

**BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO**

In the Matter of the 2018 Long-Term Forecast Report of Ohio Power Company and Related Matters.	)	Case No. 18-501-EL-FOR
	)	
In the Matter of the Application of Ohio Power Company for Approval to Enter into Renewable Energy Purchase Agreements for Inclusion in the Renewable Generation Rider.	)	Case No. 18-1392-EL-RDR
	)	
	)	Case No. 18-1393-EL-ATA
In the Matter of the Application of Ohio Power Company for Approval to Amend its Tariffs.	)	
	)	

**REVISED DIRECT TESTIMONY OF PAUL LEANZA ON BEHALF OF INTERSTATE
GAS SUPPLY, INC. AND IGS SOLAR, LLC**

1 **INTRODUCTION AND PURPOSE OF TESTIMONY**

2 **Q. Please introduce yourself.**

3 A. My name is Paul Leanza. I am employed by Interstate Gas Supply, Inc. ("IGS" or
4 "IGS Energy") as Gas Supply Director. My business address is 6100 Emerald
5 Parkway, Dublin, Ohio 43016.

6 **Q. Please describe your educational background and work history.**

7 A. I received a BSBA degree from The Ohio State University in 1989 and have worked
8 exclusively in the energy industry since 1991. My experience includes positions
9 on both the regulated utility side of the business and non-regulated side including
10 wholesale, retail, and trading for both natural gas and power. I am well versed in
11 futures, swaps, and options and currently execute or oversee all NYMEX future
12 and swap transactions and manage the fixed price position for Interstate Gas
13 Supply, Inc.. As the Director for the Northeast Desk at Enron Energy Services I
14 was responsible for purchasing and selling physical supplies under short and long
15 term contractual arrangements including fixed and floating pricing for fixed and
16 variable volumes. The position also included the management of storage contracts
17 and supply peaking arrangements. My experience also includes power and gas
18 trading at AEP Energy Services where I traded power in the NYISO region and
19 traded natural gas in the Northeast region.

20 **Q. What is the purpose of your testimony?**

21 A. Ohio Power Company ("Ohio Power" or "AEP") has requested that the
22 Commission make a finding of "need" for 900 megawatts of renewable

1 generation resources. AEP's proposal relies upon a forecast of future electricity
2 and natural gas prices provided by AEP witness Bletzacker. The purpose of my
3 testimony is to demonstrate how AEP's forecast is unreliable and to provide a
4 more realistic outlook for the Commission's consideration.

5 **Q. Why is AEP's forecast unreliable?**

6 A. As I will explain, AEP's forecast is unreliable for three main reasons: (1) AEP's
7 conclusions are based upon a flawed and overstated projection of natural gas
8 prices; (2) AEP's forecasts have been incorrect time and again; (3) AEP and its
9 affiliates clearly have no confidence in their own forecast; therefore, the
10 Commission should give it little credibility.

11 **Q. Has AEP provided natural gas projections as part of its Long-Term Forecast**
12 **Report.**

13 A. Yes, in testimony filed on September 19, 2018, Mr. Bletzacker quantified natural
14 gas price projections as part of the Long-Term North American Energy Market
15 Forecast referred to as the "Fundamentals Forecast" used by Ohio Power. Specific
16 to natural gas, the Fundamentals Forecast lists prices for the Henry Hub, and
17 various basis locations including TCO Pool, TCO Delivered, Dominion South Point,
18 HSC, and PEPL TX-OK.

19 **Q. Do you agree with Mr. Bletzacker's testimony that natural gas prices are an**
20 **important factor in determining power prices?**

21 A. Yes, I agree with Mr. Bletzacker in that natural gas prices are an important
22 component when determining the dispatch order of generating units. As the

