

**DIRECT TESTIMONY
OF
PHILIP A. WRIGHT
ON BEHALF OF KINGSPORT POWER COMPANY D/B/A
AEP APPALACHIAN POWER
BEFORE THE
TENNESSEE REGULATORY AUTHORITY
DOCKET NO. 16-_____**

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

2 A. My name is Philip A. Wright. My business address is 707 Virginia Street East,
3 Charleston, West Virginia 25327. I am the Vice President of Distribution Operations
4 for Appalachian Power Company (APCo) and Wheeling Power Company (WPCo). I
5 also oversee operations for Kingsport Power Company (Kingsport, KgPCo or
6 Company) which is registered to do business in the State of Tennessee as AEP
7 Appalachian Power. APCo, WPCo, and KgPCo are wholly-owned subsidiaries of
8 American Electric Power Company, Inc. (AEP).

9 **Q. PLEASE BRIEFLY DESCRIBE YOUR EDUCATIONAL BACKGROUND
10 AND PROFESSIONAL EXPERIENCE.**

11 A. I earned a Bachelor of Science degree in Electrical Engineering in 1982 from West
12 Virginia Institute of Technology and a Master's Degree in Engineering from West
13 Virginia College of Graduate Studies in 1992. I am registered as a Professional
14 Engineer in West Virginia. I have 31 years of utility experience, focusing primarily
15 on transmission and distribution (T&D) operations. In 1984, I joined APCo as an
16 Electrical Engineer in Beckley, West Virginia. In 1988, I became the Area
17 Supervisor in Oak Hill, West Virginia, and then in 1991 Engineering Supervisor of
18 the Bluefield Division of APCo. In 1992, I was named Bluefield Division's Line
19 Superintendent responsible for the construction and maintenance of the distribution

1 and transmission systems in that area. In 1996, I became the Operations Manager
2 and, in 2000, Region Support Manager for APCo. I was named to my current
3 position of Vice President of Distribution Operations in September 2005.

4 **Q. WHAT ARE YOUR RESPONSIBILITIES AS VICE PRESIDENT OF**
5 **DISTRIBUTION OPERATIONS?**

6 A. I have oversight responsibility for the planning, construction, operation and
7 maintenance of the APCo, WPCo, and KgPCo distribution systems. The Company
8 serves approximately 47,000 retail customers in the City of Kingsport, Tennessee,
9 and the surrounding communities. KgPCo has a service area that consists of
10 approximately 200 square miles. The Company's distribution system includes more
11 than 1,570 circuit miles of lines operated at nominal voltages of 34.5 kV or less.

12 My duties include the reliable delivery of service to our customers and
13 restoring service when outages occur. In addition, my responsibilities include other
14 distribution reliability-related programs and overseeing the APCo, WPCo, and
15 KgPCo distribution vegetation management programs.

16 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

17 A. In my testimony, I present the Company's test year (TY) level of distribution
18 operations and maintenance (O&M) expense along with the forecasted distribution
19 capital investments for 2015 and 2016. I will also discuss the Company's
20 distribution reliability performance along with our proposed Tennessee Reliability
21 Strategy (TRS) and the associated ongoing level of O&M needed to support the
22 implementation of this strategy.

1 **Q. ARE YOU SPONSORING ANY ADJUSTMENTS?**

2 A. Yes. I am sponsoring Adjustment OM-8 to support higher ongoing distribution O&M
3 expenses associated with the Company's TRS enhanced distribution reliability
4 programs. I also sponsor Adjustment OM-12 that increases O&M expense related to
5 major storms above the 2014 actual level of major storm expense. The 2014 major
6 storm test year amount is not representative of the Company's normalized-level of
7 major storm restoration expense for the Company.
8

9 **I. DISTRIBUTION SYSTEM OVERVIEW**

10 **Q. HOW DOES KGPCO CURRENTLY PROVIDE CUSTOMER SERVICE AND**
11 **MAINTAIN ITS DISTRIBUTION SYSTEMS?**

12 A. Kingsport has three primary programs to provide customer service and maintain its
13 distribution infrastructure: 1) a Customer Service Program; 2) a Reliability and
14 Service Restoration Program; and 3) a Vegetation Management Program (VMP).

