STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

PETITION OF INDIANA MICHIGAN POWER COMPANY, AN INDIANA CORPORATION, FOR AUTHORITY TO INCREASE ITS RATES AND CHARGES FOR ELECTRIC UTILITY SERVICE THROUGH A PHASE IN RATE ADJUSTMENT; AND FOR APPROVAL OF RELATED RELIEF INCLUDING: (1) REVISED DEPRECIATION RATES; (2) ACCOUNTING RELIEF; (3) INCLUSION IN RATE BASE OF QUALIFIED POLLUTION CONTROL PROPERTY AND CLEAN ENERGY PROJECT; (4) ENHANCEMENTS TO THE DRY SORBENT INJECTION SYSTEM; (5) ADVANCED METERING INFRASTRUCTURE; (6) RATE ADJUSTMENT MECHANISM PROPOSALS; AND (7) NEW SCHEDULES OF RATES, RULES AND REGULATIONS.	)	CAUSE NO. 45235

INDIANA OFFICE OF UTILITY CONSUMER COUNSELOR

PUBLIC'S EXHIBIT NO. 4

TESTIMONY OF OUCC WITNESS

MARGARET A. STULL

August 20, 2019

Respectfully submitted,

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TESTIMONY OF OUCC WITNESS MARGARET A. STULL
CAUSE NO. 45235
INDIANA MICHIGAN POWER COMPANY

I. INTRODUCTION

Q: Please state your name and business address.

A: My name is Margaret A. Stull, and my business address is 115 W. Washington St., Suite 1500 South, Indianapolis, Indiana, 46204.

Q: By whom are you employed and in what capacity?

A: I am employed by the Indiana Office of Utility Consumer Counselor ("OUCC") as a Chief Technical Advisor in the Water/Wastewater Division. My qualifications are set forth in Appendix A attached to this testimony.

Q: Please describe the examination and analysis you conducted in order to prepare your testimony.

A: I reviewed Indiana Michigan Power Company's ("I&M" or "Petitioner") petition and testimony as well as discovery responses related to its "prepaid pension asset" and pension expense. I also reviewed prior cases filed with the IURC regarding treatment allowed for "prepaid pension assets."

Q: What is the purpose of your testimony?

A: I discuss the OUCC's review and analysis of I&M's proposed "prepaid pension asset" and explain why the Indiana Utility Regulatory Commission ("Commission") should reject I&M's proposal to include its $89,244,007 projected "prepaid pension asset" in rate base.[1] This "prepaid pension asset" is not used and

[1] Total company excluding the River Transportation Division as of December 31, 2020, the end of I&M's future test year.

useful utility property under I.C. §8-1-2-6. Nor should it be considered working capital. Recovery of this alleged "asset" in I&M's rate base serves only to increase utility rates, and does not result in a more secure pension fund.

Instead of rate base treatment, I propose an adjustment to increase I&M's pension expense, which is a departure from proposals the OUCC has made in previous cases. I explain why the OUCC's proposal is a more reasonable and appropriate approach to address the disconnect between the minimum pension contributions required by the Employee Retirement Income Security Act ("ERISA") and how U.S. Generally Accepted Accounting Principles ("GAAP") dictate pension expense should be calculated.

Q: To the extent you do not address a specific item or adjustment, should that be construed to mean you agree with Petitioner's proposal?

A: No. Excluding any specific adjustments or amounts proposed by I&M from my testimony does not indicate my approval of those adjustments or amounts, but rather that the scope of my testimony is limited to the specific items addressed herein.

II. "PREPAID PENSION ASSET" AND PENSION COST

A. Terminology – "Prepaid Pension Asset"

Q: How is Petitioner using the term "prepaid pension asset"?

A: According to I&M Witness Andrew J. Williamson, I&M is using the term "prepaid pension asset" to mean the "cumulative amount of cash contributions to the pension trust fund in excess of the cumulative amount of pension cost accrued to expense." *See* Testimony of Andrew J. Williamson, p. 33, ll. 9-11.

Q: Does current U.S. GAAP recognize the term "prepaid pension asset"?

A: No. The term "prepaid pension asset" is not a defined term for accounting purposes under the Financial Accounting Standards Board's ("FASB") Accounting Standards Codification ("ASC"). ASC 715 "Compensation – Retirement Benefits" contains the current U.S. GAAP for pension and other post-employment benefits ("OPEB") accounting. A search of ASC 715 reveals no reference to either the term "prepaid pension asset" or "prepaid pension liability." While these terms were included in earlier financial accounting statements issued by the FASB (i.e., FAS #87), they are not part of the current accounting vernacular used to account for pensions under U.S. GAAP.

Q: Do you agree with Petitioner's use of the term "prepaid pension asset"?

A: No. The term is not in conformity with or promulgated by current U.S. GAAP (ASC 715). It is not a term that is defined by, nor is it a component of, any current accounting standards. "Prepaid pension asset" is not an account or category that a company is required to track or disclose in its financial statements or the notes to its financial statements. Further, there is no specific "prepaid pension asset" account designated under FERC's Uniform System of Accounts, which is the basis for I&M's chart of accounts. Finally, the term incorrectly implies the existence of an asset that I&M does not actually record as a separately identified asset on its balance sheet – whether historic or projected.

Q: Did you ask Petitioner to explain its use of the term "prepaid pension asset"?

A: Yes. In response to OUCC discovery, I&M acknowledged that "prepaid pension asset" is not a defined term within the Financial Accounting Standards Board's ASC. I&M stated:

> The Company follows ASC 715, Compensation-Retirement Benefits, which determines the amount of pension cost on the income statement and which the Commission uses for ratemaking purposes. The Company recognizes a liability for the plan's underfunded status and records a regulatory asset for costs that are deferred for future recovery. The prepaid pension asset is the cumulative pension cash contributions less cumulative pension cost.[2]

Q: Do you use this term in your testimony?

A: Yes, however only for ease of understanding. I will use the term "prepaid pension asset" within my testimony to refer to the difference between cumulative pension contributions and cumulative pension cost. I also use the term "excess pension contributions" to have the same meaning as "prepaid pension asset."

B. Pension Accounting under U.S. GAAP

Q: Which accounting standard governs pension accounting under U.S. GAAP?

A: As discussed above, ASC 715 "Compensation Retirement Benefits" establishes the required accounting under U.S. GAAP for defined benefit pension plans.

Q: What are the ASC 715 requirements for recording a company's obligations under a defined benefit pension plan?

A: ASC 715 requires an employer to recognize the "funded status" of a defined benefit pension plan in its balance sheet. The "funded status" is defined or measured as the difference between (1) plan assets at fair value and (2) the benefit obligation. Therefore, if an employer's defined benefit pension plan funding is less than its benefit obligation, the company will record a liability. Conversely, if an employer's defined benefit pension plan funding exceeds its benefit obligation, the company will record an asset.

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[2] See OUCC Attachment MAS-1, Petitioner's response to OUCC Data Request ("DR") No. 24-32.

Q: How many defined benefit pension plans does American Electric Power Co. ("AEP") currently have?

A: AEP currently has two defined benefit pension plans – a "qualified" plan and an "unqualified" Supplemental Employee Retirement Plan ("SERP") referred to as the "Excess Benefit Plan." AEP's qualified plan is funded, while its unqualified SERP plan is unfunded. In my experience, unqualified plans are usually unfunded and this does not violate any requirements from either ERISA or FASB.

Q: What is the current status of AEP's defined benefit pension plans?

A: As of December 31, 2018, AEP's defined benefit pension plan funded status was a $54,570,926 unfunded liability, with a projected benefit obligation of $5,237,716,777 and fair value plan assets of $5,183,145,851.[3]

As of December 31, 2019, AEP's defined benefit pension plan funded status is projected to be a $146,630,352 unfunded liability, with a projected benefit obligation of $4,848,358,333 and fair value plan assets of $4,701,727,981.[4]

Q: What is the current status of I&M's defined benefit pension plans?

A: As of December 31, 2018, I&M stated its defined benefit pension plans' funded status was a surplus of $15,977,463, based on a projected benefit obligation of $531,380,491 and trust fund assets at fair market value of $547,357,954.[5] However, a review of I&M's balance sheet as of December 31, 2018 reveals an

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[3] See OUCC Attachment MAS-2, Petitioner's Minimum Standard Filing Requirements ("MSFR") filed on May 14, 2019 - 1-5-8(a)(15), Attachments 1 and 2. As reflected in Table 1, this funded status includes both AEP's qualified and unqualified pension funds.

[4] See OUCC Attachment MAS-3, Petitioner's response to OUCC DR No. 31-02. As reflected in Table 1, this funded status includes both AEP's qualified and unqualified pension funds.

[5] See OUCC Attachment MAS-4, Petitioner's MSFR workpapers filed May 14, 2019, 1-5-8(a)(14). It is unclear whether this funded status represents I&M's portion of both AEP's qualified and unqualified pension plans.

accumulated provision for pensions and benefits (Account 228.3) of $6,544,118.[6] This is a noncurrent liability and represents an unfunded pension liability rather than a surplus or overfunded pension status as stated in the Minimum Standard Filing Requirement ("MSFR") 1-5-8(a)(14).

As of December 31, 2019, I&M's share of the funded status of AEP's qualified plan is projected to be a surplus of $22,238,097, based on a projected benefit obligation of $524,480,797 and trust fund assets at fair market value of $546,718,894. I&M's share of the projected benefit obligation for the SERP plan was not provided in the 2019 Actuarial Report provided in response to discovery.[7]

Q: Did I&M present a different funded status for its pension plan as of December 31, 2018 in response to OUCC discovery?

A: Yes. In response to OUCC discovery, I&M provided the projected benefit obligation and fair value of plan assets for its qualified pension plan for each year during the period 1995 – 2018. In 2018, I&M stated the projected benefit obligation was $572,245,232 and the fair value of plan assets was $572,488,683, yielding a surplus funded status of $243,451.[8] The information provided in discovery matches the data included in the 2018 Actuarial report, Appendix D – Results by business unit, page 71 of the report (p. 77 of 91 of Attachment 2, MSFR 1-5-8(a)(15). However, it varies considerably from the information provided in MSFR workpaper 1-5-8(a)(14) as discussed in the previous question and answer.

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[6] See OUCC Attachment MAS-6, Petitioner's WP-IM-1-HISTORIC, Section 1, p. 2 of 3.
[7] See OUCC Attachment MAS-3.
[8] See OUCC Attachment MAS-5, Petitioner's response to OUCC DR No. 24-18.

Table 1: Funded Status of Petitioner's Defined Benefit Pension Plans[9]

	Qualified Plan	SERP	Total
AEP - As of December 31, 2019			
Projected Benefit Obligations	$ (4,777,757,677)	$ (70,600,656)	$ (4,848,358,333)
Fair Value of Plan Assets	4,701,727,981	-	4,701,727,981
Funded Status Asset (Liability)	$ (76,029,696)	$ (70,600,656)	$ (146,630,352)
Funded Percentage	98.41%	0.00%	96.98%
AEP - As of December 31, 2018			
Projected Benefit Obligations	$ (5,158,705,604)	$ (79,011,173)	$ (5,237,716,777)
Fair Value of Plan Assets	5,183,145,851	-	5,183,145,851
Funded Status Asset (Liability)	$ 24,440,247	$ (79,011,173)	$ (54,570,926)
Funded Percentage	100.47%	0.00%	98.96%
I&M - As of December 31, 2018			
Projected Benefit Obligations	$ (572,245,232)	$ (6,787,569)	$ (579,032,801)
Fair Value of Plan Assets	572,488,683	-	572,488,683
Funded Status Asset (Liability)	$ 243,451	$ (6,787,569)	$ (6,544,118)

Q: Given the requirements of ASC 715, is Petitioner's "prepaid pension asset" as of December 31, 2018 found on Petitioner's historical balance sheet?

A: No. As mentioned above, the only reference to "pensions" in Petitioner's December 31, 2018 historical balance sheet is the $6,544,118 "Accumulated Provision for Pensions and Benefits (Account 228.3)" included in Other Noncurrent Liabilities. As of December 31, 2018, $7,147,557 is reflected as "Prepayments (Account 165)" and does not include the "prepaid pension asset" claimed by I&M.[10]

Q: Where is the projected December 31, 2020 "prepaid pension asset" reflected on Petitioner's test year balance sheet?

A: I&M stated that the $89,244,007 "prepaid pension asset" was recorded in prepayments (Account 165) on the balance sheet.[11] More specifically, this amount

[9] Sources of information for Table 1 include 2018 actuarial reports for both qualified and unqualified defined benefit pension plans (Attachment MAS-2), I&M response to OUCC DR No. 24-18 (Attachment MAS-5), and 2019 actuarial reports provided in response to OUCC DR No. 31-02 (Attachment MAS-3).

[10] See OUCC Attachment MAS-6, Petitioner's WP-IM-1-HISTORIC, Section 1, p. 1 of 3.

[11] See OUCC Attachment MAS-7, Petitioner's response to OUCC DR No. 24-33 and Exhibit A-2.

is reflected in account 1650010, but any amount recorded in that account is offset by account 1650014, which is also reflected as part of prepayments.

According to I&M's MSFR filed on May 14, 2019, 1-5-7(1) Chart of Accounts, I&M identified Account 1650010 as "Prepaid Pension Benefits" with the description "[t]o segregate the west prepaid pension from the other prepaid employee benefits per the request of the reporting group for the purpose SEC reporting." Account 1650014 is identified as "FAS 158 Qual Contra Asset" with the description "[t]his account is used to track the long term portion of the FAS 158 PBO liability (Projected Benefit Obligation) for the Qualified Pension Plan when the net plan is still prepaid. This account offsets account 1650010."[12] Therefore, the total amount of "prepaid pension asset" included in I&M's Prepayments (Account 165) is zero.

C. "Prepaid Pension Asset" – I&M's Proposal

Q: How did I&M determine the amount of its current and projected "prepaid pension asset"?

A: I&M determined the amount of its "prepaid pension asset" by totaling its cumulative pension contributions and then subtracting its cumulative pension cost (as reflected in its U.S. GAAP financial statements).

Q: What "prepaid pension asset" does Petitioner assert in this Cause?

A: I&M Witness Aaron L. Hill indicates I&M had a "prepaid pension asset" of approximately $97.5 million (total company) as of December 31, 2018. Mr. Hill stated the "projected prepaid pension asset":

[12] See OUCC Attachment MAS-8, MSFR workpaper 1-7(1) chart of accounts, p. 7 of 47.

> [b]egan with the value of the prepaid pension asset at December 31, 2018 ($97,553,896). To this amount, I&M added forecasted pension contributions of $1,110,000 and $6,391,000 for years 2019 and 2020 respectively. Forecasted pension costs of $8,062,000 and $7,749,000 for years 2019 and 2020 respectively were then subtracted, yielding a projected December 31, 2020 "prepaid pension asset" of $89,244,007.[13]

Q: Does the information provided in Mr. Hill's testimony reconcile with information provided by I&M in response to OUCC discovery?

A: No. In response to OUCC discovery, I&M provided information showing the balance of its prepaid pension asset at December 31, 2018 as $93,272,832.[14] This is $4,281,064 ($97,553,896 - $93,272,832) less than the balance Mr. Hill states in his testimony.

Q: Did you inquire about this difference?

A: Yes. In response to an informal inquiry, I&M stated Mr. Hill's December 31, 2018 balance incorrectly included amounts related to its River Transportation Division, an unregulated subsidiary. Therefore, the correct amount to include in the projected December 31, 2020 rate base under I&M's proposal is $84,962,833 (total company). Table 2 below summarizes the balance of the "prepaid pension asset" during the period 2006 – 2020.[15]

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[13] Direct Testimony of Aaron Hill, p. 37, l. 17 – p. 38, l. 2. The sum of the inputs provided by Mr. Hill is actually $89,243,896, $111 less than the $89,244,007 prepaid pension asset he stated.
[14] See OUCC Attachment MAS-9, Petitioner's response to OUCC DR No. 24-10 and 24-34.
[15] See OUCC Attachment MAS-12, Petitioner's supplemental response to OUCC DR No. 24-33.

Table 2: Summary of I&M's Proposed "Prepaid Pension Asset (Liability)"[16]

Year	Contribution	Cost	Balance
Opening Balance			$ 84,582,060
2006	-	(8,486,486)	76,095,574
2007	-	(6,794,836)	69,300,738
2008	-	(6,418,354)	62,882,384
2009	-	(12,484,766)	50,397,618
2010	63,207,452	(18,292,201)	95,312,869
2011	49,556,000	(14,218,000)	130,650,869
2012	21,202,000	(15,465,540)	136,387,329
2013	-	(20,266,081)	116,121,248
2014	8,629,000	(18,781,622)	105,968,626
2015	13,704,000	(16,423,418)	103,249,208
2016	12,150,000	(12,906,325)	102,492,883
2017	12,418,000	(12,597,191)	102,313,692
2018	-	(9,040,859)	93,272,833
2019	1,110,000	(8,062,000)	86,320,833
2020	6,391,000	(7,749,000)	84,962,833

Q: What does Petitioner state is the Indiana Jurisdictional portion of its "prepaid pension asset"?

A: As shown in I&M's Exhibit A-6, I&M states the projected Indiana Jurisdictional portion is $64,018,690, as projected for December 31, 2020. As discussed above, I&M's proposed "prepaid pension asset" incorrectly included amounts related to the River Transportation Division. Applying the jurisdictional percentage to the correct amount yields a jurisdictional "prepaid pension asset" of $62,209,786 ($84,962,833 x 73.22%).

Q: What ratemaking treatment does I&M seek for its "prepaid pension asset" in this Cause?

A: I&M is seeking to include its projected "prepaid pension asset" in rate base and earn its full weighted cost of capital return on that amount.

[16] Sources of information for Table 2 include Petitioner's response to OUCC DR No. 24-34 (Attachment MAS-9) and the case-in-chief testimony of Mr. Hill, p. 37. All information for the period 2006 through 2018 is actual. Information for 2019 and 2020 represents I&M's forecast.

Q: Did Petitioner provide support for its alleged "prepaid pension asset"?

A: No. There is no calculation or showing of how the "prepaid pension asset" was determined nor any mention of a "prepaid pension asset" in AEP's defined benefit pension plan actuarial reports.

Q: Did the OUCC request the calculation of the "prepaid pension asset" through discovery?

A: Yes. When the OUCC asked I&M to provide the calculation of its "prepaid pension asset," I&M objected, stating the question was "overly broad and unduly burdensome." I&M further objected indicating the question sought "an analysis, compilation, calculation or study that I&M has not performed and to which I&M objects to performing."[17] While I&M did provide a partial calculation of its proposed "prepaid pension asset" from 2006 to 2018, I&M should be able to support the entire "prepaid pension asset" it is requesting to include in its rate base. This "asset" represents a substantial percentage of other rate base items requested. Of the $316,400,987 ($6,756,243,261 - $6,439,842,274) of non-utility plant rate base, I&M's "prepaid pension asset" represents 28.21% ($89,244,007 / $316,400,987) (total company).

Q: Has Petitioner provided any support that its "prepaid pension asset" was funded by investor-supplied capital?

A: No. In Cause No. 44576, the Commission allowed IPL to include in rate base the portion of its "prepaid pension asset" it determined was funded by investor-supplied capital.[18] The Commission noted in that case: "[o]ur conclusion in this case should

[17] See OUCC Attachment MAS-9, Petitioner's response to OUCC DR No. 24-34.

[18] See Cause No. 44576, Final Order dated March 16, 2016 at p. 24. This is the most recent Commission order addressing prepaid pension assets.

not be read to foreclose alternative proposals to address prepaid pension assets."[19] In this case, I&M has made no effort to identify or support the portion of its "prepaid pension asset" provided by investor-supplied capital, nor has it made any alternative proposals to address prepaid pension assets.

D. Previous Regulatory Treatment

Q: What ratemaking treatment have utilities received for "prepaid pension assets" in Indiana?

A: Based on my research, five Indiana utilities have requested ratemaking treatment for a "prepaid pension asset" in eleven (11) rate case filings as of August 1, 2019: (1) I&M (Cause Nos. 44075, 44967, and 45235); (2) Indiana-American Water Company, Inc. ("IAWC") (Cause Nos. 44450 and 45142); (3) Indianapolis Power and Light Company ("IPL") (Cause Nos. 44576 and 45029); (4) Northern Indiana Public Service Company ("NIPSCO") (Cause Nos. 44688, 44988, and 45159); and (5) Duke Energy Indiana, LLC ("DEI") (Cause No. 45253). Rate base treatment was sought in all of these cases except for Cause Nos. 45142 (IAWC), 44988 (NIPSCO Gas), and Cause No. 45029 (IPL), where the utility sought to include the "prepaid pension asset" in the capital structure.

Q: In reaching its decision in Cause No. 44075, what reasoning did the Commission provide for including I&M's "prepaid pension asset" in rate base?

A: In Cause No. 44075, which was appealed to the Indiana Court of Appeals, the Commission allowed I&M to include a "prepaid pension asset" in rate base, over

[19] *Id.*, footnote 5.

the OUCC's objection. In its Final Order, the Commission recited the parties' evidence and found as follows:

> The record reflects that the prepaid pension asset was recorded on the Company's books in accordance with governing accounting standards. The record also reflects that the prepaid pension asset has reduced the pension cost reflected in the revenue requirement in this case and preserves the integrity of the pension fund. Petitioner made a discretionary management decision to make use of available cash to secure its pension funds and reduce the liquidity risk of future payments. In addition, the prepayment benefits ratepayers by reducing total pension costs in the Company's revenue requirement. Therefore, we find that the prepaid pension asset should be included in Petitioner's rate base.[20]

The Commission made no findings expressing how the "prepaid pension asset" qualified to be included in rate base under the strictures of I.C. § 8-1-2-6. On appeal, the Indiana Court of Appeals issued a memorandum opinion according the Commission deference and affirming the Commission's decision without addressing how the "asset" qualified to be included in rate base under the terms of I.C. § 8-1-2-6.

Q: What reasoning did the Commission's orders articulate in the other cases cited above?

A: In Cause No. 44576, the OUCC opposed IPL's request to include its "prepaid pension asset" in rate base. The Commission granted IPL's request construing the "prepaid pension asset" as working capital.[21] The Commission made this finding even though IPL had neither requested, nor offered evidence to support, the granting of working capital. While the OUCC did not appeal the Cause No. 44576

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[20] *In re Indiana Michigan Power Co.,* Cause No. 44075, 303 P.U.R. 4th 384, 2013 WL 653036 p. 18 (Ind. Util. Regulatory Comm'n Feb 13, 2013) *aff'd,* (mem. Dec. 2014), *trans. den.*

[21] *In re Indianapolis Pwr. & Light Co.,* Cause Nos. 44576 & 44602, 2016 WL 1118795 at **22-23, 329 P.U.R. 4th 486, Final Order (Ind. Util. Regulatory Comm'n Mar 23, 2016).

order, it is opposed to the inclusion of the "prepaid pension asset" in rate base. In Cause No. 45253, DEI proposes to include its "prepaid pension asset" as a component of rate base. This case is still pending. Other cases approved by the Commission that included the "prepaid pension asset" in rates were settled, and are therefore non-precedential.[22] In Cause No. 44967, I&M's last rate case, the Commission approved a settlement agreement that included I&M's "prepaid pension asset" as a component of rate base. Similar to the other settled cases, the Commission's approval of a settlement regarding I&M's treatment of the "prepaid pension asset" is non-precedential.

E. OUCC Position

Q: Has the OUCC changed its position regarding the inclusion of a "prepaid pension asset" in rate base?

A: No. The OUCC continues to advocate against the inclusion of a "prepaid pension asset" in a utility's rate base, as a "prepaid pension asset" is not used and useful plant under I.C. § 8-1-2-6. It cannot be considered inventory or a prepaid asset (as that term has been used for rate base purposes), nor is it working capital.

Q: Has the OUCC changed its position regarding the allowance of any ratemaking treatment related to a utility's "prepaid pension asset"?

A: Yes. The OUCC's position in this case is consistent with the idea that some ratemaking treatment may be appropriate regarding pension contributions in excess of pension cost.

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[22] In these cases, utilities have proposed differing treatments of the "prepaid pension asset" and the Commission has approved differing treatments of the "prepaid pension asset".

Q: Why has the OUCC departed from its past position regarding allowing any ratemaking treatment for a utility's "prepaid pension asset"?

A: "Prepaid pension assets" are created because accumulated pension fund contributions exceed accumulated pension costs (as recorded to a Utility's U.S. GAAP financial statements). There are two types of pension fund contributions: (1) ERISA required minimum contributions and (2) discretionary contributions.[23] The creation of a "prepaid pension asset" is not just the result of timing differences between when a utility records pension cost and when a utility contributes funding for that pension cost. There is a disconnect between the amount of cost as determined by U.S. GAAP, and the amount of pension contributions required by ERISA. In recognition of this disconnect, as discussed further in my testimony, I recommend ratemaking relief for I&M's accumulated required pension contributions in excess of its accumulated pension cost.

Q: What do you mean by a "disconnect"?

A: Pension cost is determined by one governing body (the Financial Accounting Standards Board, or "FASB"), while pension contributions are governed by another (ERISA). While ERISA has increased the minimum pension funding requirements over the past ten years or so, FASB has made no substantive change in the methodology used to determine pension cost. The disconnect between FASB and ERISA creates a challenge for a small percentage of companies with defined benefit pension plans – namely regulated utilities – and is one of the main contributors to the creation of so-called "prepaid pension assets." In other words, under current

[23] To the extent a utility makes discretionary contributions above the minimum required contribution, it reduces future ERISA required minimum contributions, all other things being equal.

regulations, companies are required to provide pension funding at a faster pace than they are required to recognize pension costs.

Q: As a result of this disconnect, do you expect the difference between pension contributions and pension cost to increase over time?

A: Absent any changes by FASB, yes. There are four main components of pension cost under ASC 715: (1) service cost, (2) interest cost, and (3) amortization of actuarial gains and losses, which are offset by (4) the expected return on plan assets. As contributions to the pension plan continue to outpace pension costs, the offset for the expected return on plant assets gets larger, yielding an even lower pension cost going forward. Absent some action by FASB or utility regulatory authorities to bridge the disconnect between FASB and ERISA, utility "prepaid pension assets" will likely continue to grow. Continuing to allow rate base treatment for this type of "asset" is not sustainable or realistic. The "prepaid pension asset" could eventually become the largest asset in a utility's rate base, since it doesn't depreciate and continues to grow in size.

Q: Should I&M's "prepaid pension asset" be included in the capital structure as a zero cost source of capital?

A: No. While including a "prepaid pension asset" in a utility's capital structure as opposed to its rate base may be easier to support from a statutory perspective (no "used and useful" issues), both proposals (rate base or capital structure treatment) unnecessarily increase net operating income, operating revenues, and income tax expense to the detriment of ratepayers. *See* Table 5 below for a comparison of the various ratemaking treatment options on I&M's proposed revenue requirement.

Also, either proposal incents utilities to make discretionary contributions to a pension plan rather than invest in utility infrastructure or address other utility needs.

Q: What ratemaking treatment do you propose in this case?

A: To recognize the disconnect between the ERISA minimum pension contribution and the pension cost calculation required by U.S. GAAP, I propose an increase to I&M's proposed pension expense to offset the impact of I&M's excess required pension contributions. Increasing I&M's pension expense in lieu of including its "prepaid pension asset" in its capital structure provides the ratemaking relief necessary to make I&M whole without incurring additional costs that ratepayers must bear, such as income tax expense.

Q: Are you proposing to use the entire "prepaid pension asset" in your adjustment to pension expense?

A: No. My adjustment is based only on the cumulative amount of ERISA minimum contributions in excess of cumulative pension cost. Any discretionary contributions are just that - not required and entirely at the utility's discretion. ERISA minimum required contributions are calculated to keep a company's defined benefit pension plan financially sound.

To the extent I&M's discretionary contributions are related to the timing of pension contributions from one year to the next, they will reverse in the near future and the utility is not harmed from a ratemaking perspective. To the extent the discretionary contributions do not reverse, it is unreasonable to burden ratepayers with higher rates to provide a ratemaking benefit to the utility for unnecessary pension plan contributions.

Q: How have you calculated your proposed adjustment to pension expense?

A: To determine the amount of the increased pension expense, I propose that the amount of excess required contributions be multiplied by the 6.25% return on plan assets included in Petitioner's 2019 actuarial report.[24] Based on this methodology, I calculate a pension expense increase of $1,909,822 to yield *pro forma* pension expense of $9,658,822 (total company). See Table 3 for the detailed calculation of my proposed pension expense adjustment.

Table 3: Calculation of OUCC *Pro Forma* Pension Expense

2020 *Pro Forma* Pension Expense	$	7,749,000		Per Mr. Hill's Testimony, page 37, line 22
Additional Pension Expense		1,909,822		See (B) below
OUCC *Pro Forma* Pension Expense	$	9,658,822		
"Prepaid Pension Asset"	$	89,244,007		
Times: Required Minimum Contribution (%)		34.24%		See (A) below
Excess Required Minimum Contributions	$	30,557,148		
Times: Return on Plan Assets		6.25%		Attachment MAS-X
Additional Pension Expense	$	1,909,822		**(B)**
I&M Pension Contributions from 2006 - 2020 (000's):				
Required ERISA Minimum Contributions	$	66,622	34.24%	**(A)**
Discretionary Contributions		127,945	65.76%	
Total Contributions	$	194,567	100.00%	See Table 4 below

Q: How did you determine the amount of excess ERISA required contributions?

