED (V)	THEORETICAL RESERVE (VI)	ACCUMULATED DEPRECIATION (VII)	REMAINING AMOUNT (VIII)	AVG. REMAIN LIFE (IX)	ANNUAL ACCRUAL (X)	DEPR. RATE (XI)
STEAM PRODUCTION PLANT										
	AMOS UNITS 1&2									
311	Structures & Improvements	56,262,642	1.01	56,825,268	37,635,908	33,204,181	23,621,087	12.40	1,904,926	3.39%
312	Boiler Plant Equipment	1,338,882,384	1.03	1,379,048,856	756,186,177	658,189,635	720,859,221	12.10	59,575,142	4.45%
312	Boiler Plant Equip. SCR Catalyst (7)	20,163,062	1.03	20,767,954	15,739,142	7,250,622	13,517,332	14.00	1,483,425	7.36%
314	Turbogenerator Units	125,636,567	1.04	130,662,030	86,972,950	26,286,051	104,375,979	11.86	8,800,673	7.00%
315	Accessory Electrical Equip.	56,420,676	1.02	57,549,090	38,287,889	18,524,600	39,024,490	12.32	3,167,572	5.61%
316	Misc. Power Plant Equip.	5,097,033	1.03	5,249,944	3,674,443	470,465	4,779,479	12.16	393,049	7.71%
	Total	1,602,462,364	1.03	1,650,103,141	938,496,509	743,925,554	906,177,587		75,324,787	4.70%
	AMOS UNIT 3									
311	Structures & Improvements	113,426,177	1.02	115,694,701	72,357,772	66,613,122	49,081,579	13.38	3,668,279	3.23%
312	Boiler Plant Equipment	1,560,568,260	1.03	1,607,385,308	806,458,709	676,950,770	930,434,538	13.03	71,407,102	4.58%
312	Boiler Plant Equip. SCR Catalyst (7)	18,633,873	1.03	19,192,889	16,812,971	3,625,991	15,566,898	10.00	1,919,289	10.30%
314	Turbogenerator Units	159,328,317	1.04	165,701,450	90,671,269	59,852,587	105,848,863	12.76	8,295,365	5.21%
315	Accessory Electrical Equip.	36,616,646	1.02	37,348,979	25,620,058	22,116,823	15,232,156	13.29	1,146,137	3.13%
316	Misc. Power Plant Equip.	28,557,483	1.03	29,414,207	18,842,846	16,320,800	13,093,407	13.10	999,497	3.50%
	Total	1,917,130,756	1.03	1,974,737,534	1,030,763,625	845,480,093	1,129,257,441		87,435,669	4.56%
	CLINCH RIVER (1) (6)									
311	Structures & Improvements	26,507,305	1.03	27,302,524	22,480,809	21,308,837	5,993,687	5.48	1,093,739	4.13%
312	Boiler Plant Equipment	214,671,755	1.04	223,258,625	162,936,504	154,442,280	68,816,345	5.42	12,696,743	5.91%
314	Turbogenerator Units	40,580,847	1.04	42,204,081	36,692,965	34,780,083	7,423,998	5.38	1,379,925	3.40%
315	Accessory Electrical Equip.	10,931,314	1.03	11,259,253	9,600,890	9,100,375	2,158,878	5.46	395,399	3.62%
316	Misc. Power Plant Equip.	6,152,426	1.03	6,336,999	4,894,236	4,639,089	1,697,910	5.43	312,691	5.08%
	Total	298,843,647	1.04	310,361,482	236,605,404	224,270,664	86,090,818		15,878,497	5.31%
	MOUNTAINEER									
311	Structures & Improvements	200,108,366	1.03	206,111,617	107,680,420	86,708,388	119,403,229	20.22	5,905,204	2.95%
312	Boiler Plant Equipment	1,142,910,398	1.05	1,200,055,918	614,648,083	508,305,525	691,750,393	19.42	35,620,515	3.12%
312	Boiler Plant Equip. SCR Catalyst (7)	18,739,798	1.05	19,676,788	16,200,555	874,870	18,801,918	9.00	2,186,310	11.67%
314	Turbogenerator Units	126,207,256	1.07	135,041,764	64,770,655	52,974,630	82,067,134	18.78	4,369,922	3.46%
315	Accessory Electrical Equip.	75,896,679	1.03	78,173,579	48,740,756	52,535,267	25,638,312	20.00	1,281,916	1.69%
316	Misc. Power Plant Equip.	22,190,030	1.05	23,299,532	13,226,561	12,250,642	11,048,890	19.58	564,295	2.54%
	Total	1,586,052,527	1.05	1,662,359,198	865,267,030	713,649,322	948,709,876		49,928,162	3.15%
	OTHER									
311	Centralized Maintenence	85,770	1.00	85,770	50,478	52,299	33,471	20.22	1,655	1.93%
316	Central Machine Shop	18,468,986	1.00	18,468,986	9,160,807	8,767,796	9,701,190	19.58	495,464	2.68%
311	Little Broad Run Ash Disposal	267,028	1.00	267,028	85,356	71,054	195,974	20.22	9,692	3.63%
312	Little Broad Run Ash Disposal	50,333,699	1.00	50,333,699	17,355,277	13,263,329	37,070,370	19.42	1,908,876	3.79%
315	Little Broad Run Ash Disposal	64,843	1.00	64,843	17,684	15,164	49,679	20.00	2,484	3.83%
	Total	69,220,326	1.00	69,220,326	26,669,602	22,169,642	47,050,684		2,418,171	3.49%
Total Steam Production Plant		**5,473,709,620**	**1.04**	**5,666,781,681**	**3,097,802,170**	**2,549,495,275**	**3,117,286,406**	**13.50**	**230,985,286**	**4.22%**
HYDRAULIC PRODUCTION PLANT (2)										
	BUCK									
331	Structures & Improvements	370,373	1.24	459,263	427,264	408,957	50,306	4.48	11,229	3.03%
332	Reservoirs, Dams & Waterways	7,105,988	1.24	8,811,425	7,405,113	4,910,432	3,900,993	4.48	870,757	12.25%
333	Waterwheels, Turbines & Gen.	1,936,551	1.24	2,401,323	2,073,334	1,529,725	871,598	4.45	195,865	10.11%
334	Accessory Electrical Equip.	2,518,107	1.24	3,122,453	2,609,205	1,925,854	1,196,599	4.42	270,724	10.75%
335	Misc. Power Plant Equip.	938,028	1.24	1,163,155	767,753	267,582	895,573	4.46	200,801	21.41%
336	Roads, Railroads & Bridges	3,437	1.24	4,262	4,066	4,697	-435	4.50	-97	-2.82%
	Total	12,872,484	1.24	15,961,880	13,286,735	9,047,247	6,914,633		1,549,279	12.04%

