American Electric Power

UMWA Postretirement Health Care Plan

Actuarial Valuation Report
Benefit Cost for Fiscal Year Beginning January 1, 2023 under U.S. GAAP

June 2023

wtwco.com

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Purposes of valuation

American Electric Power Co. (the Company) engaged Willis Towers Watson US LLC (WTW) to value the Company's other postretirement benefit plan.

As requested by the Company, this report documents the results of an actuarial valuation of the American Electric Power UMWA Postretirement Health Care Plan (the Plan) as of January 1, 2023.

The primary purpose of this valuation is to determine the Net Periodic Postretirement Benefit Cost/(Income) (Benefit Cost), in accordance with FASB Accounting Standards Codification Topic 715 (ASC 715) for the fiscal year ending December 31, 2023. It is anticipated that a separate report will be prepared for year-end financial reporting purposes.

Limitations

This valuation has been conducted for the purposes described above and may not be suitable for any other purpose. In particular, please note the following:

1. The expected contributions for non-Cook Coal locations is to pay claims costs for the year and administrative expenses, less any Medicare Part D subsidy (RDS) received. For Cook Coal, the funding policy is to contribute an amount equal to the postretirement welfare cost net of retiree drug subsidy payments received for Cook Coal retirees (the sum of which can be no less than zero). We understand the sponsor may deviate from this policy, as permitted by its terms, based on cash, tax or other considerations.

   Note that any significant change in the amounts contributed or expected to be contributed in 2023 from what is disclosed at December 31, 2022 may require disclosure in the interim financial statements, but should not affect the expected return on plan assets absent a remeasurement for another purpose.

2. There may be certain events that have occurred since the valuation date that are not reflected in the current valuation. See Subsequent Events in the Basis for Valuation section below for more information.

3. This report does not provide information for plan accounting and financial reporting under ASC 960 or ASC 965.

4. This report does not present liabilities on a plan termination basis, for which a separate extensive analysis would be required. No funded status measure included in this report is intended to assess, and none may be appropriate for assessing, the sufficiency of plan assets to cover the estimated cost of settling benefit obligations, as all such measures differ in some way from plan termination obligations. In addition, funded status measures shown in this report do not reflect the current costs of settling obligations by offering immediate lump sum payments to participants and/or purchasing annuity contracts for the remaining participants (e.g., insurer profit, insurer pricing of contingent benefits and/or provision for anti-selection in the choice of a lump sum vs. an annuity).

5. The comparisons of plan obligations as determined for accounting and financial reporting purposes to plan assets presented in this report cannot be relied upon to determine the need for nor the amount of required future plan contributions. Nevertheless, such comparisons may be useful to assess the need for future contributions because they reflect current interest rates at the

measurement date in determining benefit obligations. However, asset gains and losses, demographic experience different from assumed, changes in interest rates, future benefit accruals, if any, and other factors will all affect the need for and amount of future contributions. In addition, if a plan is not required by law to be funded, benefit payments may also be paid directly by the plan sponsor as they come due.

Section 1 : Summary of key results

1.1 Benefit cost, plan assets & obligations

All monetary amounts shown in U.S. Dollars

Fiscal Year Beginning		01/01/2023	01/01/2022
Benefit Cost/ (Income)	Net Periodic Postretirement Benefit Cost/(Income)	725,464	789,694
	Benefit Cost/(Income) due to Special Events	0	0
	Total Benefit Cost/(Income)	725,464	789,694
Measurement Date		**01/01/2023**	**01/01/2022**
Plan Assets	Fair Value of Plan Assets (FVA)	45,697,575	54,471,520
Benefit Obligations	Accumulated Postretirement Benefit Obligation (APBO)	(67,434,600)	(90,922,268)
Funded Ratio	Fair Value of Plan Assets to APBO	67.8%	59.9%
Accumulated Other Comprehensive (Income)/Loss (Pre-tax)	Net Prior Service Cost/(Credit)	0	0
	Net Loss/(Gain)	(3,051,706)	9,008,806
	Total Accumulated Other Comprehensive (Income)/Loss (pre-tax)	(3,051,706)	9,008,806
Assumptions	Discount rate	5.45%	3.00%
	Expected Long-Term Rate of Return on Plan Assets	7.00%	5.00%
	Current Health Care Cost Trend Rate	7.50% Medical / 10.00% Rx	6.25%
	Ultimate Health Care Cost Trend Rate	4.50%	4.50%
	Year of Ultimate Trend Rate	2029	2029
Participant Data	Census Date	01/01/2023	01/01/2022

1.2 Comments on results

The actuarial gains/(losses) due to demographic experience, including any assumption changes, and investment return different from assumed during the prior year were $23,519,593 and $(11,459,081) respectively.