15 **Q. PLEASE BRIEFLY DESCRIBE THESE PROGRAMS.**

16 A. Kingsport's Customer Service Program includes all activities that the Company
17 performs to provide new or upgraded service to its customers. This program is
18 comprised of the following: New Service to Customers, Distribution Line Meter
19 Purchases, Distribution Line Transformer Purchases, and Third-Party Requests.

20 The Reliability and Service Restoration Program includes activities that the
21 Company performs to improve service to its customers to help prevent outages, or to
22 restore service after an outage has occurred. This program is comprised of the
23 following: Major Distribution Reliability Programs, Targeted Reliability Programs,

1 Service Restoration, Distribution Asset Management Programs, and a Distribution
2 Asset Improvement Programs.

3 The VMP encompasses the pruning and clearing of vegetation along
4 Kingsport's circuits to protect the Company's lines in an environmentally sound and
5 cost-effective manner. For many years, the Company has been using a performance-
6 based approach to effectively allocate labor and financial resources to areas where
7 vegetation-related outage concerns are known to exist.
8

9 **II. TEST YEAR COSTS AND ADJUSTMENTS**

10 **Q. WHAT IS THE TEST YEAR PERIOD IN THIS CASE?**

11 A. The test year in this case is the twelve-month period ended December 31, 2014.

12 **Q. WHAT WAS KGPCO'S TOTAL COMPANY TEST YEAR LEVEL OF**
13 **DISTRIBUTION O&M EXPENSES?**

14 A. The Company's test year O&M expense for distribution activities was \$4,454,895 as
15 recorded in conformance with the Federal Energy Regulatory Commission Uniform
16 System of Accounts exclusive of an out of period reclassification recorded in 2014 of
17 \$762,096 as described by Company witness Allen.

18 **Q. IS KGPCO'S TEST YEAR DISTRIBUTION O&M EXPENSE**
19 **REPRESENTATIVE OF AN ONGOING LEVEL?**

20 A. No. KgPCo has included two adjustments in this proceeding that reflect (1) a
21 normalized-level of major storm damage costs and (2) additional Distribution-related
22 expenditures associated with the Company's proposed TRS discussed later in my

1 direct testimony. These adjustments, along with the 2014 TY O&M, result in an on-
2 going level for Distribution O&M expense of \$6,948,563 as shown in Figure 1 below.

3 **Figure 1 – Distribution Ongoing O&M Summary**

2014 Test-Year O&M	\$4,454,895
TRS Associated Adjustment (OM-8)	\$2,087,140
Major Storm Adjustment (OM-12)	\$406,528
Total:	\$6,948,563

4
5 **ADJUSTMENT OM-8**

6 **Q. PLEASE DESCRIBE ADJUSTMENT OM-8.**

7 A. Kingsport plans to enhance the reliability of its distribution system through
8 implementation of the proposed TRS, which is a portfolio of reliability enhancement
9 activities that includes the following programs: 1) a four-year cycle-based VMP; 2) a
10 Circuit Inspections and Maintenance Program; 3) a Circuit Improvements Program;
11 and 4) a Station Improvements Program. The Company's Adjustment OM-8
12 increases the test year level of O&M expense by \$2,087,140 for its TRS enhanced
13 distribution reliability programs, as the implementation of the TRS will require
14 additional O&M expenses above historical spending levels.