APPALACHIAN POWER COMPANY
SCHEDULE I - CALCULATION OF DEPRECIATION RATES BY THE REMAINNG LIFE METHOD
BASED ON PLANT IN SERVICE AT DECEMBER 31, 2019

VA

ACCT NO (I)	ACCOUNT TITLE (II)	ORIGINAL COST (III)	NET SALVG. RATIO (IV)	TOTAL TO BE RECOVERED (V)	THEORETICAL RESERVE (VI)	ACCUMULATED DEPRECIATION (VII)	REMAINING AMOUNT (VIII)	AVG. REMAIN LIFE (IX)	ANNUAL ACCRUAL (X)	DEPR. RATE (XI)
	BYLLESBY									
331	Structures & Improvements	1,216,147	1.24	1,508,022	1,302,612	868,225	639,797	4.48	142,812	11.74%
332	Reservoirs, Dams & Waterways	7,379,499	1.24	9,150,579	7,030,900	3,229,321	5,921,258	4.48	1,321,709	17.91%
333	Waterwheels, Turbines & Gen.	3,697,214	1.24	4,584,545	3,795,635	1,938,072	2,646,473	4.45	594,713	16.09%
334	Accessory Electrical Equip.	1,078,575	1.24	1,337,433	1,189,684	1,008,627	328,806	4.42	74,390	6.90%
335	Misc. Power Plant Equip.	961,065	1.24	1,191,721	933,331	739,699	452,022	4.46	101,350	10.55%
	Total	14,332,500	1.24	17,772,300	14,252,162	7,783,944	9,988,356		2,234,974	15.59%
	CLAYTOR									
331	Structures & Improvements	2,844,548	1.24	3,527,240	2,025,529	1,389,650	2,137,590	21.10	101,308	3.56%
332	Reservoirs, Dams & Waterways	12,620,592	1.24	15,649,534	10,695,607	9,013,501	6,636,033	21.13	314,057	2.49%
333	Waterwheels, Turbines & Gen.	3,859,941	1.24	4,786,327	3,010,361	1,790,463	2,995,864	20.43	146,640	3.80%
334	Accessory Electrical Equip.	3,103,096	1.24	3,847,839	2,289,101	2,039,300	1,808,539	19.72	91,711	2.96%
335	Misc. Power Plant Equip.	2,961,478	1.24	3,672,233	1,731,866	1,421,123	2,251,110	20.66	108,960	3.68%
336	Roads, Railroads & Bridges	31,799	1.24	39,431	30,925	32,254	7,177	21.50	334	1.05%
	Total	25,421,454	1.24	31,522,603	19,783,389	15,686,291	15,836,312		763,010	3.00%
	LEESVILLE									
331	Structures & Improvements	3,838,701	1.24	4,759,989	2,894,162	2,237,325	2,522,664	20.14	125,256	3.26%
332	Reservoirs, Dams & Waterways	11,059,151	1.24	13,713,347	8,908,671	8,310,353	5,402,994	20.16	268,006	2.42%
333	Waterwheels, Turbines & Gen.	3,763,917	1.24	4,667,257	3,193,267	3,011,040	1,656,217	19.53	84,804	2.25%
334	Accessory Electrical Equip.	1,512,865	1.24	1,875,953	897,014	470,481	1,405,472	18.88	74,442	4.92%
335	Misc. Power Plant Equip.	1,951,348	1.24	2,419,672	1,314,783	929,836	1,489,836	19.74	75,473	3.87%
336	Roads, Railroads & Bridges	80,790	1.24	100,180	73,097	84,022	16,158	20.50	788	0.98%
	Total	22,206,772	1.24	27,536,397	17,280,994	15,043,057	12,493,340		628,769	2.83%
	LONDON									
331	Structures & Improvements	616,623	1.24	764,613	457,307	178,527	586,086	23.99	24,430	3.96%
332	Reservoirs, Dams & Waterways	1,377,081	1.24	1,707,580	965,651	802,123	905,457	24.01	37,712	2.74%
333	Waterwheels, Turbines & Gen.	5,412,644	1.24	6,711,679	2,700,639	1,285,463	5,426,216	23.11	234,799	4.34%
334	Accessory Electrical Equip.	1,904,344	1.24	2,361,387	1,353,129	1,123,741	1,237,646	22.19	55,775	2.93%
335	Misc. Power Plant Equip.	484,027	1.24	600,193	258,331	168,830	431,363	23.41	18,426	3.81%
336	Roads, Railroads & Bridges	48,853	1.24	60,578	41,691	42,124	18,454	24.50	753	1.54%
	Total	9,843,572	1.24	12,206,029	5,776,748	3,600,808	8,605,221		371,895	3.78%
	MARMET									
331	Structures & Improvements	704,739	1.24	873,876	528,615	394,005	479,871	23.99	20,003	2.84%
332	Reservoirs, Dams & Waterways	1,880,489	1.24	2,331,806	1,149,905	847,181	1,484,625	24.01	61,834	3.29%
333	Waterwheels, Turbines & Gen.	6,792,585	1.24	8,422,805	2,742,880	380,005	8,042,800	23.11	348,023	5.12%
334	Accessory Electrical Equip.	2,191,398	1.24	2,717,334	1,552,387	1,258,400	1,458,934	22.19	65,747	3.00%
335	Misc. Power Plant Equip.	648,847	1.24	804,570	379,305	276,633	527,937	23.41	22,552	3.48%
336	Roads, Railroads & Bridges	1,275	1.24	1,581	1,092	1,097	484	24.50	20	1.57%
	Total	12,219,333	1.24	15,151,973	6,354,184	3,157,321	11,994,652		518,179	4.24%
	NIAGARA									
331	Structures & Improvements	677,812	1.24	840,487	646,094	60,440	780,047	4.48	174,118	25.69%
332	Reservoirs, Dams & Waterways	6,431,531	1.24	7,975,098	6,627,872	4,552,490	3,422,608	4.48	763,975	11.88%
333	Waterwheels, Turbines & Gen.	639,684	1.24	793,208	697,029	602,747	190,461	4.45	42,800	6.69%
334	Accessory Electrical Equip.	499,513	1.24	619,396	479,430	195,216	424,180	4.42	95,968	19.21%
335	Misc. Power Plant Equip.	306,838	1.24	380,479	309,626	209,392	171,087	4.46	38,360	12.50%
	Total	8,555,378	1.24	10,608,669	8,760,051	5,620,285	4,988,384		1,115,221	13.04%
	SMITH MOUNTAIN									
331	Structures & Improvements	16,068,910	1.24	19,925,448	12,679,177	12,235,127	7,690,321	20.14	381,843	2.38%
332	Reservoirs, Dams & Waterways	29,747,915	1.24	36,887,415	24,650,286	25,964,939	10,922,476	20.16	541,789	1.82%
333	Waterwheels, Turbines & Gen.	78,222,132	1.24	96,995,444	52,652,723	37,860,398	59,135,046	19.53	3,027,908	3.87%
334	Accessory Electrical Equip.	11,617,177	1.24	14,405,299	7,326,381	5,071,090	9,334,209	18.88	494,397	4.26%
335	Misc. Power Plant Equip.	10,001,480	1.24	12,401,835	5,896,062	4,102,334	8,299,501	19.74	420,441	4.20%
336	Roads, Railroads & Bridges	1,052,133	1.24	1,304,645	923,659	1,095,933	208,712	20.50	10,181	0.97%
	Total Smith Mountain	146,709,747	1.24	181,920,086	104,128,288	86,329,821	95,590,265		4,876,559	3.32%