Change in net periodic cost

The net periodic cost declined from $789,694 in fiscal 2022 to $725,464 in fiscal 2023

All monetary amounts shown in U.S. Dollars

Postretirement Welfare Cost	Net Periodic Benefit Cost
Prior year	0.8
Change due to:	
• Expected based on prior valuation and contributions during prior year	0.0
• Noninvestment experience different than assumed	(0.2)
• Investment experience greater or less than assumed	1.1
• Assumption changes	(1.0)
• Plan amendments	0.0
• Settlements, curtailments, certain termination benefits	0.0
• Acquisitions	0.0
• Method changes	0.0
• Changes in estimation techniques	0.0
Current year	0.7

Significant reasons for these changes include the following:

- The actual return on the fair value of plan assets since the prior measurement date was less than the expected return on plan assets, which increased the postretirement welfare cost.
- The discount rate used to measure APBO increased 245 basis points compared to the prior year, which reduced the net periodic cost.
- The expected return on asset assumption was increased from 5.00% to 7.00%, which decreased the postretirement welfare cost.
- The per capita claims cost assumptions were updated to reflect another year of experience which decreased the postretirement welfare cost.
- Medical and prescription drug projected trend rates were updated to reflect expected impacts of the Inflation Reduction Act, the recent pandemic and general economic conditions, which increased the postretirement welfare cost.

Effects of Health Care Legislation

This valuation reflects our understanding of the relevant provisions of the Patient Protection and Affordable Care Act (PPACA) and Health Care and Education Reconciliation Act (HCERA), and subsequent legislation (the SECURE Act of 2019) that eliminated the Cadillac tax, medical device tax and health insurance issuer tax. The IRS has yet to issue final guidance with respect to many aspects of these laws. It is possible that future guidance may conflict with our understanding of these laws based on currently available guidance and could therefore affect the results shown in this report. The valuation does not anticipate the effects of any additional possible future changes to PPACA or HCERA.

1.3 Basis for valuation

Appendix A summarizes the assumptions, methods and models used in the valuation. Appendix B summarizes our understanding of the principal provisions of the plan being valued. Both of these appendices include a summary of any changes since the prior valuation. Unless otherwise described below under Subsequent Events, assumptions were selected based on information known as of the measurement date.

Subsequent events

None.

Additional information

The Inflation Reduction Act (IRA) was signed on August 16, 2022. This new law includes health care provisions related to Medicare and healthcare financing. While guidance is still forthcoming, the potential effect of the new legislation has been considered in preparing these results. Based on the information available, AEP updated its trend assumption at year-end 2022, and incorporated expected impacts on RDS and EGWP reimbursements. Additional changes may be reflected in future valuations as more guidance becomes available and actual plan experience is used to inform future expectations.

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Actuarial certification

This valuation has been conducted in accordance with generally accepted actuarial principles and practices. However, please note the information described below regarding this valuation.

Reliances

In preparing the results presented in this report, we have relied on information regarding plan provisions, participants, assets, and sponsor accounting policies and methods provided by the Company and other persons or organizations designated by the Company. See the Sources of Data and Other Information section of Appendix A for further details. We have relied on all the data and information provided as complete and accurate. We have reviewed this information for overall reasonableness and consistency, but have neither audited nor independently verified this information. Based on discussions with and concurrence by the plan sponsor, assumptions or estimates may have been made if data were not available. We are not aware of any errors or omissions in the data that would have a significant effect on the results of our calculations. The results presented in this report are directly dependent upon the accuracy and completeness of the underlying data and information. Any material inaccuracy in the data, assets, plan provisions or other information provided to us may have produced results that are not suitable for the purposes of this report and such inaccuracies, as corrected by the Company, may produce materially different results that could require that a revised report be issued.

Measurement of benefit obligations, plan assets and balance sheet adjustments

Census date/measurement date

The measurement date is January 1, 2023. The benefit obligations were measured as of January 1, 2023 and are based on participant data as of the census date, January 1, 2023.

Plan assets and balance sheet adjustments

Information about the fair value of plan assets and the general ledger account balances for the other postretirement benefit plan cost at December 31, 2022, which reflect the expected funded status of the plan before adjustment to reflect the funded status based on the year-end measurements, and differences between the expected Medicare Part D subsidies and amounts received during the year was reviewed for reasonableness and consistency, but no audit was performed.