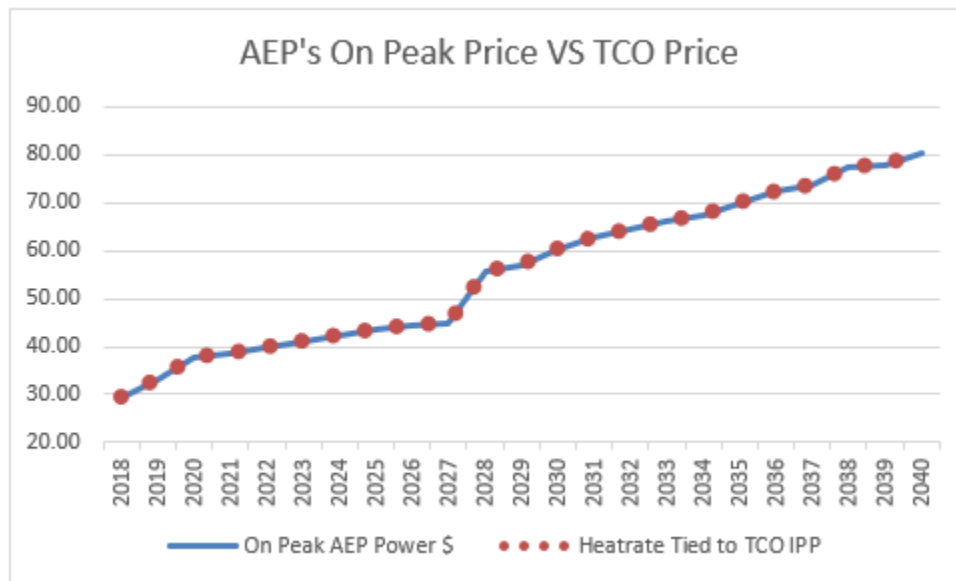
1 number of gas generating power units increase the more important gas prices
2 become when determining power prices. If gas prices delivered to the generating
3 units increase and gas is needed in the dispatch order, then power prices should
4 increase by the same relative ratio for long term forecasting purposes. This ratio is
5 shown in AEP's Nominal Forecast on the Y2018H2 Annual Prices-Nominal tab as
6 Heat Rates (mmbtu/MWh). The forecasted annual Heat Rate at the AEP GEN HUB
7 averages 9.63 over the 20-year period from 2020 to 2040.

8 **Q. Do you see a strong correlation between AEP's forecasted On Peak power**
9 **prices and AEP's forecasted gas prices provided by Mr. Bletzacker?**

10 A. Yes, based on the Fundamentals Forecast, AEP's On-Peak price for the PJM AEP
11 area is very strongly correlated to the TCO IPP gas price times the AEP heat rate
12 in the Fundamentals Forecast. TCO IPP is located in the Southwest Appalachian
13 region and makes a good proxy for gas supplies into AEP's PJM region. In fact, as
14 you can see from Figure 1, AEP's on peak price is virtually indiscernible from the
15 AEP forecasted TCO IPP gas price time the AEP heat rate.

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Figure 1



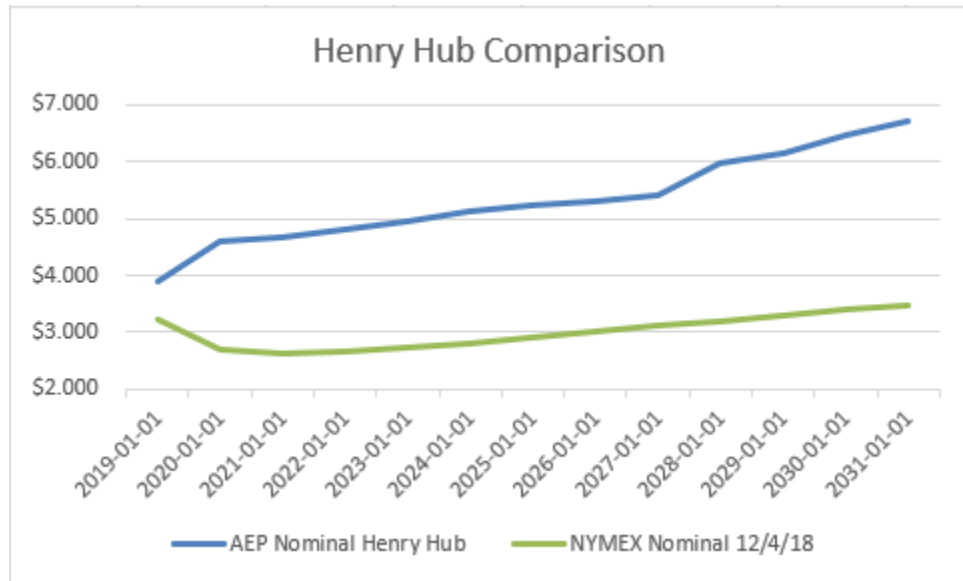
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3 **Q. Do you believe the natural gas price forecast developed by Mr. Bletzacker**
4 **and used by AEP is accurate?**