A: In response to OUCC discovery, I&M provided the amount of actual pension contributions and the amount of ERISA minimum contributions for each year of

[24] See OUCC Attachment MAS-10, Petitioner's response to OUCC DR No. 24-26.

the period 2006 – 2018.[25] The projected contributions for 2019 and 2020 are stated in Mr. Hill's testimony, on page 37, line 22. Due to the pension funds' 99% funding level at December 31, 2018, I assumed these projected contributions were discretionary contributions.[26] Prior to 2000, most utilities' defined contribution pension plans were in a surplus funding position and, therefore, were not required to make minimum contributions under ERISA. In response to OUCC DR No. 24-34 (Attachment MAS-11), I&M stated the contribution information for the period prior to 2006 was "not readily available" and objected to providing the information because it sought "an analysis, compilation, calculation or study that I&M has not performed and to which I&M objects to performing." Therefore, I assumed the pension fund contribution information provided by I&M reasonably estimated I&M's share of the accumulated amount of minimum contributions made to AEP's defined benefit pension fund. As reflected in Table 4 below, total actual contributions for the period 2006 through 2020 were $194,567,000. During this same period, ERISA required minimum contributions totaled $66,622,000, or 34.24% of total contributions. To calculate excess required minimum contributions, I multiplied 34.24%, the percentage of minimum required contributions, times the projected amount of the "prepaid pension asset," yielding excess required minimum contributions of $30,557,148 (34.24% x $89,224,007).

[25] See OUCC Attachment MAS-11, Petitioner's response to OUCC DR Nos. 24-02 and 24-09.

[26] See also OUCC Attachment MAS-13, Petitioner's response to OUCC DR No. 35-13.

Table 4: Summary of I&M's Portion of Contributions to Pension Plans (Thousands of Dollars)

	Contributions		
Year	**Minimum**	**Additional**	**Total**
2006	-	-	-
2007	-	-	-
2008	-	-	-
2009	-	-	-
2010	32,107	31,100	63,207
2011	20,504	29,052	49,556
2012	6,881	20,521	27,402
2013	7,130	-	7,130
2014	-	1,499	1,499
2015	-	13,704	13,704
2016	-	12,150	12,150
2017	-	12,418	12,418
2018	-	-	-
2019	-	1,110	1,110
2020	-	6,391	6,391
Total	$ 66,622	$ 127,945	$ 194,567
	34.24%	65.76%	100.00%

The minimum contribution column in Table 4 was provided by I&M in response to OUCC DR No. 24-09 (Attachment MAS-11). The total qualified pension contribution amounts were provided by I&M in response to OUCC DR No. 24-02 and Public's Exhibit No. 3, Table 2, in Cause No. 44967 (Attachment MAS-11). The 2019 and 2020 projected contributions were provided in Mr. Hill's testimony (p. 37).

Q: **Based on your proposal, will any adjustments be necessary to calculate excess pension contributions in I&M's next base rate case?**

A: Yes. In I&M's next base rate case, the calculation of excess pension contributions or "prepaid pension asset" should be changed for ratemaking purposes to reflect the increased pension expenses included in I&M's revenue requirement rather than the

U.S. GAAP expense determined under ASC 715. As this change will be prospective, it should be relatively easy for I&M to calculate.

Q: Why does increasing *pro forma* pension expense create a more reasonable and fair result than including a "prepaid pension asset" in a utility's rate base, as I&M proposes?

A: Including a "prepaid pension asset" in rate base or in the capital structure increases operating revenues, which creates a corresponding increase to utility receipts tax and income tax expenses that ratepayers must pay. However, increasing pension expense in a utility's revenue requirement does not create additional revenues or taxes. Instead, my proposal to increase I&M's pension expense to provide recovery for its required minimum ERISA contributions in excess of pension expense results in a more equitable result for ratepayers, and provides the utility with recovery for its necessary pension contributions. Table 5 compares the rate impact of each of these options.

Table 5: Comparison of Excess Pension Contribution Treatments

Rate Base Treatment:				
Net "Prepaid Pension Asset"	$	89,244,007		
Times: Weighted Average Cost of Capital (2020)		5.91%		Exhibit A-7, Page 3 of 4
Increase in Net Operating Income		5,274,321		
Times: Gross Revenue Conversion Factor		1.3596		Exhibit A-8
Revenue Requirement Increase	$	7,170,967		
Capital Structure Treatment:				
WACC as proposed by I&M (2020)		5.91%		Exhibit A-7, Page 3 of 4
WACC with "Prepaid Pension Asset"		5.99%		Workpaper MAS-1
Increase in WACC		0.08%		
Times: Original Cost Rate Base (total company)		6,666,999,254		Workpaper MAS-1
Increase in Net Operating Income		5,333,599		
Times: Gross Revenue Conversion Factor		1.3596		Exhibit A-8
Revenue Requirement Increase	$	7,251,561		
Operating Expense Treatment:				
OUCC Proposed Additional Pension Expense	$	1,909,822	(A)	Table 3
Reduction to Reveneu Requireement:				
Expe nse Option vs. Rate Base\Option	$	(5,261,145)		
Expense Option vs. Capital Structure Option	$	(5,341,739)		

(A) Because pension expense is deductible for income tax purposes, there is no need to gross-up this amount.

Q: Are you proposing any other adjustments as a result of your proposed increase to pension expense?

A: Yes. Because my proposal does not include any ratemaking treatment for I&M's $58,686,859 ($89,244,007 - $30,557,148) of excess discretionary pension plan contributions, I propose a decrease to the accumulated deferred income taxes associated with pension contributions included in I&M's capital structure in this case.

Q: Why is this adjustment necessary?

A: I&M's pension expense for tax purposes is equal to its actual contributions to the pension plans, while its pension expense for book purposes is the expense determined by applying ASC 715. Because the contributions to the pension plan are greater than the U.S. GAAP expense, a temporary tax liability is created and is included in I&M's capital structure as a zero cost source of capital. It is necessary to eliminate the benefit to ratepayers related to these excess discretionary contributions in order to be fair and balanced in this rate proceeding.

Q: What capital structure adjustment do you propose?

A: Because I&M's proposed rate increase will be implemented in phases, I propose two adjustments: (1) a $14,874,184 reduction to the accumulated deferred income taxes included in I&M's capital structure as of December 31, 2019 and (2) a $14,758,278 reduction to the accumulated deferred income taxes included in I&M's capital structure as of December 31, 2020.

I calculated the 2019 amount by taking the excess discretionary pension plan contributions of $58,686,859 and multiplying by the combined state and federal income tax rate of 25.345% (21% (federal) + (5.5% (state) x (100% - 21%)) to yield a $14,874,184 reduction to accumulated deferred income taxes included in I&M's capital structure.

I calculated the 2020 amount by taking the excess discretionary pension plan contributions of $58,686,859 and multiplying by the combined state and federal income tax rate of 25.1475% (21% (federal) + (5.25% (state) x (100% - 21%)) to yield a $14,758,278 reduction to accumulated deferred income taxes included in I&M's capital structure.

F. Additional Considerations

1. Fully Funded Pension Plan

Q: Is a fully funded pension fund necessary or desirable?

A: No. Some utilities will argue that fully funding its defined benefit pension plans makes them more secure and benefits customers, indicating a strong pension plan is important to attracting and retaining a good work force and providing customers cost effective and reliable electric service. However, a pension plan does not need to be 100% funded to be secure or strong. Even ERISA does not require that level of funding. The funding goal for a pension plan is set at management's discretion, and meeting that goal may not necessarily be in ratepayers' best interests. Indeed, by seeking recovery of its "prepaid pension asset" in rate base, I&M is seeking preferential ratemaking treatment due to its pension plan funding decisions. However, these funding decisions need to be reviewed and a determination as to prudency must also be made. I&M's pension fund is approximately 99% funded as of December 31, 2018.

There can be benefits to a fully funded pension plan, but there are also risks to this funding strategy. The market crashed in 2000, with the dot com bust, and in 2008 during the Great Recession, there was a sizeable, negative effect on pension plan funding. These types of events cannot be forecasted and losses will occur. If a pension fund is fully funded, these losses will be even greater because more funding is at risk. In the case of regulated utilities, ratepayers will be expected to pick up the tab to replace lost pension funds, despite the fact ratepayers have no say in the utility's pension funding goals.

Further, it is unnecessary to be fully funded today for an obligation that will not be incurred for many years in the future. A better use of those funds today might be the investment in utility infrastructure or maintenance costs.

2. Other Information to Consider

Q: Is there other information the Commission should consider in determining how to treat I&M's "prepaid pension asset"?

A: Yes. There is a difference between the pension costs recorded for financial statement purposes and the amount of pension costs I&M included in its revenue requirement, which is recovered from ratepayers. This nuance makes I&M's U.S. GAAP calculation difficult to rely on for ratemaking purposes and could ultimately result in I&M customers paying more than the actual cost of providing a defined benefit pension plan to I&M employees. For ratemaking purposes, any "prepaid pension asset" should be based on the accumulated pension costs (both capital and expense) included in I&M's revenue requirement rather than the pension cost included in I&M's financial statements.

III. RECOMMENDATIONS

Q: Please summarize your recommendations.

A: For the reasons described above, I recommend the Commission deny I&M's requested rate base treatment of its "prepaid pension asset" and approve the OUCC's proposed operating expense method to provide ratemaking relief to I&M for its required excess pension contributions. I further recommend the Commission approve recovery of an additional $1,909,822 of pension expense (total company). Finally, I recommend the Commission approve the OUCC's proposed capital structure adjustment to reduce accumulated deferred income taxes by $14,874,184 (2019) and $14,758,278 (2020).

Q: Does this conclude your testimony?

A: Yes.

APPENDIX A – QUALIFICATIONS

Q: Please describe your educational background and experience.

A: I graduated from the University of Houston at Clear Lake City in August 1982 with a Bachelor of Science degree in accounting. From 1982 to 1985, I held the position of Gas Pipeline Accountant at Seagull Energy in Houston, Texas. From 1985 to 2001, I worked for Enron in various positions of increasing responsibility and authority. I began in gas pipeline accounting, was promoted to a position in financial reporting and planning, for both the gas pipeline group and the international group, and finally was promoted to a position providing accounting support for infrastructure projects in Central and South America. In 2002, I moved to Indiana, where I held non-utility accounting positions in Indianapolis. In August 2003, I accepted my current position with the OUCC. In 2011, I was promoted to Senior Utility Analyst. Since joining the OUCC I have attended the National Association of Regulatory Utility Commissioners ("NARUC") Eastern Utility Rate School in Clearwater Beach, Florida, and the Institute of Public Utilities' Advanced Regulatory Studies Program in East Lansing, Michigan. I have also attended several American Water Works Association and Indiana Rural Water Association conferences. I have also attended several NARUC Sub-Committee on Accounting and Finance Spring and Fall conferences. I have participated in the National Association of State Utility Consumer Advocates ("NASUCA") Water Committee and the NASUCA Tax and Accounting Committee. In March 2016 I was appointed chair of the NASUCA Tax and Accounting Committee.

Q: Have you held any professional licenses?

A: Yes. I passed the CPA exam in 1984 and was licensed as a CPA in the State of Texas until I moved to Indiana in 2002.

Q: Have you previously testified before the Commission?

A: Yes. I have testified before the Commission as an accounting witness in various causes involving water, wastewater, electric, and gas utilities.

APPENDIX B

Workpaper MAS-1	Inclusion of "prepaid pension asset" in capital structure rather than rate base
Attachment MAS–1	Petitioner's response to OUCC DR No. 24-32 regarding the term "prepaid pension asset."
Attachment MAS–2	MSFR workpaper 1-5-8(a)(15), Attachments 1 and 2, "Section 1: Summary of Results" regarding the funded status for both the qualified and unqualified pension plans.
Attachment MAS–3	Petitioner's response to OUCC DR No. 31-02 regarding 2019 defined benefit pension plan actuarial reports.
Attachment MAS–4	MSFR workpaper 1-5-8(a)(14) regarding pension expense and funded status of pension plans.
Attachment MAS-5	Petitioner's response to OUCC Data request No. 24-18 regarding projected benefit obligation and fair value of plan assets for the qualified pension plan for the period 1990 – 2018.
Attachment MAS-6	Petitioner's WP-IM-1-HISTORIC, Section 1, p. 1 – 3 regarding the reflection of Petitioner's alleged "prepaid pension asset" in his historic balance sheet.
Attachment MAS-7	Petitioner's response to OUCC DR No. 24-33 and Petitioner's Exhibit A-2 regarding the reflection of Petitioner's alleged "prepaid pension asset" in its projected balance sheet.
Attachment MAS-8	MSFR workpaper 1-7(1), Chart of Accounts, p. 7 of 47 regarding "prepaid pension asset" accounts.
Attachment MAS-9	Petitioner's response to OUCC DR No. 24-10 regarding the historical balance of Petitioner's alleged "prepaid pension asset" and 24-34 regarding the calculation of Petitioner's "prepaid pension asset" from inception to the present.

Appendix B (continued)

Attachment MAS-10	Petitioner's response to OUCC DR No. 24-26 regarding the 2019 expected return on plan assets used in the 2019 actuarial report.
Attachment MAS-11	Petitioner's response to OUCC DR No. 24-02 regarding I&M's portion of cash contributions to the qualified pension plan for each of the years 2015-2018 and 24-09 regarding I&M's portion of minimum ERISA contributions required in each of the years 2015 – 2019. Also includes page 15 of 21, Table 2, from Public's Exhibit No. 3 in Cause no. 44967.
Attachment MAS-12	Petitioner's supplemental response to OUCC DR No. 24-33 regarding the actual balance of the "prepaid pension asset" as of December 31, 2018.
Attachment MAS-13	Petitioner's response to OUCC DR No. 35-13 regarding the amount of test year pension contributions that are required and the amount that are discretionary.

INDIANA MICHIGAN POWER COMPANY
INDIANA OFFICE OF UTILITY CONSUMER COUNSELOR
DATA REQUEST SET NO. OUCC DR 24
IURC CAUSE NO. 45235

DATA REQUEST NO OUCC 24-32

REQUEST

Please cite to any current accounting standards or other authoritative accounting literature explaining the meaning of the term “prepaid pension asset” as used by Petitioner.

RESPONSE

“Prepaid pension asset” is not a defined term within the Financial Accounting Standards Board’s Accounting Standards Codification (ASC). The Company follows ASC 715, Compensation – Retirement Benefits, which determines the amount of pension cost on the income statement and which the Commission uses for ratemaking purposes. The Company recognizes a liability for the plan’s underfunded status and records a regulatory asset for costs that are deferred for future recovery. The prepaid pension asset is the cumulative pension cash contributions less cumulative pension cost.

Section 1: Summary of results

Summary of valuation results

All monetary amounts shown in US Dollars

Plan Year Beginning	01/01/2018	01/01/2017
Funding		
Market value of assets with discounted receivable contributions	5,183,145,851	4,831,883,160
Actuarial value of assets	5,129,602,801	4,959,332,851
Funding balances	908,746,010	764,027,069
Funding target	4,128,670,979	4,106,845,705
Target normal cost	92,185,812	88,460,077
Funding shortfall (surplus)	(92,185,812)	(88,460,077)
Funding target attainment percentage (FTAP)	102.23%	102.15%
Minimum required contribution		
Prior to application of funding balances	0	0
Net of available funding balances	0	0
Effective interest rate	5.59%	5.80%
U.S. GAAP Accounting (ASC 715) as of Measurement Date	**01/01/2018**	**01/01/2017**
Projected benefit obligation (PBO)	5,158,705,604	5,026,555,852
Fair value of assets (without receivable contributions)	5,183,145,851	4,831,883,160
Funded status	24,440,247	(194,672,692)
Pension cost (excluding effects of settlements, curtailments and termination benefits) for fiscal year	75,547,803	93,751,108
Immediate recognition of benefit cost/(income) due to special events	0	0
Total benefit cost/(income)	75,547,803	93,751,108
Discount rate	3.65%	4.05%
Participants as of Census Date	**01/01/2018**	**01/01/2017**
Active employees	16,796	16,899
Participants with deferred benefits	3,596	3,643
Participants receiving benefits	15,255	15,460
Total	35,647	36,002
Plan Accounting (ASC 960)	**01/01/2018**	**01/01/2017**
Present value of accumulated benefits	3,970,740,002	4,013,604,704
Market value of assets with receivable contributions	5,183,145,851	4,831,883,160
Plan accounting discount rate	6.00%	6.00%

Section 1: Summary of key results

Benefit cost, assets & obligations

All monetary amounts shown in US Dollars

Fiscal Year Beginning		01/01/2018	01/01/2017
Benefit Cost/ (Income)	Net Periodic Benefit Cost/(Income)	6,096,964	5,930,849
	Immediate Recognition of Benefit Cost/(Income) due to Special Events	0	0
	Total Benefit Cost/(Income)	6,096,964	5,930,849
Measurement Date		**01/01/2018**	**01/01/2017**
Plan Assets	Fair Value of Plan Assets (FVA)	0	0
	Market Related Value of Assets (MRVA)	N/A	N/A
	Actual Return on Fair Value Assets during Prior Year	N/A	N/A
Benefit Obligations	Accumulated Benefit Obligation (ABO)	(74,091,217)	(71,606,711)
	Projected Benefit Obligation (PBO)	(79,011,173)	(75,671,372)
Funded Ratios	Fair Value of Assets to ABO	0.0%	0.0%
	Fair Value of Assets to PBO	0.0%	0.0%
Accumulated Other Comprehensive (Income)/Loss	Net Prior Service Cost/(Credit)	160	15,251
	Net Loss/(Gain)	35,720,739	32,719,678
	Total Accumulated Other Comprehensive (Income)/Loss	35,720,899	32,734,929
Assumptions	Discount rate	3.45%	3.85%
	Expected Long-Term Return on Plan Assets	N/A	N/A
	Rate of Compensation Increase	Rates vary by age from 3.5% to 12.0%	Rates vary by age from 3.5% to 12.0%
Participant Data	Census Date	01/01/2018	01/01/2017

American Electric Power Co.

American Electric Power System Retirement Plan

Actuarial Valuation Report

Employer Contributions for Plan Year Beginning January 1, 2019
Benefit Cost for Fiscal Year Beginning January 1, 2019 under US GAAP

May 2019

Table of Contents

Purposes of valuation

American Electric Power Co. (AEP or the Company) retained Willis Towers Watson US LLC ("Willis Towers Watson"), to perform an actuarial valuation of the American Electric Power System Retirement Plan for the purpose of determining the following:

1. The minimum required contribution in accordance with ERISA and the Internal Revenue Code (IRC) for the plan year beginning January 1, 2019.

2. The estimated maximum tax-deductible contribution for the tax year in which the 2019 plan year ends in accordance with ERISA as allowed by the IRC. The maximum tax-deductible contribution should be finalized in consultation with the Company's tax advisor.

3. Plan accounting information in accordance with FASB Accounting Standards Codification Topic 960 (ASC 960).

4. An assessment of ERISA §4010 reporting requirements for the plan for 2019.

5. Determination of the Funding Target Attainment Percentage (FTAP) under IRC §430(d)(2), as reported in the Annual Funding Notice required under ERISA §101(f).

6. The value of benefit obligations as of January 1, 2019 and American Electric Power Co.'s pension cost for fiscal year ending December 31, 2019 in accordance with FASB Accounting Standards Codification Topic 715 (ASC 715-30).

7. As requested by American Electric Power Co., a "specific certification" of the Adjusted Funding Target Attainment Percentage (AFTAP) for the American Electric Power System Retirement Plan under IRC §436 for the plan year beginning January 1, 2019. Please see Section 4 for additional information. Note that the AFTAP certification included herein may be superseded by a subsequent AFTAP certification for the American Electric Power System Retirement Plan for the plan year beginning January 1, 2019.

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. This report does not determine the plan's liquidity shortfall requirements (if any) under IRC §430(j)(4). If applicable, we will determine such requirements separately as requested by the Company.

2. 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 the plan's benefit obligations, as all such measures differ in some way

from plan termination obligations. For example, measures shown in this report may reflect smoothed assets or interest rates, rather than current values, in accordance with funding and accounting rules. In addition, funded status measures shown in this report do not reflect the current costs of settling the plan 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).

3. The cost method for the minimum required contribution is established under IRC §430 and may not in all circumstances produce adequate assets to pay benefits under all optional forms of payment available under the plan when benefit payments are due.

4. The comparison of the plan's funding target to its actuarial value of assets (the funding shortfall (surplus) shown in Section 1) is used in determining required contributions for the coming year, and a contribution made on the valuation date equal to the shortfall would be considered to "fully fund" the plan for benefits accrued as of the valuation date under the funding rules, and thus is useful for assessing the need for and amount of future contributions. However, the funding shortfall (surplus) cannot be relied upon to determine either the need for or the amount of future contributions. The funding shortfall (surplus) is based on the interest rates elected to be used for funding purposes, which may be smoothed rates not reflecting current market conditions and will in any event change over time. It is also based on the actuarial value of assets, so if an asset smoothing method is used, it would be different than if based on market value of assets. In addition, asset gains and losses, demographic experience different from assumed, and future benefit accruals (if any) will all affect the need for and amount of future contributions.

5. There may be certain events that occurred since the valuation date that are not reflected in this valuation. See Subsequent Events (under the "Basis for valuation" portion of Section 1 below) for more information.

6. This valuation reflects our understanding of the relevant provisions of the Pension Protection Act of 2006 (PPA); the Worker, Retiree and Employer Recovery Act of 2008 (WRERA); the Preservation of Access to Care for Medicare Beneficiaries and Pension Relief Act of 2010 (PRA); the Moving Ahead for Progress in the 21st Century Act (MAP-21); the Highway and Transportation Funding Act of 2014 (HATFA); and the Bipartisan Budget Act of 2015. The IRS has yet to issue final guidance with respect to certain 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 results shown in this report.

Section 1: Summary of results

Summary of valuation results

All monetary amounts shown in US Dollars

Plan Year Beginning	01/01/2019	01/01/2018
Funding		
Market value of plan assets with discounted receivable contributions	4,701,727,981	5,183,145,851
Actuarial value of plan assets	4,830,563,331	5,129,602,801
Funding balances	890,207,591	908,746,010
Funding target	4,247,381,107	4,128,670,979
Target normal cost	94,230,563	92,185,812
Funding shortfall (surplus)	307,025,367	(92,185,812)
Funding target attainment percentage (FTAP)	92.77%	102.23%
Minimum required contribution		
Prior to application of funding balances	94,230,563	0
Net of available funding balances	0	0
Effective interest rate	5.43%	5.59%
U.S. GAAP Accounting (ASC 715) as of Measurement Date	**01/01/2019**	**01/01/2018**
Projected benefit obligation (PBO)	4,777,757,677	5,158,705,604
Fair value of plan assets (without receivable contributions)	4,701,727,981	5,183,145,851
Funded status	(76,029,696)	24,440,247
Pension cost (excluding effects of settlements, curtailments and termination benefits) for fiscal year	56,971,973	75,547,803
Immediate recognition of benefit cost/(income) due to special events	0	0
Total benefit cost/(income)	56,971,973	75,547,803
Discount rate	4.30%	3.65%
Participants as of Census Date	**01/01/2019**	**01/01/2018**
Active employees	16,673	16,796
Participants with deferred benefits	3,535	3,596
Participants receiving benefits	15,206	15,255
Total	35,414	35,647
Plan Accounting (ASC 960)	**01/01/2019**	**01/01/2018**
Present value of accumulated benefits	3,847,849,173	3,970,740,002
Market value of plan assets with receivable contributions	4,701,727,981	5,183,145,851
Plan accounting discount rate	6.25%	6.00%

Minimum required contribution and funding policy

All monetary amounts shown in US Dollars

Plan Year Beginning	01/01/2019	01/01/2018
Minimum Required Contribution (MRC)		
Prior to application of funding balances	94,230,563	0
Net of available funding balances	0	0
Sponsor's Funding Policy Contribution	95,529,000	0

The plan sponsor's funding policy generally has been to contribute the greater of the ASC 715 service cost or the minimum required contribution. We understand the sponsor may deviate from this policy based on cash, tax or other considerations.

The minimum required contribution includes a contribution to cover the benefits expected to accrue in the coming year (if any) plus any expenses expected to be paid from the trust in the coming year (target normal cost), as well as a 7-year amortization (with a somewhat longer amortization period for shortfall amortization bases established in any year for which funding relief was elected) of any funding shortfall (amortization installments) (See Section 2.4 for a break-down of the minimum required contribution into target normal cost and amortization installments, and see Section 2.5 for a schedule of amortization installments for future years.) Thus, assuming that all actuarial assumptions are realized and do not change and the plan sponsor contributes the minimum required contribution each year (target normal cost plus amortization installments), the plan would generally be expected to be fully funded in 7 years, and the minimum required contribution would be expected to drop to target normal cost. During the 7 year period, there will be some variability in minimum required contributions due to amortization installments from prior years dropping out as the 7-year amortization period ends (and for deferred asset gains or losses becoming reflected in assets if an asset smoothing method is used for the actuarial value of assets). In reality, gains and losses will occur, and the plan sponsor may fail to contribute the minimum required contribution (or may contribute more than the minimum required contribution in accordance with the funding policy described above), which may cause the plan to take more or less than 7 years to become fully funded. Note that being fully funded under the funding rules is not the same as being fully funded on a plan termination basis, as different assumptions apply (e.g., the cost of annuity contracts or lump sums to participants) on plan termination.

Target normal cost for individual participants accruing benefits will grow from year to year as participants age (and as their salaries increase, if benefit accruals are pay related), but the changes in total target normal cost will depend on the numbers of participants earning benefits and their ages. Because the number and ages of active participants covered by the plan are not expected to change significantly from year to year, target normal cost is expected to increase as salaries increase. Of course, changes in discount rates and other assumptions in future years will also influence the pattern of future required contributions.

The minimum required contribution for the 2019 plan year must be satisfied by September 15, 2020. This requirement may be satisfied through contributions and/or an election to apply the available funding balances. No quarterly installments are required. The minimum required contribution is determined assuming it is paid as of the valuation date for the plan year. Contributions made on a date other than the valuation date must be adjusted for interest at the plan's effective interest rate.

A revised schedule reflecting employer contributions for the 2019 plan year already deposited on or after the valuation date and prior to the issuance of this report, as well as application of the funding balances to satisfy the 2019 minimum required contribution (MRC), is shown below.

All monetary amounts shown in US Dollars

Date	Funding Balance Applied (Amounts as of January 1, 2019)	Current Plan Year Contributions	Discounted Value of Contributions as of Valuation Date	Sum of Funding Balance Elections and Discounted Contributions
April 15, 2019	0	0	0	0
July 1, 2019	0	95,529,000	93,036,450	93,036,450
July 15, 2019	0	0	0	0
October 15, 2019	0	0	0	0
January 15, 2020	0	0	0	0
September 15, 2020	1,194,113	0	0	1,194,113
Total				94,230,563

Because the plan has a funding shortfall, quarterly contributions for the 2020 plan year will be required.

The preliminary minimum funding schedule for the 2020 plan year, before reflecting any funding balance elections, is shown below:

All monetary amounts shown in US Dollars

Plan Year	2020
Preliminary Schedule of Minimum Funding Requirements	
April 15, 2020	23,557,641
July 15, 2020	23,557,641
October 15, 2020	23,557,641
January 15, 2021	23,557,641
September 15, 2021	To be determined by 2020 valuation

The final schedule will be based on the 2020 valuation, but the final quarterly contributions will not be more than the amounts shown above.

Change in minimum funding requirement and funding shortfall (surplus)

The minimum funding requirement increased from $0 for the 2018 plan year to $94,230,563 for the 2019 plan year, and the funding shortfall (surplus) increased from $(92,185,812) on January 1, 2018 to $307,025,367 on January 1, 2019.

Significant reasons for these changes include the following:

- The investment experience was less favorable than expected, which increased the minimum funding requirement and the funding shortfall.
- The plan's effective interest rate decreased 16 basis points compared to the prior year, which increased the minimum funding requirement and the funding shortfall.
- The mortality assumption was updated to reflect the mortality tables provided in final regulations under IRC §430 issued in October 2017, which increased the minimum funding requirement and the funding shortfall.
- Demographic experience was less favorable than expected, which increased the minimum funding requirement and the funding shortfall.

Funding ratios

The Pension Protection Act of 2006 (PPA) defines several Funding Ratios. All of these ratios are based on a ratio of plan assets to plan liabilities, but the assets and liabilities are defined differently for different purposes. Depending on the purpose, the assets may be market value or, if different, a smoothed actuarial value of assets, and may be reduced by the prefunding balance or all funding balances. The liabilities may be based on the funding target, funding target disregarding at-risk assumptions, or the funding target calculated using at-risk assumptions (see the At-Risk status section below), and may or may not reflect stabilized interest rates.

Following are the key funding ratios and their implications for the 2019 or 2020 plan years. See Appendix D for details on how each ratio is calculated.

January 1, 2018 Funding ratios

	Ratio Test Implications	Threshold	Ratio Value
1	Funding balances can be used to satisfy the 2019 Minimum Required Contribution (MRC) if threshold met	80%	106.39%
2	Quarterly contribution exemption applies in 2019 if threshold met	100%	102.23%
3	Plan is not at-risk for 2019 if the threshold for either the Prong 1 or Prong 2 test is met		
	- Prong 1 Test	80%	102.23%
	- Prong 2 Test	70%	N/A

January 1, 2019 Funding ratios

	Ratio Test Implications	Threshold	Ratio Value
1	Funding balances can be used to satisfy the 2020 MRC if threshold met	80%	96.73%
2	Quarterly contribution exemption applies in 2020 if threshold met	100%	92.77%
3	Plan is not at-risk for 2020 if the threshold for either the Prong 1 or Prong 2 test is met		
	- Prong 1 Test	80%	92.77%
	- Prong 2 Test	70%	N/A
4	PBGC 4010 filing may be required in 2020 if threshold is not met by every plan in the controlled group	80%	82.11%
5	Plan is exempt from creating a new Shortfall Amortization Base (SAB) for 2019 when prefunding balance is applied to the 2019 MRC if threshold met	100%	96.73%
6	Plan is exempt from creating a new SAB for 2019 when prefunding balance is not applied to the 2019 MRC if threshold met	100%	113.73%
7	Previously established SABs are eliminated for 2019 if threshold met	100%	92.77%

Benefit limitations

The Adjusted Funding Target Attainment Percentage (AFTAP) for the plan year beginning January 1, 2019 is 113.73%. This AFTAP may be changed by subsequent events.