15 **Q. HOW WAS ADJUSTMENT OM-8 DETERMINED?**

16 A. As shown in Figure 2 below, the \$2,087,140 for Adjustment OM-8 represents the
17 estimated levelized amount of O&M costs necessary to implement the TRS
18 programs over a 10-year period. This adjustment to the test year Distribution O&M
19 costs results in an adjusted O&M expense of \$2,990,512 for reliability activities.
20
21

Figure 2 – Adjusted Ongoing O&M Expense for Reliability with TRS

2014 Test Year O&M Expense for Reliability Activities:	\$903,372
O&M Expenses TRS Base Adjustment:	
Vegetation Management Program	\$1,672,942
Circuit Inspections & Maintenance Program	\$322,274
Circuit Improvements Program	\$91,924
Total O&M Expense TRS Base Adjustment (OM-8):	\$2,087,140
Total Adjusted Test Year O&M:	\$2,990,512

Q. IS THE ADJUSTED LEVEL OF O&M EXPENSE REPRESENTATIVE OF THE AMOUNT REQUIRED TO FULLY IMPLEMENT THE TRS?

A. No. This proposed base rate amount does not include all costs associated with the TRS implementation. The average O&M expenditures for the TRS during its first four years of implementation will be approximately \$4.3 million, while the average cost for the remaining six years will be approximately \$3.4 million. However, once the desired vegetation management cycle has been achieved in the fourth year of the VMP, Distribution O&M expenses are expected to trend toward the going-level of \$2,990,512 as shown in Figure 2. To provide the greatest benefit to customers, flexibility during implementation of the TRS is needed, so actual annual Distribution O&M expenses may vary from the projected amounts.

ADJUSTMENT OM-12

Q. PLEASE DESCRIBE ADJUSTMENT OM-12.

A. Kingsport's service territory has been subjected to several severe storms over the past few years in which expenses associated with restoration efforts have far exceeded the 2014 test year Distribution O&M expense for major storms as shown

1 in Figure 3. Major storms are typically volatile in nature and therefore vary in
2 intensity and in frequency from year-to-year. Adjustment OM-12 for major storm
3 damage is based on a historical average of major storm events previously
4 experienced by the Company and is expected to mitigate Kingsport's need to file
5 individual storm cost recovery cases.

6 **Q. WHAT IS THE DEFINITION OF A MAJOR STORM?**

7 A. The Company uses IEEE Standard 1366-2012 to categorize major events. This
8 industry standard uses a statistical methodology to define major event days (MEDs)
9 and differentiate between normal operations and those during major events.

10 **Q. HOW WAS ADJUSTMENT OM-12 DERIVED?**

11 A. Adjustment OM-12 was determined using an average of actual O&M expenses
12 associated with major storm outage restoration work during 2010-2012 and 2014.
13 These amounts are summarized in Figure 3 below.

14
15 **Figure 3 – Major Storm Expense**

Year	Major Storm Expense
2010	\$579,075
2011	\$892,759
2012	\$406,124
2014 (TY)	\$83,949
Average	\$490,477

16
17 The Company omitted the major storm damage expense for 2013 from the average
18 because the level of expense was judged to be atypical. The \$406,528 increase to
19 O&M expense for Adjustment OM-12, which is the difference between the \$490,477
20 average shown in Figure 3 and the \$83,949 test year level, is needed so Kingsport

will have a normalized level of restoration expenses for major storm damage.

However, it is important to note that the proposed major storm damage expense of \$490,777 may not be adequate to provide restoration for all future major storms as evidenced by Kingsport's December 2009 major storm cost of \$1.63 million (approved for recovery in Docket No. 12-00051).

III. PROJECTED DISTRIBUTION CAPITAL INVESTMENT

Q. WHAT IS KGPCO'S EXPECTED DISTRIBUTION CAPITAL INVESTMENT FOR 2015 AND 2016?

A. The Company's 2015 distribution capital forecast is \$10.8 million whereas the forecast for 2016 is \$5.8 million. Figure 4 provides the approximate distribution of capital investments by FERC account anticipated for these years.