5 A. No, while no one can accurately and reliably predict what commodity prices will be
6 ten or twenty years from now, I believe the AEP projected gas prices are greatly
7 skewed to the high side. I believe that the AEP forecast does not place enough
8 emphasis on existing market conditions and pricing. For example, Figure 2 shows
9 the Henry Hub settlement from December 4, 2018, in green compared to AEP's
10 nominal Henry Hub price forecast is blue. Both prices are in nominal values and,
11 as you can tell, AEP's forecast is well above what the market believes gas prices
12 are valued at through 2030. In fact, by 2030, AEP's natural gas price estimate is
13 \$6.479 while the market is valuing natural gas prices in 2030 at \$3.389 or almost
14 half of AEP's forecasted prices.

15

Figure 2



Q. Can an unreliable natural gas forecast impact forecasted power prices?

A. Yes. As mentioned earlier, gas prices and power prices are connected by a ratio called the heat rate and while this heat rate ratio can and will change over time as generation plants become more efficient and the fuel mix changes this ratio ties gas and power prices together in areas that use gas as a feedstock for power generation. Using the average Heat Rate of 9.63 from AEP's Nominal Forecast, a \$1.00 increase in the price of natural gas will increase power prices by approximately \$9.63 or \$1.00 times the heat rate ratio. Generally speaking, if Ohio Power uses the AEP Nominal Forecast price of \$6.48 for natural gas in 2030 and the market is valuing gas in 2030 at \$3.39, the price difference of \$3.09 translates to an overinflated power price by approximately \$29 per megawatt hour in 2030. In other words, higher forecasted gas prices translate into higher forecasted power prices.

1 **Q. Do you agree with Mr. Bletzacker's testimony that it is unreasonable to rely**
2 **on NYMEX futures for long term corporate planning purposes?**

3 A. No. Disregarding the market sentiment and market views of pricing is irresponsible
4 and falls more into speculation than forecasting. Specific to gas, the market is
5 always sending price signals that change the expectations of market participants
6 either positively or negatively. For example, on November 28, 2018, the
7 Department of the Interior, US Geological Survey (USGS) identified the largest
8 continuous oil and gas resource potential ever, located in Texas and New Mexico's
9 Wolfcamp Shale and Bone Spring Formation. The USGS estimates this formation
10 contains 46.3 Billion barrels of oil, 281 Trillion cubic feet of natural gas, and 20
11 Billion barrels of natural gas liquids.¹ This new production find is in the Permian
12 basin where there is already more supply than demand and pipeline capacity is
13 fully utilized leading to very low regional prices. Recently prices at the Waha Hub
14 (benchmark hub for the Permian Basin) have traded negative meaning owners of
15 supply have paid counterparties to take their gas.

16 **Q. Can you identify specific examples where NYMEX futures prices impact the**
17 **corporate planning process?**

18 A. Yes, corporate decisions are made all the time based on NYMEX futures prices.
19 For example, just as the market is currently giving price signals that additional
20 transportation is needed out of the Permian Basin, increased pipeline capacity was
21 constructed out of the Marcellus and Utica production region specifically because

¹ <https://www.usgs.gov/news/usgs-announces-largest-continuous-oil-assessment-texas-and-new-mexico>.