Under the PPA, a plan may become subject to various benefit limitations if its AFTAP falls below certain thresholds.

If the AFTAP is below 60% (100%, calculated ignoring stabilized interest rates, if the plan sponsor is in bankruptcy), plans are prohibited from paying lump sums or other accelerated forms of distribution (such as Social Security level payment options). If the AFTAP is at least 60% but less than 80%, the amounts that can be paid are limited. In addition, lump sums to the 25 highest paid employees may be restricted if a plan's AFTAP is below 110%. These limitations do not apply to mandatory lump sum cash-outs of $5,000 or less. In addition, plans that were completely frozen before September 2005 are exempt from the restrictions on lump sums and other accelerated forms of distribution.

If the AFTAP is below 60%, benefit accruals must cease, amendments to improve benefits cannot take effect, and plant shutdown benefits and other Unpredictable Contingent Event Benefits (UCEBs) cannot be paid without being fully paid for. In addition, if the AFTAP would be below 80% reflecting a proposed amendment, the plan amendment cannot take effect unless actions are taken to increase plan assets.

To avoid these benefit limitations, a plan sponsor may take a variety of steps, including reducing the funding balances, contributing additional amounts to the plan for the prior plan year, contributing special "designated IRC §436 contributions" for the current plan year, or providing security outside the plan. Not all of these approaches are available for all of the restrictions discussed above. For example, restrictions on accelerated distributions cannot be avoided by making designated IRC §436 contributions.

As requested by American Electric Power Co. in your letter dated April 26, 2019, this report is intended to constitute a "specific certification" of the AFTAP, effective as of May 2, 2019, for the plan year beginning January 1, 2019 for the purpose of determining benefit restrictions under IRC §436 for the American Electric Power System Retirement Plan. This AFTAP certification is based on the data, methods, assumptions, plan provisions, annuity purchase information, and other information provided in this report. Please see the Appendices for additional information. Note that the AFTAP certification provided herein may be superseded by a subsequent AFTAP certification for the plan year beginning January 1, 2019. Please see Section 4 for a discussion of the implications of this certified AFTAP.

PBGC reporting requirements

Certain financial and actuarial information (i.e., a “4010 filing”) must be provided to the PBGC if the PBGC Funding Target Attainment Percentage (PBGC FTAP) is less than 80% for any plan in the contributing sponsor’s controlled group. However, this reporting requirement may be waived for controlled groups with no more than $15 million in aggregate funding shortfall (PBGC 4010 FS), or with fewer than 500 participants in all defined benefit plans. Note that interest rate stabilization does not apply for purposes of determining the PBGC FTAP or the PBGC 4010 FS.

The 2019 PBGC FTAP is 82.11%. In addition, we understand that all other pension plans within the Company’s controlled group also have PBGC FTAPs of at least 80%. As a result, no 4010 filing is expected to be required for 2019 as a result of the plans’ funded status. However, the only plans we have considered in this analysis are American Electric Power System Retirement Plan; if there are other plans within the controlled group, a filing may be required.

At-Risk status for determining minimum required contributions

The plan is not in at-risk status, as defined in the PPA, for the 2019 plan year, because the plan’s FTAP for the 2018 plan year was at least 80%, and/or the plan’s FTAP measured using “at-risk assumptions” was at least 70%.

The plan will not be in at-risk status, as defined in the PPA, for the 2020 plan year, because the plan’s FTAP for the 2019 plan year is at least 80%, and/or the plan’s FTAP measured using “at-risk assumptions” is at least 70%.

When a plan is in at-risk status as defined in the PPA*:*

The plan is subject to potentially higher minimum contribution requirements. The funding target and target normal cost for purposes of determining the minimum required contribution must be measured reflecting certain mandated assumptions (“at-risk assumptions”). Specifically, participants eligible to retire within the next 11 years must be assumed to retire immediately when first eligible (but not before the end of the current year, except in accordance with the regular valuation assumptions), and all participants must be assumed to elect the most valuable form of payment available when they begin receiving benefits. In addition, plans that have been at-risk in past years may also be required to increase the funding target and target normal cost for prescribed assumed expenses. The net effect of these assumptions and expense adjustments in most cases is to increase required contributions and PBGC variable premiums.

The plan sponsor must indicate in the annual funding notice for the plan that the plan is at-risk and disclose additional at-risk funding targets.

Immediate taxation of non-qualified pension or deferred compensation for certain employees may occur if the plan sponsor is a public company. This may result when non-qualified pension or deferred compensation for such employees is funded during a period when a plan sponsored by the plan sponsor or another member of the plan sponsor's controlled group is in at-risk status.

Pension cost and funded position

The cost of the pension plan is determined in accordance with ASC 715. The Fiscal 2019 pension cost for the plan is $56,971,973.

Under ASC 715, the funded position (fair value of plan assets less the projected benefit obligation, or "PBO") of each pension plan at the plan sponsor's fiscal year-end (measurement date) is required to be reported as an asset (for overfunded plans) or a liability (for underfunded plans). The PBO is the actuarial present value of benefits attributed to service rendered prior to the measurement date, taking into consideration expected future pay increases for pay-related plans. The plan's overfunded/(underfunded) PBO as of January 1, 2019 was $(76,029,696), based on the fair value of plan assets of $4,701,727,981 and the PBO of $4,777,757,677.

Fiscal year-end financial reporting information and disclosures are prepared before detailed participant data and full valuation results are available. Therefore, the funded position at December 31, 2018 was derived from a roll forward of the January 1, 2018 valuation results, adjusted for the year-end discount rate, changes in other key assumptions and asset values, as well as significant changes in plan provisions and participant population. The fiscal year-end December 31, 2019 financial reporting information will be developed based on the results of the January 1, 2019 valuation, projected to the end of 2019 and similarly adjusted for the year-end discount rate and asset values, as well as significant changes in plan provisions and participant population.

The actuarial gains/(losses) due to demographic experience, including any assumption changes, and investment return different from assumed during the prior year were $290,501,490 and $(392,353,316) respectively.

Change in pension cost and funded position

The pension cost declined from $75,547,803 in fiscal 2018 to $56,971,973 in fiscal 2019 and the funded position declined from $24,440,247 to $(76,029,696), as set forth below:

All monetary amounts shown in US Dollars

	Net Periodic Cost	Funded Status
Prior year	75.5	24.4
Change due to:		
▸ Expected based on prior valuation and contributions during prior year	(10.3)	17.3
▸ Unexpected noninvestment experience	4.1	(20.3)
▸ Unexpected investment experience	12.1	(419.9)
▸ Assumption changes	(12.6)	322.5
▸ Change in expected return on asset assumption	(11.8)	0
▸ Plan amendments	0	0
▸ Settlements, curtailments, certain termination benefits	0	0
▸ Acquisitions	0	0
▸ Method changes	0	
▸ Changes in estimation techniques		
Current year	57.0	(76.0)

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 expected, which increased the pension cost and caused the funded position to deteriorate.
- The discount rate increased 65 basis points compared to the prior year, which decreased the pension cost and improved the funded position.
- The expected long-term rate of return on plan assets increased from 6.00% to 6.25%, which decreased the pension cost.
- The lump sum conversion rate increased from 3.40% to 3.90%, which increased the pension cost and caused the funded position to deteriorate.
- The mortality used to convert 417(e) based forms of payment was updated, which decreased the pension cost and caused the funded position to deteriorate.
- The mortality improvement projection was updated, which decreased the pension cost and improved the funded position.
- Demographic experience was less favorable than expected, which increased the pension cost and caused the funded position to deteriorate.

Basis for valuation

Appendix A summarizes the assumptions and methods used in the valuation. Appendix B summarizes 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.

Changes in assumptions

The discount rate increased from 3.65% to 4.30%.

The lump sum conversion rate for accounting purposes increased from 3.40% to 3.90%.

The expected long-term rate of return on plan assets increased from 6.00% to 6.25%.

The mortality improvement projection for accounting purposes was updated to MP-2018, adjusted to reflect 75% of the long-term improvement rates.

The mortality used to convert 417(e) based forms of payment reflects the updated mortality tables provided in final regulations under IRC §430 issued in October 2018 for funding and accounting purposes. For accounting purposes there is static projection to commencement using MP-2018.

The mortality improvement projection for accounting purposes was updated to MP-2018, adjusted to reflect 75% of the long-term improvement rates.

For funding purposes, the mortality assumption reflects the mortality tables provided in the final regulations under IRC §430 issued in October 2017.

Changes in methods

None.

Changes in estimation techniques

None.

Changes in benefits valued

None.

Subsequent events

None.

Additional information

None.

Actuarial certification

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

Reliances

In preparing the results presented in this report, we have relied upon information regarding plan provisions, participants, plan assets and sponsor elections provided by AEP and other persons or organizations designated by AEP. See the Sources of Data and Other Information section in Appendix A for further information. In addition, the results in this report are dependent on contributions reported for the prior plan year and maintenance of funding balance elections after the valuation date.

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.

We have relied on all the information provided as complete and accurate. 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 information regarding contributions or funding balance elections provided to us may have produced results that are not suitable for the purposes of this report and such inaccuracies, as corrected by AEP, may produce materially different results that could require that a revised report be issued.

Assumptions and methods under ERISA and the Internal Revenue Code for funding purposes

The plan sponsor selected, as prescribed by regulation, key assumptions and funding methods (including the mortality assumption, asset valuation method and the choice among prescribed interest rates) employed in the development of the contribution amounts and communicated them to us in the letter dated April 26, 2019.

To the extent not prescribed by ERISA, the Internal Revenue Code and regulatory guidance from the Treasury and the IRS, or selected by the sponsor, the actuarial assumptions and methods employed in the development of the contribution amounts have been selected by Willis Towers Watson, with the concurrence of the plan sponsor. It is beyond the scope of this actuarial valuation to analyze the reasonableness and appropriateness of prescribed methods and assumptions, or to analyze other sponsor elections from among the alternatives available for prescribed methods and assumptions.

Other than prescribed assumptions, ERISA and the Internal Revenue Code require the use of assumptions each of which is "reasonable (taking into account the experience of the plan and reasonable expectations), and which, in combination, offer the actuary's best estimate of anticipated experience under the plan." The results shown in this report have been developed based on actuarial assumptions that, to the extent evaluated or selected by Willis Towers Watson, we consider to be reasonable. Other actuarial assumptions could also be considered to 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 2019 plan year will change the results shown in this report and could result in plan qualification issues under IRC §436 if the application of benefit restrictions is affected by the change.

Assumptions and methods under U.S. GAAP

As required by U.S. GAAP, the actuarial assumptions and methods employed in the development of the pension cost have been selected by the plan sponsor. Willis Towers Watson has concurred with these assumptions and methods, except for the expected rate of return on plan assets selected as of January 1, 2019. Evaluation of the expected return assumption was outside the scope of Willis Towers Watson's assignment and would have required substantial additional work that we were not engaged to perform. U.S. GAAP requires that each significant assumption "individually represent the best estimate of a particular future event."

The results shown in this report have been developed based on actuarial assumptions that, to the extent evaluated by Willis Towers Watson, we consider to be reasonable. Other actuarial assumptions could also be considered to 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, 2019 measurement date will change the results shown in this report.

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 in consultation with American Electric Power Co.'s tax advisors and auditors.

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 or contribution requirements 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) or additional contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. It is beyond the scope of this valuation to analyze the potential range of future pension contributions, but we can do so upon request. See Appendix C for disclosures required under ASOP No. 51 of significant risks related to the plan.

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 Masters 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 American Electric Power Co. and its auditors and any organization that provides benefit administration services for the plan, in connection with our actuarial valuation of the pension 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. American Electric Power Co. may distribute this actuarial valuation report to the appropriate authorities who have the legal right to require American Electric Power Co. to provide them this report, in which case American Electric Power Co. will use best efforts to notify Willis Towers Watson in advance of this distribution. Further distribution to, or use by, other parties of all or part of this report is expressly prohibited without Willis Towers Watson's prior written consent. Willis Towers Watson 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 consulting actuaries 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 pension plans. Our objectivity is not impaired by any relationship between American Electric Power Co. and our employer, Willis Towers Watson US LLC.

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Director, Retirement – Valuation Actuary
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May 2, 2019

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May 2, 2019

http://natct.internal.towerswatson.com/clients/604598/AEP2019Valuations/Documents/2019%20Qualified%20Report.docx

Section 2: Actuarial exhibits

2.1 Summary of liabilities for minimum funding purposes

All monetary amounts shown in US Dollars

Plan Year Beginning	01/01/2019	01/01/2018
A Funding Target (Disregarding At-risk Assumptions)		
1 Funding target	4,247,381,107	4,128,670,979
2 Target normal cost[1]	94,230,563	92,185,812
B Funding Target (At-risk Assumptions)		
1 Funding target	N/A	N/A
2 Target normal cost	N/A	N/A
C Funding Target		
1 Number of consecutive years at-risk	0	0
2 Funding target		
a Active employees – non-vested benefits [2]	26,023,193	17,740,811
b Active employees – vested benefits [2]	1,670,099,436	1,663,602,223
c Participants with deferred benefits	221,963,761	225,854,745
d Participants receiving benefits	2,329,294,717	2,221,473,200
e Total funding target	4,247,381,107	4,128,670,979
3 Target normal cost	94,230,563	92,185,812

[1] Includes administrative expenses
[2] See section 2.8 for definition of vested benefits.

2.2 Change in plan assets during plan year

All monetary amounts shown in US Dollars

Plan Year Beginning			January 1, 2018
A	**Reconciliation of Market Value of Plan Assets**		
	1	Market value of plan assets at January 1, 2018 (including discounted contributions receivable)	5,183,145,851
	2	Discounted contributions receivable at January 1, 2018	0
	3	Market value of plan assets at January 1, 2018 (excluding contributions receivable)	5,183,145,851
	4	Employer contributions	
		a For prior plan year	0
		b For current plan year	0
		c IRC §436 contributions for current plan year	0
		d Total	0
	5	Employee contributions	0
	6	Benefit payments	(373,405,633)
	7	Administrative expenses paid by plan	(6,093,527)
	8	Transfers from/(to) other plans	0
	9	Investment return	
		a Interest and dividends	0
		b Investment expenses	0
		c Realized gains/(losses)	0
		d Change in unrealized appreciation	(101,918,710)
		e Total	(101,918,710)
	10	Market value of plan assets at January 1, 2019 (excluding contributions receivable)	4,701,727,981
	11	Discounted contributions receivable at January 1, 2019	0
	12	Market value of plan assets at January 1, 2019 (including discounted contributions receivable)	4,701,727,981
B	**Rate of Return on Invested Plan Assets (i.e., for crediting unused funding balances)**		
	1	Weighted invested plan assets	4,993,396,270
	2	Rate of return	(2.04%)

2.3 Development of actuarial value of plan assets

AEP elected a smoothing method that uses seven monthly data points to calculate the AVA.

All monetary amounts shown in US Dollars

Plan Year Beginning				January 1, 2019
Development of AVA				
Month	Expenses	Benefit Payments	Contributions	Fair Value at Beginning of Month
July 2018	294,773	30,537,409	0	4,950,478,901
August 2018	71,248	30,804,697	0	4,965,012,932
September 2018	50,909	27,356,137	0	4,962,307,242
October 2018	2,800,210	30,465,464	0	4,912,488,803
November 2018	888,856	27,414,534	0	4,735,030,019
December 2018	479,159	31,991,817	0	4,740,028,321

AVA with receivables

A	**Preliminary Actuarial Value of Assets before Corridor as of January 1, 2019**		
	1 Monthly asset values adjusted for expenses and benefit payments rolled forward to January 1, 2019		
		Month	**Asset value**
	a	July 2018	4,908,882,725
	b	August 2018	4,930,302,308
	c	September 2018	4,934,455,402
	d	October 2018	4,888,023,133
	e	November 2018	4,720,080,156
	f	December 2018	4,730,471,619
	g	January 2019	4,701,727,981
	h	Average of monthly asset values	4,830,563,331
	2 Preliminary Actuarial Value of Assets and before application of corridor		4,830,563,331
B	Lower Bound of Corridor (90% of A12 from prior page)		4,231,555,184
C	Upper Bound of Corridor (110% of A12 from prior page)		5,171,900,779
D	**Actuarial Value of Assets as of January 1, 2019 (A2 but not smaller than B nor larger than C)**		4,830,563,331

2.4 Calculation of minimum required contribution

All monetary amounts shown in US Dollars

Reconciliation of Funding Balances as of January 1, 2019	Funding Standard Carryover Balance	Prefunding Balance	Total
A Determination of Funding Balances			
1 Funding balance as of January 1, 2018	171,963,260	736,782,750	908,746,010
2 Amount used to offset prior year minimum required contribution[1]	0	0	0
3 Adjustment for investment experience	(3,508,051)	(15,030,368)	(18,538,419)
4 Amount of additional prefunding balance created by election	N/A	0	0
5 Amount of funding balance reduction for current year by election or deemed election	0	0	0
6 Funding balance as of January 1, 2019	168,455,209	721,752,382	890,207,591

Plan Year Beginning	January 1, 2019
B Calculation of Minimum Required Contribution	
1 Target normal cost	94,230,563
2 Funding surplus	0
3 Net shortfall amortization installment (see section 2.5)	0
4 Waiver amortization installment	0
5 Minimum required contribution	94,230,563
6 Funding balance available	890,207,591
7 Remaining cash requirement (assuming sponsor elects full use of the available funding balances)	0

The minimum required contribution is determined as of the plan's valuation date. Any payment made on a date other than the valuation date must be adjusted for interest using the plan's effective interest rate of 5.43%.

Additional details regarding the calculation of the minimum required contribution may be obtained from the Form 5500 Schedule SB forms and attachments.

[1] Net of revoked excess application of funding balance, if any.

2.5 Schedule of minimum funding amortization bases

All monetary amounts shown in US Dollars

Type of Base	Date Established	Remaining Amortization Period (Years)	Outstanding Balance	Amortization Payment
Total			0	0

2.6 Calculation of estimated maximum deductible contribution

All monetary amounts shown in US Dollars

Based on Plan Year		2019
A	**Basic Maximum**	
	1 Funding target	4,247,381,107
	2 Target normal cost	94,230,563
	3 Actuarial value of plan assets	4,830,563,331
	4 50% of funding target	2,123,690,554
	5 Additional funding target for future compensation or benefit increases	129,755,683
	6 Basic maximum deductible contribution	1,764,494,576
B	**At-risk Maximum**[1]	
	1 Funding target (at-risk assumptions)	N/A
	2 Target normal cost (at-risk assumptions)	N/A
	3 Actuarial value of plan assets	N/A
	4 At-risk maximum deductible contribution	N/A
C	**Minimum Required Contribution**	94,230,563
D	**Estimated Maximum Deductible Contribution**	1,764,494,576

The estimated maximum deductible contribution applies to the tax year in which the plan year ends, and is based on our understanding of IRC §404(a)(1). No regulatory guidance has been provided by the IRS/Treasury. Allocations of costs to inventory have not been considered, and amounts deductible for state income tax purposes may differ. Deductibility can be influenced by timing of contributions, differences between fiscal year and plan year, and differences (if any) between the years to which prior contributions were assigned for minimum funding purposes and the years in which they were deducted. Our results have not been adjusted for non-deducted contributions included in the valuation assets, nor is it clear that such adjustment is appropriate post-PPA. We recommend the plan sponsor review with tax counsel the tax-deductibility of all contributions as Willis Towers Watson does not provide legal or tax advice.

The calculation above reflects stabilized interest rates (including their effect on at-risk status), which is not required in determining the maximum deductible contribution. Not reflecting such corridors would likely result in a higher maximum deductible amount, but would require substantial additional work that may not be of value to the Company. We can discuss not reflecting the corridors if the Company wishes to consider contributions in excess of the estimated maximum amount above.

In addition, the actuarial value of plan assets shown is the same as used for determining the minimum required contribution. Thus contributions receivable (if any) are discounted at stabilized rates, and the limit on the expected return on assets reflected in asset smoothing (if applicable) is the 3rd segment

1 At-risk maximum applies only for plans not in at-risk status for purposes of determining maximum deductible contributions for the plan year.

rate, reflecting stabilized rates as expressly allowed by IRS Notice 2012-61 when the stabilized 3rd segment rate is higher than the rate ignoring the corridors.

This limit has been determined without regard to the special rule of IRC §404(o)(2)(B) providing a potentially higher maximum deduction based on at-risk assumptions, which is available for plans that are not at risk.

2.7 Calculation of PBGC variable rate premium

All monetary amounts shown in US Dollars

Premium Payment Year			2019
A	**Assumptions and Methods Used to Determine Premium Funding Target**		
	1	Premium funding target method	Standard
	2	Premium funding target method election date	January 1, 2014
	3	UVB valuation date	January 1, 2019
	4	Discount rates	
		a First segment rate [10-year rate]	3.38%
		b Second segment rate [20-year rate]	4.32%
		c Third segment rate [30-year rate]	4.69%
B	**Premium Funding Target**		
	1	Attributable to active participants	1,811,962,374
	2	Attributable to terminated vested participants	244,555,702
	3	Attributable to retirees and beneficiaries receiving payment	2,527,109,645
	4	Total premium funding target[1]	4,583,627,721
C	**Market Value of Plan Assets**		4,701,727,981
D	**Unfunded Vested Benefits**		0
E	**Uncapped Variable Rate Premium[2]**		0
F	**Maximum VRP[3]**		18,992,887
G	**Variable Rate Premium**		0

[1] Reflects at-risk status, if applicable.
[2] Using variable rate premium of $43 per $1,000 of unfunded vested benefits.
[3] Using maximum per-participant premium of $541.

2.8 ASC 960 (plan accounting) information

All monetary amounts shown in US Dollars

Plan Year Beginning	January 1, 2019
A Present Value of Accumulated Benefits	
1 Vested accumulated benefits	
a Active employees	1,464,343,630
b Participants with deferred benefits	206,921,731
c Participants receiving benefits	2,152,817,093
d Total vested accumulated benefits	3,824,082,454
2 Non-vested accumulated benefits	23,766,719
3 Total accumulated benefits	3,847,849,173
4 Market value of plan assets[1]	4,701,727,981
B Reconciliation of Present Value of Accumulated Benefits	
1 Present value of accumulated benefits as of December 31, 2017	3,970,740,002
2 Changes during the year due to:	
a Benefits accumulated	65,008,243
b Actuarial (gains)/losses	30,729,926
c Decrease in the discount period	231,105,899
d Actual benefits paid	(373,405,633)
e Assumption changes	(76,329,264)
f Plan amendments	0
g Net increase/(decrease)	(122,890,829)
3 Present value of accumulated benefits as of December 31, 2018	3,847,849,173

Actuarial Assumptions and Methods

The assumptions used to develop the present value of accumulated benefits, including any changes from the prior year, are described in Appendix A, except a discount rate of 6.25% was used. For the prior valuation, a discount rate of 6.00% was used.

The discount rate used is the same as the expected rate of return on plan assets for the plan year under ASC 715-30-35 and, as required by that standard and further discussed in the Actuarial Certification of this report, was selected by the plan sponsor without using the work of Willis Towers Watson. Evaluation of this assumption was outside the scope of Willis Towers Watson's assignment and would have required substantial additional work that we were not engaged to perform. 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

1 Assets include accrued contributions for the 2018 plan year of $0 not yet deposited at January 1, 2019.

expected changes during the current plan year, current market conditions and the plan sponsor's expectations for future market conditions.

Plan Provisions

Plan provisions reflected in these calculations, including any changes during the prior year, are described in Appendix B.

Accumulated and Vested Benefits

Accumulated benefits include benefits earned under the plan's benefit formula based on service rendered and compensation earned before the measurement date.

Benefits included in vested benefits are the same as described above for accrued benefits, except the following benefits are excluded:

- For participants who are not disabled on the measurement date, disability benefits in excess of the value of standard termination benefits (retirement benefits for those eligible).
- For participants who have not yet satisfied the eligibility requirements for these benefits, early retirement benefits and supplements in excess of standard termination benefits.
- Death benefits in excess of the plan's QPSA.
- All benefits for participants who are not yet vested in their accrued benefits or eligible for other benefits.

2.9 Pension obligations and funded position under U.S. GAAP (ASC 715)

All monetary amounts shown in US Dollars

Measurement Date			01/01/2019	01/01/2018
A	**Obligations**			
	1	Accumulated Benefit Obligation (ABO)		
		a. Active participants	1,838,423,350	2,031,202,993
		b. Participants with deferred benefits	246,044,345	273,590,987
		c. Participants receiving benefits	2,513,467,409	2,661,284,940
		d. Total	4,597,935,104	4,966,078,920
	2	Future salary increases	179,822,573	192,626,684
	3	Projected benefit obligation (PBO)	4,777,757,677	5,158,705,604
B	**Plan Assets**			
	1	Fair value [FV] [1]	4,701,727,981	5,183,145,851
	2	Investment losses/(gains) not yet in market-related value	170,705,185	(212,466,560)
	3	Market-related value	4,872,433,166	4,970,679,291
C	**Funded Position**			
	1	Overfunded/(underfunded) PBO	(76,029,696)	24,440,247
	2	PBO funded percentage	98.4%	100.5%
D	**Amounts in Accumulated Other Comprehensive Income**			
	1	Prior service cost/(credit)	0	9,691
	2	Net actuarial loss/(gain)	1,356,290,606	1,331,358,775
	3	Total	1,356,290,606	1,331,368,466
E	**Key Assumptions**			
	1	Discount rate	4.30%	3.65%
	2	Rate of compensation increase	Rates vary by age from 3.5% to 12.0%	Rates vary by age from 3.5% to 12.0%
F	**Census Date**		01/01/2019	01/01/2018

The results above may differ from the amounts reported in AEP's December 31, 2018 financial statements because year-end financial reporting is prepared before the corresponding valuation results are available.

[1] Excludes receivable contributions.

2.10 Changes in plan benefit obligations and assets

All monetary amounts shown in US Dollars

Period Beginning		01/01/2019	01/01/2018
A	**Change in Projected Benefit Obligation (PBO)**		
1	PBO at beginning of prior fiscal year	5,158,705,604	5,026,555,852
2	Employer service cost	97,644,207	96,356,122
3	Interest cost	185,314,989	200,421,010
4	Actuarial loss/(gain)	(290,501,490)	181,860,317
5	Plan participants' contributions	0	0
6	Benefits paid from plan assets	(373,405,633)	(346,487,697)
7	Administrative expenses paid [1]	0	0
8	Plan change	0	0
9	Acquisitions/divestitures	0	0
10	Curtailments	0	0
11	Settlements	0	0
12	Special/contractual termination benefits	0	0
13	PBO at beginning of current fiscal year	4,777,757,677	5,158,705,604
B	**Change in Plan Assets**		
1	Fair value of plan assets at beginning of prior fiscal year	5,183,145,851	4,831,883,160
2	Actual return on plan assets	(101,918,710)	610,778,798
3	Employer contributions	0	94,327,000
4	Plan participants' contributions	0	0
5	Benefits paid	(373,405,633)	(346,437,286)
6	Administrative expenses paid	(6,093,527)	(7,405,821)
7	Acquisitions/divestitures	0	0
8	Settlements	0	0
9	Fair value of plan assets at beginning of current fiscal year	4,701,727,981	5,183,145,851

[1] Only if future expenses are accrued in PBO through a load on service cost.

2.11 Pension cost under U.S. GAAP (ASC 715)

All monetary amounts shown in US Dollars

Fiscal Year Ending		12/31/2019	12/31/2018
A	**Pension Cost**		
1	Service cost	95,529,411	97,644,207
2	Interest cost	201,754,331	185,314,989
3	Expected return on plan assets	(296,187,273)	(290,434,606)
4	Net prior service cost/(credit) amortization	0	9,691
5	Net loss/(gain) amortization/recognition	55,875,504	83,013,522
6	Net periodic pension cost/(income)	56,971,973	75,547,803
7	Curtailments	0	0
8	Settlements	0	0
9	Special/contractual termination benefits	0	0
10	Total pension cost	56,971,973	75,547,803
B	**Key Assumptions**[1]		
1	Discount rate	4.30%	3.65%
2	Expected long-term rate of return on plan assets	6.25%	6.00%
3	Rate of compensation increase	Rates vary by age from 3.5% to 12.0%	Rates vary by age from 3.5% to 12.0%
C	**Census Date**	01/01/2019	01/01/2018

[1] These assumptions were used to calculate Net Periodic Pension Cost/(Income) as of the beginning of the year. For other assumptions used, as well as assumptions used for interim remeasurements, if any, refer to Appendix A.

2.12 Development of market-related value of plan assets under U.S. GAAP (ASC 715)

All monetary amounts shown in US Dollars

Fiscal Year Ending			12/31/2019
Market-Related Value of Plan Assets as of January 1, 2019			
1 Fair value of plan assets as of January 1, 2019			4,701,727,981
2 Deferred investment (gains)/losses for prior periods			
Fiscal Year	**(Gain)/Loss**	**Percent Deferred**	**Deferred Amount**
a 2019	407,961,992	80%	326,369,593
b 2018	(320,802,104)	60%	(192,481,262)
c 2017	(43,253,828)	40%	(17,301,531)
d 2016	270,591,925	20%	54,118,385
e Total			170,705,185
3 Market-Related Value of Plan Assets			4,872,433,166

2.13 Summary of net prior service cost/(credit) balances

All monetary amounts shown in US Dollars

Measurement Date Established	Original Amount	Net Amount at prior financial year end	Remaining Amortization Period	Amortization Amount	Effect of Curtailments	Other Events
Total		0		0	0	0

Summary of Net Loss/(Gain)[1]

	Net Amount at 01/01/2019	Amortization Amount in 2019	Effect of Curtailments	Effect of Settlements	Other Events
	1,356,290,606	55,875,504	0	0	0

[1] See Appendix A for description of amortization method.