APPALACHIAN POWER COMPANY
SCHEDULE I - CALCULATION OF DEPRECIATION RATES BY THE REMAINNG LIFE METHOD
BASED ON PLANT IN SERVICE AT DECEMBER 31, 2019

VA

ACCT NO (I)	ACCOUNT TITLE (II)	ORIGINAL COST (III)	NET SALVG. RATIO (IV)	TOTAL TO BE RECOVERED (V)	THEORETICAL RESERVE (VI)	ACCUMULATED DEPRECIATION (VII)	REMAINING AMOUNT (VIII)	AVG. REMAIN LIFE (IX)	ANNUAL ACCRUAL (X)	DEPR. RATE (XI)
	WINFIELD									
331	Structures & Improvements	2,754,498	1.24	3,415,578	1,068,408	442,588	2,972,990	23.99	123,926	4.50%
332	Reservoirs, Dams & Waterways	2,227,379	1.24	2,761,950	1,444,881	1,000,555	1,761,395	24.01	73,361	3.29%
333	Waterwheels, Turbines & Gen.	7,089,670	1.24	8,791,191	2,792,832	-138,892	8,930,083	23.11	386,416	5.45%
334	Accessory Electrical Equip.	270,088	1.24	334,909	150,364	52,996	281,913	22.19	12,705	4.70%
335	Misc. Power Plant Equip.	3,203,547	1.24	3,972,398	2,228,655	1,803,837	2,168,561	23.41	92,634	2.89%
336	Roads, Railroads & Bridges	23,567	1.24	29,223	14,369	11,795	17,428	24.50	711	3.02%
	Total	15,568,749	1.24	19,305,249	7,699,509	3,172,879	16,132,370		689,753	4.43%
	Total Hydraulic Production	**267,729,989**	**1.24**	**331,985,186**	**197,322,060**	**149,441,653**	**182,543,533**	**14.32**	**12,747,639**	**4.76%**
OTHER PRODUCTION PLANT										
	CEREDO									
341	Structures & Improvements	1,652,232	1.00	1,652,232	694,590	1,254,240	397,992	19.95	19,949	1.21%
344	Generators	180,835,176	1.00	180,835,176	72,811,181	134,802,409	46,032,767	20.83	2,209,926	1.22%
345	Accessory Electrical Equip.	19,324,927	1.00	19,324,927	7,716,151	13,193,376	6,131,551	20.16	304,144	1.57%
346	Misc. Power Plant Equip.	1,250,117	0.98	1,225,115	429,532	335,401	889,714	17.17	51,818	4.15%
	Total Ceredo Plant	203,062,452	1.00	203,037,450	81,651,454	149,585,426	53,452,024		2,585,837	1.27%
	DRESDEN									
341	Structures & Improvements	48,612,510	0.99	48,126,385	10,312,797	5,403,558	42,722,827	24.97	1,710,966	3.52%
342	Fuel Holders, Producers & Access.	26,968,819	1.00	26,968,819	5,592,465	4,199,284	22,769,535	26.68	853,431	3.16%
344	Generators	321,934,894	1.00	321,934,894	63,663,310	56,260,872	265,674,022	26.41	10,059,599	3.12%
345	Accessory Electrical Equip.	28,690,165	1.00	28,690,165	5,668,878	3,112,365	25,577,800	25.30	1,010,980	3.52%
346	Misc. Power Plant Equip.	30,327,555	0.97	29,417,728	6,851,261	2,924,359	26,493,369	22.20	1,193,395	3.94%
	Total Dresden Plant	456,533,943	1.00	455,137,991	92,088,711	71,900,438	383,237,553		14,828,371	3.25%
	BYLLESBY									
348	Energy Storage Equipment (3)	5,726,249	1.00	5,726,249	143,156	167,350	5,558,899	19.50	285,072	4.98%
	Total Byllesby Plant	5,726,249	1.00	5,726,249	143,156	167,350	5,558,899		285,072	4.98%
	Total Other Production Plant	**665,322,644**	**1.00**	**663,901,690**	**173,883,321**	**221,653,214**	**442,248,476**	**24.99**	**17,699,280**	**2.66%**
	Total Production Plant	**6,406,762,253**	**1.04**	**6,662,668,557**	**3,469,007,551**	**2,920,590,142**	**3,742,078,415**	**14.31**	**261,432,205**	**4.08%**
TRANSMISSION PLANT										
352	Structures & Improvements	98,399,822	1.20	118,079,786	26,622,645	26,812,763	91,267,023	46.47	1,963,999	2.00%
353	Station Equipment	1,650,756,490	1.10	1,815,832,139	402,852,285	311,294,275	1,504,537,864	33.47	44,951,833	2.72%
354	Towers & Fixtures	503,531,981	1.19	599,203,057	174,733,992	155,634,079	443,568,978	53.13	8,348,748	1.66%
355	Poles & Fixtures	454,672,331	1.20	545,606,797	94,048,720	64,724,020	480,882,777	30.62	15,704,859	3.45%
356	OH Conductor & Devices	663,830,139	1.08	716,936,550	194,654,161	168,923,507	548,013,043	49.54	11,062,032	1.67%
357	Underground Conduit	3,730,144	1.00	3,730,144	74,288	-142,545	3,872,689	41.16	94,089	2.52%
358	Underground Conductor	20,497,576	1.00	20,497,576	3,782,903	1,073,845	19,423,731	19.57	992,526	4.84%
	Total Transmission Plant	**3,395,418,483**	**1.13**	**3,819,886,050**	**896,768,994**	**728,319,944**	**3,091,566,106**	**37.19**	**83,118,086**	**2.45%**
DISTRIBUTION PLANT - VA										
361	Structures & Improvements	33,038,968	1.10	36,342,865	10,024,248	8,704,295	27,638,570	34.30	805,789	2.44%
362	Station Equipment	374,812,738	1.19	446,027,158	66,270,100	76,059,144	369,968,014	42.31	8,744,222	2.33%
364	Poles, Towers, & Fixtures	400,113,387	1.72	688,195,026	190,527,502	263,227,028	424,967,998	29.87	14,227,251	3.56%
365	Overhead Conductor & Devices	501,826,165	1.18	592,154,875	122,312,779	99,591,185	492,563,690	29.14	16,903,352	3.37%
366	Underground Conduit	70,297,154	1.00	70,297,154	20,798,383	23,751,555	46,545,599	41.82	1,112,999	1.58%
367	Underground Conductor	193,783,954	1.00	193,783,954	53,765,076	57,541,583	136,242,371	38.27	3,560,031	1.84%
368	Line Transformers	381,774,225	1.21	461,946,812	110,097,106	141,867,403	320,079,409	27.07	11,824,138	3.10%
369	Services	184,476,029	1.28	236,129,317	83,092,167	84,553,753	151,575,564	23.84	6,358,035	3.45%
370	Meters	119,852,991	1.06	127,044,170	-4,233,054	-6,038,762	133,082,932	11.19	11,893,023	9.92%
371	Installations on Custs. Prem.	37,351,983	1.21	45,195,899	13,842,110	26,520,768	18,675,131	11.39	1,639,608	4.39%
372	Leased Property on Cust. Prem.	771	1.00	771	552	708	63	7.09	9	1.17%
373	Street Lighting & Signal Sys.	19,728,003	1.33	26,238,244	11,338,807	12,087,676	14,150,568	14.76	958,711	4.86%
	Total Distribution Plant - VA	2,317,056,368	1.26	2,923,356,246	677,835,776	787,866,336	2,135,489,910	27.37	78,027,168	3.37%