1 the market was given a price signal that the Northeast regional supply was higher
2 than the demand which was driving regional prices down. Investor owned
3 companies built and contracted for pipelines based on the price signal determined
4 by the market. As another example, the US is in the center of a rather dramatic
5 race to build liquified natural gas (LNG) exporting facilities. To provide an
6 acceptable rate of return, investor owned companies are spending billions of
7 dollars in capital costs to build the LNG facilities and low cost natural gas as a
8 feedstock is a must if they expect to earn a decent rate of return. If the investor
9 owed LNG facilities believed that Henry Hub natural gas prices would average
10 \$6.48 by 2030, as Mr. Bletzacker has forecasted, these facilities might have trouble
11 recovering their variable costs, let alone the billions in capital costs.

12 In the examples above, the market evaluated information and make an educated
13 decision on future prices. Unfortunately, the AEP Nominal Forecast will be
14 oblivious to the market conditions which could lead to poor investment decisions
15 for AEP's captive rate payers.

16 **Q. Historically, do you feel AEP has done an adequate job forecasting short and**
17 **long-term commodity prices, specifically, natural gas prices?**

18 A. No. In 2015, Mr. Bletzacker provided AEP forecasted natural gas prices as part of
19 his testimony in Case No. 14-1694-EL. In his testimony, Mr. Bletzacker's forecast
20 of natural gas prices at the Henry Hub, in nominal dollars, would average \$6.01 in
21 2017, \$6.12 in 2018, \$6.19 in 2019 and by 2027 natural gas prices would average
22 \$8.04. On the date Mr. Bletzacker's testimony was filed, May 15, 2015, the NYMEX
23 showed a natural gas average closing price of \$3.37 for 2017, \$3.46 for 2018,

1 \$3.56 for 2019 and by 2027, the NYMEX price for natural gas averaged \$4.655.
2 As you can see in Figure 3, if we compare AEP's Forecasted prices to the value
3 assigned by the market via the NYMEX on May 15, 2015, you will notice that the
4 market did a much better job in determining the future value of natural gas. AEP's
5 forecast came nowhere near the prices that actually occurred and continues to be
6 well out of step with reality. In fact, AEP's forecasting of commodity prices was so
7 far out of touch with reality that approximately 18 months after Mr. Bletzacker's
8 forecasting testimony, AEP took an economic impairment of \$2.3 Billion, which
9 according to AEP's news release, "...largely relates to AEP's ownership of 2,684
10 megawatts of competitive generation in Ohio, including the Cardinal, Conesville,
11 Stuart and Zimmer plants." (from AEP's Securities and Exchange Commission
12 Form 8-K dated November 1, 2016).²

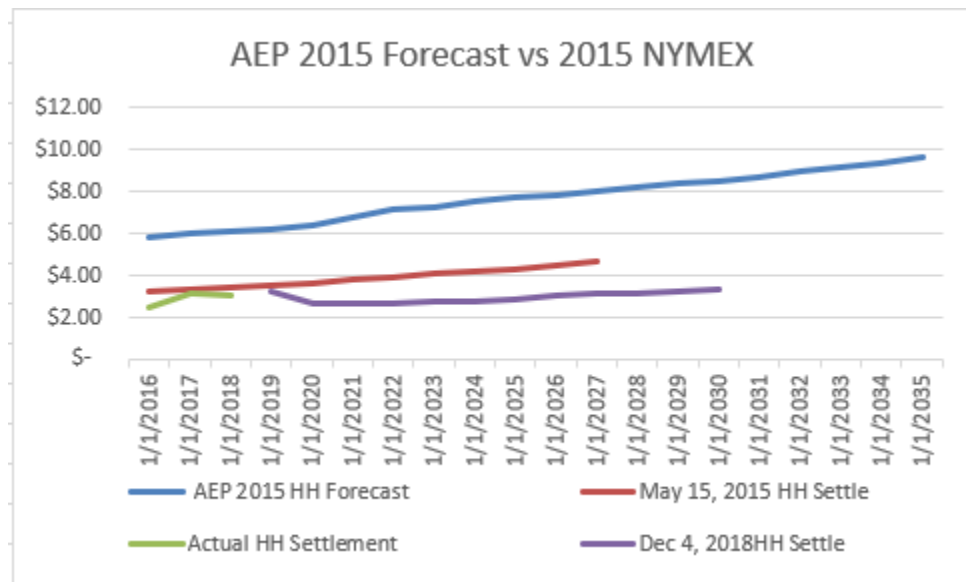
13 Figure 3 shows AEP's forecasted natural gas prices from 2015, along with NYMEX
14 closing natural gas prices from May 15, 2015, compared to the actual NYMEX
15 settlements and the future NYMEX curve as of December 4th, 2018.