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Section 3: Participant data

3.1 Summary of participant data

All monetary amounts shown in US Dollars

Census Date		01/01/2019	01/01/2018
A	**Active Employees**		
	1 Number	16,673	16,796
	2 Expected plan compensation for year beginning on the valuation date (limited by IRC §401(a)(17))	1,775,657,486	1,746,239,935
	3 Average plan compensation	106,499	103,966
	4 Average age	47.5	47.8
	5 Average credited service	17.33	17.8
	6 Average future working life (years)	12.498	12.383
B	**Participants with Deferred Benefits**		
	1 Number (non-cash balance)	1,295	1,386
	2 Total annual pension (non-cash balance)	6,912,113	7,552,003
	3 Average annual pension (non-cash balance)	5,338	5,449
	4 Number of Cash Balance	2,240	2,210
	5 Total cash balance	172,223,945	176,406,575
	6 Average cash balance	76,886	79,822
	7 Average age	52.9	54.3
	8 Distribution at January 1, 2019		

Non-Cash Balance	Age	Number	Annual Pension
	Under 40	1	423
	40-44	0	0
	45-49	25	96,711
	50-54	229	1,057,595
	55-59	514	2,848,277
	60-64	438	2,589,129
	65 and over	88	319,978
	Total	1,295	6,912,113

Cash Balance	Age	Number	Annual Pension
	Under 40	552	10,834,152
	40-44	229	7,399,407
	45-49	243	11,854,121
	50-54	364	25,279,759
	55-59	424	46,423,317
	60-64	325	49,390,092
	65 and over	103	21,043,097
	Total	2,240	172,223,945

C Participants Receiving Benefits

1	Number	15,206	15,255
2	Total annual pension	228,688,396	227,422,085
3	Average annual pension	15,039	14,908
4	Average age	75.5	75.2
5	Distribution at January 1, 2019		

Age	Number	Annual Pension
Under 55	50	291,747
55-59	328	4,500,513
60-64	1,506	26,767,413
65-69	2,791	45,921,317
70-74	3,253	52,037,669
75-79	2,412	29,899,944
80-84	2,176	31,566,276
85 and over	2,690	37,703,517
Total	15,206	228,688,396

3.2 Participant reconciliation

		Active	Deferred Inactive	Currently Receiving Benefits	Total
1	Included in January 1, 2018 valuation	16,796	3,596	15,255	35,647
2	Change due to:				
a	New hire and rehire	1,235	(9)	0	1,226
b	Non-vested termination	(107)	0	0	(107)
c	Vested termination	(331)	331	0	0
d	Retirement	(276)	(135)	441	0
e	Disability	(10)	0	10	0
f	Death without beneficiary	(25)	(11)	(424)	(460)
g	Death with beneficiary	0	0	(234)	(234)
h	New beneficiary	0	0	257	257
i	Cashout	(602)	(221)	(41)	(864)
j	Miscellaneous[1]	(7)	(16)	(28)	(51)
k	Net change	(123)	(61)	(49)	(233)
3	Included in January 1, 2019 valuation[2,3]	16,673	3,535	15,206	35,414

[1] Includes adjustments for prior omissions and data corrections.
[2] The deferred inactive count includes 47 CSW participants that are still active at AEP and assumed to be owed a benefit.
[3] The currently receiving benefits count includes 260 alternate payees with QRDOs.

3.3 Age and service distribution of participating employees

Number distributed by attained age and attained years of credited service

Attained Age	Years Of Credited Service														
	Under 1			1 to 4			5 to 9			10 to 14			15 to 19		
		Average			Average			Average			Average			Average	
	No.	Comp.	Cash Bal.	No.	Comp.	Cash Bal.	No.	Comp.	Cash Bal.	No.	Comp.	Cash Bal.	No.	Comp.	Cash Bal.
Under 25				318	68,876	3,830	7								
25 to 29				912	73,753	5,981	255	85,681	15,647	15					
30 to 34				813	80,026	7,353	433	92,886	20,704	386	101,422	37,088	7		
35 to 39				607	83,643	8,511	376	91,161	24,025	764	104,160	46,132	189	105,558	64,419
40 to 44				383	85,516	10,449	271	92,855	28,487	652	103,828	53,953	354	116,914	81,040
45 to 49				312	90,345	12,887	216	98,726	32,694	518	103,254	61,354	355	122,050	99,872
50 to 54				216	98,396	13,710	151	96,768	39,284	366	105,512	70,128	280	118,643	114,226
55 to 59				176	91,278	16,842	108	92,581	42,239	279	104,104	79,897	222	115,736	126,877
60 to 64				80	91,928	19,732	76	90,604	43,401	142	105,661	88,897	121	119,810	144,668
65 to 69				16			25	96,529	49,044	35	91,117	84,573	34	121,912	160,236
70 & Over				3			6			11			13		

Attained Age	Years Of Credited Service														
	20 to 24			25 to 29			30 to 34			35 to 39			40 & up		
		Average			Average			Average			Average			Average	
	No.	Comp.	Cash Bal.	No.	Comp.	Cash Bal.	No.	Comp.	Cash Bal.	No.	Comp.	Cash Bal.	No.	Comp.	Cash Bal.
Under 25															
25 to 29															
30 to 34															
35 to 39	7														
40 to 44	127	108,710	87,609	2											
45 to 49	285	114,908	108,918	144	127,486	140,752	6								
50 to 54	276	115,673	128,165	491	121,355	153,095	385	118,787	163,371	29	100,236	160,644			
55 to 59	249	109,945	134,688	357	112,352	158,425	820	120,221	179,033	783	120,074	186,098	63	104,837	186,007
60 to 64	116	94,345	136,072	207	108,600	169,417	370	110,540	181,608	654	120,776	205,250	456	114,883	199,651
65 to 69	17			30	98,451	164,543	45	114,396	187,639	87	115,132	203,138	132	118,944	204,632
70 & Over	1			5			6			8			12		

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Section 4: Adjusted Funding Target Attainment Percentage (AFTAP)

American Electric Power Co. ("AEP") retained Willis Towers Watson US LLC ("Willis Towers Watson") to perform a valuation of its pension plan for the purpose of measuring the plan's AFTAP for the plan year beginning January 1, 2019 in accordance with ERISA and the Internal Revenue Code. This valuation has been conducted in accordance with generally accepted actuarial principles and practices.

The enrolled actuaries making this certification are members of the Society of Actuaries and other professional actuarial organizations and meet their "Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States."

We hereby certify that the plan's AFTAP for the plan year beginning January 1, 2019 is 113.73%. This percentage is based on the assumptions, participant data, and plan provisions we relied upon to prepare the results shown in this report, reflects the valuation limitations discussed in this report and is also based on the following additional information:

Annuity Purchases

AEP's representation is that there were no annuity purchases made for non-highly compensated employees by the plan in the plan years beginning in 2017 and 2018.

Funding Balances

Our understanding is that American Electric Power Co. has not elected to reduce the plan's funding balance as of the first day of the 2019 plan year.

Our understanding is that the plan is not subject to a deemed election to reduce the funding balances in 2019.

Our understanding is that American Electric Power Co. has not elected to apply any of the plan's funding balances to the 2019 minimum required contribution.

Our understanding is that American Electric Power Co. has not elected to increase the prefunding balance as of the first day of the 2019 plan year.

Contributions

Our understanding is that American Electric Power Co. has not made any employer contributions after December 31, 2018 and before May 2, 2019 for the 2018 plan year.

Subsequent Events

There were no plan amendments that took effect in the current plan year that were taken into account for the current plan year's AFTAP certification.

There were no unpredictable contingent event benefits (UCEBs) that took effect in the current plan year that were taken into account for the current plan year's AFTAP certification.

There were no previously suspended accruals restored during the current plan year that were taken into account for the current plan year's AFTAP certification.

Elections

Our understanding of sponsor elections required under the Pension Protection Act of 2006 (PPA) , with respect to interest rates, Actuarial Value of Plan Assets and other methods and/or assumptions, as confirmed in the Sponsor's letter dated April 26, 2019.

In making this certification, we relied on asset, contribution, funding balance election, and annuity purchase information provided by the Company, including dates and amounts of contributions made to the plan through the date of this certification, dates and amounts of funding balance elections by the Company through the date of this certification, and amounts of annuity purchases in the past two years, as shown above. We have reviewed this information for overall reasonableness and consistency but, consistent with the scope of our engagement, have neither audited nor independently verified this information. We do not certify to the accuracy or completeness of asset, contribution, funding balance election and annuity purchase information, and this certification relies on and is contingent on the accuracy and completeness of this information.

The development of the AFTAP is shown below:

All monetary amounts shown in US Dollars

Plan Year Beginning	01/01/2019
Actuarial value of plan assets as of January 1, 2019[1]	4,830,563,331
Funding standard carryover balance at January 1, 2019[2]	168,455,209
Prefunding balance at January 1, 2019[2]	721,752,382
Funding target (disregarding at-risk assumptions)	4,247,381,107
AVA/funding target (disregarding at-risk assumptions)	113.73%
Plan assets for AFTAP calculation[3]	4,830,563,331
Annuity purchases for NHCEs during 2017 and 2018	0
Reflection of Post-Valuation Date Events not Previously Reflected	
Increase in funding target (disregarding at-risk assumptions) for 2019 amendments/UCEBs/restored accruals[4]	0
IRC §436 contributions made to enable plan amendments/UCEBs/restored accruals to take effect[5]	0
Adjusted funding target, disregarding at-risk assumptions (includes NHCE annuity purchases for the prior two years and post-valuation date amendments)	0
Adjusted plan assets (includes NHCE annuity purchases for the prior two years and post-valuation date IRC §436 contributions)	0
Specific AFTAP	
Adjusted Funding Target Attainment Percentage (AFTAP)	**113.73%**

1 Reflects discounted contributions made for the 2018 plan year only if paid on or before the certification date. Includes security posted by the beginning of the plan year in the form of a bond or cash held in escrow.
2 Reflects elections made to-date (other than elections to apply the funding balances to 2019 MRC).
3 AVA if AVA/Funding Target (disregarding at-risk assumptions) >=100%; otherwise (AVA-funding balances).
4 If amendments/UCEBs/restored accruals (i) took effect before this specific certification, (ii) were not reflected in the funding valuation and (iii) require AFTAP recertification, or if AFTAP recertification is not required but the plan sponsor decides to reflect the amendment/UCEBs/restored accruals in the specific AFTAP certification.
5 Discounted to January 1, 2019 using the 2019 plan year effective interest rate.

Immediate Implications of AFTAP Certification

We believe that the certified AFTAP of 113.73% for the 2019 plan year has the following implications for benefit limitations described in IRC §436. American Electric Power Co. should review these conclusions with ERISA counsel:

Benefit accruals called for under the plan without regard to IRC §436 must continue.

Accelerated distributions called for under the plan without regard to IRC §436 must continue in full.

Amendments that increase benefits must be evaluated at the time they would take effect to determine if they are permissible.

Plant shutdown and other UCEBs must be evaluated at the time they would take effect to determine if they are permissible.

Implications of 2019 AFTAP for Presumptions in Next Plan Year

Because the AFTAP for the 2019 plan year is at least 90%, the presumed AFTAP for 2020 will remain equal to the 2019 certified AFTAP, and changes in benefit restrictions will not occur, before the 2020 AFTAP is certified, provided that the 2020 AFTAP is certified before the first day of the tenth month of the plan year.

Note, however, that adoption of plan amendments and/or payment of UCEBs may change this result.

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Willis Towers Watson US LLC

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

1. Assumptions and methods for contribution purposes

Economic Assumptions

Interest rate basis:

■ Applicable month (published)	October 2018
■ Yield curve basis	Segment rates

Funding interest rates:	Reflecting Corridors	Not Reflecting Corridors
■ First segment rate	3.74%	2.35%
■ Second segment rate	5.35%	3.85%
■ Third segment rate	6.11%	4.47%
■ Effective interest rate	5.43%	3.95%

Annual rates of increase

■ Compensation:

	Age	*Rate*
– Representative rates	< 26	12.00%
	26 – 30	8.50%
	31 – 35	7.00%
	36 – 40	6.00%
	41 – 45	5.00%
	46 – 50	4.00%
	> 50	3.50%
– Weighted average		4.95%

■ Cash balance crediting rate	4.00%
■ Lump sum/annuity conversion rate	October 2018 segment rates
■ Future Social Security wage bases	4.00%
■ Statutory limits on compensation	N/A
■ Expected rate of return on assets for prior year	6.00% but not greater than the third segment rate

Demographic Assumptions

Inclusion Date
The valuation date coincident with or next following the date on which the employee becomes a participant.

New or rehired employees
It was assumed there will be no new or rehired employees.

Mortality

- Healthy
  Separate rates for non-annuitants (based on RP-2014 "Employees" table without collar or amount adjustments, adjusted backward to 2006 with MP-2014, and then projected forward with a static projection as specified in the regulations under §1.430(h)(3)-1 using Scale MP-2017) and annuitants (based on RP-2014 "Healthy Annuitants" table without collar or amount adjustments, adjusted backward to 2006 with MP-2014, and then projected forward with a static projection as specified in the regulations under §1.430(h)(3)-1 using Scale MP-2017).
- Disabled
  Post-1994 current liability disabled
- Lump sum/annuity conversion
  Applicable 417(e) IRS Mortality Table

Termination
Rates varying by age and service:

Percentage leaving during the year		
Attained Age	Less than five years of service	Five or more years of service
< 25	8.00%	7.30%
25 – 29	8.00%	5.00%
30 – 34	8.00%	4.20%
35 – 39	8.00%	3.40%
40 – 44	8.00%	2.50%
45 – 49	8.00%	1.90%
50 +	8.00%	1.70%

Disability
Rates apply to employees not eligible to retire and vary by age and sex as indicated by the following sample values:

Percentage becoming disabled during the year		
Age	Male	Female
20	0.060%	0.090%
30	0.060%	0.090%
40	0.074%	0.110%
50	0.178%	0.267%
60	0.690%	1.035%

Retirement Rates varying by age; average retirement age 64:

Percentage retiring during the year	
Age	Rate
55 – 57	1.00%
58 – 60	6.00%
61 – 63	16.00%
64 – 69	13.00%
70 +	100.00%

Benefit commencement date:

- Preretirement death benefit — The later of the death of the active participant or the date the participant would have attained age 55.
- Deferred vested benefit (active participants) — The later of age 55 or termination of employment.
- Deferred vested benefit (current deferred vested) — The later of age 65 or current age
- Disability benefit — Upon disablement.
- Retirement benefit — Upon termination of employment.

Form of payment

40% lump sum; 60% annuity for retirement eligible East grandfathered participants and 75% lump sum; 25% annuity for all other participants. Married participants are assumed to elect the 50% joint and survivor annuity and unmarried participants are assumed to elect the single life annuity. No other optional form of payment election is assumed.

For current deferred vested participants with a cash balance type benefit, 100% lump sum is assumed. For all other current deferred vested participants 100% annuity is assumed.

Percent married

80% of male participants; 70% of female participants.

Spouse age

Wives are assumed to be three years younger than husbands.

Valuation pay

2019 base salary pay (Grandfathered) – not estimated due to freeze of final average pay accruals at December 31, 2010.

2019 expanded pay (Cash Balance) – sum of the following updated one year according to the salary increase assumption:

(i) 2019 base salary
(ii) a 15% increase for overtime eligible employees and a target bonus percent increase for incentive-eligible employees

At-risk assumptions	If at-risk calculations are required, all participants eligible to elect benefits during the current and subsequent ten plan years are assumed to commence benefits at the earliest possible date under the plan, but not before the end of the current plan year, except in accordance with the regular valuation assumptions. In addition, all participants (not just those eligible to begin benefits within the next 11 years) are assumed to elect the most valuable form of benefit under the plan, which is usually a joint and survivor form of payment.
Timing of benefit payments	Annuity payments are payable monthly at the beginning of the month and lump sum payments are payable on date of decrement.

Methods

Valuation date	First day of plan year.
Funding target	Present value of accrued benefits.
Target normal cost	Present value of benefits expected to accrue during plan year plus plan-related expenses expected to be paid from the trust (based on actual trust expenses paid in previous year, adjusted by the difference between the prior and expected current year PBGC premiums).
Actuarial value of assets	Average of the fair market value of assets on the valuation date and the six immediately preceding months, adjusted for contributions, benefit/expense payments and expected investment returns. The average asset value must be within 10% of fair value, including contributing receivable. The method of computing the actuarial value of assets complies with rules governing the calculation of such values under PPA. These rules produce smoothed values that reflect the underlying market value of plan assets but fluctuate less than the market value. As a result, the actuarial value of assets will be lower than the market value in some years and greater in other years. However, over the long term under PPA's smoothing rules, the method has a bias to produce an actuarial value of assets that is below the market value of assets.
Benefits Not Valued	All benefits were valued except: – Any liabilities that may be reinstated in the event of reemployment – The alternate benefit formula for members who did not elect to withdraw their employee contributions – Any liabilities relating to members’ unwithdrawn employee contributions – Liabilities related to special benefits as a result of termination due to downsizing and restructuring

Data Sources

Willis Towers Watson used participant and asset data as of January 1, 2019, supplied by Mercer, the third party administrator for AEP. Data were reviewed for reasonableness and consistency, but no audit was performed. Based on discussions with the plan sponsor, assumptions or estimates were made when data were not available, and the data was adjusted to reflect any significant events that occurred between the date the data was collected and the measurement date. To the extent that data were not provided, estimates were made based on prior year information.

2. Assumptions and methods for pension cost purposes

Actuarial Assumptions and Methods — Pension Cost

Demographic Assumptions

Discount rate 4.30%

Return on assets* 6.25%

Annual rates of increase

- Compensation:
  - Representative rates

Age	Rate
< 26	12.00%
26 – 30	8.50%
31 – 35	7.00%
36 – 40	6.00%
41 – 45	5.00%
46 – 50	4.00%
> 50	3.50%

  - Weighted average 4.95%

- Cash balance crediting rate 4.00%
- Lump sum/annuity conversion rate 3.90%
- Future Social Security wage bases 4.00%
- Statutory limits on compensation 3.00%

The return on assets shown above is net of investment expenses and administrative expenses assumed to be paid from the trust.

* Also used as discount rate for plan accounting (ASC 960) purposes.

Demographic Assumptions

Inclusion Date

The valuation date coincident with or next following the date on which the employee becomes a participant.

New or rehired employees

It was assumed there will be no new or rehired employees.

Mortality

Base mortality rates are derived from the RP-2014 mortality table with improvements factored to 2006 and no collar adjustments.

Mortality improvements are projected forward on a generational basis using an adjusted version of Scale MP-2018. The adjustment reflects 75% of the long-term improvement rates.

Lump sum/annuity conversion

PPA 2019 optional combined mortality with static projection to commencement using MP-2018.

Termination

Rates varying by age and service

Percentage leaving during the year		
Attained Age	Less than five years of service	Five or more years of service
< 25	8.00%	7.30%
25 – 29	8.00%	5.00%
30 – 34	8.00%	4.20%
35 – 39	8.00%	3.40%
40 – 44	8.00%	2.50%
45 – 49	8.00%	1.90%
50 +	8.00%	1.70%

Disability

Rates apply to employees not eligible to retire and vary by age and sex a indicated by the following sample values:

Percentage becoming disabled during the year		
Age	Male	Female
20	0.060%	0.090%
30	0.060%	0.090%
40	0.074%	0.110%
50	0.178%	0.267%
60	0.690%	1.035%

Retirement Rates varying by age; average retirement age 64:

Percentage retiring during the year	
Age	Rate
55-57	1.00%
58-60	6.00%
61-63	16.00%
64-69	13.00%
70+	100.00%

Benefit commencement date:

- Preretirement death benefit — The later of the death of the active participant or the date the participant would have attained age 55.
- Deferred vested benefit (active participants) — The later of age 55 or termination of employment.
- Deferred vested benefit (current deferred vested) — The later of age 65 or current age
- Disability benefit — Upon disablement.
- Retirement benefit — Upon termination of employment.

Form of payment 40% lump sum; 60% annuity for retirement eligible East grandfathered participants and 75% lump sum; 25% annuity for all other participants. Married participants are assumed to elect the 50% joint and survivor annuity and unmarried participants are assumed to elect the single life annuity. No other optional form of payment election is assumed.

For current deferred vested participants with a cash balance type benefit, 100% lump sum is assumed. For all other current deferred vested participants 100% annuity is assumed.

Percent married 80% of male participants; 70% of female participants.

Spouse ages Wives are assumed to be three years younger than husbands.

Valuation pay 2019 base salary pay (Grandfathered) – not estimated due to freeze of final average pay accruals at December 31, 2010.

2019 expanded pay (Cash Balance) – sum of the following updated one year according to the salary increase assumption:

(i) 2019 base salary
(ii) a 15% increase for overtime eligible employees and a target bonus percent increase for incentive-eligible employees

Administrative expenses Expected return of assets is net of expenses paid by the trust.

Timing of benefit payments — Annuity payments are payable monthly at the beginning of the month and lump sum payments are payable on date of decrement.

Methods

Service cost and projected benefit obligation

Projected unit credit

Market-related value of assets

The market value on the valuation date less the following percentages of prior years' investment gains and losses:

- 80% of the prior year
- 60% of the second prior year
- 40% of the third prior year
- 20% of the fourth prior year

The investment gain or loss is calculated each year by:

- Rolling forward the prior year's fair value of assets with actual contributions, benefit payments and expected return on investments using the long-term yield assumption
- Comparing the actual fair value of assets to the expected value calculated above.

Benefits not valued

All benefits were valued except:

- Any liabilities that may be reinstated in the event of reemployment
- The alternate benefit formula for members who did not elect to withdraw their employee contributions
- Any liabilities relating to members' unwithdrawn employee contributions
- Liabilities related to special benefits as a result of termination due to restructuring or downsizing

Data Sources

Willis Towers Watson used participant and asset data as of January 1, 2019, supplied by Mercer, the third party administrator for AEP. Data were reviewed for reasonableness and consistency, but no audit was performed. Based on discussions with the plan sponsor, assumptions or estimates were made when data were not available, and the data was adjusted to reflect any significant events that occurred between the date the data was collected and the measurement date. To the extent that data were not provided, estimates were made based on prior year information.

The Company also provided the amounts recognized in accumulated other comprehensive income as of the end of the December 31, 2018 fiscal year and amounts recognized in other comprehensive income during the December 31, 2018 fiscal year.

Assumptions Rationale - Significant Economic Assumptions for Contributions

Discount rate	The basis chosen was selected by the plan sponsor from among choices prescribed by law, all of which are based on observed market data over certain periods of time.
Cash Balance Interest crediting rate	The plan credits interest to cash balance accounts using the 30-year Treasury rate for the September of the preceding year with a minimum rate of 4.00%. The assumption is based on the plan sponsor's long-term expectations of yields on U.S. Treasuries. We believe that the selected assumption does not significantly conflict with what would be reasonable based on market conditions at the measurement date.
Lump sum conversion rate	As required by IRC 430, lump sum benefits are valued using "annuity substitution", so that the interest rates assumed are effectively the same as described above for the discount rate.
Rates of increase in:	
■ Compensation	Rates of increase in compensation were based on an experience study conducted in 2014, with annual consideration of whether any conditions have changed that would be expected to produce different results in the future.
■ National average wages (NAW) (e.g., Social Security wage bases)	The assumed NAW is based on assumed CPI as shown below, plus assumed increases in real wages (the portion of GDP increases that becomes part of wages). Such assumed future increases in real wages are based on a combination of historical averages and an expectation that the future rates will be lower (higher) than historical averages.
■ Increases in statutory limits (CPI)	The assumed CPI is based on a combination of historical average CPI, current conditions and an assumed progression from recently experienced CPI to the long-term expected level. The final assumption represents a composite of current rates and long term expected rates.

Assumptions Rationale - Significant Economic Assumptions for Accounting

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.
Expected 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.
Cash balance interest crediting rate	The plan credits interest to cash balance accounts using the 30-year Treasury rate for the September of the preceding year with a minimum rate of 4.00%. The assumption is based on the plan sponsor's long-term expectations of yields on U.S.

Treasuries. We believe that the selected assumption does not significantly conflict with what would be reasonable based on market conditions at the measurement date.

Conversion rate for lump sums and annuities

The plan uses IRC 417(e)(3) as its basis to convert between lump sums and annuities. Because the 417(e)(3) interest rates are based on corporate bond yields, the assumption is based on the plan sponsor's long-term expectations of yields on high-quality corporate bonds. We believe that the selected assumption does not significantly conflict with what would be reasonable based on market conditions at the measurement date.

Rate of increase in compensation

Rates of increase in compensation were based on an experience study conducted in 2014, with annual consideration of whether any conditions have changed that would be expected to produce different results in the future.

Assumptions Rationale - Significant Demographic Assumptions

Mortality

Assumptions used for accounting purposes were selected by the plan sponsor and, as required by U.S. GAAP, represent a best estimate of future experience. Assumptions used for contribution purposes are as prescribed by IRC §1.430(h)(3)-1.

Termination

Termination rates are based on an experience study conducted in 2014, with annual consideration of whether any conditions have changed that would be expected to produce different results in the future.

Assumed termination rates differ by service because of observed differences in termination rates between employees who have attained at least five years of service and those with less than five years of service.

Retirement

Retirement rates are based on an experience study conducted in 2014, with annual consideration of whether any conditions have changed that would be expected to produce different results in the future.

Form of payment

Rates at which retirees elect lump sums versus annuities are based on an experience study conducted in 2014, with annual consideration of whether any conditions have changed that would be expected to produce different results in the future.

Source of Prescribed Methods

Funding methods

The methods used for funding purposes as described in Appendix A, including the method of determining plan assets, are “prescribed methods set by law”, as defined in the actuarial standards of practice (ASOPs). These methods are required by IRC §430, or were selected by the plan sponsor from a range of methods permitted by IRC §430.

Accounting methods

The methods used for accounting purposes as described in Appendix A, including the method of determining the market-related value of plan assets , are “prescribed methods set by another party”, as defined in the actuarial standards of practice (ASOPs). As required by U.S. GAAP, these methods were selected by the plan sponsor.

Changes in Assumptions and Methods

Change in assumptions since prior valuation

The interest rates used to calculate the funding target, target normal cost and to convert 417(e) based forms of payments were updated from the segment rates as of October 2017 to the segment rates as of October 2018.

For funding purposes, the mortality assumption reflects the mortality tables provided in the final regulations under IRC §430 issued in October 2017.

Assumed plan-related expenses of $6,284,855 were added to the target normal cost.

The discount rate increased from 3.65% to 4.30%.

The lump sum conversion rate increased from 3.40% to 3.90% for accounting purposes.

The expected long-term rate of return on plan assets increased from 6.00% to 6.25%.

The mortality improvement projection was updated to MP-2018, adjusted to reflect 75% of the long-term improvement rates.

The mortality used to convert to 417(e) based forms of payment was updated to PPA 2019 optional combined mortality with static projection to commencement using MP-2018.

Change in methods since prior valuation

None.

Appendix B1: Summary of principal plan provisions covered by the former East Retirement Plan

Plan Provisions

Effective Date	May 1, 1955. Restated effective January 1, 2017.
Recent Amendments	Plan was amended and restated effective January 1, 2017.
Covered Employees	Employees become Members of the Plan on the first day of the month following completion of one year of service.
Participation Date	Date of becoming a covered employee.

Definitions

Grandfathered employee	If, on December 31, 2000, either: – Participating in AEP System Retirement Plan, or – In one-year waiting period for AEP System Retirement Plan participation.
Vesting service	A period of time from employment date to termination date and, in general, includes periods of severance that are not in the excess of 12 months.
Accredited service	Elapsed time from date of hire (from benefit service start date).
Cash balance pay	Pay received during the year, including base pay, overtime, shift differential/Sunday premium pay and incentive pay, subject to IRS limits.
Covered compensation amount	The average of the Social Security taxable wage based during the 35-year period including the year in which the participant retires, dies, becomes disabled or otherwise terminates employment. This monthly average is calculated to the next lower or equal whole dollar amount and is then rounded to nearest $50.
Final average pay	Average of the highest 36-consecutive months of base pay out of the last 120 months of employment, subject to IRS limits.
Normal retirement date (NRD)	The first day of the calendar month whose first day is nearest the later of the member's 65th birthday or the completion of five years of Vesting Service.

Cash balance account

Recordkeeping account to which annual Interest Credits and annual Company Credits are credited. The cash balance account is updated at the end of each plan year and is equal to:

Cash Balance Account as of the end of the prior plan year
+
Interest Credits
+
Company Credits

Cash balance benefit

Cash Balance Account converted to a monthly annuity

Opening balance

For those participating in or eligible for the AEP System Retirement Plan on December 31, 2000, opening balance is calculated as follows:

- Present value of monthly normal retirement benefit determined as of December 31, 2000, and payable at age 65 (or current age if older)
  - Present value determined based on 5.78% interest and IRS regulated mortality (GAM83 Unisex) data for lump sums (postretirement only)

Plus

- Credit for early retirement subsidy for monthly payments beginning at age 62 (or current age if older)

Plus

- Transition credit based on age, service and pay received in 2000 (see “Company Credits” for credit percentages)
  - Age and service based on completed whole years as of December 31, 2000.

For employees hired on or after January 1, 2001, opening balance is $0.

Interest credits

Interest credits are applied to beginning of year account balance on December 31 each year.

Based on the average 30-year Treasury Bond rate for November of the previous year.

Minimum of 4%.

Company credits

Applied to account balance on December 31 or termination date if earlier.

Amount is a percentage of eligible pay received during the year, based on age plus years of Vesting Service (age and service in completed whole years as of December 31).

Age Plus Years of Service	*Annual Company Credit*
Less than 30	3.0%
30 – 39	3.5%
40 – 49	4.5%
50 – 59	5.5%
60 – 69	7.0%
70+	8.5%

Monthly Grandfathered Benefit Sum of (1), (2) and (3):

(1) 1.10% of Final Average Pay x Accredited Service up to 35 years

(2) 0.50% of Final Average Pay Less Covered Compensation x Accredited Service up to 35 years

(3) 1.33% of Final Average Pay x Accredited Service between 35 and 45 years

Accruals for the grandfathered benefit ceased on December 31, 2010.