Figure 4 – Kingsport 2015 and 2016 Distribution Capital Investments

By FERC Account and Description

FERC Account and Description	2015	2016
30300 - Miscellaneous Intangible Plant	\$798,457	\$425,122
36200 - Station Equipment	\$3,710,787	\$118,964
36400 - Poles, Towers and Fixtures	\$766,571	\$894,187
36500 - Overhead Conductors, Device	\$3,306,264	\$1,821,939
36700 - Underground conductors and devices	\$18,198	\$21,022
36800 - Line Transformers	\$313,528	\$373,056
36900 - Services	\$1,166,249	\$1,375,144
37000 - Meters	\$106,813	\$123,860
39000 - Gen Plt Structures and Improvements	\$569,320	\$683,823
39100 - Gen Plt Office Furniture & Equipment	\$8,300	\$0
39700 - Communication Equipment	\$9,461	\$0
Total:	\$10,773,947	\$5,837,116

1 **Q. IS THE FORECASTED 2016 KGPCO DISTRIBUTION CAPITAL**
2 **INVESTMENT LEVEL REPRESENTATIVE OF ANTICIPATED CAPITAL**
3 **INVESTMENTS EXCLUDING THE TRS?**

4 A. Yes. The Company will require additional capital expenditures above the 2016
5 forecasted amount in order to implement its TRS in support of enhanced distribution
6 reliability.

7
8 **IV. TENNESSEE RELIABILITY STRATEGY**

9 **Q. PLEASE DESCRIBE CUSTOMERS' EXPECTATIONS FOR RELIABLE**
10 **SERVICE.**

11 A. Due to the increased usage of computers and microprocessor-controlled appliances,
12 customers are becoming more sensitive to momentary interruptions (interruptions
13 lasting five minutes or less) in their service delivery, as these momentary
14 interruptions often require some type of resetting for the affected electronics to
15 become functional again. Regardless of whether service is provided to a residential
16 dwelling, a business or a large manufacturing plant, the loss of service, even for a
17 short period of time, is no longer just a temporary inconvenience.

18 **Q. HOW DOES KINGSPORT MEASURE THE RELIABILITY OF ITS**
19 **DISTRIBUTION SYSTEM?**

20 A. Kingsport primarily gauges service reliability by tracking the system average
21 interruption frequency index (SAIFI) and the system average interruption duration
22 index (SAIDI) as prescribed by the Institute of Electrical and Electronics Engineers
23 (IEEE) Standard 1366-2012. SAIFI is defined as how often the average customer

1 experiences a sustained interruption over a predefined period of time, while SAIDI is
2 defined as the total time the average customer is without service due to sustained
3 interruptions during a specified period.

4 **Q. PLEASE DESCRIBE KINGSPORT'S DISTRIBUTION RELIABILITY**
5 **PERFORMANCE.**

6 A. The duration and frequency of system interruptions on Kingsport's distribution
7 system has been increasing over the past five years beginning in 2010. In 2010,
8 SAIDI was approximately 165 minutes subsequently increasing to approximately
9 216 minutes in 2014. In 2010, SAIFI was approximately 1.4 interruptions while also
10 subsequently increasing to approximately 1.5 interruptions in 2014.

11 **Q. WHAT HAVE BEEN THE PRIMARY CAUSES OF DISTRIBUTION-**
12 **RELATED OUTAGES FOR KINGSPORT?**

13 A. There are a number of contributors to system outages ranging from vegetation to
14 animal-related causes. However, the principal causes of customer service
15 interruptions in Kingsport's service territory are vegetation-related outages and
16 equipment failures.

17 Over the five-year period of 2010 through 2014, trees both inside and outside
18 of the rights-of-way (ROW) combined to account for 39.4% of outage durations
19 (SAIDI), where 25.1% was attributed to trees inside the ROW and 14.3% was
20 attributed to trees outside the ROW. Equipment failures follow vegetation as the
21 second leading cause of outage durations at 19.5%. The combination of trees
22 (inside and outside the ROW) and equipment failures account for approximately
23 60% of the distribution reliability performance in Kingsport as measured by SAIDI.