² Ex. PL-1 and PL-2.

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Figure 3



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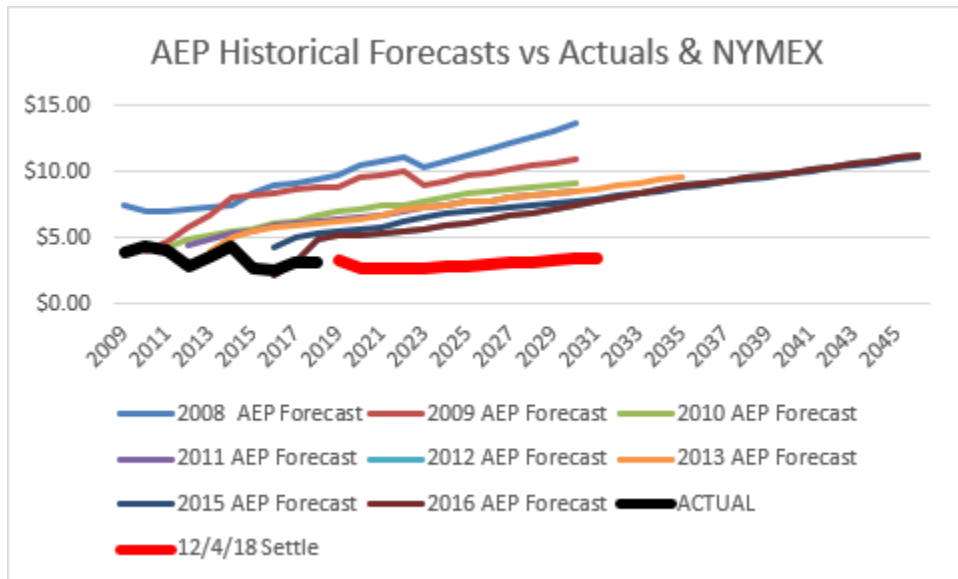
Moreover, each of AEP's fundamental forecasts since 2008 has missed the mark by a wide margin. I reviewed AEP Price Exhibits going back to 2008 and as you can tell from Figure 4, AEP always manages to forecast very high Henry Hub gas prices. Figure 4 shows AEP forecasts from 2008 through 2016, compared to where prices actually settled (thick black line) and the NYMEX settlement from December 4th (thick red line). In three of the years below, 2012, 2015, & 2016, AEP forecasted Henry Hub prices to 2046 but it shows up as one line since the prices are virtually identical over the four year stretch. But, the big take away for me is that AEP can't seem to accurately forecast 2 years out and becomes increasingly bad at forecasting the further out in time they project prices.

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Figure 4



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5 **Q. Do you feel that NYMEX adequately represent market natural gas prices**
6 **into the late 2020s?**

7 A. Yes. The forward natural gas markets, that include the NYMEX, Intercontinental
8 Exchange (ICE), the broker market and various others brings together short and
9 long-term buyer, speculators, and investors who help determine market sentiment
10 and develop market pricing. These daily interactions are captured by the
11 NYMEX/CME and vigorously regulated by the Commodity Futures Trading
12 Commission (CFTC). The NYMEX merged with the Chicago Mercantile Exchange
13 (CME) Group in 2008, and the CME is now responsible for all the NYMEX products
14 that include futures, options, and cleared over the counter financial instruments.
15 One of the CME's important responsibilities is to determine the daily closing

1 settlement prices as far out in time as the life of the contract which in the case of
2 natural gas is through December 2031. The CME looks at a variety of prices that
3 includes Futures, Henry Hub Natural Gas Look-A-Like contracts, and time spreads
4 to determine settlement prices when actual Futures have not traded in a future
5 month. For contract settlements beyond six months the CME has a process and
6 views all forms of trading and just not Futures.³