Long-term disability and paid leaves Participants do not receive company credits while on long-term disability. Vesting service continues.

Unpaid leave No compensation for annual Company Credit. Vesting service continues.

Eligibility for Benefits

Normal retirement All members at or after their Normal Retirement Date.

Early retirement Any time after attainment of age 55 and completion of five years of vesting. Applicable only to grandfathered benefits.

Postponed retirement Retirement after Normal Retirement Date.

Vested termination All members who terminate employment after completion of three years of Vesting Service, or upon death.

Disability All members who are unable to work at own occupation solely because of sickness or injury for the first 24 months of disability. After 24 months of disability, the participant is eligible if unable to work at any gainful occupation for which the participant may be able, or may reasonably become qualified by education, training or experience, to perform.

Surviving spouse The surviving spouse of a Grandfathered Member who retired or is eligible to retire on Normal or Early Retirement and who was married to that spouse for the year preceding commencement and whose grandfathered benefit exceeds his or her Cash Balance Benefit.

Preretirement death Beneficiary of deceased member.

Benefits Paid Upon the Following Events

Normal retirement

For Grandfathered Employees, the better of the monthly grandfathered benefit or the Cash Balance Benefit determined as of Normal Retirement Date. For all other employees, the Cash Balance Benefit determined as of Normal Retirement Date.

Early retirement

For Grandfathered Employees, the better of:

(1) The monthly grandfathered retirement benefit reduced by 3% per year for each year commencement precedes age 62, and

(2) The Cash Balance Benefit determined as of the Early Retirement Date.

For all other employees, the Cash Balance Benefit determined as of the Early Retirement Date.

Deferred vested retirement

The accrued Normal Retirement Benefit (better of Cash Balance and Grandfathered Benefits, if eligible), payable at Normal Retirement Date or actuarially reduced and payable at any age.

Disability

The greater of (1) or (2):

(1) Accrued Grandfathered Retirement Benefit reduced as in the Early Retirement Benefit. If retirement occurs prior to age 55, the benefit is further reduced actuarially from age 55. The Disability Retirement Benefit will reflect Accredited Service that accrued (at most recent rate of base earnings) to a member while receiving benefits under the Company’s LTD plan.

(2) The Cash Balance Benefit with continued Company Credits while disabled.

Benefit (1) applies for Grandfathered Employees only.

Preretirement death

Better of (1) or (2):

(1) The grandfathered monthly benefit as if the employee commenced a 60% qualified joint and survivor benefit at his earliest retirement date

(2) Annuity equivalent of Cash Balance account or the cash balance account.

Benefit (1) applies for a Grandfathered Employee whose beneficiary is his or her spouse.

Surviving spouse benefits

A benefit payable for life equal to 30% of the single life annuity payable to the grandfathered member. The spouse’s benefit is actuarially reduced for each year by which the spouse is more than ten years younger than the member. Payable to Grandfathered Employees only.

Other Plan Provisions

Forms of payment

- Grandfathered employees

The following are available for Grandfathered Employees for both the Grandfathered Benefit and the Cash Balance Benefit:

- Full lump sum payment.
- Combination of partial lump sum (25%, 50% or 75% of full lump sum) with remainder paid as a monthly benefit (see below).
- Monthly payment:
  - Single life annuity.
  - Optional joint annuities (spouse or other beneficiary).
    - Available in 40%, 50%, 60%, 75%, 100%.
    - Can elect pop-up and/or level income options.
  - Automatic company-paid 30% surviving spouse annuity included in Grandfathered Benefit annuity if terminate on or after age 55 and married at least one year. Cash Balance Benefit is actuarially reduced for this feature.

A one-time option to elect a lump sum of the accrued benefit for terminated vested participants whose benefit was determined in no way by reference to either the AEP or CSW cash balance formulas was offered during the period from May 1, 2012 through June 30, 2012. Participants eligible for the window were also permitted to elect any of the other optional forms of payment generally applicable to such a participant under the normal terms of the plan document. Any participant who elected to commence benefits under this window, regardless of lump sum or annuity election, had a benefit commencement date of August 1, 2012.

- Employees hired on or after January 1, 2001

The following are available for those hired on or after January 1, 2001:

- Full lump sum payment.
- Combination of partial lump sum (25%, 50% or 75% of full lump sum) with remainder paid as a monthly benefit (see below).
- Monthly payment:
  - Single life annuity.
  - Joint annuities (spouse or other beneficiary).
    - Available in 50%, 75%, 100%.

Form of payment conversion for non-417(e) covered conversions	
■ Cash balance	7.50% interest and the applicable 417(e) Mortality Table.
■ Grandfathered benefit	7.50% interest and the 1974 George B. Buck Mortality Table.
Pension Increases	None.
Plan Participants' Contributions	Prior to January 1, 1978, employee contributions were required as a condition of Membership. In May and June of 1981, Members were permitted an election to withdraw those contributions. Those who did not elect to withdraw have retirement benefits based on a formula that differs from the formulas previously described in this section. However, the number of nonelecting Members is so small that special plan provisions for that group have not been included in this summary.
Maximum on benefits and pay	All benefits and pay for any calendar year may not exceed the maximum limitations for that year as defined in the Internal Revenue Code. The plan provides for increasing the dollar limits automatically as such changes become effective. Increases in the dollar limits are assumed for determining pension cost but not for determining contributions.
Benefits not valued	A small portion of the population made employee contributions to the plan. Because the amount of these contributions is not material to the plan, they are not part of the valuation. Participants who were employees of Columbus Southern Power (CSP) at the time AEP acquired that company have a frozen benefit under the CSP benefit formula at December 31, 1986. Benefits for these participants are the greater of an all-service AEP benefit and a two-part benefit consisting of the frozen CSP benefit plus an AEP benefit accrued from January 1, 1987. Because this applies to a small portion of the population and the CSP frozen benefit is not often the greater benefit for these participants, this benefit is not valued.
Plan status	Ongoing.

Future Plan Changes

Willis Towers Watson is not aware of any future plan changes that are required to be reflected.

Changes in Benefits Valued Since Prior Year

None.

Appendix B2: Summary of plan provisions covered by the former West Retirement Plan

Plan Provisions

Effective Date	January 1940. Restated effective January 1, 1997.
Recent Amendments	Plan was merged with and into the American Electric Power System Retirement Plan, which was most recently amended and restated effective January 1, 2017.
Covered Employees	All full-time employees of a Participating Company employed by CSW before January 1, 2001, and not covered by a union (that has not bargained for coverage) or another pension plan provided by AEP. Part-time employees of the Company had to work more than 1,000 hours in the first anniversary year or subsequent calendar years.
Participation Date	Date of becoming a covered employee

Definitions

Grandfathered employee	Employees who were at least age 50 with ten years of vesting service of July 1, 1997.
Vesting service	All service from date of hire in completed years.
Credited service	The aggregate of: For the period prior to January 1, 1976: (1) The number of full years in the last continuous period that employee was a participant after June 30, 1970, plus (2) Credited service under any prior plan if service extended to July 1, 1970. For the period beginning on or after January 1, 1976, the number of full years of service.
Cash balance pay	Pay received during the year, including base pay, overtime, shift differential/Sunday premium pay and incentive pay, subject to IRS limits
Final average pay	Highest average annual earnings (base pay only) during any 36 consecutive months in the 120 months before retirement. Any changes in earnings within the last three months before retirement will not be taken into account.
Normal retirement date (NRD)	The first day of the calendar month on or following the member's 65th birthday.

Cash balance account

Recordkeeping account to which annual interest credits and annual company credits are credited. The cash balance account is updated at the end of each plan year and is equal to:

Cash Balance Account as of the
end of the prior plan year
+
Interest Credits
+
Company Credits

Cash balance benefit

Cash Balance Account converted to a monthly annuity

Interest credits

Interest credits are applied to beginning of year account balance on December 31 each year.

Based on the average 30-year Treasury Bond rate for November of the previous year.

Minimum of 4%.

Company credits

Applied to account balance on December 31 or termination date if earlier.

Amount is a percentage of eligible pay received during the year, based on age plus years of Vesting Service (age and service in completed whole years as of December 31).

Age Plus Years of Service	*Annual Company Credit*
Less than 30	3.0%
30 – 39	3.5%
40 – 49	4.5%
50 – 59	5.5%
60 – 69	7.0%
70+	8.5%

Monthly Grandfathered Benefit

Greater of (1) or (2) below with automatic cost of living adjustments upon retirement:

(1) Basic benefit — An annual amount equal to:

The aggregate of a participant’s (a) earned benefit (if any) under any prior plan or acquired Company pension plan under which no election was made to receive a paid-up annuity; and (b) participant contributions without interest for the period commencing on or after July 1, 1970. For the period after September 1, 1980, participants will be deemed to have made contributions at the rate of 2% annually of the participant’s annual rate of earnings as of January 1.

(2) Minimum benefit:

1-2/3% of final average annual earnings less 50% of participant’s annual primary Social Security benefit times years of credited service up to 30 years.

Minimum benefits	The benefit payable will never be less than the frozen accrued benefit as of July 1, 1997, under the prior plan.
Primary Social Security benefit	The annual amount payable under the Social Security Act as amended in effect at the employee's date of retirement. The date as of which the amount is to be determined is: (1) In the case of an employee (including deferred vested employees) retiring on or after normal retirement date, normal retirement date. (2) In the case of an employee retiring prior to normal retirement date, the later of employee's 62nd birthday or actual retirement date. Early retirees and deferred vested employees are assumed to have no earnings after termination in determining the amount of this benefit.
Long-term disability and paid leaves	Participants do not receive company credits while on long-term disability. For the grandfathered formula, the final average pay will be determined as of the date on which the participant became disabled. Vesting service continues.
Unpaid leave	No compensation for annual compensation credit. Vesting service continues.

Eligibility for Benefits

Normal retirement	All members at or after their Normal Retirement Date
Early retirement	Any time after attainment of age 55 and completion of five years of vesting
Postponed retirement	Retirement after NRD.
Vested	The participant's cash balance account is 100% vested when any one of the following applies: (1) Three years of vesting service (2) Attainment of age 55 while an employee (3) Death prior to termination (4) Upon disability.
Disability	All participants who become permanently and totally disabled. Permanent and total disability is determined by reference to the LTD plan covering that participant.
Surviving spouse	The surviving spouse of a participant who retired or is eligible to retire on normal or early retirement.
Preretirement death	Beneficiary of participant who dies after becoming vested.

Benefits Paid Upon the Following Events

Normal retirement

Grandfathered employees must elect either the cash balance or the grandfathered formula. For purposes of this valuation, the employee is assumed to elect the formula with the higher present value. Employees with a prior plan frozen benefit get the better of the cash balance benefit and the prior plan frozen benefit. For all other employees, the Cash Balance Benefit is determined as of Normal Retirement Date.

Early retirement

Greater of (1) if applicable or (2):

(1) The grandfathered accrued benefit and the prior plan frozen are payable subject to reduction according to the following schedule if payments commence prior to the normal retirement date.

Age at Retirement	*Percent of Benefit Payable*
64	100%
63	100%
62	100%
61	95%
60	90%
59	84%
58	78%
57	72%
56	66%
55	60%

(2) The Cash Balance Benefit determined as of the Early Retirement Date.

Deferred vested retirement

Greater of (1) if applicable or (2):

(1) Grandfathered accrued benefit payable at age 65, or if earlier reduced 5% per year from age 65, 6% per year from age 60 and 7.5% per year compounded from age 55.

(2) Vested cash balance account.

Disability retirement

The greatest of grandfathered accrued benefit, if eligible, based on projected service and frozen pay deferred to age 65, prior plan frozen benefit if eligible and cash balance account with continued pay credits.

Preretirement death

If the beneficiary is the spouse and the participant is a grandfathered/protected plan participant, then:

(1) For an active participant who dies on or after 55th birthday but before retirement, a monthly benefit equal to 50% of the benefit accrued to the date of death without reduction for early retirement is payable immediately as a life annuity to a qualifying spouse.

(2) For an active participant who dies after completing five or more years of vesting service but before age 55, a deferred monthly benefit equal to 50% of the benefit accrued to the date of death reduced as for early retirement is payable as a life annuity to a

qualifying spouse. Benefit commencement is deferred to when the deceased participant would have attained age 55.

(3) For a deferred vested participant who dies before benefits commence, a monthly benefit equal to 50% of the deferred vested benefit reduced for early commencement (as for deferred vesteds) is payable as a life annuity to a qualifying spouse. If death occurs before age 55, the benefit to the spouse is deferred to when the deceased participant would have attained age 55.

The spouse's benefit is actuarially reduced for each year by which the spouse is more than five years younger than the participant.

For all employees, the minimum benefit is the cash balance account immediate annuity, which is also payable if the beneficiary is not the participant's spouse.

Other Plan Provisions

Form of payment

The following are available for those participants who did not work an hour of service on or after January 1, 2003:

- Full lump sum payment.
- Monthly payment:
  - Single life annuity.
  - 50% joint annuity (spouse or other beneficiary).

A one-time option to elect a lump sum of the accrued benefit for terminated vested participants whose benefit was determined in no way by reference to either the AEP or CSW cash balance formulas was offered during the period from May 1, 2012 through June 30, 2012. Participants eligible for the window were also permitted to elect any of the other optional forms of payment generally applicable to such a participant under the normal terms of the plan document. Any participant who elected to commence benefits under this window, regardless of lump sum or annuity election, had a benefit commencement date of August 1, 2012.

The following are available for those participants who work an hour of service on or after January 1, 2003:

- Full lump sum payment.
- Combination of partial lump sum (25%, 50% or 75% of full lump sum) with remainder paid as a monthly benefit (see below).
- Monthly payment:
  - Single life annuity.
  - Joint annuities (spouse or other beneficiary).
    - Available in 50%, 75%, 100%.

Form of payment conversion for non-417(e) covered conversions

■ Cash balance	7.50% interest and the applicable 417(e) Mortality Table
■ Grandfathered benefit	Factors as specified in Tables I, II, III and IV of Exhibit A to the American Electric Power System Retirement Plan document. 7.50% interest and the 1951 Group Annuity male mortality table to the extent not covered by Tables I, II, III and IV.
Pension Increases	None.
Member Contributions	None.
Maximum on benefits and pay	All benefits and pay for any calendar year may not exceed the maximum limitations for that year as defined in the Internal Revenue Code. The plan provides for increasing the dollar limits automatically as such changes become effective. Increases in the dollar limits are assumed for determining pension cost but not for determining contributions.
Plan status	Continuing accruals. All new entrants to plan are covered under former East plan provision.

Future Plan Changes

Willis Towers Watson is not aware of any future plan changes that are required to be reflected.

Changes in Benefits Valued Since Prior Year

None.

Appendix C: Results by business unit

AMERICAN ELECTRIC POWER
QUALIFIED RETIREMENT PLAN
SUMMARY OF PLAN PARTICIPANTS FOR THE 2019 VALUATION

Location	*Vested Actives*	*Non-Vested Actives*	*Total Actives*	*Retirees Receiving Benefits*	*Beneficiaries*	*Deferred Vesteds*	*Total Inactives*	*Total Participants*
140 Appalachian Power Co - Distribution	896	200	1,096	978	297	150	1,425	2,521
215 Appalachian Power Co - Generation	632	65	697	756	176	71	1,003	1,700
150 Appalachian Power Co - Transmission	5	0	5	114	16	7	137	142
Appalachian Power Co. - FERC	**1,533**	**265**	**1,798**	**1,848**	**489**	**228**	**2,565**	**4,363**
225 Cedar Coal Co	0	0	0	75	22	9	106	106
Appalachian Power Co. - SEC	**1,533**	**265**	**1,798**	**1,923**	**511**	**237**	**2,671**	**4,469**
211 AEP Texas Central Company - Distribution	799	165	964	751	194	290	1,235	2,199
147 AEP Texas Central Company - Generation	0	0	0	0	30	0	30	30
169 AEP Texas Central Company - Transmission	120	46	166	69	23	28	120	286
AEP Texas Central Co.	**919**	**211**	**1,130**	**820**	**247**	**318**	**1,385**	**2,515**
119 AEP Texas North Company - Distribution	208	50	258	149	48	65	262	520
166 AEP Texas North Company - Generation	0	0	0	77	33	24	134	134
192 AEP Texas North Company - Transmission	59	37	96	19	9	2	30	126
AEP Texas North Co.	0	0	0	0	0	0	0	0
AEP Texas	**1,186**	**298**	**1,484**	**1,065**	**337**	**409**	**1,811**	**3,295**
170 Indiana Michigan Power Co - Distribution	443	128	571	527	188	99	814	1,385
132 Indiana Michigan Power Co - Generation	188	60	248	273	63	81	417	665
190 Indiana Michigan Power Co - Nuclear	892	182	1,074	400	55	264	719	1,793
120 Indiana Michigan Power Co - Transmission	91	43	134	102	15	10	127	261
280 Ind Mich River Transp Lakin	189	26	215	97	32	47	176	391
Indiana Michigan Power Co. - SEC	**1,803**	**439**	**2,242**	**1,399**	**353**	**501**	**2,253**	**4,495**
110 Kentucky Power Co - Distribution	209	41	250	176	47	26	249	499
117 Kentucky Power Co - Generation	38	2	40	101	21	9	131	171
180 Kentucky Power Co - Transmission	0	0	0	11	0	2	13	13
600 Kentucky Power Co. - Kammer Actives	4	0	4	8	0	1	9	13
701 Kentucky Power Co. - Mitchell Actives	197	35	232	0	0	0	0	232
702 Kentucky Power Co. - Mitchell Inactives	0	0	0	121	11	11	143	143
Kentucky Power Co.	**448**	**78**	**526**	**417**	**79**	**49**	**545**	**1,071**
250 Ohio Power Co - Distribution	1,248	339	1,587	1,430	407	205	2,042	3,629
160 Ohio Power Co - Transmission	3	1	4	173	51	15	239	243
Ohio Power Co.	**1,251**	**340**	**1,591**	**1,603**	**458**	**220**	**2,281**	**3,872**
167 Public Service Co of Oklahoma - Distribution	520	116	636	365	137	122	624	1,260
198 Public Service Co of Oklahoma - Generation	304	44	348	139	43	52	234	582
114 Public Service Co of Oklahoma - Transmission	71	33	104	41	11	13	65	169
Public Service Co. of Oklahoma	**895**	**193**	**1,088**	**545**	**191**	**187**	**923**	**2,011**
159 Southwestern Electric Power Co - Distribution	438	60	498	148	68	46	262	760
168 Southwestern Electric Power Co - Generation	524	91	615	153	72	43	268	883
161 Southwestern Electric Power Co - Texas - Distribution	178	48	226	92	30	29	151	377
111 Southwestern Electric Power Co - Texas - Transmissior	0	0	0	0	0	0	0	0
194 Southwestern Electric Power Co - Transmission	68	30	98	25	8	12	45	143
Southwestern Electric Power Co.	**1,208**	**229**	**1,437**	**418**	**178**	**130**	**726**	**2,163**
230 Kingsport Power Co - Distribution	45	5	50	37	11	4	52	102
260 Kingsport Power Co - Transmission	0	0	0	10	1	1	12	12
Kingsport Power Co.	**45**	**5**	**50**	**47**	**12**	**5**	**64**	**114**
210 Wheeling Power Co - Distribution	44	10	54	46	17	6	69	123
200 Wheeling Power Co - Transmission	0	0	0	2	5	0	7	7
Wheeling Power Co.	**44**	**10**	**54**	**48**	**22**	**6**	**76**	**130**
103 American Electric Power Service Corporation	4,362	1,480	5,842	2,802	1,051	1,158	5,011	10,853
293 Elmwood	0	0	0	8	0	25	33	33
292 AEP River Operations LLC	0	0	0	29	0	242	271	271
American Electric Power Service Corp	**4,362**	**1,480**	**5,842**	**2,839**	**1,051**	**1,425**	**5,315**	**11,157**
270 Cook Coal Terminal	16	6	22	10	3	3	16	38
AEP Generating Company	**16**	**6**	**22**	**10**	**3**	**3**	**16**	**38**
104 Cardinal Operating Company	3	0	3	227	44	106	377	380
181 Ohio Power Co - Generation	164	13	177	1,114	288	219	1,621	1,798
AEP Generation Resources - FERC	**167**	**13**	**180**	**1,341**	**332**	**325**	**1,998**	**2,178**
290 Conesville Coal Preparation Company	0	0	0	11	1	2	14	14
AEP Generation Resources - SEC	**167**	**13**	**180**	**1,352**	**333**	**327**	**2,012**	**2,192**
171 CSW Energy, Inc.	0	0	0	4	1	24	29	29
175 AEP Energy Partners	62	11	73	3	0	4	7	80
419 Onsite Partners	6	12	18	0	0	0	0	18
AEP Energy Supply	**235**	**36**	**271**	**1,359**	**334**	**355**	**2,048**	**2,319**
143 AEP Pro Serv, Inc.	0	0	0	1	0	2	3	3
AEP Pro Serv, Inc.	**0**	**0**	**0**	**1**	**0**	**2**	**3**	**3**
245 Dolet Hills	224	44	268	3	0	6	9	277
Dolet Hills	**224**	**44**	**268**	**3**	**0**	**6**	**9**	**277**
Total	**13,250**	**3,423**	**16,673**	**11,677**	**3,529**	**3,535**	**18,741**	**35,414**

AMERICAN ELECTRIC POWER - QUALIFIED RETIREMENT PLAN
SUMMARY OF ASC 715-30 VALUATION RESULTS AS OF JANUARY 1, 2019

Location	*Valuation Earnings*	*Market-Related Value of Assets*	*Fair Value of Assets*	*Accumulated Benefit Obligation*	*Projected Benefit Obligation*	*January 1, 2019 Pre-Tax AOCI*
140 Appalachian Power Co - Distribution	$106,960,817	$320,799,881	$309,560,691	$308,860,427	$316,910,978	$96,392,433
215 Appalachian Power Co - Generation	70,965,191	272,572,012	263,022,480	246,537,196	253,274,190	52,904,553
150 Appalachian Power Co - Transmission	294,574	17,730,852	17,109,653	26,608,546	26,608,546	15,759,808
Appalachian Power Co. - FERC	**$178,220,582**	**$611,102,745**	**$589,692,824**	**$582,006,169**	**$596,793,714**	**$165,056,794**
225 Cedar Coal Co	0	4,708,014	4,543,070	2,310,275	2,310,275	2,292,130
Appalachian Power Co. - SEC	**$178,220,582**	**$615,810,759**	**$594,235,894**	**$584,316,444**	**$599,103,989**	**$167,348,924**
211 AEP Texas Central Company - Distribution	94,606,041	283,728,201	273,787,813	272,127,458	282,454,604	128,674,316
147 AEP Texas Central Company - Generation	0	12,671,150	12,227,218	2,318,684	2,318,684	(9,908,534)
169 AEP Texas Central Company - Transmission	16,609,232	29,504,959	28,471,256	30,358,507	32,077,107	18,153,843
AEP Texas Central Co.	**$111,215,273**	**$325,904,310**	**$314,486,287**	**$304,804,649**	**$316,850,395**	**$136,919,625**
119 AEP Texas North Company - Distribution	25,497,064	61,813,591	59,647,959	64,476,186	66,770,630	33,974,926
166 AEP Texas North Company - Generation	0	24,682,893	23,818,131	15,940,882	15,940,882	13,572,580
192 AEP Texas North Company - Transmission	9,416,452	12,612,819	12,170,931	11,486,517	12,447,287	3,210,722
AEP Texas North Co.	**$34,913,516**	**$99,109,303**	**$95,637,021**	**$91,903,585**	**$95,158,799**	**$50,758,228**
AEP Texas	**$146,128,789**	**$425,013,613**	**$410,123,308**	**$396,708,234**	**$412,009,194**	**$187,677,853**
170 Indiana Michigan Power Co - Distribution	55,760,887	169,048,680	163,126,077	149,160,489	154,368,924	37,653,902
132 Indiana Michigan Power Co - Generation	25,746,677	109,503,149	105,666,718	90,075,120	91,478,365	5,487,401
190 Indiana Michigan Power Co - Nuclear	127,929,958	253,906,728	245,011,132	231,042,786	242,678,243	18,956,391
120 Indiana Michigan Power Co - Transmission	13,300,834	34,110,008	32,914,967	34,668,516	35,955,265	8,937,041
280 Ind Mich River Transp Lakin	17,725,369	37,773,684	36,450,287	32,036,011	34,166,193	1,996,970
Indiana Michigan Power Co. - SEC	**$240,463,725**	**$604,342,249**	**$583,169,181**	**$536,982,922**	**$558,646,990**	**$73,031,705**
110 Kentucky Power Co - Distribution	24,429,854	68,166,810	65,778,593	74,419,567	75,961,842	21,753,248
117 Kentucky Power Co - Generation	4,216,436	30,288,857	29,227,690	29,079,986	29,323,763	5,492,299
180 Kentucky Power Co - Transmission	0	1,043,194	1,006,645	2,804,040	2,804,040	2,353,723
600 Kentucky Power Co. - Kammer Actives	282,591	5,487,862	5,295,595	3,069,023	3,069,023	1,349,983
701 Kentucky Power Co. - Mitchell Actives	24,537,887	31,750,035	30,637,676	26,462,932	28,915,920	9,015,882
702 Kentucky Power Co. - Mitchell Inactives	0	42,741,859	41,244,402	32,588,852	32,588,852	6,249,018
Kentucky Power Co.	**$53,466,768**	**$179,478,617**	**$173,190,601**	**$168,424,400**	**$172,663,440**	**$46,214,153**
250 Ohio Power Co - Distribution	150,102,533	445,067,541	429,474,646	397,097,293	414,546,464	153,411,902
160 Ohio Power Co - Transmission	316,843	37,028,545	35,731,254	37,996,520	38,011,389	26,973,225
Ohio Power Co.	**$150,419,376**	**$482,096,086**	**$465,205,900**	**$435,093,813**	**$452,557,853**	**$180,385,127**
167 Public Service Co of Oklahoma - Distribution	64,035,187	164,232,811	158,478,931	142,708,134	150,704,548	52,264,747
198 Public Service Co of Oklahoma - Generation	36,609,720	83,887,060	80,948,085	74,629,950	78,183,951	18,916,249
114 Public Service Co of Oklahoma - Transmission	11,248,003	19,864,621	19,168,667	16,630,969	18,106,756	3,744,407
Public Service Co. of Oklahoma	**111,892,910**	**267,984,492**	**258,595,683**	**233,969,053**	**246,995,255**	**74,925,403**
159 Southwestern Electric Power Co - Distribution	50,191,947	107,252,914	103,495,319	99,255,645	105,700,343	38,091,444
168 Southwestern Electric Power Co - Generation	64,513,110	115,474,527	111,428,889	114,203,200	120,123,705	37,258,754
161 Southwestern Electric Power Co - Texas - Distribution	22,174,087	51,674,106	49,863,709	47,370,962	49,930,610	18,406,360
111 Southwestern Electric Power Co - Texas - Transmission	0	0	0	0	0	831,581
194 Southwestern Electric Power Co - Transmission	10,235,613	16,167,676	15,601,243	12,419,643	13,923,951	2,216,044
Southwestern Electric Power Co.	**$147,114,757**	**$290,569,223**	**$280,389,160**	**$273,249,450**	**$289,678,609**	**$96,804,183**
230 Kingsport Power Co - Distribution	4,690,777	13,573,169	13,097,635	12,939,653	13,329,385	4,027,838
260 Kingsport Power Co - Transmission	0	1,351,271	1,303,929	1,992,952	1,992,952	1,355,930
Kingsport Power Co.	**$4,690,777**	**$14,924,440**	**$14,401,564**	**$14,932,605**	**$15,322,337**	**$5,383,768**
210 Wheeling Power Co - Distribution	5,081,735	16,279,038	15,708,704	13,638,040	14,068,664	4,443,873
200 Wheeling Power Co - Transmission	0	736,992	711,171	385,673	385,673	583,263
Wheeling Power Co.	**$5,081,735**	**$17,016,030**	**$16,419,875**	**$14,023,713**	**$14,454,337**	**$5,027,136**
103 American Electric Power Service Corporation	677,607,117	1,454,195,624	1,403,248,034	1,601,486,144	1,672,944,820	492,961,492
293 Elmwood	0	5,642,412	5,444,731	1,166,688	1,166,688	(4,004,249)
292 AEP River Operations LLC	0	50,916,883	49,133,015	13,826,831	13,826,831	(33,778,000)
American Electric Power Service Corp	**$677,607,117**	**$1,510,754,919**	**$1,457,825,780**	**$1,616,479,663**	**$1,687,938,339**	**$455,179,243**
270 Cook Coal Terminal	2,084,570	4,403,278	4,249,010	2,687,540	2,853,691	(946,286)
AEP Generating Company	**$2,084,570**	**$4,403,278**	**$4,249,010**	**$2,687,540**	**$2,853,691**	**($946,286)**
104 Cardinal Operating Company	203,463	93,948,347	90,656,876	65,124,092	65,124,092	(25,532,784)
181 Ohio Power Co - Generation	18,894,346	345,477,869	333,374,088	234,779,460	236,547,053	84,579,968
AEP Generation Resources - FERC	**$19,097,809**	**$439,426,216**	**$424,030,964**	**$299,903,552**	**$301,671,145**	**$59,047,184**
290 Conesville Coal Preparation Company	0	4,372,173	4,218,995	2,690,254	2,690,254	271,367
AEP Generation Resources - SEC	**$19,097,809**	**$443,798,389**	**$428,249,959**	**$302,593,806**	**$304,361,399**	**$59,318,551**
171 CSW Energy, Inc.	0	2,560,228	2,470,531	2,670,226	2,670,226	1,013,965
175 AEP Energy Partners	11,952,377	8,940,698	8,627,461	9,568,215	11,416,224	3,929,915
419 Onsite Partners	2,368,150	430,089	415,021	431,145	825,228	281,836
AEP Energy Supply	**$33,418,336**	**$455,729,404**	**$439,762,972**	**$315,263,392**	**$319,273,077**	**$64,544,267**
143 AEP Pro Serv, Inc.	0	943,243	910,196	1,044,020	1,044,020	45,241
AEP Pro Serv, Inc.	**$0**	**$943,243**	**$910,196**	**$1,044,020**	**$1,044,020**	**$45,241**
245 Dolet Hills	25,068,044	3,366,813	3,248,857	4,759,855	5,216,546	669,889
Dolet Hills	**$25,068,044**	**$3,366,813**	**$3,248,857**	**$4,759,855**	**$5,216,546**	**$669,889**
Total	**$1,775,657,486**	**$4,872,433,166**	**$4,701,727,981**	**$4,597,935,104**	**$4,777,757,677**	**$1,356,290,606**