APPALACHIAN POWER COMPANY
SCHEDULE I - CALCULATION OF DEPRECIATION RATES BY THE REMAINNG LIFE METHOD
BASED ON PLANT IN SERVICE AT DECEMBER 31, 2019

VA

ACCT NO (I)	ACCOUNT TITLE (II)	ORIGINAL COST (III)	NET SALVG. RATIO (IV)	TOTAL TO BE RECOVERED (V)	THEORETICAL RESERVE (VI)	ACCUMULATED DEPRECIATION (VII)	REMAINING AMOUNT (VIII)	AVG. REMAIN LIFE (IX)	ANNUAL ACCRUAL (X)	DEPR. RATE (XI)
DISTRIBUTION PLANT - WV (4)										
361	Structures & Improvements	21,496,889	1.10	23,646,578	8,869,810	8,205,724	15,440,854	34.30	524,289	2.44%
362	Station Equipment	260,907,155	1.19	310,479,514	50,010,317	62,434,130	248,045,384	42.31	6,086,853	2.33%
363	Energy Storage Equipment (5)	5,402,894	1.00	5,402,894	4,070,462	3,884,068	1,518,826	3.70	360,373	6.67%
364	Poles, Towers, & Fixtures	395,498,206	1.72	680,256,914	156,015,415	231,874,416	448,382,498	29.87	14,063,144	3.56%
365	Overhead Conductor & Devices	458,922,781	1.18	541,528,882	118,645,406	106,343,686	435,185,196	29.14	15,458,208	3.37%
366	Underground Conduit	58,496,616	1.00	58,496,616	13,511,603	16,271,454	42,225,162	41.82	926,164	1.58%
367	Underground Conductor	112,756,735	1.00	112,756,735	22,727,208	25,551,720	87,205,015	38.27	2,071,469	1.84%
368	Line Transformers	237,618,686	1.21	287,518,610	59,687,473	83,664,708	203,853,902	27.07	7,359,418	3.10%
369	Services	167,452,773	1.28	214,339,549	60,489,208	66,409,678	147,929,871	23.84	5,771,322	3.45%
370	Meters	59,451,714	1.06	63,018,817	52,616,732	21,834,876	41,183,941	11.19	5,899,399	9.92%
371	Installations on Custs. Prem.	23,719,297	1.21	28,700,349	7,436,393	15,942,194	12,758,155	11.39	1,041,186	4.39%
373	Street Lighting & Signal Sys.	10,162,000	1.33	13,515,460	3,184,165	3,692,360	9,823,100	14.76	493,837	4.86%
	Total Distribution Plant - WV	1,811,885,746	1.29	2,339,660,919	557,264,192	646,109,014	1,693,551,905		60,055,662	3.31%
DISTRIBUTION PLANT - TN										
370	Meters	47,141	1.06	49,969	47,141	47,462	2,507	11.19	224	0.48%
	Total Distribution Plant - TN	47,141		49,969	47,141	47,462	2,507		224	0.48%
	Total Distribution Plant	**4,128,989,255**	**1.27**	**5,263,067,134**	**1,235,147,109**	**1,434,022,812**	**3,829,044,322**	**27.73**	**138,083,054**	**3.34%**
GENERAL PLANT										
390	Structures & Improvements	144,753,381	0.92	133,173,110	45,742,939	51,654,377	81,518,733	29.55	2,758,671	1.91%
391	Office Furniture & Equipment	11,758,031	1.00	11,758,031	3,846,536	4,087,554	7,670,477	20.19	379,915	3.23%
392	Transportation Equipment	8,674	1.00	8,674	1,372	1,291	7,383	22.73	325	3.75%
393	Stores Equipment	1,960,487	1.00	1,960,487	554,218	578,113	1,382,374	39.45	35,041	1.79%
394	Tools Shop & Garage Equipment	38,152,482	1.10	41,967,730	11,257,020	10,576,736	31,390,994	31.47	997,489	2.61%
395	Laboratory Equipment	3,166,291	1.00	3,166,291	2,113,840	1,519,033	1,647,258	12.30	133,923	4.23%
397	Communication Equipment	70,281,639	1.08	75,904,170	24,391,538	16,210,563	59,693,607	16.29	3,664,433	5.21%
398	Miscellaneous Equipment	7,169,384	1.00	7,169,384	3,000,081	3,254,791	3,914,593	20.35	192,363	2.68%
	Total General Plant	**277,250,368**	**0.99**	**275,107,877**	**90,907,544**	**87,882,458**	**187,225,419**	**22.94**	**8,162,160**	**2.94%**
Total Depreciable Plant		**14,208,420,359**	**1.13**	**16,020,729,618**	**5,691,831,198**	**5,170,815,356**	**10,849,914,262**	**22.11**	**490,795,505**	**3.45%**

Notes:

1. Clinch River Units 1 and 2 were converted to burn natural gas in 2016.
2. In April 2016, the Reusens Hydro facility was sold to Eagle Creek Renewable Energy, LLC, an unaffiliated company.
3. Account 348 Energy Storage Equipment represents a 4MW battery storage system located near APCo's Byllesby and Buck generating facilities.
4. Using Virginia depreciation rates for West Virginia Distribution property for total Company comparison purposes, except for account 363 where Virginia has no investment. This account uses West Virginia's depreciation rate.
5. Account 363 Energy Storage Equipment represents a sodium sulphur (NaS) battery at APCo's WV Balls Gap 138KV Substation. Applies to WV only.
6. The total accumulated depreciation reserve for Clinch River was allocated using its theoretical reserve.
7. The SCR Catalyst for each plant is using a whole life type depreciation rate calculation.