Accumulated other comprehensive (income)/loss amounts shown in the report are shown prior to adjustment for tax effects. Any tax effects in AOCI should be determined by the Company in consultation with its tax advisors and independent accountants.

Assumptions and methods under U.S. GAAP

As required by U.S. GAAP, the actuarial assumptions and methods employed in the development of the benefit cost and other financial reporting have been selected by the Company. WTW has evaluated the assumptions used and believes that they do not significantly conflict with what would be reasonable. In addition, we believe that the combined effect of assumptions is expected to have no significant bias. See Appendix A for a description of each significant assumption used and our rationale for concluding that it does not significantly conflict with what would be reasonable. U.S. GAAP requires that each significant assumption "individually represent the best estimate of the plan's future experience solely with respect to that assumption."

The results shown in this report have been developed based on actuarial assumptions that, to the extent evaluated by WTW, we believe do not significantly conflict with what would be reasonable. Other actuarial assumptions could also be considered to not significantly conflict with what would be reasonable. Thus, reasonable results differing from those presented in this report could have been developed by selecting different reasonable assumptions.

A summary of the assumptions, methods and sources of data and other information used is provided in Appendix A. Note that any subsequent changes in methods or assumptions for the January 1, 2023 measurement date will change the results shown in this report.

Certain models (as described in ASOP No. 56) were used in preparing the information presented herein. Further information on these models can be found in Appendix A.

Nature of actuarial calculations

The results shown in this report are estimates based on data that may be imperfect and on assumptions about future events that cannot be predicted with any certainty. The effects of certain plan provisions may be approximated, or determined to be insignificant and therefore not valued. Reasonable efforts were made in preparing this valuation to confirm that items that are significant in the context of the actuarial liabilities or costs are treated appropriately, and are not excluded or included inappropriately. Any rounding (or lack thereof) used for displaying numbers in this report is not intended to imply a degree of precision, which is not a characteristic of actuarial calculations.

If overall future plan experience produces higher benefit payments or lower investment returns than assumed, the relative level of plan costs reported in this valuation will likely increase in future valuations (and vice versa). Future actuarial measurements may differ significantly from the current measurements presented in this report due to many factors, including: plan experience differing from that anticipated by the economic or demographic assumptions, changes in economic or demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for the measurements (such as the end of an amortization period), and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of such future measurements. Retiree group benefits models necessarily rely on the use of approximations and estimates, and are sensitive to changes in these approximations and estimates. Small variations in these approximations and estimates may lead to significant changes in actuarial measurements.

See Basis for Valuation in Section 1 above for a discussion of any material events that have occurred after the valuation date that are not reflected in this valuation.

Limitations on use

This report is provided subject to the terms set out herein and in our Master Consulting Services Agreement dated July 29, 2004 and any accompanying or referenced terms and conditions.

The information contained in this report was prepared for the internal use of the Company and its independent accountants in connection with our actuarial valuation of the other postretirement benefit plan as described in Purposes of Valuation above. It is not intended for and may not be used for other purposes, and we accept no responsibility or liability in this regard. The Company may distribute this actuarial valuation report to the appropriate authorities who have the legal right to require the Company to provide them this report, in which case the Company will use best efforts to notify WTW in advance of this distribution. Further distribution to, or use by, other parties of all or part of this report is expressly prohibited without WTW's prior written consent. WTW accepts no responsibility for any consequences arising from any other party relying on this report or any advice relating to its contents.

Professional qualifications

The undersigned are members of the Society of Actuaries and meet the "Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States" relating to other postretirement benefit plans. Our objectivity is not impaired by any relationship between the plan sponsor and our employer, Willis Towers Watson US LLC.

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Director, Retirement - Valuation Actuary
June 30, 2023

Chad Greenwalt

Chad M. Greenwalt, FSA, EA
Director, Retirement - Valuation Actuary
June 30, 2023

Martin P. Franzinger

Martin P. Franzinger, ASA, MAAA
Health & Benefits Actuary
Pricing Specialist
June 30, 2023

The Pricing Specialist is responsible for developing and/or determining the reasonableness of retiree welfare plan trend and participation assumptions as well as assumed per capita claims costs (including the aging/morbidity assumption if applicable). The Valuation Actuary is responsible for other aspects of the valuation (e.g., developing and/or reviewing the reasonableness of other valuation assumptions and methods, ensuring that the valuation model reasonably reflects the substantive plan, preparing demographic data, performing the valuation, implementing the appropriate accounting or funding calculations, etc.).