1 Based upon this outage cause contribution analysis, Kingsport has designed its TRS
2 to focus on programs which address both vegetation-related issues and potentially
3 impending equipment failures.

4 **Q. WHAT ACTION DOES THE COMPANY PROPOSE TO MAINTAIN AND**
5 **IMPROVE UPON ITS CURRENT LEVEL OF DISTRIBUTION**
6 **RELIABILITY?**

7 A. The Company has developed the TRS, a 10-year reliability improvement strategy
8 that includes programs to enhance its distribution system to begin in 2017. These
9 enhancements are expected to increase customer satisfaction. Given the leading
10 outage causes previously mentioned – vegetation-related outages and equipment
11 failures – the Company plans to reduce reliability impacts by mitigating the impacts
12 of these causes through implementation of the TRS. An additional benefit to the
13 TRS is system hardening, which helps improve the existing infrastructure to make it
14 more durable during normal operating conditions as well as weather-related events.

15 **Q. PLEASE DESCRIBE THE COMPANY'S TRS.**

16 A. The TRS is divided into four primary programs:

- 17 1. Cycle-based Vegetation Management Program - The objective of this program
18 is to reduce the number of outages and durations related to vegetation, which
19 would improve SAIDI and SAIFI. The Company is proposing to shift from
20 its current performance-based vegetation management approach to a cycle-
21 based program to address a major source of interruptions on its distribution
22 system, vegetation both inside and outside of the ROW. The cycle-based
23 program will proactively manage vegetation, thereby reducing tree-caused
24 momentary interruptions and/or sustained outages to Kingsport customers.
25
- 26 2. Circuit Inspections and Maintenance Program - The objective of this program
27 is to visually inspect overhead facilities to proactively identify and correct
28 potential problems before they cause service interruptions. Examples of
29 planned activities under this program include circuit inspections, pole
30 replacements, recloser replacements and cutout and lightning arrester

1 replacements. As a result of identifying, repairing and replacing problem
2 assets before they cause an outage, the Company is able to maintain system
3 safety and reliability resulting in KgPCo customers experiencing fewer and
4 shorter service interruptions.

- 5
- 6 3. Circuit Improvements Program - The objective of this program is to improve
7 circuit performance through various initiatives on individual circuits.
8 Initiatives that will take place under the program include targeted reliability,
9 sectionalizing, back lot construction, downtown modernization, distribution
10 automation circuit-reconfiguration, and distribution automation Volt VAR
11 Optimization (VVO).
12
- 13 4. Station Improvements Program - The objective of this program is to rebuild
14 selected stations to current and more reliable standards while also installing
15 Supervisory Control and Data Acquisition Systems (SCADA) in substations
16 which do not currently have this capability.
17

18 In summary, the cycle-based VMP is expected to reduce the impact of both
19 momentary and sustained tree-related interruptions while the remaining TRS programs
20 will address equipment failures. Each of the TRS programs discussed above are
21 designed to enhance reliability, system hardening, and/or storm recovery efforts by
22 KgPCo.

23 **Q. WHAT ARE THE EXPECTED BENEFITS OF THE TRS TO KINGSPORT**
24 **CUSTOMERS?**

25 A. It is expected that Kingsport customers will experience enhanced distribution
26 reliability as soon as vegetation management and other TRS programs are
27 implemented. Some customers are expected to see improvements throughout the
28 implementation periods. The TRS programs are anticipated to further improve the
29 quality of reliability on Kingsport's distribution system by decreasing the number of
30 outages along with outage durations.

31 **Q. DOES THAT CONCLUDE YOUR PREPARED DIRECT TESTIMONY?**

32 A. Yes, it does.