APPALACHIAN POWER COMPANY
ANNUAL DEPRECIATION RATES AND ACCRUALS BY THE REMAINNG LIFE METHOD
SCHEDULE II - COMPARE DEPRECIATION EXPENSE USING CURRENT AND STUDY RATES
BASED ON PLANT IN SERVICE AT DECEMBER 31, 2019

VA

NO.	TITLE	ORIGINAL COST	CURRENT APPROVED RATE	ANNUAL ACCRUAL	STUDY RATE	STUDY ACCRUAL	DIFFERENCE (DECREASE)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Steam Production Plant						
	AMOS UNITS 1&2						
311	Structures & Improvements	56,262,642	2.34%	1,316,546	3.39%	1,904,926	588,380
312	Boiler Plant Equipment	1,338,882,384	3.68%	49,270,872	4.45%	59,575,142	10,304,270
312	Boiler Plant Equip. SCR Catalyst	20,163,062	3.68%	742,001	7.36%	1,483,425	741,424
314	Turbogenerator Units	125,636,567	2.96%	3,718,842	7.00%	8,800,673	5,081,831
315	Accessory Electrical Equipment	56,420,676	2.47%	1,393,591	5.61%	3,167,572	1,773,981
316	Misc. Power Plant Equip.	5,097,033	3.18%	162,086	7.71%	393,049	230,963
	Total	1,602,462,364	3.53%	56,603,938	4.70%	75,324,787	18,720,849
	AMOS UNIT 3						
311	Structures & Improvements	113,426,177	2.70%	3,062,507	3.23%	3,668,279	605,772
312	Boiler Plant Equipment	1,560,568,260	3.97%	61,954,560	4.58%	71,407,102	9,452,542
312	Boiler Plant Equip. SCR Catalyst	18,633,873	3.97%	739,765	10.30%	1,919,289	1,179,524
314	Turbogenerator Units	159,328,317	3.27%	5,210,036	5.21%	8,295,365	3,085,329
315	Accessory Electrical Equipment	36,616,646	2.30%	842,183	3.13%	1,146,137	303,954
316	Misc. Power Plant Equip.	28,557,483	2.82%	805,321	3.50%	999,497	194,176
	Total	1,917,130,756	3.79%	72,614,372	4.56%	87,435,669	14,821,297
	CLINCH RIVER (1)						
311	Structures & Improvements	26,507,305	6.48%	1,717,673	4.13%	1,093,739	-623,934
312	Boiler Plant Equipment	214,671,755	7.26%	15,585,169	5.91%	12,696,743	-2,888,426
314	Turbogenerator Units	40,580,847	6.16%	2,499,780	3.40%	1,379,925	-1,119,855
315	Accessory Electrical Equipment	10,931,314	7.61%	831,873	3.62%	395,399	-436,474
316	Misc. Power Plant Equip.	6,152,426	12.83%	789,356	5.08%	312,691	-476,665
	Total	298,843,647	7.17%	21,423,851	5.31%	15,878,497	-5,545,354
	MOUNTAINEER						
311	Structures & Improvements	200,108,366	2.12%	4,242,297	2.95%	5,905,204	1,662,907
312	Boiler Plant Equipment	1,142,910,398	2.65%	30,287,126	3.12%	35,620,515	5,333,389
312	Boiler Plant Equip. SCR Catalyst	18,739,798	2.65%	496,605	11.67%	2,186,310	1,689,705
314	Turbogenerator Units	126,207,256	2.33%	2,940,629	3.46%	4,369,922	1,429,293
315	Accessory Electrical Equipment	75,896,679	1.82%	1,381,320	1.69%	1,281,916	-99,404
316	Misc. Power Plant Equip.	22,190,030	2.12%	470,429	2.54%	564,295	93,866
	Total	1,586,052,527	2.51%	39,818,406	3.15%	49,928,162	10,109,756
	OTHER						
311	Centralized Maintenance	85,770	2.42%	2,076	1.93%	1,655	-421
316	Central Machine Shop	18,468,986	2.63%	485,734	2.68%	495,464	9,730
311	Little Broad Run Ash Disposal	267,028	3.28%	8,759	3.63%	9,692	933
312	Little Broad Run Ash Disposal	50,333,699	3.28%	1,650,945	3.79%	1,908,876	257,931
315	Little Broad Run Ash Disposal	64,843	3.28%	2,127	3.83%	2,484	357
	Total	69,220,326	3.11%	2,149,641	3.49%	2,418,171	268,530
	Total Steam Production Plant	**5,473,709,620**	**3.52%**	**192,610,208**	**4.22%**	**230,985,286**	**38,375,078**
	Hydraulic Production Plant (2)						
	BUCK						
331	Structures & Improvements	370,373	5.52%	20,445	3.03%	11,229	-9,216
332	Reservoirs, Dams & Waterways	7,105,988	4.66%	331,139	12.25%	870,757	539,618
333	Waterwheels, Turbines & Generators	1,936,551	4.25%	82,303	10.11%	195,865	113,562
334	Accessory Electric Equipment	2,518,107	3.55%	89,393	10.75%	270,724	181,331
335	Micellaneous Power Plant Equipment	938,028	4.75%	44,556	21.41%	200,801	156,245
336	Roads, Railroads & Bridges	3,437	6.85%	235	-2.82%	-97	-332
	Total Buck Plant	12,872,484	4.41%	568,071	12.04%	1,549,279	981,208
	BYLLESBY						
331	Structures & Improvements	1,216,147	5.44%	66,158	11.74%	142,812	76,654
332	Reservoirs, Dams & Waterways	7,379,499	5.96%	439,818	17.91%	1,321,709	881,891
333	Waterwheels, Turbines & Generators	3,697,214	5.85%	216,287	16.09%	594,713	378,426
334	Accessory Electric Equipment	1,078,575	5.57%	60,077	6.90%	74,390	14,313
335	Micellaneous Power Plant Equipment	961,065	6.44%	61,893	10.55%	101,350	39,457
	Total Byllesby Plant	14,332,500	5.89%	844,233	15.59%	2,234,974	1,390,741

APPALACHIAN POWER COMPANY
ANNUAL DEPRECIATION RATES AND ACCRUALS BY THE REMAINNG LIFE METHOD
SCHEDULE II - COMPARE DEPRECIATION EXPENSE USING CURRENT AND STUDY RATES
BASED ON PLANT IN SERVICE AT DECEMBER 31, 2019