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Section 2 : Accounting exhibits

2.1 Balance sheet asset/(liability)

All monetary amounts shown in U.S. Dollars

Measurement Date		01/01/2023	01/01/2022
A	**Development of Balance Sheet Asset/(Liability)[1]**		
1	Accumulated postretirement benefit obligation (APBO)	(67,434,600)	(90,922,268)
2	Fair value of plan assets (FVA)	45,697,575	54,471,520
3	Net balance sheet asset/(liability)	(21,737,025)	(36,450,748)
B	**Current and Noncurrent Classification[2]**		
1	Noncurrent asset	0	0
2	Current liability	(2,444,384)	(2,642,030)
3	Noncurrent liability	(19,292,641)	(33,808,718)
4	Net balance sheet asset/(liability)	(21,737,025)	(36,450,748)
C	**Accumulated Other Comprehensive (Income)/Loss**		
1	Net prior service cost/(credit)	0	0
2	Net loss/(gain)	(3,051,706)	9,008,806
3	Accumulated other comprehensive (income)/loss[3]	(3,051,706)	9,008,806
D	**Assumptions and Dates**		
1	Discount rate	5.45%	3.00%
2	Current health care cost trend rate	7.50% Medical / 10.00% Rx	6.25%
3	Ultimate health care cost trend rate	4.50%	4.50%
4	Year of ultimate trend rate	2029	2029
5	Census date	01/01/2023	01/01/2022

1 Whether any amounts in this table that differ from those disclosed at year-end must be disclosed in subsequent interim financial statements should be determined.

2 The current liability (for each underfunded plan) was measured as the discounted value of benefits expected to be paid over the next 12 months in excess of the fair value of the plan's assets at the measurement date.

3 Amount shown is pre-tax and should be adjusted by plan sponsor for tax effects.

2.2 Summary of net balances

All monetary amounts shown in U.S. Dollars

A Summary of Prior Service Cost/(Credit) Bases

Measurement Date Established	Original Amount	Net Amount at 01/01/2023	Remaining Amortization Period	Amortization Amount in 2023	Effect of Curtailments	Other Events
Total		0		0	0	0

All monetary amounts shown in U.S. Dollars

B Summary of Net Loss/(Gain) (see Appendix A for a description of amortization method)

	Net Amount at 01/01/2023 [1]	Amortization Amount in 2023	Effect of Curtailments	Effect of Settlements	Other Events (Identify)
	(3,051,706)	0	0	0	0

[1] Before any immediate recognition on the same date.

2.3 Summary and comparison of benefit cost and cash flows

All monetary amounts shown in U.S. Dollars

Fiscal Year Ending		12/31/2023	12/31/2022
A	**Total Benefit Cost**		
1	Employer service cost	289,090	786,093
2	Interest cost	3,581,409	2,688,738
3	Expected return on plan assets	(3,145,035)	(2,685,137)
4	Subtotal	725,464	789,694
5	Net prior service cost/(credit) amortization	0	0
6	Net loss/(gain) amortization	0	0
7	Subtotal	0	0
8	Net periodic postretirement benefit cost/(income)	725,464	789,694
9	Curtailment (gain)/loss	0	0
10	Settlement (gain)/loss	0	0
11	Special/contractual termination benefits	0	0
12	Other adjustments	0	0
13	Total benefit cost	725,464	789,694
B	**Assumptions** (See Appendix A for interim measurements, if any)		
1	Discount rate	5.45%	3.00%
2	Expected long-term rate of return on plan assets	7.00%	5.00%
3	Current health care cost trend rate	7.50% Medical / 10.00% Rx	6.25%
4	Ultimate health care cost trend rate	4.50%	4.50%
5	Year of ultimate trend rate	2029	2029
6	Census date	01/01/2023	01/01/2022
C	**Fair Value of Assets at Beginning of Year**	45,697,575	54,471,520
D	**Cash Flows Net of Medicare Part D Subsidy**	**Expected**	**Actual**
1	Employer contributions	2,510,110	3,714,904
2	Plan participants' contributions	0	0
3	Benefits paid from Company assets	2,682,692	2,222,456
4	Benefits paid from plan assets	1,641,609	1,492,448
5	Expected Medicare subsidy	(250,727)	(271,998)
E	**Amortization Period**		
1	For gain/loss amortization, if applicable	12.06450	12.74162