AMERICAN ELECTRIC POWER
QUALIFIED RETIREMENT PLAN
2019 NET PERIODIC PENSION COST

Location	Projected Benefit Obligation	Market-Related Value of Assets	Service Cost	"Other" Cost: Interest Cost	"Other" Cost: Expected Return on Assets	"Other" Cost: Amortizations PSC	"Other" Cost: Amortizations (G)/L	"Other" Cost: Total "Other" Cost	Net Periodic Pension Cost
140 Appalachian Power Co - Distribution	$316,910,978	$320,799,881	$5,499,134	$13,376,114	($19,500,902)	$0	$3,706,249	($2,418,539)	$3,080,595
215 Appalachian Power Co - Generation	253,274,190	272,572,012	3,892,040	10,652,528	(16,569,208)	0	2,962,022	(2,954,658)	937,382
150 Appalachian Power Co - Transmission	26,608,546	17,730,852	0	1,097,060	(1,077,830)	0	311,185	330,415	330,415
Appalachian Power Co. - FERC	**$596,793,714**	**$611,102,745**	**$9,391,174**	**$25,125,702**	**($37,147,940)**	**$0**	**$6,979,456**	**($5,042,782)**	**$4,348,392**
225 Cedar Coal Co	2,310,275	4,708,014	0	94,415	(286,192)	0	27,018	(164,759)	(164,759)
Appalachian Power Co. - SEC	**$599,103,989**	**$615,810,759**	**$9,391,174**	**$25,220,117**	**($37,434,132)**	**$0**	**$7,006,474**	**($5,207,541)**	**$4,183,633**
211 AEP Texas Central Company - Distribution	282,454,604	283,728,201	5,573,241	11,877,454	(17,247,375)	0	3,303,285	(2,066,636)	3,506,605
147 AEP Texas Central Company - Generation	2,318,684	12,671,150	0	93,803	(770,259)	0	27,117	(649,339)	(649,339)
169 AEP Texas Central Company - Transmission	32,077,107	29,504,959	964,617	1,366,683	(1,793,558)	0	375,139	(51,736)	912,881
AEP Texas Central Co.	**$316,850,395**	**$325,904,310**	**$6,537,858**	**$13,337,940**	**($19,811,192)**	**$0**	**$3,705,541**	**($2,767,711)**	**$3,770,147**
119 AEP Texas North Company - Distribution	66,770,630	61,813,591	1,562,282	2,820,218	(3,757,547)	0	780,877	(156,452)	1,405,830
166 AEP Texas North Company - Generation	15,940,882	24,682,893	0	653,713	(1,500,433)	0	186,427	(660,293)	(660,293)
192 AEP Texas North Company - Transmission	12,447,287	12,612,819	522,574	538,660	(766,713)	0	145,570	(82,483)	440,091
AEP Texas North Co.	**$95,158,799**	**$99,109,303**	**$2,084,856**	**$4,012,591**	**($6,024,693)**	**$0**	**$1,112,874**	**($899,228)**	**$1,185,628**
AEP Texas	**$412,009,194**	**$425,013,613**	**$8,622,714**	**$17,350,531**	**($25,835,885)**	**$0**	**$4,818,415**	**($3,666,939)**	**$4,955,775**
170 Indiana Michigan Power Co - Distribution	154,368,924	169,048,680	3,009,827	6,527,628	(10,276,194)	0	1,805,333	(1,943,233)	1,066,594
132 Indiana Michigan Power Co - Generation	91,478,365	109,503,149	1,426,838	3,854,638	(6,656,518)	0	1,069,832	(1,732,048)	(305,210)
190 Indiana Michigan Power Co - Nuclear	242,678,243	253,906,728	7,271,518	10,426,366	(15,434,576)	0	2,838,103	(2,170,107)	5,101,411
120 Indiana Michigan Power Co - Transmission	35,955,265	34,110,008	714,305	1,526,636	(2,073,492)	0	420,494	(126,362)	587,943
280 Ind Mich River Transp Lakin	34,166,193	37,773,684	861,213	1,455,667	(2,296,201)	0	399,571	(440,963)	420,250
Indiana Michigan Power Co. - SEC	**$558,646,990**	**$604,342,249**	**$13,283,701**	**$23,790,935**	**($36,736,981)**	**$0**	**$6,533,333**	**($6,412,713)**	**$6,870,988**
110 Kentucky Power Co - Distribution	75,961,842	68,166,810	1,295,133	3,194,648	(4,143,749)	0	888,368	(60,733)	1,234,400
117 Kentucky Power Co - Generation	29,323,763	30,288,857	213,835	1,224,794	(1,841,210)	0	342,939	(273,477)	(59,642)
180 Kentucky Power Co - Transmission	2,804,040	1,043,194	0	115,985	(63,414)	0	32,793	85,364	85,364
600 Kentucky Power Co. - Kammer Actives	3,069,023	5,487,862	0	128,000	(333,598)	0	35,892	(169,706)	(169,706)
701 Kentucky Power Co. - Mitchell Actives	28,915,920	31,750,035	1,333,248	1,280,531	(1,930,033)	0	338,169	(311,333)	1,021,915
702 Kentucky Power Co. - Mitchell Inactives	32,588,852	42,741,859	0	1,345,961	(2,598,208)	0	381,124	(871,123)	(871,123)
Kentucky Power Co.	**$172,663,440**	**$179,478,617**	**$2,842,216**	**$7,289,919**	**($10,910,212)**	**$0**	**$2,019,285**	**($1,601,008)**	**$1,241,208**
250 Ohio Power Co - Distribution	414,546,464	445,067,541	7,890,747	17,495,062	(27,054,931)	0	4,848,089	(4,711,780)	3,178,967
160 Ohio Power Co - Transmission	38,011,389	37,028,545	10,300	1,561,330	(2,250,905)	0	444,540	(245,035)	(234,735)
Ohio Power Co.	**$452,557,853**	**$482,096,086**	**$7,901,047**	**$19,056,392**	**($29,305,836)**	**$0**	**$5,292,629**	**($4,956,815)**	**$2,944,232**
167 Public Service Co of Oklahoma - Distribution	150,704,548	164,232,811	3,698,685	6,375,926	(9,983,445)	0	1,762,478	(1,845,041)	1,853,644
198 Public Service Co of Oklahoma - Generation	78,183,951	83,887,060	2,172,175	3,319,785	(5,099,358)	0	914,355	(865,218)	1,306,957
114 Public Service Co of Oklahoma - Transmission	18,106,756	19,864,621	622,026	782,167	(1,207,538)	0	211,757	(213,614)	408,412
Public Service Co. of Oklahoma	**$246,995,255**	**$267,984,492**	**$6,492,886**	**$10,477,878**	**($16,290,341)**	**$0**	**$2,888,590**	**($2,923,873)**	**$3,569,013**
159 Southwestern Electric Power Co - Distribution	105,700,343	107,252,914	2,885,668	4,483,055	(6,519,730)	0	1,236,157	(800,518)	2,085,150
168 Southwestern Electric Power Co - Generation	120,123,705	115,474,527	3,833,267	5,117,067	(7,019,508)	0	1,404,837	(497,604)	3,335,663
161 Southwestern Electric Power Co - Texas - Distribution	49,930,610	51,674,106	1,270,389	2,117,630	(3,141,185)	0	583,935	(439,620)	830,769
111 Southwestern Electric Power Co - Texas - Transmission	0	0	0	0	0	0	0	0	0
194 Southwestern Electric Power Co - Transmission	13,923,951	16,167,676	555,847	606,878	(982,807)	0	162,840	(213,089)	342,758
Southwestern Electric Power Co.	**$289,678,609**	**$290,569,223**	**$8,545,171**	**$12,324,630**	**($17,663,230)**	**$0**	**$3,387,769**	**($1,950,831)**	**$6,594,340**
230 Kingsport Power Co - Distribution	13,329,385	13,573,169	261,324	566,413	(825,091)	0	155,886	(102,792)	158,532
260 Kingsport Power Co - Transmission	1,992,952	1,351,271	0	81,701	(82,142)	0	23,307	22,866	22,866
Kingsport Power Co.	**$15,322,337**	**$14,924,440**	**$261,324**	**$648,114**	**($907,233)**	**$0**	**$179,193**	**($79,926)**	**$181,398**
210 Wheeling Power Co - Distribution	14,068,664	16,279,038	296,210	596,513	(989,576)	0	164,532	(228,531)	67,679
200 Wheeling Power Co - Transmission	385,673	736,992	0	15,257	(44,801)	0	4,510	(25,034)	(25,034)
Wheeling Power Co.	**$14,454,337**	**$17,016,030**	**$296,210**	**$611,770**	**($1,034,377)**	**$0**	**$169,042**	**($253,565)**	**$42,645**
103 American Electric Power Service Corporation	1,672,944,820	1,454,195,624	34,809,257	70,705,754	(88,398,183)	0	19,564,962	1,872,533	36,681,790
293 Elmwood	1,166,688	5,642,412	0	47,247	(342,993)	0	13,644	(282,102)	(282,102)
292 AEP River Operations LLC	13,826,831	50,916,883	0	535,141	(3,095,154)	0	161,704	(2,398,309)	(2,398,309)
American Electric Power Service Corp	**$1,687,938,339**	**$1,510,754,919**	**$34,809,257**	**$71,288,142**	**($91,836,330)**	**$0**	**$19,740,310**	**($807,878)**	**$34,001,379**
270 Cook Coal Terminal	2,853,691	4,403,278	91,759	123,218	(267,668)	0	33,374	(111,076)	(19,317)
AEP Generating Company	**$2,853,691**	**$4,403,278**	**$91,759**	**$123,218**	**($267,668)**	**$0**	**$33,374**	**($111,076)**	**($19,317)**
104 Cardinal Operating Company	65,124,092	93,948,347	0	2,694,782	(5,710,967)	0	761,621	(2,254,564)	(2,254,564)
181 Ohio Power Co - Generation	236,547,053	345,477,869	996,484	9,783,415	(21,001,037)	0	2,766,399	(8,451,223)	(7,454,739)
AEP Generation Resources - FERC	**$301,671,145**	**$439,426,216**	**$996,484**	**$12,478,197**	**($26,712,004)**	**$0**	**$3,528,020**	**($10,705,787)**	**($9,709,303)**
290 Conesville Coal Preparation Company	2,690,254	4,372,173	0	110,176	(265,777)	0	31,462	(124,139)	(124,139)
AEP Generation Resources - SEC	**$304,361,399**	**$443,798,389**	**$996,484**	**$12,588,373**	**($26,977,781)**	**$0**	**$3,559,482**	**($10,829,926)**	**($9,833,442)**
171 CSW Energy, Inc.	2,670,226	2,560,228	0	111,399	(155,632)	0	31,228	(13,005)	(13,005)
175 AEP Energy Partners	11,416,224	8,940,698	607,711	511,063	(543,490)	0	133,512	101,085	708,796
419 Onsite Partners	825,228	430,089	114,034	40,197	(26,144)	0	9,651	23,704	137,738
AEP Energy Supply	**$319,273,077**	**$455,729,404**	**$1,718,229**	**$13,251,032**	**($27,703,047)**	**$0**	**$3,733,873**	**($10,718,142)**	**($8,999,913)**
143 AEP Pro Serv, Inc.	1,044,020	943,243	0	43,845	(57,338)	0	12,210	(1,283)	(1,283)
AEP Pro Serv, Inc.	**$1,044,020**	**$943,243**	**$0**	**$43,845**	**($57,338)**	**$0**	**$12,210**	**($1,283)**	**($1,283)**
245 Dolet Hills	5,216,546	3,366,813	1,273,723	277,808	(204,663)	0	61,007	134,152	1,407,875
Dolet Hills	**$5,216,546**	**$3,366,813**	**$1,273,723**	**$277,808**	**($204,663)**	**$0**	**$61,007**	**$134,152**	**$1,407,875**
Total	**$4,777,757,677**	**$4,872,433,166**	**$95,529,411**	**$201,754,331**	**($296,187,273)**	**$0**	**$55,875,504**	**($38,557,438)**	**$56,971,973**
Total without Dolet Hills	**$4,772,541,131**	**$4,869,066,353**	**$94,255,688**	**$201,476,523**	**($295,982,610)**	**$0**	**$55,814,497**	**($38,691,590)**	**$55,564,098**

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Appendix D: Statement of funding-related risks of plan in accordance with ASOP No. 51

Potentially Significant Risks Associated with the Plan

The following sections discuss certain risks associated with the American Electric Power System Retirement Plan. The specific risks discussed below do not represent a comprehensive list of all risks that could potentially affect the plan, its participants, the sponsor, or any other party. In our professional judgment, we believe these risks to be most relevant to the plan's future financial condition. Not all possible sources of risk were considered. We have not evaluated the ability or willingness of the plan sponsor (or members of their controlled group) to make contributions to the plan when due, nor have we assessed the likelihood or consequences of potential future changes in applicable law. Nothing contained in this report is intended to provide investment advice.

The results shown in this report rely on assumptions regarding future economic and demographic experience. Actual future experience will deviate from the actuarial assumptions, and thus future actuarial measurements and future contribution requirements will differ (perhaps significantly) from the current measurements and contribution requirements presented in this report. Following is a discussion of some of the risks that have the potential to significantly increase the future contributions needed to satisfy legal requirements and secure the benefits of participants. While the discussion below focuses on elements that can increase contributions, contributions may also significantly decline, although not below $0, if these elements move in the opposite direction than discussed below. Note also that any assessment of the risk provided below is speculative and made by the actuary who may not have all the information necessary to evaluate the significance of the risk to the company or plan participants of changes in the plan's funded status; the plan sponsor and its advisors should consider the assessment and any reasons given, and other information, and come to their own conclusions as to the significance of the risk presented. A more complete understanding of these or other risks would require a separate analysis. Such analysis would provide information about the consequences of different plausible experience and about the severity of adverse experience that could be tolerated within a range of funding levels. We recommend that such an analysis be performed or considered.

We also note that the financial condition of a plan, as well as the contributions caused by this condition, tend to be highly leveraged amounts. When referring to a plan's financial condition below, we generally mean the difference between the plan's assets and its liabilities. As each of these numbers is typically much larger than their difference, even a small change in either one can cause a large percentage change in the financial condition and the resulting contributions.

Financial Risks

Willis Towers Watson's Cost & Risk Management Channel is updated each year based on the most recent actuarial valuation and performs a high-level projection of funding requirements over the next ten years, taking into account the projected stabilized interest rates. AEP has access to this tool as well as the ability to perform their own "what-if" scenarios if so desired. This tool can assist in AEP's understanding and assessment of the financial risks in this plan.

Asset-Liability Mismatch Risk

There is generally a substantial risk to a plan's financial condition if the changes in asset values are not matched by changes in the value of liabilities. For this plan, this risk is somewhat mitigated because a portion of the plan's assets are invested in securities that are expected to move in the same direction and by approximately the same magnitude as expected liabilities. The risk still exists because some of the plan's assets are invested in securities that would not be expected to move in a predictable pattern relative to plan liabilities. The plan is expected to pay significant lump sum payments that are difficult to match using securities, in part due to the 4% interest credit guarantee on cash balance benefits.

The plan sponsor has already taken actions to mitigate this risk, as an Asset-Liability Study is performed regularly by AEP's investment advisors. The plan sponsor currently monitors the plan's funded status monthly in order to adjust the asset allocation between equities and fixed income based on certain funded status triggers.

Investment Risk

Approximately 60% of plan assets appears to be invested in a portfolio of fixed income investments which is designed to respond to market changes in a manner similar to what would occur with respect to plan benefit obligations. The credit quality of the investments ranges. The risk of default is generally higher at the lower end of the investment quality spectrum, and default on an issue that is significant to the portfolio would result in a diminution in asset value with no corresponding change to benefit obligations. U.S. funding rules require valuation at interest rates determined from yields on corporate bonds rated A and higher. The credit quality difference between assets and obligations present a risk that changing market perceptions of risk could result in disparate returns.

Approximately 40% of the plan's assets are invested in return-seeking asset classes that can experience volatile returns. Several consecutive years of moderately poor returns or a single year of exceptionally poor returns may cause a significant increase in minimum required contributions or in contributions required to reach desired funding targets (e.g., to fully fund plan termination liability, to fully fund the plan under the minimum funding rules, to avoid PBGC variable rate premiums or an ERISA §4010 filing, to avoid benefit restrictions or to meet other goals of the plan sponsor). Failure to compensate for adverse investment experience with increased contributions could result in further degradation of the funded status of the plan over time, even if investments return at expected rates thereafter.

Generally there is a substantial risk to a plan's financial condition if investment returns are lower than expected. In this situation the risk is partially mitigated because a portion of the plan's assets are invested in assets that are expected to move approximately in tandem with plan liabilities.

We believe that a more detailed assessment would be beneficial to understanding this risk. The results provided to AEP regarding projected funding and other cash requirements are typically based on a single deterministic projection. Additional deterministic alternatives or stochastic analysis could provide additional insights into the potential for future cash requirements.

Effect of a 5% reduction in current assets without any offsetting reduction in liability

Measure [1]			Increase	
2019 Plan Year	Before	After	$ Amount	Percentage
Funding Shortfall [2]	(583,182,224)	(549,598,453)	33,583,771	6.11%
Greater of Minimum Required Contribution and Policy Contribution	95,529,000	95,529,000	0	0.00%

1. The funding shortfall and minimum required contribution shown above are determined without regard to any change in the plan's "at-risk" status caused by the reduction in assets. The plan is not currently at risk. Plans that are "at risk" are required to calculate these measures using more conservative assumptions (i.e., assumptions that increase funding target, target normal cost and minimum required contributions) which will temporarily (until the plan's funded status improves) accelerate required plan funding. The effect on the minimum required contribution reflects only the amortization of the increase in funding shortfall, with such increase determined without regard to at risk assumptions. In addition, the effect on the minimum required contribution does not reflect any change in the expected PBGC variable rate premiums included in target normal cost that may be caused by the change in the plan's funded status.

2. The funding shortfall shown above is determined without regard to funding balances.

Interest Rate Risk

The funding requirements use a measure of plan obligations based on recent high quality (rated A or better) corporate bond yields, adjusted so that they do not deviate by more than a specified percentage (which differs by year) from a 25-year average of such yields. If yields trend downward, the pension obligations and required contributions may increase significantly and the higher contribution rates may persist for a long period of time. The 25-year average currently results in the use of interest rates that are higher than current market yields. Under current law, the effect of the averaging will decline over time because the specified percentage will be increased from the current 10% to 30%. Accordingly, interest rates used to measure liabilities will decline over time if market yields remain at current levels, which will cause the plan's funded status to deteriorate and would be expected to result in larger minimum required contributions.

There is generally a substantial risk to a plan's financial condition due to changes in interest rates because plan liabilities increase as interest rates decline. In this situation the risk is somewhat mitigated because the plan's liabilities used to determine required contributions are determined based on stabilized interest rates that do not reflect current market conditions. In addition, a portion of plan assets are invested in a manner that should result in them moving in the same direction as liabilities. However, this risk still exists as the stabilized interest rate corridor will widen over time, thereby measuring liabilities at a lower rate as mentioned in the prior paragraph.

Effect of a reduction of 1% in the effective interest rate used to determine liabilities

Measure [1]			Increase	
2019 Plan Year	Before	After	$ Amount	Percentage
Funding Target	4,247,381,107	4,592,906,049	345,524,942	8.14%
Target Normal Cost	94,230,563	100,535,831	6,305,268	6.69%
Minimum Required Contribution	94,230,563	100,535,831	6,305,268	6.69%

1. The funding targets and target normal costs shown above are determined without regard to "at-risk" provisions. The plan is not currently at risk. Plans that are "at risk" are required to calculate these measures using more conservative assumptions (i.e., assumptions that increase funding target, target normal cost and minimum required contributions) which will temporarily (until the plan's funded status improves) accelerate required plan funding. The "after" minimum required contribution shown above is determined without regard to any change in the plan's "at-risk" status that might be caused by the reduction in the effective interest rate. The effect on the minimum required contribution reflects only the increase in target normal cost and the amortization of the increase in funding target, with both increases determined without regard to at risk assumptions. In addition, the effect on the minimum required contribution does not reflect any change in the expected PBGC variable rate premiums included in target normal cost that may be caused by the change in the plan's funded status.

Contribution Risk

We believe there is risk to the plan's financial condition if actual future contributions are not made as expected and/or the minimum required contribution is not satisfied. This near-term risk is somewhat mitigated because the plan has a substantial amount of funding balances. We have not evaluated the sponsor's willingness or ability to make required contributions

Demographic Risks

The demographic risks discussed below are typically not as significant as the economic risks discussed above since both the degree of variation from assumptions and the effect on funded status tend to be smaller. However, situations do exist such as certain plan designs or corporate activity where the risks below may be more significant.

Longevity Risk

Measurements of the plan obligations are based on the assumptions of participant longevity described in Appendix A. Expert opinions about future longevity vary widely. If lifespans of plan participants exceed those expected under the assumptions used in preparing the results presented in this report, future measures of the plan obligation and future contribution requirements will gradually increase over time. Furthermore, an emerging pattern of longer lifespans or new research that increases the plausibility of longer lifespans may require a future adjustment in the mortality assumptions that results in a permanent significant increase in the plan obligation measurements and contribution requirements.

There is risk to the plan's financial condition if participant lifespans are longer than expected. However, this risk is partially mitigated since a portion of participants are expected to take a lump sum at termination or retirement; the effect of future changes in retiree mortality rates is not as significant as it would have been if all participants were expected to take an annuity.

Retirement Risk

The plan includes valuable early retirement subsidies. As a result, plan costs will increase if participants retire at younger ages than assumed. This might occur, for example, if business conditions were to cause reductions in force. Currently, retirements are expected to occur at various ages, using the retirement rates summarized in Appendix A, producing an average expected retirement age of 64.0 years.

Note that an experience study was performed in 2014 and the assumed retirement rates are based on that study and plan sponsor expectations. A review of the retirement decrements is set to be performed again in 2019, which will provide a greater understanding of this risk.

Lump Sum Risk

The plan includes a lump sum provision determined using interest rates under IRC §417(e). Due to the required use of annuity substitution under IRS funding rules, the amount of these lump sums will often exceed the amount of funding target included in the valuation. As a result, there is a risk that the financial condition of the plan may decline, and required contributions increase, if participants retire or terminate employment in far greater numbers than assumed and elect to receive lump sums.

Note that an experience study was performed in 2014 and the form of payment assumption is based on that study and plan sponsor expectations. A review of the form of payment assumption is set to be performed again in 2019, which will provide a greater understanding of this risk.

Other Risks

Additional risks exist, including but not limited to liquidity risk, inflation risk, business-specific risk, and compliance risk. However, we believe these risks to not be as relevant nor significant as the risks already mentioned above on the plan's future financial condition, at this time. It is possible any one of these or more (in addition to any not listed) could become more prevalent and significant in the future depending on various factors including, but not limited to, changes in employee demographics, de-risking activities, legislative changes, unexpected economic movements, etc.

Historical Information

The following information is provided to demonstrate how fair value of assets, funding target, and funded percentage have varied over time. In order to better illustrate market movements, the effect of interest rate stabilization (first enacted in the Moving Ahead for Progress in the 21st Century (MAP 21) and since extended by subsequent legislation) has been excluded (i.e., the measures summarized below are calculated without reflecting stabilized interest rates). Note that the asset values and funding targets shown below were affected by the levels of plan sponsor contributions and benefits accruing, respectively, in addition to interest rates, asset gains and losses, and other experience.

Plan Year	Market Value of Assets	Funding Target	Funded Percentage
2018	5,183,145,851	4,796,824,485	108.05%
2017	4,831,883,160	4,826,661,890	100.10%
2016	4,764,796,511	4,804,064,974	99.18%
2015	4,975,864,249	4,782,513,798	104.04%
2014	4,726,059,114	4,900,054,270	96.44%
2013	4,704,119,951	4,661,382,931	100.91%
2012	4,414,994,593	4,467,943,379	98.81%

Appendix E: Descriptions of funded status measures

Calculations for Funding Ratios Chart in Section 1: Summary of Results

Prior Year Ratios

	Purpose of Ratio	Asset Measure	Obligation Measure
1	Test ability to apply funding balances to current year MRC	AVA - PFB	FTO
2	Quarterly contribution exemption test for current year	AVA – FSCB - PFB	FT
3	At-risk Prong 1 Test for current year	AVA – FSCB - PFB	FTO
4	At-risk Prong 2 Test for current year	AVA – FSCB - PFB	FTAR, but without loads

Current Year Ratios

	Purpose of Ratio	Asset Measure	Obligation Measure
1	Test ability to apply funding balances to next year's MRC	Same as for analogous Prior Year Ratio	
2	Quarterly contribution exemption test for next year		
3	At-risk Prong 1 Test for next year		
4	At-risk Prong 2 Test for next year		
5	PBGC 4010 filing gateway test (PBGC FTAP) (to determine whether a filing is required next year for the current plan year)	AVA – FSCB - PFB	FTO ignoring interest rate stabilization
6	Exemption from establishing SAB in current year:		
	- If PFB applied to current year MRC	AVA - PFB	FT
	- If PFB not applied to current year MRC	AVA	FT
7	Eliminate SABs in current year	AVA – FSCB – PFB	FT

Benefit Restriction Ratios

Purpose of Ratio for Plan Year	Plan assets	Obligations	Year Ratio is Determined
Adjusted Funding Target Attainment Percentage (AFTAP) – Application of Benefit Restrictions under IRC 436	[AVA if AVA/FTO >= 100%; AVA – FSCB – PFB otherwise] + annuity purchases for NHCEs in previous 2 years	FTO[1] + annuity purchases for NHCEs in previous 2 years	Current

[1] If plan sponsor is in bankruptcy, FTO is calculated using interest rates that are not stabilized for purposes of restrictions on accelerated payments.

Definitions of terms

Term	Short for	Definition
FTAP	Funding target attainment percentage	(AVA – FSCB – PFB) / FTO
PBGC FTAP	FTAP for exemption from ERISA 4010	(AVA – FSCB – PFB) / (FTO ignoring interest rate stabilization)
FSCB	Funding standard carryover balance	Accumulated contributions in excess of those required in pre-PPA plan years, less amounts applied to MRC or forfeited
PFB	Prefunding balance	Accumulated contributions in excess of those required since PPA applied to the plan, to the extent the plan sponsor elected to create PFB, less amounts subsequently applied to MRC or forfeited
Funding balance	FSCB + PFB	
FTO	Ongoing funding target	Funding target as described in IRC 430, ignoring at-risk assumptions; equals FT for a plan that is not at-risk.[1]
FTO ignoring stabilization	FTO calculated ignoring interest rate stabilization	Same as FTO if the full yield curve is used, or stabilized segment rates fall within the corridors
FTAR	At-risk funding target	Funding target reflecting at-risk assumptions and any applicable loads, as described in IRC 430(i), with no phase-in
FT	Funding target	Funding target used to calculate MRC. Equals: ■ FTO if the plan is not at-risk. ■ FTAR if the plan has been at risk for at least 5 consecutive plan years. ■ Otherwise, FTO + 20% * (# of consecutive years at-risk) * (the excess, if any, of FTAR over FTO).
FS	Funding shortfall (surplus)	FT – (AVA – funding balances)
PBGC 4010 FS	Funding shortfall for determining whether a controlled group is exempt from an ERISA 4010 filing	FT (ignoring interest rate stabilization) - AVA See PBGC reporting requirements section of the report for more information.

[1] If plan sponsor is in bankruptcy, FTO is calculated using interest rates that are not stabilized for purposes of restrictions on accelerated payments.

Term	Short for	Definition
SAB	Shortfall amortization base	An SAB is established each year equal to the FS less the present value of the SAIs related to SABs established in earlier years. A plan may be exempt from establishing an SAB for a plan year in accordance with the test in the Funding Ratios chart in section 1.
TNC	Target normal cost	Present value of benefits expected to accrue, and expenses expected to be paid from plan assets, for the year. Reflects at-risk assumptions if the plan is at-risk (phased-in if plan has been at-risk for fewer than 5 consecutive years as described above)
SAI	Shortfall amortization installment	Amortization for an SAB established in a particular year. SAIs are eliminated if FS is less than or equal to $0.
MRC	Minimum required contribution	TNC plus SAIs as of the valuation date (assumes no funding waivers and plan is not fully funded). See section 2.4 for more details on this calculation.
AVA	Actuarial value of plan assets	"Plan assets" under PPA, including discounted receivables and reflecting any smoothing. See section 2.3 for more details.

WillisTowersWatson

American Electric Power

Excess Benefit Plan

Actuarial Valuation Report
Benefit Cost for Fiscal Year Beginning January 1, 2019 under US GAAP

May 2019

Table of Contents

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Purposes of valuation

American Electric Power Co. engaged Willis Towers Watson US LLC (“Willis Towers Watson”) to value the Company’s pension plan.

As requested by American Electric Power Co. (the Company or AEP), this report documents the results of an actuarial valuation of the American Electric Power Excess Benefit Plan (the Plan) as of January 1, 2019.

The primary purpose of this valuation is to determine the Net Periodic Benefit Cost/(Income) (Benefit Cost), in accordance with FASB Accounting Standards Codification Topic 715 (ASC 715) for the fiscal year beginning January 1, 2019. 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. 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.