VA

NO. (1)	TITLE (2)	ORIGINAL COST (3)	CURRENT APPROVED RATE (4)	ANNUAL ACCRUAL (5)	STUDY RATE (6)	STUDY ACCRUAL (7)	DIFFERENCE (DECREASE) (8)
	CLAYTOR						
331	Structures & Improvements	2,844,548	1.41%	40,108	3.56%	101,308	61,200
332	Reservoirs, Dams & Waterways	12,620,592	0.93%	117,372	2.49%	314,057	196,685
333	Waterwheels, Turbines & Generators	3,859,941	0.79%	30,494	3.80%	146,640	116,146
334	Accessory Electric Equipment	3,103,096	2.10%	65,165	2.96%	91,711	26,546
335	Micellaneous Power Plant Equipment	2,961,478	2.56%	75,814	3.68%	108,960	33,146
336	Roads, Railroads & Bridges	31,799	0.56%	178	1.05%	334	156
	Total Claytor Plant	25,421,454	1.29%	329,131	3.00%	763,010	433,879
	LEESVILLE						
331	Structures & Improvements	3,838,701	1.13%	43,377	3.26%	125,256	81,879
332	Reservoirs, Dams & Waterways	11,059,151	1.55%	171,417	2.42%	268,006	96,589
333	Waterwheels, Turbines & Generators	3,763,917	1.28%	48,178	2.25%	84,804	36,626
334	Accessory Electric Equipment	1,512,865	1.70%	25,719	4.92%	74,442	48,723
335	Micellaneous Power Plant Equipment	1,951,348	1.81%	35,319	3.87%	75,473	40,154
336	Roads, Railroads & Bridges	80,790	1.08%	873	0.98%	788	-85
	Total Leesville Plant	22,206,772	1.46%	324,883	2.83%	628,769	303,886
	LONDON						
331	Structures & Improvements	616,623	2.33%	14,367	3.96%	24,430	10,063
332	Reservoirs, Dams & Waterways	1,377,081	2.52%	34,702	2.74%	37,712	3,010
333	Waterwheels, Turbines & Generators	5,412,644	2.67%	144,518	4.34%	234,799	90,281
334	Accessory Electric Equipment	1,904,344	2.74%	52,179	2.93%	55,775	3,596
335	Micellaneous Power Plant Equipment	484,027	2.83%	13,698	3.81%	18,426	4,728
336	Roads, Railroads & Bridges	48,853	1.99%	972	1.54%	753	-219
	Total London Plant	9,843,572	2.65%	260,436	3.78%	371,895	111,459
	MARMET						
331	Structures & Improvements	704,739	2.28%	16,068	2.84%	20,003	3,935
332	Reservoirs, Dams & Waterways	1,880,489	2.74%	51,525	3.29%	61,834	10,309
333	Waterwheels, Turbines & Generators	6,792,585	2.72%	184,758	5.12%	348,023	163,265
334	Accessory Electric Equipment	2,191,398	2.75%	60,263	3.00%	65,747	5,484
335	Micellaneous Power Plant Equipment	648,847	2.80%	18,168	3.48%	22,552	4,384
336	Roads, Railroads & Bridges	1,275	2.10%	27	1.57%	20	-7
	Total Marmet Plant	12,219,333	2.71%	330,809	4.24%	518,179	187,370
	NIAGARA						
331	Structures & Improvements	677,812	3.09%	20,944	25.69%	174,118	153,174
332	Reservoirs, Dams & Waterways	6,431,531	4.52%	290,705	11.88%	763,975	473,270
333	Waterwheels, Turbines & Generators	639,684	4.25%	27,187	6.69%	42,800	15,613
334	Accessory Electric Equipment	499,513	4.25%	21,229	19.21%	95,968	74,739
335	Micellaneous Power Plant Equipment	306,838	4.67%	14,329	12.50%	38,360	24,031
	Total Niagara Plant	8,555,378	4.38%	374,394	13.04%	1,115,221	740,827
	SMITH MOUNTAIN						
331	Structures & Improvements	16,068,910	1.33%	213,717	2.38%	381,843	168,126
332	Reservoirs, Dams & Waterways	29,747,915	1.28%	380,773	1.82%	541,789	161,016
333	Waterwheels, Turbines & Generators	78,222,132	1.83%	1,431,465	3.87%	3,027,908	1,596,443
334	Accessory Electric Equipment	11,617,177	1.86%	216,079	4.26%	494,397	278,318
335	Micellaneous Power Plant Equipment	10,001,480	1.96%	196,029	4.20%	420,441	224,412
336	Roads, Railroads & Bridges	1,052,133	1.21%	12,731	0.97%	10,181	-2,550
	Total Smith Mountain Plant	146,709,747	1.67%	2,450,794	3.32%	4,876,559	2,425,765
	WINFIELD						
331	Structures & Improvements	2,754,498	1.82%	50,132	4.50%	123,926	73,794
332	Reservoirs, Dams & Waterways	2,227,379	1.87%	41,652	3.29%	73,361	31,709
333	Waterwheels, Turbines & Generators	7,089,670	1.47%	104,218	5.45%	386,416	282,198
334	Accessory Electric Equipment	270,088	1.83%	4,943	4.70%	12,705	7,762
335	Micellaneous Power Plant Equipment	3,203,547	2.21%	70,798	2.89%	92,634	21,836
336	Roads, Railroads & Bridges	23,567	2.42%	570	3.02%	711	141
	Total Winfield Plant	15,568,749	1.75%	272,313	4.43%	689,753	417,440
	Total Hydraulic Production Plant	**267,729,989**	**2.15%**	**5,755,064**	**4.76%**	**12,747,639**	**6,992,575**

APPALACHIAN POWER COMPANY
ANNUAL DEPRECIATION RATES AND ACCRUALS BY THE REMAINNG LIFE METHOD
SCHEDULE II - COMPARE DEPRECIATION EXPENSE USING CURRENT AND STUDY RATES
BASED ON PLANT IN SERVICE AT DECEMBER 31, 2019