2.4 Detailed results for postretirement welfare cost and funded position

All monetary amounts shown in U.S. Dollars

Detailed results				01/01/2023	01/01/2022
A	**Service Cost**				
	1	Medical		289,090	786,093
B	**Accumulated Postretirement Benefit Obligation [APBO]**				
	1	Medical:			
		a	Participants currently receiving benefits	55,667,269	67,942,908
		b	Fully eligible active participants	7,172,557	9,527,310
		c	Other participants	4,594,774	13,452,050
		d	Total	67,434,600	90,922,268
C	**Assets**				
	1	Fair value [FV]		45,697,575	54,471,520
D	**Funded Position**				
	1	Overfunded (underfunded) APBO		(21,737,025)	(36,450,748)
E	**Amounts in Accumulated Other Comprehensive Income**				
	1	Transition obligation/(asset)		0	0
	2	Net prior service cost/(credit)		0	0
	3	Net loss/(gain)		(3,051,706)	9,008,806
	4	Total		(3,051,706)	9,008,806

2.5 Expected benefit disbursements, administrative expenses and participant contributions

All monetary amounts shown in U.S. Dollars

			01/01/2023	01/01/2022
A	**Medical**			
	1	Gross disbursements	4,324,301	4,441,608
	2	Participant contributions	0	0
	3	Net disbursements	4,324,301	4,441,608
B	**RDS**			
	1	Gross disbursements	(250,727)	(243,036)
	2	Participant contributions	0	0
	3	Net disbursements	(250,727)	(243,036)
C	**Total**			
	1	Gross disbursements	4,073,574	4,198,572
	2	Participant contributions	0	0
	3	Net disbursements	4,073,574	4,198,572

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Section 3 : Participant data

3.1 Summary of participant data

All monetary amounts shown in U.S. Dollars

Census Date				01/01/2023	01/01/2022
A	**Participating Employees**				
	1	Number			
		a	Fully eligible	11	10
		b	Other	9	15
		c	Total participating employees	20	25
	2	Average age		49.50	48.80
	3	Average credited service		19.82	18.98
B	**Retirees, Surviving Spouses and Surviving Dependents**				
	1	Retirees			
		a	Number	118	121
		b	Average age	73.67	73.01
		c	Number of spouses	90	91
	2	Surviving spouses and surviving dependents			
		a	Number	77	79
		b	Average age	81.52	81.22
	3	Total retirees, surviving spouses and surviving dependents			
		a	Number	195	200
		b	Average age	76.77	76.25
		c	Number of spouses	90	91
		d	Distribution at January 1, 2023		

Age	Number
Under 55	0
55-59	3
60-64	13
65-69	42
70-74	29
75-79	39
80-84	24
85 and over	45

3.2 Age and service distribution of active participants

All monetary amounts shown in U.S. Dollars

Attained Age	Attained Years of Credited Service[1]									
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Over	Total
Under 25										
25-29										
30-34										
35-39				1						1
40-44			1	3	1					5
45-49			1	2	2					5
50-54				1	1	1				3
55-59				1	1	1	1			4
60-64				1	1					2
65-69										
70 & over										
Total	0	0	2	9	6	2	1	0	0	20

Average:	Age	50	Number of Participants:	Fully eligible	11	Males	20
	Service	20		Other	9	Females	0

Census data as of January 1, 2023

[1] Ages and service totals for purposes of determining category are based on exact (not rounded) values.

Appendix A : Statement of actuarial assumptions, methods and data sources

Economic Assumptions

Discount rate	5.45%		
Medical cost trend rate		Medical	Prescription Drug
	2023	7.50%	10.00%
	2024	7.00%	9.00%
	2025	6.50%	8.00%
	2026	6.00%	7.00%
	2027	5.50%	6.00%
	2028	5.00%	5.00%
	2029+	4.50%	4.50%
Expected long-term rate of return on plan assets	5.00%		

Demographic Assumptions

Mortality

Base mortality rates use the headcount-weighted Pri-2012 mortality table (using contingent survivor tables only after retiree death) with blue collar adjustments.

Mortality improvements are projected forward on a generational basis using Scale MP-2021.

Disability

Rates vary by age as indicated by the following sample values:

Age	Rate
20	0.120%
30	0.120
40	0.147
50	0.357
60	1.380

Termination

Annual rates vary by age as indicated by the following sample values:

Age	Rate
20	10.7%
30	5.9
40	2.1
≥45	0.0

Retirement — Annual rates vary by age as indicated by the following values:

Age	Rate	Age	Rate
55	6.0%	61	10.0%
56	6.5	62	12.0
57	7.0	63	15.0
58	7.5	64	20.0
59	8.0	65	50.0
60	9.0	66 – 69	30.0
		70	100.0

Percent married — 95%

Spouses ages — Wives three years younger than husbands.