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Section 1: Summary of key results

Benefit cost, plan assets & obligations

All monetary amounts shown in US Dollars

Fiscal Year Beginning		01/01/2019	01/01/2018
Benefit Cost/ (Income)	Net Periodic Benefit Cost/(Income)	5,943,903	6,096,964
	Immediate Recognition of Benefit Cost/(Income) due to Special Events	0	2,641,283[1]
	Total Benefit Cost/(Income)	5,943,903	8,738,247
Measurement Date		**01/01/2019**	**01/01/2018**
Plan Assets	Fair Value of Plan Assets (FVA)	0	0
	Market Related Value of Assets (MRVA)	N/A	N/A
	Actual Return on Fair Value of Plan Assets during Prior Year	N/A	N/A
Benefit Obligations	Accumulated Benefit Obligation (ABO)	(65,419,725)	(74,091,217)
	Projected Benefit Obligation (PBO)	(70,600,656)	(79,011,173)
Funded Ratios	Fair Value of Plan Assets to ABO	0.0%	0.0%
	Fair Value of Plan Assets to PBO	0.0%	0.0%
Accumulated Other Comprehensive (Income)/Loss (Pre-tax)	Net Prior Service Cost/(Credit)	0	160
	Net Loss/(Gain)	29,849,555	35,720,739
	Total Accumulated Other Comprehensive (Income)/Loss (pre-tax)	29,849,555	35,720,899
Assumptions	Discount rate	4.20%	3.45%
	Expected Long-Term Return on Plan Assets	N/A	N/A
	Rate of Compensation Increase	Rates vary by age from 3.5% to 12.0%	Rates vary by age from 3.5% to 12.0%
Participant Data	Census Date	01/01/2019	01/01/2018

[1] Represents a settlement charge due to lump sum payments.

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 $1,016,222 and $0 respectively.

Change in net periodic cost and funded position

The net periodic cost declined from $8,738,247 in fiscal 2018 to $5,943,903 in fiscal 2019 and the funded position improved from $(79,011,173) to $(70,600,656).

All monetary amounts shown in US Dollars

	Net Periodic Cost
Prior year	8.7
Change due to:	
■ Expected based on prior valuation and contributions during prior year	(2.8)
■ Unexpected noninvestment experience	0.1
■ Unexpected investment experience	0
■ Assumption changes	(0.1)
■ Plan amendments	0
■ Settlements, curtailments, certain termination benefits	0
■ Acquisitions	0
■ Method changes	0
■ Changes in estimation techniques	0
Current year	5.9

Significant reasons for these changes include the following:

- There was a one-time settlement charge of $2.6M in 2018 due to the payment of lump sums that is not applicable in 2019.
- The discount rate increased 75 basis points compared to the prior year which reduced the net periodic cost and improved the funded position.
- The lump sum conversion rate was changed from 3.40% to 3.90%, which increased the pension cost and improved the funded position.
- The mortality projection scale used to convert 417(e) based forms of payment was updated, which increased the pension cost and improved the funded position.
- The mortality improvement projection was updated, which decreased the pension cost and improved the funding position.

Basis for valuation

Appendix A summarizes the assumptions and methods 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.

Changes in assumptions

The discount rate increased from 3.45% to 4.20%.

The mortality projection scale used to convert 417(e) based forms of payment was updated to reflect scale MP-2018.

The lump sum conversion rate was changed from 3.40% to 3.90%.

The mortality improvement projection was updated to MP-2018, adjusted to reflect 75% of the long-term improvement rates.

Changes in methods

None.

Changes in estimation techniques

None.

Changes in benefits valued

None.

Subsequent events

None.

Additional information

None.

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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 discussed below regarding this valuation.

Reliances

In preparing the results presented in this report, we have relied upon information regarding plan provisions, participants, assets, and sponsor accounting policies and methods provided by AEP and other persons or organizations designated by AEP. 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 AEP, 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, 2019. The benefit obligations were measured as of January 1, 2019 and are based on participant data as of the census date, January 1, 2019.

Plan assets and balance sheet adjustments

Willis Towers Watson used information supplied by AEP regarding amounts recognized in accumulated other comprehensive income as of December 31, 2018. The data 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 in consultation with AEP's tax advisors and auditors.

Assumptions and methods under U.S. GAAP

As required by U.S. GAAP, the actuarial assumptions and methods employed in the development of the pension cost and other financial reporting have been selected by AEP. Willis Towers Watson has concurred with these assumptions and methods. U.S. GAAP requires that each significant assumption "individually represent the best estimate of a particular future event."

The results shown in this report have been developed based on actuarial assumptions that, to the extent evaluated by Willis Towers Watson, we consider to be reasonable. Other actuarial assumptions could also be considered to 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, 2019 measurement date will change the results shown in this report.

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.

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 letter 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 AEP and its auditors in connection with our actuarial valuation of the pension 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. AEP may distribute this actuarial valuation report to the appropriate authorities who have the legal right to require AEP to provide them this report, in which case AEP will use best efforts to notify Willis Towers Watson in advance of this distribution. Further distribution to, or use by, other parties of all or part of this report is expressly prohibited without Willis Towers Watson's prior written consent. Willis Towers Watson 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 pension 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
17-06491
May 2, 2019

Andrew H. Schaumburg, FSA, EA, MAAA
Senior Associate, Retirement – Valuation Actuary
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May 2, 2019

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Director, Retirement – Valuation Actuary
17-07613
May 2, 2019

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Section 2: Accounting exhibits

2.1 Balance sheet asset/(liability)

All monetary amounts shown in US Dollars

Measurement Date	01/01/2019	01/01/2018
A Development of Balance Sheet Asset/(Liability)[1]		
1 Projected benefit obligation (PBO)[2]	(70,600,656)	(79,011,173)
2 Fair value of plan assets (FVA)	0	0
3 Net balance sheet asset/(liability)	(70,600,656)	(79,011,173)
B Current and Noncurrent Classification[3]		
1 Noncurrent asset	0	0
2 Current liability	(6,214,629)	(8,651,113)
3 Noncurrent liability	(64,386,027)	(70,360,060)
4 Net balance sheet asset/(liability)	(70,600,656)	(79,011,173)
C Accumulated Benefit Obligation (ABO)	(65,419,725)	(74,091,217)
D Accumulated Other Comprehensive (Income)/Loss		
1 Net prior service cost/(credit)	0	160
2 Net loss/(gain)	29,849,555	35,720,739
3 Accumulated other comprehensive (income)/loss[4]	29,849,555	35,720,899
E Assumptions and Dates		
1 Discount rate	4.20%	3.45%
2 Rate of compensation increase	Rates vary by age from 3.5% to 12.0%	Rates vary by age from 3.5% to 12.0%
3 Census date	01/01/2019	01/01/2018

[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] East PBO = $37,404,366, West PBO = $33,196,290 as of January 1, 2019.
[3] 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.
[4] Amount shown is pre-tax and should be adjusted by plan sponsor for tax effects.

2.2 Changes in plan obligations and assets

All monetary amounts shown in US Dollars

Period Beginning	01/01/2019	01/01/2018
A Change in Projected Benefit Obligation (PBO)		
1 PBO at beginning of prior fiscal year	79,011,173	75,671,372
2 Employer service cost	1,261,678	1,096,557
3 Interest cost	2,621,447	2,806,280
4 Actuarial loss/(gain)	(1,016,222)	5,013,979
5 Plan participants' contributions	0	0
6 Benefits paid from plan assets	0	0
7 Benefits paid from the Company	(11,277,420)	(5,577,015)
8 Administrative expenses paid [1]	0	0
9 Plan amendments	0	0
10 Acquisitions/(divestitures)	0	0
11 Curtailments	0	0
12 Settlements	0	0
13 Special/contractual termination benefits	0	0
14 PBO at beginning of current fiscal year	70,600,656	79,011,173

[1] Only if future expenses are accrued in PBO through a load on service cost.

2.3 Summary of net balances

All monetary amounts shown in US Dollars

A Summary of Net Prior Service Cost/(Credit)

Measurement Date Established	Original Amount	Net Amount at 01/01/2019	Remaining Amortization Period	Amortization Amount in 2019	Effect of Curtailments	Other Events
Total		0		0	0	0

All monetary amounts shown in US Dollars

B Summary of Net Loss/(Gain)[1]

	Net Amount at 01/01/2019 [2]	Amortization Amount in 2019	Effect of Curtailments	Effect of Settlements	Other Events
	29,849,555	(1,796,141)	0	0	0

[1] See Appendix A for description of amortization method.
[2] Before any immediate recognition on the same date.

2.4 Summary and comparison of benefit cost and cash flows

All monetary amounts shown in US Dollars

Fiscal Year Ending	12/31/2019	12/31/2018
A Total Benefit Cost		
1 Employer service cost	1,258,828	1,261,678
2 Interest cost	2,888,934	2,621,447
3 Expected return on plan assets	0	0
4 Subtotal	4,147,762	3,883,125
5 Net prior service cost/(credit) amortization	0	160
6 Net loss/(gain) amortization	1,796,141	2,213,679
7 Subtotal	1,796,141	2,213,839
8 Net periodic benefit cost/(income)	5,943,903	6,096,964
9 Curtailments	0	0
10 Settlements	0	2,641,283[1]
11 Special/contractual termination benefits	0	0
12 Total benefit cost	5,943,903	8,738,247
B Assumptions [2]		
1 Discount rate	4.20%	3.45%
2 Expected long-term return on plan assets	N/A	N/A
3 Rate of compensation increase	Rates vary by age from 3.5% to 12.0%	Rates vary by age from 3.5% to 12.0%
4 Census date	01/01/2019	01/01/2018
C Fair Value of Assets at Beginning of Year	0	0
D Cash Flows	**Expected**	**Actual**
1 Employer contributions	0	0
2 Plan participants' contributions [3]	0	0
3 Benefits paid from the Company	6,214,629	11,277,420
4 Benefits paid from plan assets	0	0

[1] Represents a settlement charge due to lump sum cash outs.
[2] These assumptions were used to calculate Net Periodic Benefit Cost/(Income) as of the beginning of the year. Rates are expressed on an annual basis where applicable. For assumptions used for interim measurement periods, if any, refer to Appendix A.
[3] Over the fiscal year.

Section 3: Data exhibits

3.1 Summary of participant data

All monetary amounts shown in US Dollars

Census Date			01/01/2019	01/01/2018
A	**Participating Employees**			
	1	Number	16,673	16,796
	2	Expected plan compensation for year beginning on the valuation date	1,801,861,437	1,770,440,445
	3	Average expected plan compensation	107,974	105,408
	4	Average age	47.5	47.8
	5	Average credited service	17.3	17.8
	6	Average future working life	12.688	12.567
B	**Participants with Deferred Benefits**			
	1	Number (non-cash balance)	0	2
	2	Total annual pension (non-cash balance)	0	85,126
	3	Average annual pension (non-cash balance)	0	42,563
	4	Number of cash balance	4	10
	5	Total cash balance	518,229	2,918,421
	6	Average cash balance	129,557	291,842
	7	Average age	60.7	58.7
C	**Participants Receiving Benefits**			
	1	Number	79	76
	2	Total annual pension	5,018,652	4,626,124
	3	Average annual pension	63,527	60,870
	4	Average age	77.4	76.7

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

Plan Sponsor

American Electric Power Co.

Statement of Assumptions

The assumptions disclosed in this Appendix are for the fiscal year 2019 benefit cost.

Assumptions and methods for pension cost purposes

Actuarial Assumptions and Methods – Pension Cost		
Economic Assumptions		
Discount rate		4.20%
Annual rates of increase		
■ Compensation:		
Representative rates	*Age*	*Rate*
	< 26	12.00%
	26 – 30	8.50%
	31 – 35	7.00%
	36 – 40	6.00%
	41 – 45	5.00%
	46 – 50	4.00%
	> 50	3.50%
Weighted average		4.95%
■ Cash balance crediting rate		4.00%
■ Lump sum/annuity conversion rate		3.90%
■ Future Social Security wage bases		4.00%
■ Statutory limits on compensation		3.00%

Demographic Assumptions

Inclusion Date	The valuation date coincident with or next following the date on which the employee becomes a participant.
New or rehired employees	It was assumed there will be no new or rehired employees.
Mortality	Base mortality rates are derived from the RP-2014 mortality table with improvements factored to 2006 with white collar adjustment. Mortality improvements are projected forward on a generational basis, using an adjusted version of Scale MP-2018. The adjustment reflects 75% of the long-term improvement rate.
Lump sum/annuity conversion	PPA 2019 optional combined mortality with static projection to commencement using MP-2018.
Termination	Rates varying by age and service

Percentage leaving during the year		
Attained Age	Less than five years of service	Five or more years of service
< 25	8.00%	7.30%
25 – 29	8.00%	5.00%
30 – 34	8.00%	4.20%
35 – 39	8.00%	3.40%
40 – 44	8.00%	2.50%
45 – 49	8.00%	1.90%
50 +	8.00%	1.70%

Disability — Rates apply to employees not eligible to retire and vary by age and sex as indicated by the following sample values:

Percentage becoming disabled during the year		
Age	Male	Female
20	0.060%	0.090%
30	0.060%	0.090%
40	0.074%	0.110%
50	0.178%	0.267%
60	0.690%	1.035%

Retirement — Rates varying by age; average retirement age 64:

Percentage retiring during the year	
Age	Rate
55-57	1.00%
58-60	6.00%
61-63	16.00%
64-69	13.00%
70+	100.00%

Benefit commencement date:	
■ Preretirement death benefit	The later of the death of the active participant or the date the participant would have attained age 55.
■ Deferred vested benefit	The later of age 55 or termination of employment.
■ Disability benefit	Upon disablement.
■ Retirement benefit	Upon termination of employment.
Form of payment	100% lump sum for all retirement eligible participants. Married and unmarried participants are both assumed to elect a lump sum.
Percent married	80% of male participants; 70% of female participants.
Spouse ages	Wives are assumed to be three years younger than husbands.
Valuation pay	2019 base salary pay (Grandfathered) – not estimated due to freeze of final average pay accruals at December 31, 2010. 2019 expanded pay (Cash Balance) – sum of the following updated one year according to the salary increase assumption: (i) 2019 base salary (ii) a 15% increase for overtime eligible employees and a target bonus percent increase for incentive-eligible employees
Timing of benefit payments	Annuity payments are payable monthly at the beginning of the month and lump sum payments are payable on date of decrement.

Methods – Pension Cost and Funded Position

Service cost and projected benefit obligation	Projected unit credit
Benefits not valued	All benefits described in the Plan Provisions sections of this report were valued. Willis Towers Watson has reviewed the plan provisions with AEP and is not aware of any significant benefits required to be valued that were not.

Sources of Data and Other Information

Willis Towers Watson used participant and asset data as of January 1, 2019, supplied by Mercer, the third party administrator for AEP. Data were reviewed for reasonableness and consistency, but no audit was performed. Based on discussions with the plan sponsor, assumptions or estimates were made when data were not available, and the data was adjusted to reflect any significant events that occurred between the date the data was collected and the measurement date. To the extent that data was not provided, estimates were made based on prior year information.

The Company also provided the amounts recognized in accumulated other comprehensive income as of the end of the December 31, 2018 fiscal year and amounts recognized in other comprehensive income during the December 31, 2018 fiscal year.

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.
Cash balance interest crediting rate	The plan credits interest to cash balance accounts using the 30-year Treasury rate for the September of the preceding year with a minimum rate of 4.00%. The assumption is based on the plan sponsor's long-term expectations of yields on U.S. Treasuries. We believe that the selected assumption does not significantly conflict with what would be reasonable based on market conditions at the measurement date.
Conversion rate for lump sums and annuities	The plan uses IRC 417(e)(3) as its basis to convert between lump sums and annuities. Because the 417(e)(3) interest rates are based on corporate bond yields, the assumption is based on the plan sponsor's long-term expectations of yields on high-quality corporate bonds. We believe that the selected assumption does not significantly conflict with what would be reasonable based on market conditions at the measurement date.
Rates of increase in compensation	Rates of increase in compensation were based on an experience study conducted in 2014, with annual consideration of whether any conditions have changed that would be expected to produce different results in the future.

Assumptions Rationale - Significant Demographic Assumptions

Mortality	Assumptions were selected by the plan sponsor and, as required by U.S. GAAP, represent a best estimate of future experience.
Termination	Termination rates are based on an experience study conducted in 2014, with annual consideration of whether any conditions have changed that would be expected to produce different results in the future. Assumed termination rates differ by service because of observed differences in termination rates between employees who have attained at least five years of service and those with less than five years of service.
Retirement	Retirement rates are based on an experience study conducted in 2014, with annual consideration of whether any conditions have changed that would be expected to produce different results in the future.
Form of payment	Rates at which retirees elect lump sums versus annuities are based on an experience study conducted in 2014, with annual consideration of whether any conditions have changed that would be expected to produce different results in the future.

Source of Prescribed Methods

Accounting methods	The methods used for accounting purposes as described in Appendix A, are "prescribed methods set by another party", as defined in the actuarial standards of practice (ASOPs). As required by U.S. GAAP, these methods were selected by the plan sponsor.

Changes in Assumptions and Methods

Change in assumptions since prior valuation	The discount rate increased from 3.45% to 4.20%. The mortality projection scale used to convert 417(e) based forms of payment was updated to reflect scale MP-2018. The lump sum conversion rate was changed from 3.40% to 3.90%. The mortality improvement projection was updated to MP-2018, adjusted to reflect 75% of the long-term improvement rates.
Change in methods since prior valuation	None.

Appendix B: Summary of principal plan provisions

The Excess Benefit Plan provides a benefit determined in accordance with the provisions of the American Electric Power System's Retirement Plan (a qualified defined benefit plan), without recognition of the statutory maximums on benefits and pay, less the benefit payable from the qualified plan. MICP awards are also included in the definition of pay for the former East Plan grandfathered benefit for executives with base pay in excess of the IRS limit. Certain executives have contracts providing additional benefits. Certain former Central and South West company executives are eligible for a final average pay cash balance benefit (pension equity – type formula) if it produces a larger benefit. The schedule of contribution percentages for this formula is identical to the cash balance formula.

Prior to 2004, all executives had their cash balance pay limited to $1,000,000. In addition, pay was limited for executives in an uncapped incentive plan to two times base pay for both the final average pay formula and the cash balance formula. Base pay rate is determined at the earlier of year-end or date of termination.

Effective January 1, 2004, pay for all executives is limited to the greater of two times base pay or $1 million for the cash balance formula only. The executives in the uncapped incentive plan continue to have two times pay limit apply to the former East Plan final average pay formula.

Effective December 31, 2010, accruals under the east grandfathered final average pay formula were discontinued.

Effective December 31, 2013, accruals for participates in long-term disability were discontinued.

Future Plan Changes

Willis Towers Watson is not aware of any future plan changes that are required to be reflected.

Changes in Benefits Valued Since Prior Year

None.

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Appendix C: Results by business unit

AMERICAN ELECTRIC POWER
NON-QUALIFIED PENSION PLAN
2019 NET PERIODIC PENSION COST

			"Other" Cost				Net
			Expected	Amortizations			Periodic
	Service	Interest	Return			Total	Pension
Location	Cost	Cost	on Assets	PSC	(G)/L	"Other" Cost	Cost
140 Appalachian Power Co - Distribution	18,607	13,532	0	0	7,766	21,298	39,905
215 Appalachian Power Co - Generation	18	273	0	0	165	438	456
150 Appalachian Power Co - Transmission	0	0	0	0	0	0	0
Appalachian Power Co. - FERC	**$18,625**	**$13,805**	**$0**	**$0**	**$7,931**	**$21,736**	**$40,361**
225 Cedar Coal Co	0	0	0	0	0	0	0
Appalachian Power Co. - SEC	**$18,625**	**$13,805**	**$0**	**$0**	**$7,931**	**$21,736**	**$40,361**
211 AEP Texas Central Company - Distribution	19,996	99,491	0	0	62,646	162,137	182,133
147 AEP Texas Central Company - Generation	0	0	0	0	0	0	0
169 AEP Texas Central Company - Transmission	0	0	0	0	0	0	0
AEP Texas Central Co.	**$19,996**	**$99,491**	**$0**	**$0**	**$62,646**	**$162,137**	**$182,133**
119 AEP Texas North Company - Distribution	0	30,826	0	0	19,813	50,639	50,639
166 AEP Texas North Company - Generation	0	24,708	0	0	15,626	40,334	40,334
192 AEP Texas North Company - Transmission	0	0	0	0	0	0	0
AEP Texas North Co.	**$0**	**$55,534**	**$0**	**$0**	**$35,439**	**$90,973**	**$90,973**
AEP Texas	**$19,996**	**$155,025**	**$0**	**$0**	**$98,085**	**$253,110**	**$273,106**
170 Indiana Michigan Power Co - Distribution	26,328	11,877	0	0	6,551	18,428	44,756
132 Indiana Michigan Power Co - Generation	819	859	0	0	499	1,358	2,177
190 Indiana Michigan Power Co - Nuclear	64,953	32,138	0	0	17,908	50,046	114,999
120 Indiana Michigan Power Co - Transmission	0	3,757	0	0	2,415	6,172	6,172
280 Ind Mich River Transp Lakin	0	0	0	0	0	0	0
Indiana Michigan Power Co. - SEC	**$92,100**	**$48,631**	**$0**	**$0**	**$27,373**	**$76,004**	**$168,104**
110 Kentucky Power Co - Distribution	2,097	1,936	0	0	1,125	3,061	5,158
117 Kentucky Power Co - Generation	0	0	0	0	0	0	0
180 Kentucky Power Co - Transmission	0	0	0	0	0	0	0
600 Kentucky Power Co. - Kammer Actives	0	0	0	0	0	0	0
701 Kentucky Power Co. - Mitchell Actives	18	2	0	0	1	3	21
702 Kentucky Power Co. - Mitchell Inactives	0	0	0	0	0	0	0
Kentucky Power Co.	**$2,115**	**$1,938**	**$0**	**$0**	**$1,126**	**$3,064**	**$5,179**
250 Ohio Power Co - Distribution	14,756	10,475	0	0	5,994	16,469	31,225
160 Ohio Power Co - Transmission	0	0	0	0	0	0	0
Ohio Power Co.	**$14,756**	**$10,475**	**$0**	**$0**	**$5,994**	**$16,469**	**$31,225**
167 Public Service Co of Oklahoma - Distribution	10,184	59,913	0	0	41,300	101,213	111,397
198 Public Service Co of Oklahoma - Generation	697	16,258	0	0	10,166	26,424	27,121
114 Public Service Co of Oklahoma - Transmission	0	0	0	0	0	0	0
Public Service Co. of Oklahoma	**$10,881**	**$76,171**	**$0**	**$0**	**$51,466**	**$127,637**	**$138,518**
159 Southwestern Electric Power Co - Distribution	6,214	6,092	0	0	3,659	9,751	15,965
168 Southwestern Electric Power Co - Generation	537	45,380	0	0	28,402	73,782	74,319
161 Southwestern Electric Power Co - Texas - Distribution	0	0	0	0	0	0	0
111 Southwestern Electric Power Co - Texas - Transmission	0	0	0	0	0	0	0
194 Southwestern Electric Power Co - Transmission	0	1,022	0	0	631	1,653	1,653
Southwestern Electric Power Co.	**$6,751**	**$52,494**	**$0**	**$0**	**$32,692**	**$85,186**	**$91,937**
230 Kingsport Power Co - Distribution	0	0	0	0	0	0	0
260 Kingsport Power Co - Transmission	0	0	0	0	0	0	0
Kingsport Power Co.	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
210 Wheeling Power Co - Distribution	0	0	0	0	0	0	0
200 Wheeling Power Co - Transmission	0	0	0	0	0	0	0
Wheeling Power Co.	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
103 American Electric Power Service Corporation	937,955	2,334,843	0	0	1,454,487	3,789,330	4,727,285
293 Elmwood	0	0	0	0	0	0	0
292 AEP River Operations LLC	0	0	0	0	0	0	0
American Electric Power Service Corp	**$937,955**	**$2,334,843**	**$0**	**$0**	**$1,454,487**	**$3,789,330**	**$4,727,285**
270 Cook Coal Terminal	0	0	0	0	0	0	0
AEP Generating Company	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
104 Cardinal Operating Company	0	0	0	0	0	0	0
181 Ohio Power Co - Generation	6,413	32,620	0	0	20,372	52,992	59,405
AEP Generation Resources - FERC	**$6,413**	**$32,620**	**$0**	**$0**	**$20,372**	**$52,992**	**$59,405**
290 Conesville Coal Preparation Company	0	0	0	0	0	0	0
AEP Generation Resources - SEC	**$6,413**	**$32,620**	**$0**	**$0**	**$20,372**	**$52,992**	**$59,405**
171 CSW Energy, Inc.	0	0	0	0	0	0	0
175 AEP Energy Partners	146,033	160,543	0	0	95,246	255,789	401,822
419 Onsite Partners	3,195	2,388	0	0	1,369	3,757	6,952
AEP Energy Supply	**$155,641**	**$195,551**	**$0**	**$0**	**$116,987**	**$312,538**	**$468,179**
143 AEP Pro Serv, Inc.	0	0	0	0	0	0	0
AEP Pro Serv, Inc.	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
245 Dolet Hills	8	1	0	0	0	1	9
Dolet Hills	**$8**	**$1**	**$0**	**$0**	**$0**	**$1**	**$9**
Total	**$1,258,828**	**$2,888,934**	**$0**	**$0**	**$1,796,141**	**$4,685,075**	**$5,943,903**
Total without Dolet Hills	**$1,258,820**	**$2,888,933**	**$0**	**$0**	**$1,796,141**	**$4,685,074**	**$5,943,894**

INDIANA MICHIGAN POWER COMPANY
Forward-Looking Test Year: Twelve Months Ending December 31, 2020
Historic Base Period: Twelve Months Ending December 31, 2018

170 IAC	Description
1-5-8(a)(14)	The utility's pension expense for the test year and an identification of any unfunded amounts.

Forward-Looking Test Year:
The Company's pension cost for the test year is $7,749,000, and pension contribution is $6,391,000.

Historic Base Period:
The Company's Pension Cost for the historic base period ended December 31, 2018 is $9,040,859. The O&M Percentage is 57%.

The Company made pension contributions to the trust fund of $0 in 2018 and expects to make contributions of approximately $12,422,000 million in 2019.

The Company's pension plan's funded status as of December 31, 2018, the last date that this annual measurement was made, is a funding surplus of $15,977,463, based on a pension benefit obligation of $531,380,491 and trust fund assets at fair market value of $547,357,954.

INDIANA MICHIGAN POWER COMPANY
INDIANA OFFICE OF UTILITY CONSUMER COUNSELOR
DATA REQUEST SET NO. OUCC DR 24
IURC CAUSE NO. 45235

DATA REQUEST NO OUCC 24-18

REQUEST

Please provide Petitioner's portion of the following qualified pension plan data for each calendar year during the period 1990 through 2018:
a) Benefit Obligation; and
b) Fair Value of Plan Assets.

RESPONSE

I&M objects to the Request to the extent it seeks an analysis, calculation, or compilation which has not already been performed and which I&M objects to performing. I&M further objects to this request on the grounds and to the extent the request is overly broad and unduly burdensome in that it seeks annual data for a period of 28 years. In support of these objections, I&M states that the requested information for the years prior to 1995 does not exist in the format sought in I&M's current accounting systems and/or is not available in electronic format and is not readily available. Subject to and without waiver of the foregoing objections, I&M provides the following response.

Please see "OUCC 24-18 Attachment 1.xlsx" for I&M's shares of projected benefit obligations and fair values of plan assets (excluding I&M River Transportation and before jurisdictional, functional and jointly-owned plant adjustments) related to AEP's qualified pension plan from 1995 to 2018 as currently available in the Actuarial Reports prepared by Willis Towers Watson.