VA

NO.	TITLE	ORIGINAL COST	CURRENT APPROVED RATE	ANNUAL ACCRUAL	STUDY RATE	STUDY ACCRUAL	DIFFERENCE (DECREASE)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Other Production Plant							
	CEREDO						
341	Structures & Improvements	1,652,232	1.47%	24,288	1.21%	19,949	-4,339
344	Generators	180,835,176	1.66%	3,001,864	1.22%	2,209,926	-791,938
345	Accessory Electrical Equip.	19,324,927	1.47%	284,076	1.57%	304,144	20,068
346	Misc. Power Plant Equip.	1,250,117	2.27%	28,378	4.15%	51,818	23,440
	Total	203,062,452	1.64%	3,338,606	1.27%	2,585,837	-752,769
	DRESDEN						
341	Structures & Improvements	48,612,510	2.86%	1,390,318	3.52%	1,710,966	320,648
342	Fuel Holders, Producers and Access.	26,968,819	2.86%	771,308	3.16%	853,431	82,123
344	Generators	321,934,894	2.86%	9,207,338	3.12%	10,059,599	852,261
345	Accessory Electrical Equip.	28,690,165	2.86%	820,539	3.52%	1,010,980	190,441
346	Misc. Power Plant Equip.	30,327,555	2.86%	867,368	3.94%	1,193,395	326,027
	Total	456,533,943	2.86%	13,056,871	3.25%	14,828,371	1,771,500
	BYLLESBY						
348	Energy Storage Equipment (3)	5,726,249	5.00%	286,312	4.98%	285,072	-1,240
	Total Byllesby Plant	5,726,249	5.00%	286,312	4.98%	285,072	-1,240
	Total Other Production Plant	**665,322,644**	**2.51%**	**16,681,789**	**2.66%**	**17,699,280**	**1,017,491**
	Total Production Plant	**6,406,762,253**	**3.36%**	**215,047,061**	**4.08%**	**261,432,205**	**46,385,144**
TRANSMISSION PLANT							
352	Structures & Improvements	98,399,822	1.55%	1,525,197	2.00%	1,963,999	438,802
353	Station Equipment	1,650,756,490	1.95%	32,189,752	2.72%	44,951,833	12,762,081
354	Towers & Fixtures	503,531,981	1.14%	5,740,265	1.66%	8,348,748	2,608,483
355	Poles & Fixtures	454,672,331	2.77%	12,594,424	3.45%	15,704,859	3,110,435
356	OH Conductor & Devices	663,830,139	1.01%	6,704,684	1.67%	11,062,032	4,357,348
357	Underground Conduit	3,730,144	1.23%	45,881	2.52%	94,089	48,208
358	Underground Conductor	20,497,576	3.18%	651,823	4.84%	992,526	340,703
	Total Transmission Plant	**3,395,418,483**	**1.75%**	**59,452,026**	**2.45%**	**83,118,086**	**23,666,060**
DISTRIBUTION PLANT - VA							
361	Structures & Improvements	33,038,968	2.57%	849,101	2.44%	805,789	-43,312
362	Station Equipment	374,812,738	2.30%	8,620,693	2.33%	8,744,222	123,529
364	Poles, Towers, & Fixtures	400,113,387	6.09%	24,366,905	3.56%	14,227,251	-10,139,654
365	Overhead Conductor & Devices	501,826,165	2.42%	12,144,193	3.37%	16,903,352	4,759,159
366	Underground Conduit	70,297,154	2.24%	1,574,656	1.58%	1,112,999	-461,657
367	Underground Conductor	193,783,954	1.83%	3,546,246	1.84%	3,560,031	13,785
368	Line Transformers	381,774,225	3.99%	15,232,792	3.10%	11,824,138	-3,408,654
369	Services	184,476,029	4.41%	8,135,393	3.45%	6,358,035	-1,777,358
370	Meters	119,852,991	4.87%	5,836,841	9.92%	11,893,023	6,056,182
371	Installations on Custs. Prem.	37,351,983	10.26%	3,832,313	4.39%	1,639,608	-2,192,705
372	Leased Property on Customers Premises	771	5.70%	44	1.17%	9	-35
373	Street Lighting & Signal Sys.	19,728,003	6.57%	1,296,130	4.86%	958,711	-337,419
	Total Distribution Plant - VA	2,317,056,368	3.69%	85,435,307	3.37%	78,027,168	-7,408,139
DISTRIBUTION PLANT - WV (4)							
361	Structures & Improvements	21,496,889	2.57%	552,470	2.44%	524,289	-28,181
362	Station Equipment	260,907,155	2.30%	6,000,865	2.33%	6,086,853	85,988
363	Energy Storage Equipment (5)	5,402,894	6.67%	360,373	6.67%	360,373	0
364	Poles, Towers, & Fixtures	395,498,206	6.09%	24,085,841	3.56%	14,063,144	-10,022,697
365	Overhead Conductor & Devices	458,922,781	2.42%	11,105,931	3.37%	15,458,208	4,352,277
366	Underground Conduit	58,496,616	2.24%	1,310,324	1.58%	926,164	-384,160
367	Underground Conductor	112,756,735	1.83%	2,063,448	1.84%	2,071,469	8,021
368	Line Transformers	237,618,686	3.99%	9,480,986	3.10%	7,359,418	-2,121,568
369	Services	167,452,773	4.41%	7,384,667	3.45%	5,771,322	-1,613,345
370	Meters	59,451,714	4.87%	2,895,298	9.92%	5,899,399	3,004,101
371	Installations on Custs. Prem.	23,719,297	10.26%	2,433,600	4.39%	1,041,186	-1,392,414
373	Street Lighting & Signal Sys.	10,162,000	6.57%	667,643	4.86%	493,837	-173,806
	Total Distribution Plant - WV	1,811,885,746	3.77%	68,341,446	3.31%	60,055,662	-8,285,784
DISTRIBUTION PLANT - TN							
370	Meters	47,141	10.26%	4,837	0.48%	224	-4,613
	Total Distribution Plant - TN	47,141	10.26%	4,837		224	-4,613
	Total Distribution Plant	**4,128,989,255**	**3.72%**	**153,781,590**	**3.34%**	**138,083,054**	**-15,698,536**

APPALACHIAN POWER COMPANY
ANNUAL DEPRECIATION RATES AND ACCRUALS BY THE REMAINNG LIFE METHOD
SCHEDULE II - COMPARE DEPRECIATION EXPENSE USING CURRENT AND STUDY RATES
BASED ON PLANT IN SERVICE AT DECEMBER 31, 2019

VA

NO.	TITLE	ORIGINAL COST	CURRENT APPROVED RATE	ANNUAL ACCRUAL	STUDY RATE	STUDY ACCRUAL	DIFFERENCE (DECREASE)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GENERAL PLANT							
390	Structures & Improvements	144,753,381	1.50%	2,171,301	1.91%	2,758,671	587,370
391	Office Furniture & Equipment	11,758,031	2.78%	326,873	3.23%	379,915	53,042
392	Transportation Equipment	8,674	0.00%	0	3.75%	325	325
393	Stores Equipment	1,960,487	1.60%	31,368	1.79%	35,041	3,673
394	Tools Shop & Garage Equipment	38,152,482	2.07%	789,756	2.61%	997,489	207,733
395	Laboratory Equipment	3,166,291	1.53%	48,444	4.23%	133,923	85,479
397	Communication Equipment	70,281,639	3.27%	2,298,210	5.21%	3,664,433	1,366,223
398	Miscellaneous Equipment	7,169,384	2.51%	179,952	2.68%	192,363	12,411
	Total General Plant	**277,250,368**	**2.11%**	**5,845,904**	**2.94%**	**8,162,160**	**2,316,256**
	Total Depreciable Plant	**14,208,420,359**	**3.06%**	**434,126,581**	**3.45%**	**490,795,505**	**56,668,924**