Participation rates
- Employees – 100%
- Dependent – 100%

2023 Annual Per Capita Claims Costs

Per Capita Claims Cost Assumption	Age	Medical and Rx Claims	Medicare Part D RDS Subsidy
• Overall average	< 65	23,069	N/A
	>=65	13,953	(1,043)
• By age group	< 35	9,457	N/A
	35-49	10,265	N/A
	40-44	11,504	N/A
	45-49	13,444	N/A
	50-54	16,528	N/A
	55-59	19,934	N/A
	60-64	24,397	N/A
	65-69	12,569	(994)
	70-74	13,924	(1,080)
	75-79	14,897	(1,115)
	80-84	15,184	(1,104)
	85-89	14,795	(1,030)
	90-94	13,383	(890)
	>= 95	11,624	(715)

Administrative expenses — $446 per primary participant in 2023, increasing 3.5% per year.

Methods – Postretirement Welfare Cost and Funded Position

Service cost and APBO	Projected unit credit actuarial cost method, allocated in equal amounts, from the valuation date on or after date of hire to full eligibility date.
Net loss (gain)	Net loss (gain) in excess of 10% of the APBO is amortized on a straight-line basis over the expected average expected remaining service of active participants expected to benefit under the plan.
Benefits not valued	All benefits described in the Plan Provisions section of this report were valued. WTW has reviewed the plan provisions with AEP and based on that review is not aware of any significant benefits required to be valued that were not included. Certain plan provision changes were negotiated, but AEP has been unable to implement. These changes have not been valued.
Timing of benefit payments	Benefit payments are assumed to be made uniformly throughout the year and on average at mid-year.
Change in assumptions and methods since prior valuation	The discount rate was increased from 3.00% to 5.45%. Anticipated per capita claims costs were updated to reflect recent experience. Initial medical and drug trend rates were increased to the scales shown above. The expected return on assets was increased from 5.00% to 7.00%.

Sources of Data and Other Information

American Electric Power furnished the participant, benefit payments and assets information, as well as the accrued postretirement benefits cost as of December 31, 2022. Data were reviewed for reasonableness and consistency, but no audit was performed. We are aware of no errors or omissions in the data that would have a significant effect on the results of our calculation.

Assumptions Rationale - Significant Economic Assumptions

Discount rate	As required by U.S. GAAP, the discount rate was chosen by the plan sponsor based on market information on the measurement date. We believe the discount rate chosen does not significantly conflict with what would be reasonable.
Expected long-term return on plan assets	We understand that the expected return on assets assumption reflects the plan sponsor’s estimate of future experience for trust asset returns, reflecting the plan’s current asset allocation and any expected changes during the current plan year, current market conditions and the plan sponsor’s expectations for future market conditions. Therefore, we believe the expected return on plan assets chosen does not significantly conflict with what would be reasonable.
Per capita claims costs	AEP supplied data on retiree medical and prescription drug claim payments for the 48-month period ending September 30, 2022. Separate medical and prescription drug claim rates were calculated by dividing annual paid claims (from October through September for each 12-month period) by covered lives over these four periods. These rates were then age-graded over standard WTW morbidity curves to generate quinquennial age-banded medical and prescription drug claims rates. These claim rates were trended to 2023 and a weighted

average was taken to calculate final age-banded 2023 claim rates for medical and prescription drug benefits. Weighting factors of 25% were used for each year. We believe this assumption does not significantly conflict with what would be reasonable.

Medicare Part D subsidy value

We calibrated our modeling tool to reflect the 2023 cost of the current prescription drug benefit for AEP's UMWA post-65 retirees. The tool employs a continuance table of annual retiree drug utilization levels, developed from analyzing the experience of many large employers reflecting utilization of 1.0 million Medicare-eligible members during 2018.

After the plan-specific benefit provisions have been calibrated to current costs, the Modeler trends costs forward to 2023 at 7.00% per year. Actuarial equivalence was determined using the following two-prong approach outlined in the regulations for Medicare Part D:

- *Gross Value Test* – The Modeler calculates the value of standard Medicare Part D coverage (ignoring benefit enhancements from ACA) and compares it to AEP's plan costs. AEP's plan passed this test by being richer than the projected value of standard Medicare Part D coverage for these groups.
- *Net Value Test* –The net value prong of the test compared the value of Standard Part D (ignoring benefit enhancements from ACA) coverage in 2023 less the greater of $398.88 (the national average Part D premium) and 25.5% of the gross value of Part D coverage to the projected 2023 value of AEP coverage.