Indiana Michigan Power Company
Projected Benefit Obligations and Fair Values of Plan Assets
Years 1995 through 2018

	Projected Benefit Obligation	**Fair Value of Plan Assets**	Asset (Liab)
1995	209,649,811	235,916,755	26,266,944
1996	252,784,208	252,450,540	(333,668)
1997	247,129,826	260,385,038	13,255,212
1998	290,085,359	301,259,761	11,174,402
1999	317,529,423	334,676,024	17,146,601
2000	283,774,893	370,106,901	86,332,008
2001	336,297,029	421,372,376	85,075,347
2002	340,589,485	403,007,108	62,417,623
2003	347,568,830	376,637,740	29,068,910
2004	371,206,172	359,468,811	(11,737,361)
2005	418,645,311	343,133,941	(75,511,370)
2006	439,067,103	424,964,938	(14,102,165)
2007	437,608,070	438,085,867	477,797
2008	446,058,076	462,679,843	16,621,767
2009	453,802,483	442,465,973	(11,336,510)
2010	491,493,610	491,493,610	-
2011	525,368,456	453,884,263	(71,484,193)
2012	551,617,040	486,058,195	(65,558,845)
2013	584,836,431	485,734,688	(99,101,743)
2014	534,461,356	498,634,750	(35,826,606)
2015	580,053,499	521,144,210	(58,909,289)
2016	559,672,645	540,008,099	(19,664,546)
2017	567,916,641	554,848,599	(13,068,042)
2018	572,245,232	572,488,683	243,451

Indiana Michigan Power Company
Comparative Balance Sheets
December 31, 2018 and 2017

	December 31, 2018	**December 31, 2017**
UTILITY PLANT		
Utility Plant (101-106, 114)	9,079,286,843.85	8,332,896,582.83
Construction Work in Progress (107)	465,252,781.91	460,208,618.63
Utility Plant	9,544,539,625.76	8,793,105,201.46
(Less) Accum. Prov. For Depr. Amort. Depl. (108,110,111,115)	3,068,176,858.47	2,948,719,775.85
Net Utility Plant	6,476,362,767.29	5,844,385,425.61
Nuclear Fuel in Process of Ref., Conv.,Enrich., and Fab. (120.1)	32,268,258.73	37,447,358.65
Nuclear Fuel Materials and Assemblies-Stock Account (120.2)	-	-
Nuclear Fuel Assemblies in Reactor (120.3)	1,602,197.67	1,347,289.46
Spent Nuclear Fuel (120.4)	518,765,415.08	695,441,601.29
Nuclear Fuel Under Capital Leases (120.6)	122,281,366.07	180,028,830.05
(Less) Accum. Prov. For Amort. Of Nucl. Fuel Assemblies (120.5)	518,996,189.08	695,661,520.60
Net Nuclear Fuel	155,921,048.47	218,603,558.85
Net Utility Plant (Enter Total of lines 6 and 13)	6,632,283,815.75	6,062,988,984.46
Utility Plant Adjustments (116)	-	-
Gas Stored Underground - Noncurrent (117)	-	-
OTHER PROPERTY AND INVESTMENTS		
Nonutility Property (121)	7,801,295.26	10,487,444.61
(Less) Accum. Prov. For Depr. And Amort. (122)	(12,725.27)	1,135,407.31
Investments in Associated Companies (123)	-	-
Investment in Subsidiary Companies (123.1)	19,317,611.34	19,061,858.72
Noncurrent Portion of Allowances	25,667,167.70	27,124,422.66
Other Investments (124)	13,118,001.13	13,524,077.05
Sinking Funds (125)	-	-
Depreciation Fund (126)	-	-
Amortization Fund - Federal (127)	-	-
Other Special Funds (128)	2,474,916,786.29	2,527,614,722.07
Special Funds (Non Major Only) (129)	61,262,502.85	64,864,361.91
Long-Term Portion of Derivative Assets (175)	576,115.01	720,561.50
Long-Term Portion of Derivative Assets - Hedges (176)	-	-
Other Property and Investments	2,602,672,204.85	2,662,262,041.21
CURRENT AND ACCRUED ASSETS		
Cash and Working Funds (Non-major Only) (130)		
Cash (131)	2,363,489.97	1,326,155.35
Special Deposits (132-134)	16,120,143.82	11,610,021.34
Working Funds (135)	-	-
Temporary Cash Investments (136)	-	-
Notes Receivable (141)	-	-
Customer Accounts Receivable (142)	74,837,789.07	56,348,872.20
Other Accounts Receivable (143)	1,341,321.22	1,899,369.28
(Less) Accum. Prov. For Uncollectible Acct.-Credit (144)	96,625.00	206,193.38
Notes Receivable from Associated Companies (145)	-	-
Accounts Receivable from Assoc. Companies (146)	68,786,451.77	43,368,220.67
Fuel Stock (151)	36,307,472.23	30,732,935.24
Fuel Stock Expenses Undistributed (152)	981,097.66	621,540.03
Residuals (Elec) and Extracted Products (153)	-	-
Plant Materials and Operating Supplies (154)	163,849,568.11	156,944,999.31
Merchandise (155)	-	-
Other Materials and Supplies (156)	-	-
Nuclear Materials Held for Sale (157)	-	-
Allowances (158.1 and 158.2)	27,088,586.45	28,650,948.81
(Less) Noncurrent Portion of Allowances	25,667,167.70	27,124,422.66
Stores Expense Undistributed (163)	-	-
Gas Stored Underground - Current (164.1)		
Liquefied Natural Gas Stored and Held for Processing (164.2-164.3)		
Prepayments (165)	7,147,556.99	7,624,909.79
Advances for Gas (166-167)		
Interest and Dividends Receivable (171)	112,211.00	173,120.00
Rents Receivable (172)	88,144.12	87,047.39
Accrued Utility Revenues (173)	3,566,004.32	7,288,586.19
Miscellaneous Current and Accrued Assets (174)	31,087,102.46	16,882,968.58
Derivative Instrument Assets (175)	9,188,606.10	8,289,835.16
(Less) Long-Term Portion of Derivative Instrument Assets (175)	576,115.01	720,561.50
Derivative Instrument Assets - Hedges (176)	-	-
(Less) Long-Term Portion of Derivative Instrument Assets - Hedges (	-	-
Total Current and Accrued Assets	**416,525,637.58**	**343,798,351.80**

Indiana Michigan Power Company
Comparative Balance Sheets
December 31, 2018 and 2017

	December 31, 2018	December 31, 2017
DEFERRED DEBITS		
Unamortized Debt Expenses (181)	20,189,247.73	12,912,315.22
Extraordinary Property Losses (182.1)	-	-
Unrecovered Plant and Regulatory Study Costs (182.2)	-	-
Other Regulatory Assets (182.3)	542,177,593.97	599,072,708.51
Prelim. Survey and Investigation Charges (Electric) (183)	13,743,554.95	19,607,891.41
Preliminary Natural Gas Survey and Investigation Charges (183.1)	-	-
Other Preliminary Survey and Investigation Charges (183.2)	-	-
Clearing Accounts (184)	6.79	(0.00)
Temporary Facilities (185)	-	-
Miscellaneous Deferred Debits (186)	52,182,367.92	49,612,470.63
Def. Losses from Disposition of Utility Plt. (187)	-	-
Research, Devel. And Demonstration Expend. (188)	-	-
Unamortized Loss on Reacquired Debt (189)	17,921,845.52	8,418,221.01
Accumulated Deferred Income Tax (190)	771,861,389.20	1,096,714,903.80
Unrecovered Purchased Gas Costs (191)	-	-
Total Deferred Debits (lines 69 through 83)	**1,418,076,006.08**	**1,786,338,510.58**
TOTAL ASSETS (lines 14-16. 32, 67, and 84)	**11,069,557,664.26**	**10,855,387,888.04**
PROPRIETARY CAPITAL		
Common Stock Issued (201)	56,583,866.43	56,583,866.43
Preferred Stock Issued (204)	-	-
Capital Stock Subscribed (202, 205)	-	-
Stock Libility for Conversion (203, 206)	-	-
Premium on Capital Stock (207)	4,234,635.00	4,234,635.00
Other Paid-In Capital (208-211)	976,661,803.22	976,661,803.22
Installments Received on Capital Stock (212)	-	-
(Less) Discount on Capital Stock (213)	-	-
(Less) Capital Stock Expense (214)	-	-
Unappropriated Undistributed Subsidiary Earnings (216.1)	(6,033,663.70)	(6,289,416.32)
(Less) Reacquired Capital Stock (217)	-	-
Noncorporate Proprietorship (Nonmajor Only) (218)		
Accumulated Other Comprehensive Income (219)	(11,379,702.21)	(10,681,426.10)
Total Proprietary Capital	**2,324,134,954.17**	**2,190,210,991.05**
LONG-TERM DEBT		
Bonds (221)	-	-
(Less) Reacquired Bonds (222)	-	-
Advances from Associated Companies (223)	-	-
Other Long-Term Debt (224)	2,928,439,660.03	2,574,997,049.25
Unamortized Premium on Long-Term Debt (225)	-	-
(Less) Unamortized Discount on Long-Term Debt-Debit (226)	8,698,984.86	5,626,318.18
Total Long-Term Debt	**2,919,740,675.18**	**2,569,370,731.08**
OTHER NONCURRENT LIABILITIES		
Obligations Under Capital Leases - Noncurrent (227)	91,803,954.29	120,622,004.63
Accumulated Provision for Property Insurance (228.1)	-	-
Accumulated Provision for Injuries and Damages (228.2)	127,795.34	47,070.64
Accumulated Provision for Pensions and Benefits (228.3)	6,544,118.36	11,218,099.60
Accumulated Miscellaneous Operating Provisions (228.4)	681,434.73	952,362.71
Accumulated Provision for Rate Refunds (229)	18,630,953.24	8,298,302.02
Long-Term Portion of Derivative Instrument Liabilities	132,432.30	120,346.39
Long-Term Portion of Derivative Instrument Liabilities-Hedges	-	-
Asset Retirement Obligations (230)	1,681,320,133.43	1,321,774,264.72
Total Other Noncurrent Liabilities	**1,799,240,821.69**	**1,463,032,450.71**
CURRENT AND ACCRUED LIABILITIES		
Notes Payable (231)	-	-
Accounts Payable (232)	170,123,789.43	150,825,238.39
Notes Payable to Associated Companies (233)	18,332,234.88	226,179,291.58
Accounts Payable to Associated Companies (234)	72,350,356.46	100,461,937.32
Customer Deposits (235)	37,972,608.04	37,670,439.53
Taxes Accrued (236)	65,555,320.78	19,867,077.24
Interest Accrued (237)	38,357,565.76	38,829,775.05
Dividends Declared (238)	-	-
Matured Long-Term Debt (239)	-	-
Matured Interest (240)	-	-
Tax Collections Payable (241)	6,809,172.27	6,094,004.80

Indiana Michigan Power Company
Comparative Balance Sheets
December 31, 2018 and 2017

	December 31, 2018	December 31, 2017
Miscellaneous Current and Accrued Liabilities (242)	90,409,161.76	93,135,063.07
Obligations Under Capital Leases-Current (243)	69,110,997.73	99,305,090.08
Derivative Instrument Liabilities (244)	407,098.77	3,602,082.10
(Less) Long-Term Portion of Derivative Instrument Liabilities	132,432.30	120,346.39
Derivative Instrument Liabilities-Hedges (245)	-	-
(Less) Long-Term Portion of Derivative Instrument Liabilities-Hedges	-	-
Total Current and Accrued Liabilities (lines 37 through 53)	**569,295,873.57**	**775,849,652.76**
DEFERRED CREDITS		
Customer Advances for Construction (252)	-	-
Accumulated Deferred Investment Tax Credits (255)	29,388,700.00	34,075,627.00
Deferred Gains from Disposition of Utility Plant (256)	-	-
Other Deferred Credits (253)	31,652,003.13	34,823,503.26
Other Regulatory Liabilities (254)	1,675,502,543.11	1,738,909,747.41
Unamortized Gain on Reacquired Debt (257)	8,131.50	9,843.42
Accum. Deferred Income Taxes-Accel. Amort. (281)	17,764,010.25	17,658,663.54
Accum. Deferred Income Taxes-Other Property (282)	975,569,763.30	886,231,255.25
Accum. Deferred Income Taxes-Other (283)	727,260,188.37	1,145,215,422.57
Total Deferred Credits	**3,457,145,339.66**	**3,856,924,062.44**
Total Liabilities And Stockholder Equity	**11,069,557,664.26**	**10,855,387,888.04**

INDIANA MICHIGAN POWER COMPANY
INDIANA OFFICE OF UTILITY CONSUMER COUNSELOR
DATA REQUEST SET NO. OUCC DR 24
IURC CAUSE NO. 45235

DATA REQUEST NO OUCC 24-33

REQUEST

Please state where the $89,244,007 "prepaid pension asset" claimed by Petitioner can be found on Petitioner's balance sheet. If it is not located in the asset section of the balance sheet, please explain why not.

RESPONSE

Please refer to Exhibit A-2, Page 3 of 5 of the 2020 test year Balance Sheet for the Prepaid Pension Benefits (165) in the amount of $89,244,007.

Indiana Michigan Power Company
Balance Sheet for Test Year
(Dollars)

Indiana Michigan Base Case (2020 Test Year)	As of 12/31/2020
I&M - Corp (S993,120,132,170,190)	
Derivative Assets - LT (175)	576,115
Long-Term Risk Mgmt Assets	**576,115**
Pension Net Funded Position (129)	52,952,614
Prepaid Pension Benefits (165)	89,244,007
FAS 158 Qual Contra Asset (165)	(89,244,007)
Employee Benefits & Pens. Assets	**52,952,614**
Other Invest - Genl / Intang (124)	3,399,416
Prelim Survey & Invstg Chgs (183)	13,743,555
Clearing Accts (184)	7
Other Def Debits (186)	316,401,865
Deferred Property Taxes (186.0003)	48,668,899
Allowance Inventory - LT (158)	25,710,316
Other Non-Current Assets	**407,924,058**
TOTAL ASSETS	**10,689,171,091**
LIABILITIES	
STD - Minimum	
Short-Term Debt	
Bonds Curent (221)	
Other LTD Current (224)	304,000,000
InterCo Bond Current (223)	
LTD Current	**304,000,000**
Accts Payable (232)	170,123,789
Accts Payable - Affil (234)	69,385,560
Notes Payable - Affil (233.0001)	
Accounts Payable	**239,509,349**
Advances from Affiliates (STD - Money Pool) (233)	114,427,495
Advances from Affiliates	**114,427,495**
Curr Derivative Liabs - Hedges (245)	
Curr Derivative Liabs (244)	274,666
Risk Mgmt Collat - Deposits (235)	
Current Risk Mgmt Liabilities	**274,666**
Taxes Accrued (236)	70,683,104
Interest Accrued (237)	39,534,752
Interest Accrued - Affil (237.0010)	214,284
Accrued Taxes & Interest	**110,432,140**
Customer Deposits (235)	37,972,608
Dividends Declared (238)	

This includes Regulated operations only.
The comparable Projected 2019 Balance Sheet was supplied in the MSFR filing as Document 1-6-1(A)(ii).

Account	FERC	PS Descr	Description Of Charges
1630032	1630	Stores Exp - Power Gen General	This account number is reserved for future processing purposes NOTE: Charges to this Balance Sheet account by AEPSC (company number 61) will be passed to the AEPSC Billing System for billing to Client companies.
1630033	1630	Stores Exp - All Busin Units	This account number is reserved for future processing purposes NOTE: Charges to this Balance Sheet account by AEPSC (company number 61) will be passed to the AEPSC Billing System for billing to Client companies.
1650001	1650	Prepaid Insurance	This account shall include amounts representing prepayments of insurance.
165000217	1650	Prepaid Taxes	This account shall include amounts representing prepayments of taxes.
165000218	1650	Prepaid Taxes	This account shall include amounts representing prepayments of taxes.
1650003	1650	Prepaid Rents	This account shall include amounts representing prepayments of rents.
1650006	1650	Other Prepayments	This account shall include amounts representing prepayments of other items not listed.
1650009	1650	Prepaid Carry Cost-Factored AR	This account is used for factoring the AEP-East electric accounts receivable.
1650010	1650	Prepaid Pension Benefits	To segregate the west prepaid pension from the other prepaid employee benefits per the request of the reporting group for the purpose SEC reporting
165001117	1650	Prepaid Sales Taxes	This account shall include amounts representing prepayments of sales taxes. Prepayments of Sales vs Use Taxes need to be in separa accounts
165001118	1650	Prepaid Sales Taxes	This account shall include amounts representing prepayments of sales taxes. Prepayments of Sales vs Use Taxes need to be in separa accounts
165001119	1650	Prepaid Sales Taxes	This account shall include amounts representing prepayments of sales taxes. Prepayments of Sales vs Use Taxes need to be in separate accounts
165001217	1650	Prepaid Use Taxes	This account shall include amounts representing prepayments of use taxes
165001218	1650	Prepaid Use Taxes	This account shall include amounts representing prepayments of use taxes
165001219	1650	Prepaid Use Taxes	This account shall include amounts representing prepayments of use taxes
1650014	1650	FAS 158 Qual Contra Asset	This account is used to track the long term portion of the FAS 158 PBO liability (Projected Benefit Obligation) for the Qualified Pension Plan when the net plan is still prepaid. This account offsets account 1650010.
1650021	1650	Prepaid Insurance - EIS	This account shall include amounts representing prepayments of insurance with EIS (Energy Insurance Services).
1650023	1650	Prepaid Lease	Track balance of prepaid lease expense for agreements that qualify as a lease under company policy. Prepaid Rents account should be used when the payment does not cover multiple accounting periods or does not qualify as a lease under company policy.
1650030	1650	Other Prepayments - Long Term	This account shall include amounts representing long term prepayments of other items not listed
1650035	1650	PRW Without MED-D Benefits	To record the Prepaid portion of the FAS106 Post Retirement Welfare (PRW) Trust - excluding the effects of the Med-D Subsidy.
1650037	1650	FAS158 Contra-PRW Exclud Med-D	To record an offset to the "Post Retirement Welfare (PRW) Without MED-D Benefits" 165 prepaid account for monthly PRW activity. PF will not report a Prepaid balance for financial reporting, the balance is reported through a 129 account if overfunded or 228 if underfunde
1710012	1710	Interest Under Recover - MI	To record interest receivable/payable related to the under/over recovery of deferred fuel
1710448	1710	Interest Receivable. -SIT -ST	Interest Receivable -SIT -ST
1720000	1720	Rents Receivable	This account shall include rents receivable or accrued on property rented or leased by the utility to others. Note: Rents receivable from associated companies shall be included in account 146, Accounts Receivable from Associated Companies.
1730000	1730	Accrued Utility Revenues	At the option of the utility, the estimated amount accrued for service rendered, but not billed at the end of any accounting period, may be included herein. In case accruals are made for unbilled revenues, they shall be made likewise for unbilled expenses, such as for the purchase of energy.
1730002	1730	Acrd Utility Rev-Factored-Assc	This account is used for factoring the AEP-East electric accounts receivable.
174001116	1740	Non-Highway Fuel Tax Credit	vintage year account to enable recording of the non-highway fuel tax credit
1740035	1740	Misc Current Assets - EIS	This account shall include the book cost of all miscellaneous current and accrued assets for Energy Insurance Services (EIS).
1740038	1740	Dept of Energy Proceeding-Curr	This account contains amounts probable of recovery within 1 year from the Department of Energy through the Spent Nuclear Fuel storag / Dry Cask proceeding. This account contains costs for which a settlement has not yet been achieved. Upon reaching settlement with tl DOE, these costs should be recorded in account 143.
1740039	1740	Dept of Energy Proceed-NonCurr	This account contains amounts probable of recovery (but not within 1 year) from the Department of Energy through the Spent Nuclear Fu storage / Dry Cask proceeding. These costs have not been submitted through the claims process. Upon achieving "current" status by reaching an expected recovery in less than 1 year, amounts should be reclassified to the equivalent current account (also Acct 174).
1750001	1750	Curr. Unreal Gains - NonAffil	Amounts recorded in accordance with SFAS 133 as amended, and EITF 02-03, representing current unrealized gains on forward commitments which are not designated as hedges.
1750002	1750	Long-Term Unreal Gns - Non Aff	Amounts recorded in accordance with SFAS 133 as amended, and EITF 02-03, representing long-term (greater than one year) unrealize gains on forward commitments which are not designated as hedges.
1750021	1750	S/T Asset MTM Collateral	This account is intended to be used for netting MTM collateral positions in accordance with FIN39-1. Please use account number 1750021.
1750022	1750	L/T Asset MTM Collateral	This account is intended to be used for netting MTM collateral positions in accordance with FIN39-1. Please use account number 1750022.
1810002	1810	Unamort Debt Exp - Inst Pur Cn	This account shall include expenses related to the issuance or assumption of installment purchase contracts. Amounts recorded in this account shall be amortized over the life of each respective issue under a plan which will distribute the amount equitably over the life of tl security.
1810003	1810	Unamort Debt Exp Notes Payable	This account shall include expenses related to the issuance or assumption of notes payable. Amounts recorded in this account shall be amortized over the life of each respective issue under a plan which will distribute the amount equitably over the life of the security.
1810006	1810	Unamort Debt Exp - Sr Unsec Nt	This account shall include expenses related to the issuance or assumption of Senior Unsecured Notes. Amounts recorded in this accou shall be amortized over the life of each respective issue under a plan which will distribute the amount equitably over the life of the secur

INDIANA MICHIGAN POWER COMPANY
INDIANA OFFICE OF UTILITY CONSUMER COUNSELOR
DATA REQUEST SET NO. OUCC DR 24
IURC CAUSE NO. 45235

DATA REQUEST NO OUCC 24-10

REQUEST

Please state the balance of Petitioner's portion of AEP's prepaid pension asset/liability as of December 31st for each calendar year during the period 2015 through 2018 and identify whether the amount reflected is an asset or a liability.

RESPONSE

I&M's total company December 31st prepaid pension asset account balances (excluding I&M River Operations and before jurisdictional, functional and jointly-owned plant adjustments) for the years 2015 - 2018 are as follows:

2015: $103,249,208

2016: $102,492,883

2017: $102,313,691

2018: $93,272,832

INDIANA MICHIGAN POWER COMPANY
INDIANA OFFICE OF UTILITY CONSUMER COUNSELOR
DATA REQUEST SET NO. OUCC DR 24
IURC CAUSE NO. 45235

DATA REQUEST NO OUCC 24-34

REQUEST

Please provide the historic calculation of Petitioner's claimed "prepaid pension asset" from inception to the present, including the amount of pension contributions and pension expense recorded for each calendar year included in this calculation.

RESPONSE

I&M objects to this question on the grounds and to the extent it is overly broad and unduly burdensome in that it is not limited in time. I&M further objects to the request on the grounds and to the extent the request seeks an analysis, compilation, calculation or study that I&M has not performed and to which I&M objects to performing. In support of this objection, I&M states that the requested information is not readily available for the period prior to 2006. Subject to and without waiver of the foregoing objections, please see OUCC 24-34 Attachment 1.xlsx for a summary of I&M's share of prepaid pension asset from 2006 to 2018.

Indiana Michigan Power Company
Prepaid Pension Activity
2016 through 2018

Year	Contributions	Expense	Total Balance
2006 Opening Balance			84,582,060
2006 Activity	0	(8,486,486)	76,095,574
2007 Activity	0	(6,794,836)	69,300,738
2008 Activity	0	(6,418,354)	62,882,384
2009 Activity	0	(12,484,766)	50,397,618
2010 Activity	63,207,452	(18,292,201)	95,312,868
2011 Activity	49,556,000	(14,218,000)	130,650,869
2012 Activity	21,202,000	(15,465,540)	136,387,329
2013 Activity	0	(20,266,081)	116,121,248
2014 Activity	8,629,000	(18,781,622)	105,968,626
2015 Activity	13,704,000	(16,423,418)	103,249,208
2016 Activity	12,150,000	(12,906,325)	102,492,883
2017 Activity	12,418,000	(12,597,191)	102,313,691
2018 Activity	0	(9,040,859)	93,272,832

INDIANA MICHIGAN POWER COMPANY
INDIANA OFFICE OF UTILITY CONSUMER COUNSELOR
DATA REQUEST SET NO. OUCC DR 24
IURC CAUSE NO. 45235

DATA REQUEST NO OUCC 24-26

REQUEST

Please state each actuarial assumption that was changed for the 2019 qualified pension actuarial report from the assumptions used for the 2016 and 2017 qualified pension actuarial report, including the rationale for the change and the impact each change had on the projected benefit obligations and annual pension expense.

RESPONSE

	2016 Report	2017 Report	2019 Report	Rationale and Impact
Discount Rate as of 1/1	4.30%	4.05%	4.30%	From 2016 to 2019, the discount rate assumption is flat. This amount is selected from among choices prescribed by law, all of which are based on observed market data over certain periods of time.
Expected return on assets at 12/31	6.00%	6.00%	6.25%	From 2016 to 2019, the expected return on assets increases by 0.25% which would not change the benefit obligation, but would decrease pension expense. The expected return on assets assumption reflects the estimate of future experience for trust asset returns, reflecting the plan‘s current asset allocation, current market conditions and third party forecasts that are updated annually to account for future market condition expectations.
Demographic assumptions				These assumptions are substantially the same for 2016 to 2019.

INDIANA MICHIGAN POWER COMPANY
INDIANA OFFICE OF UTILITY CONSUMER COUNSELOR
DATA REQUEST SET NO. OUCC DR 24
IURC CAUSE NO. 45235

DATA REQUEST NO OUCC 24-02

REQUEST

Please state Petitioner's portion of cash contributions to its qualified pension plan for each calendar year during the period 2015 through 2018.

RESPONSE

Shown below are I&M's total company cash contributions (excluding I&M River Transportation and before jurisdictional, functional and jointly-owned plant adjustments) to its qualified pension plan for the years 2015 through 2018.

2015: $13,704,000
2016: $12,150,000
2017: $12,418,000
2018: $0

INDIANA MICHIGAN POWER COMPANY
INDIANA OFFICE OF UTILITY CONSUMER COUNSELOR
DATA REQUEST SET NO. OUCC DR 24
IURC CAUSE NO. 45235

DATA REQUEST NO OUCC 24-09

REQUEST

Please state Petitioner's portion of minimum ERISA contributions required in each of the calendar years during the period 2015 through 2019.

RESPONSE

I&M objects to the request on the grounds and to the extent the request seeks an analysis, compilation, calculation or study that I&M has not performed and to which I&M objects to performing. Subject to and without waiver of the foregoing objection, I&M provides the following response.

There are no minimum ERISA contributions ("MRC") required from 2015 through 2018.
For the total AEP Plan, there is an MRC of $94,230,563 in 2019. I&M's portion of the minimum contribution requirement is being calculated as of the submittal of this response and is not yet available. For a reference of past AEP Plan MRC amounts and I&M MRC amounts, please see below:

	AEP Plan Total MRC	**I&M Portion of MRC**
2010	239,666,420	32,106,994
2011	189,639,274	20,504,209
2012	54,393,192	6,880,671
2013	54,762,687	7,130,025

Table 1: Summary of "Prepaid Pension Asset (Liability)"

Year	Contribution	Expense	Balance
2006	-	(8,486,486)	76,095,574
2007	-	(6,794,836)	69,300,738
2008	-	(6,418,354)	62,882,384
2009	-	(12,484,766)	50,397,618
2010	63,207,452	(18,292,201)	95,312,869
2011	49,556,000	(14,218,000)	130,650,869
2012	21,202,000	(15,465,540)	136,387,329
2013	-	(20,266,081)	116,121,248
2014	8,629,000	(18,781,622)	105,968,626
2015	13,704,000	(16,423,418)	103,249,208
2016	12,150,000	(12,906,325)	102,492,883

Q: Have there been years when I&M did not make a contribution to its pension plan?

A: Yes. Although I&M has made annual contributions to its pension plan in recent years, it has not always done so. Table 1 above presents I&M's cash pension contributions for each of the years during the period 2006 - 2016.[10]

Table 2: Summary of Contributions to I&M Pension Plans (Thousands of Dollars)

	Contributions		
Year	Minimum	Additonal	Total
2006	-	-	-
2007	-	-	-
2008	-	-	-
2009	-	-	-
2010	32,107	31,100	63,207
2011	20,504	29,052	49,556
2012	681	20,521	21,202
2013	7,130	-	-
2014	-	1,499	8,629
2015	-	13,704	13,704
2016	-	12,150	12,150

The minimum contribution column was provided by I&M in response to OUCC Data Request No. 14-07 (Attachment CLB-5). The minimum contribution

[10] *Id.*

INDIANA MICHIGAN POWER COMPANY
INDIANA OFFICE OF UTILITY CONSUMER COUNSELOR
DATA REQUEST SET NO. OUCC DR 24
IURC CAUSE NO. 45235

DATA REQUEST NO OUCC 24-33

REQUEST

Please state where the $89,244,007 “prepaid pension asset” claimed by Petitioner can be found on Petitioner’s balance sheet. If it is not located in the asset section of the balance sheet, please explain why not.

RESPONSE

Please refer to Exhibit A-2, Page 3 of 5 of the 2020 test year Balance Sheet for the Prepaid Pension Benefits (165) in the amount of $89,244,007.

SUPPLEMENTAL RESPONSE

I&M clarifies that the projected beginning balance at 1/1/2019 included River Transportation Division’s (RTD) prepaid pension component of $4,281,064 which should have been excluded from the prepaid pension asset balance of $89,244,007. The Total Company projected prepaid asset balance without RTD is $84,962,943.

INDIANA MICHIGAN POWER COMPANY
INDIANA OFFICE OF UTILITY CONSUMER COUNSELOR
DATA REQUEST SET NO. OUCC DR 35
IURC CAUSE NO. 45235

DATA REQUEST NO OUCC 35-13

REQUEST

Please state how much of the projected test year pension contributions of $6,391,000 are ERISA minimum contributions and how much are discretionary contributions.

RESPONSE

$6,391,000 is discretionary.

Although AEP has a $94,230,563 ERISA minimum required contribution in 2019 (I&M's portion is $13,017,091), the Company is not required to use cash to fulfill this contribution amount (IRS funding rules allow for the use of a non-cash crediting method to fulfil ERISA minimum required contributions, but using this method instead of cash would not be as healthy for the plan). The Company chooses to fund contributions with cash in order to preserve a healthy plan funded status (that stood slightly underfunded at 99.2% as of December 31, 2018) that will not imperil plan participants. The choice to make cash pension contributions depends on many factors such as the plan’s funded status (the amount of assets in the fund divided by the plan’s liability), market expectations, the plan’s asset allocation, the Company’s financial position and the projected growth of the plan liability.

The projected growth of the plan liability is of particular importance especially because the GAAP funded status of the plan of 99.2% as of December 31, 2018, does not include expected future service cost and therefore can make the plan seem more funded than what it actually is, when accounting for future service cost. Contributions to the plan need to be made, regardless of whether or not a minimum funding requirement exists or does not exist. ERISA minimum funding contributions are an output calculated by actuaries based upon what the plan has done, not an input to guide overall plan funding. Critically, the discount rate used in calculating the liability for ERISA minimum required contributions are different than those used for calculating the liability on a GAAP basis, giving rise to two different liability amounts.

Just like it is inadvisable to make a minimum payment on a credit card balance, since often you will pay less now, while paying more later, it can be inadvisable to only make minimum contributions without consideration of funded status, market expectations, asset allocations, the Company’s financial position and projected liability growth rates. Much like an individual saving for retirement, skipping too many years of saving money can quickly lead to a lack of retirement savings at retirement and can lead to larger savings contributions later, to make up for inadequate savings earlier on especially if you are comparing your liability against different benchmarks.

AFFIRMATION

I affirm, under the penalties for perjury, that the foregoing representations are true.

Margaret A. Stull
Chief Technical Advisor
Indiana Office of Utility Consumer Counselor

Cause No. 45235
Indiana Michigan Power Company

8/19/19
Date

CERTIFICATE OF SERVICE

Indiana Office of Utility Consumer Counselor Public's Exhibit No. 4 Testimony of OUCC Witness Margaret A. Stull has been served upon the following parties of record in the captioned proceeding by electronic service on August 20, 2019.

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