Notes:

1. Clinch River Units 1 and 2 were converted to burn natural gas in 2016.
2. In April 2016, the Reusens Hydro facility was sold to Eagle Creek Renewable Energy, LLC, an unaffiliated company.
3. Account 348 Energy Storage Equipment represents a 4MW battery storage system located near APCo's Byllesby and Buck generating facilities.
4. Using Virginia depreciation rates for West Virginia Distribution property for total Company comparison purposes, except for account 363 where Virginia has no investment. This account uses West Virginia's depreciation rate.
5. Account 363 Energy Storage Equipment represents a sodium sulphur (NaS) battery at APCo's WV Balls Gap 138KV Substation. Applies to WV only.
6. The total accumulated depreciation reserve for Clinch River was allocated using its theoretical reserve.
7. The SCR Catalyst for each plant is using a whole life type depreciation rate calculation.

APPALACHIAN POWER COMPANY
SCHEDULE III - COMPARISON OF MORTALITY CHARACTERISTICS
DEPRECIATION STUDY AS OF DECEMBER 31, 2019

VA

(1)		(2)	(3)	(4)	(5)	(6)		(7)	(8)	(9)	(10)	(11)
		Existing Rates (a)						Current Study Rates				
		Avg. Service Life	Iowa Curve	Salvage	Cost of Removal	Net Salvage Factor		Avg. Service Life	Iowa Curve	Salvage	Cost of Removal	Net Salvage Factor
TRANSMISSION PLANT												
352	Structures & Improvements	55	R3.0	5%	5%	0%		60	R3.0	2%	22%	-20%
353	Station Equipment	35	R2.0	40%	25%	15%		43	R2.0	11%	21%	-10%
354	Towers & Fixtures	87	R2.5	25%	35%	-10%		75	R4.0	0%	19%	-19%
355	Poles & Fixtures	37	L2.0	5%	20%	-15%		37	L1.5	6%	26%	-20%
356	Overhead Conductor & Devices	80	R2.5	15%	5%	10%		68	R4.0	0%	8%	-8%
357	Underground Conduit	55	S2.0	0%	0%	0%		42	S6.0	0%	0%	0%
358	Underground Conductor and Devices	25	L3.0	0%	0%	0%		24	L3.5	0%	0%	0%
DISTRIBUTION PLANT												
361	Structures & Improvements	45	R4.0	5%	5%	0%		50	R5.0	0%	10%	-10%
362	Station Equipment	40	R1.0	40%	25%	15%		50	L0.5	5%	24%	-19%
364	Poles, Towers, & Fixtures	31	R2.0	5%	60%	-55%		40	R0.5	13%	85%	-72%
365	Overhead Conductor & Devices	40	L2.0	40%	25%	15%		35	R0.5	18%	36%	-18%
366	Underground Conduit	50	S4.0	0%	0%	0%		57	R4.0	0%	0%	0%
367	Underground Conductor	57	R0.5	0%	0%	0%		51	R2.5	0%	0%	0%
368	Line Transformers	32	R0.5	25%	35%	-10%		35	L0.0	7%	28%	-21%
369	Services	33	R4.0	2%	15%	-13%		35	L1.5	1%	29%	-28%
370	Meters	25	S6.0	10%	20%	-10%		15	L1.0	13%	19%	-6%
371	Installations on Custs. Prem.	13	R0.5	2%	10%	-8%		16	L0.0	1%	22%	-21%
372	Leased Property on Custs. Prem.	25	L3.0	0%	0%	0%		25	L3.0	0%	0%	0%
373	Street Lighting & Signal Sys.	22	S6.0	10%	5%	5%		23	R0.5	3%	36%	-33%
GENERAL PLANT												
390	Structures & Improvements	40	R3.0	30%	2%	28%		45	R2.5	20%	12%	8%
391	Office Furniture & Equipment	30	SQ	5%	0%	5%		30	SQ	0%	0%	0%
392	Transportation Equipment	27	SQ	5%	0%	5%		27	SQ	0%	0%	0%
393	Stores Equipment	55	SQ	0%	0%	0%		55	SQ	0%	0%	0%
394	Tools Shop & Garage Equipment	43	SQ	0%	0%	0%		43	SQ	0%	10%	-10%
395	Laboratory Equipment	37	SQ	0%	0%	0%		37	SQ	0%	0%	0%
397	Communication Equipment	24	SQ	5%	0%	5%		24	SQ	0%	8%	-8%
398	Miscellaneous Equipment	35	SQ	0%	0%	0%		35	SQ	0%	0%	0%

N/A = Not Available

(a) Existing rates for Transmission Plant are from the order in Case No. PUE-2006-00065 and Distribution and General Plant are from the order in Case No. PUE-2011-00037.

APPALACHIAN POWER COMPANY
SCHEDULE IV - ESTIMATED GENERATION PLANT RETIREMENT DATES
DEPRECIATION STUDY AS OF DECEMBER 31, 2019

Plant	Capacity (MW)	Fuel	Year Installed	Year Retired	Life Span (Years)
Steam Production Plant					
Mountaineer					
Unit 1	1,300	Coal	1980	2040	60
Amos					
Unit 1	800	Coal	1971	2032	61
Unit 2	800	Coal	1972	2032	60
Unit 3	1,300	Coal	1973	2033	60
Clinch River (see Note 1)					
Unit 1	235	Gas	1958	2025	67
Unit 2	235	Gas	1958	2025	67
Hydraulic Production Plant (see Note 2)					
Buck	8.5	Hydro	1912	2024	112
Byllesby	21.6	Hydro	1912	2024	112
Claytor	75.0	Hydro	1939	2041	102
Niagara	2.4	Hydro	1906	2024	118
Leesville	50.0	Hydro	1964	2040	76
London	14.4	Hydro	1935	2044	109
Marmet	14.4	Hydro	1935	2044	109
Winfield	14.8	Hydro	1938	2044	106
Smith Mountain	586.0	Hydro	1965	2040	75
Other Production Plant					
Ceredo	505.0	Gas	2001	2041	40
Dresden	580.0	Gas	2012	2047	35
Byllesby Storage Battery	2.0	Battery	2019	2039	20

Note 1: In May 2015, APCo retired the Philip Sporn Plant (APCo owned Units 1 and 3), Glen Lyn Units 5 and 6, the Kanawha River Plant, Clinch River Unit 3 and the coal related property at Clinch River Units 1&2. Clinch River Units 1&2 was converted to use natural gas in 2016.

Note 2: In April 2017, the Reusens Hydro facility was sold to Eagle Creek Renewable Energy, LLC, an unaffiliated company.