For plans deemed to be actuarially equivalent, the tool calculates the average expected value of the employer subsidy in 2022, using the continuance table calibrated to the prescription drug portion of AEP's plan cost. This produced an average 2023 per person annual employer retiree drug subsidy of $1,043. This rate was converted to rates varying by quinquennial age bands using WTW's standard morbidity factors. We believe this assumption does not significantly conflict with what would be reasonable.

Claims cost trend rates

Assumed increases were chosen by the plan sponsor and as required by U.S. GAAP, they represent an estimate of future experience, informed by an analysis of recent plan experience, leading to select and ultimate assumed trend rates. In setting near term trend rates, other pertinent statistics were considered, including surveys on general medical cost increases. In setting the ultimate trend rate, considerations included assumed GDP growth consistent with the assumed future economic conditions inherent in other economic assumptions chosen by the client at the measurement date.

After examining historical variability in trend rates, we believe the selected assumptions do not significantly conflict with what would be reasonable based on a combination of market conditions at the measurement date and future expectations consistent with other economic assumptions used, other than the discount rate. We believe this assumption does not significantly conflict with what would be reasonable.

Medicare Part D subsidy trend rates	The rates of increase in per capita Medicare Part D subsidy payments are assumed to equal the plan's assumed trend rates for prescription drug claims. We believe this assumption does not significantly conflict with what would be reasonable.

Assumptions Rationale - Significant Demographic Assumptions

Healthy mortality	Assumptions were selected by the plan sponsor and as required by U.S. GAAP, represent a best estimate of future experience. We believe this assumption does not significantly conflict with what would be reasonable.
Disabled mortality	Assumptions were selected by the plan sponsor and as required by U.S. GAAP, represent a best estimate of future experience. We believe this assumption does not significantly conflict with what would be reasonable.
Termination	Termination rates are based on plan sponsor expectations for the future with periodic monitoring of observed gains and losses caused by termination patterns different than assumed. We believe this assumption does not significantly conflict with what would be reasonable.
Disability	Disability rates are based on plan sponsor expectations for the future with periodic monitoring of observed gains and losses caused by disability patterns different than assumed. We believe this assumption does not significantly conflict with what would be reasonable.
Retirement	Retirement rates are based on plan sponsor expectations for the future with periodic monitoring of observed gains and losses caused by retirement patterns different than assumed. We believe this assumption does not significantly conflict with what would be reasonable.
Participation	
• Participants	The assumed coverage rates for participants and spouses reflect historical experience as well as anticipated future experience based on a 100% employer paid benefit. We believe this assumption does not significantly conflict with what would be reasonable.
• Covered dependents	The assumed dependent coverage prevalence of future retirees is based on the dependent coverage observed among recent retirees. We believe this assumption does not significantly conflict with what would be reasonable.
• Covered spouse age	The assumed age difference for spouses of future retirees is based on the age difference observed among recent retirees and general population statistics of the age difference for married individuals of retirement age. We believe this assumption does not significantly conflict with what would be reasonable.

Model Descriptions and Disclosure in Accordance with ASOP No. 56

Quantify	Quantify is the WTW centrally developed, tested and maintained Global actuarial valuation system. It is used to perform valuations of clients' benefit plans. Quantify provides the ability to process data, calculate benefits and value benefit liabilities, develop results using applicable standards, and generate client reports. Quantify parameters provide significant flexibility to model populations and plan designs. Various demographic, economic and benefit related assumptions exist for users to model multiple demographic and economic situations. Plan liabilities are calculated based on standard actuarial techniques, developing actuarially reasonable results using the population and parameters entered. The calculation and presentation of liabilities in Quantify relies on the assumptions used and the reasonability of the assumptions selected. Quantify incorporates standard liability methodologies that are intended to reasonably reflect a variety of economic or demographic conditions. The model itself does not evaluate any assumptions entered for reasonableness, consistency or probability of occurrence. Quantify is designed specifically for these purposes, and we know of no material limitations that would prevent the system from being suitable for these intended purposes. The actuaries signing this report have relied on the actuaries who develop, test and maintain this system, and have also performed a limited review of results to ensure that system parameters have been set appropriately and plan provisions coded correctly.
BOND:Link	U.S. BOND:Link is a methodology to assist with the selection of discount rates used in liability and cost measurements related to employee benefit plans. Discount rates are derived by identifying a theoretical settlement portfolio of high-quality corporate bonds sufficient to provide for a plan’s projected benefit payments. The single interest rate is then determined that results in a discounted value of the plan’s benefit payments that equals the market value of the selected bond portfolio. Updated BOND:Link models are developed monthly as of the last day of the month. The construction of a BOND:Link model relies on bond data collected as of the measurement date. Parameters provide the user the ability to control aspects of the model. The model output allows the user to see the effects of those parameters. Information regarding quoted bond prices, yields and other bond related data is from Bloomberg Finance L.P.

Published demographic tables	Certain demographic tables described above are standard published tables or are based on standard published tables from models developed by organizations with the requisite expertise
AgeDist	AgeDist is a spreadsheet tool that applies relative cost factors by age to average per capita costs (pre and post 65) and census weights to produce age-graded plan costs for pre- and post-65 populations. The average per capita costs and census weights are provided as inputs to the tool which is then combined with a morbidity curve to produce a set of weighted average age-related costs that equal the average. The age-graded costs are used in the actuarial valuation. The morbidity curve was developed from a broad set of claims data aggregated by age and blended and may not reflect a client's specific morbidity. The model does not evaluate the average per capita costs or census weights for reasonableness or consistency. The model used for this analysis is designed specifically for these purposes, and we know of no material limitations that would prevent the model from being suitable for these intended purposes. We are not aware of any material inconsistencies among assumptions used in this work. The model itself does not evaluate any assumptions entered for reasonableness, consistency or probability of occurrence. The calculation and presentation of results relies on the assumptions used and the reasonability of the assumptions selected. The output of the model(s) used in this analysis are considered reasonable based on the aggregation of assumptions used. However, a different set of results could also be considered reasonable based on a range of possible values used for each assumption.

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Appendix B: Summary of principal other postretirement benefit plan provisions

Medical Benefits

Eligibility	Participants are eligible upon retirement after age 55 with ten years of service or attaining age 55 with ten years of service after becoming permanently disabled or age 55 if retired with 20 years of service prior to age 50. Miners with less than ten years at retirement who are permanently and totally disabled as a result of a mine accident will retain a health services card for life. Cook Coal Terminal employees hired after January 1, 2013 are not eligible for this plan.
Dependent eligibility	Eligible dependents are spouse and unmarried children who have not attained age 27.
Survivor eligibility	After the death of retiree or active employee eligible to retire, surviving spouses are eligible until death or remarriage subject to a $2,000 per month earnings limit.
Retiree contributions	None.
Benefits provisions	The UMWA medical plan covers substantially all medical services. Effective for retirements on or after January 1, 1994, a $750 annual per family deductible is in place for non-Medicare-eligible retirees. Copayments are required only for outpatient physician visits ($12 in-network and $20 out-of-network, maximum of $240 per family per 12 months) and for prescription drugs ($5 retail in PPL, $10 out of PPL, no copay mail order). A schedule of allowances for vision care is also provided. Benefits after age 65 are coordinated with Medicare. Expenses associated with the treatment of Black Lung Disease are not covered by this plan.

Future Plan Changes

No future plan changes were recognized in determining postretirement welfare cost.

Changes in Benefits Valued Since Prior Year

There have been no changes in benefits valued since the prior year.

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Appendix B: Results by business unit

American Electric Power
UMWA Postretirement Welfare Plan
Summary of Plan Participants for the 2023 Valuation

			Retired Participants			
		Active Participants	Retirees	Dependent Spouses	Surviving Spouses	Total
225	Cedar Coal Co.	0	34	19	70	123
270	Cook Coal Terminal	20	54	46	2	102
290	Conesville Coal Preparation Company	0	30	25	5	60
	Total	20	118	90	77	285

AMERICAN ELECTRIC POWER
UMWA PLAN
2023 NET PERIODIC POSTRETIREMENT BENEFIT COST

			"Other" Cost					Net
			Expected					Periodic
Location	Service	Interest	Return	Amortizations			Total	Pension
	Cost	Cost	on Assets	PSC	(G)/L		"Other" Cost	Cost
225 Cedar Coal Co	0	958,635	0	0	0	0	$958,635	958,635
Appalachian Power Co. - SEC	**$0**	**$958,635**	**$0**	**$0**	**$0**		**$958,635**	**$958,635**
270 Cook Coal Terminal	$289,090	$1,981,165	($3,145,035)	$0	$0		($1,163,870)	($874,780)
AEP Generating Company	**$289,090**	**$1,981,165**	**($3,145,035)**	**$0**	**$0**		**($1,163,870)**	**($874,780)**
290 Conesville Coal Preparation Company	0	641,609	0	0	0	0	$641,609	641,609
AEP Generation Resources - SEC	**$0**	**$641,609**	**$0**	**$0**	**$0**		**$641,609**	**$641,609**
Total	**$289,090**	**$3,581,409**	**($3,145,035)**	**$0**	**$0**		**$436,374**	**$725,464**