7 **Q. Do you have reason to believe that AEP does not have faith in its own**
8 **forecast?**

9 A. Yes. I have several reasons. First, one only need observe current power market
10 trends. Given the comparatively low cost of long-term natural gas it's hard for other
11 types of generation to compete with combined cycle gas plants even if those non-
12 gas plants are already built. Specifically, we've seen coal plants retiring at a quick
13 pace and nuclear plants are feeling the price pressure also. Also, at a recent Global
14 Energy Forum in New York, AEP's CEO Nick Akins stated that:

15 "The power generation resource rebalancing occurring today at AEP is centered
16 on less coal and moving toward other forms of energy. . . There is nothing more
17 risky for us to make in our industry today than a generation-related investment."⁴

18 If AEP's forecast was truly supported by the company, it would clearly not have
19 such bearish sentiments regarding unregulated generation investment.

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<https://www.cmegroup.com/confluence/plugins/servlet/mobile?contentId=78446889#content/view/78446889> (last viewed on Jan. 2, 2019).

⁴ Ex. PL-3 "AEP Chief Sees Market Rule Changes Falling Behind Investment Shifts" (Dec. 6, 2018) (emphasis added).

1 **Q. If AEP truly had faith in the Fundamentals Forecast, would it need**
2 **Commission authorization to undertake these projects?**

3 A. No, if AEP truly believed that these renewable energy projects would generate the
4 benefit of \$173 million as suggested in Table 3 of AEP's Exhibit JFT-1 then they
5 should structure these projects under an unregulated AEP generation entity and
6 not force the AEP customers to foot the bill. Also, if these projects were built under
7 an unregulated AEP entity, then this would help AEP recoup some of the \$2.3
8 Billion in impairment charges related, in part, to owning coal plants, as mentioned
9 earlier. In fact, the only reason that Table 3 of AEP's Exhibit suggests a benefit of
10 \$173 million is because the AEP Fundamental Forecast grossly overestimates
11 natural gas prices which inflate power prices which then look good compared to a
12 renewable project with somewhat fixed costs. In addition, as we know from recent
13 history, AEP is not reliable when it comes to forecasting energy prices.

14 **Q. Why would AEP want to inflate power prices?**

15 A. It all comes down to comparable price. If you're looking at a renewable project you
16 have a fairly good idea what your fixed cost components are and since they're
17 renewable projects the energy feedstock price, wind and solar, is somewhat
18 negligible. If your comparable future price, in this case AEP's Fundamental
19 Forecast, is grossly overinflated then the project looks profitable or favorable. But
20 if you compare the renewable price to future market prices currently expected by
21 the market (NYMEX) than your project profitability looks entirely different.

1 **Q. Are there other reasons that you feel AEP does not put much faith in the**
2 **Fundamental Forecast?**

3 A. Yes, if AEP believed in their natural gas forecast, an affiliate could purchase
4 natural gas futures at current market prices and collect all the associated profits
5 once the natural gas price reaches their forecasted price. The profit, given the large
6 gap between market prices and AEP's forecast, would be substantial and this
7 substantial profit could be monetized by AEP's affiliates.

8 **Q. Can you quantify the profit opportunity you describe above?**

9 A. At a very high level yes. Essentially you take the difference between the price that
10 natural gas contracts can be purchased at and what AEP's shows as their
11 forecasted price going out into the future and times that by the amount of gas you
12 need to purchase annually. The price difference between the market and AEP's
13 forecast is shown in Table 1.

Table 1

		NYMEX Settle			
Year	AEP NG Forecast	12/4/2018		Difference	
2021	\$ 4.688	\$	2.630	\$	2.06
2022	\$ 4.822	\$	2.665	\$	2.16
2023	\$ 4.959	\$	2.726	\$	2.23
2024	\$ 5.120	\$	2.802	\$	2.32
2025	\$ 5.221	\$	2.896	\$	2.32
2026	\$ 5.321	\$	3.015	\$	2.31
2027	\$ 5.411	\$	3.107	\$	2.30
2028	\$ 5.990	\$	3.193	\$	2.80
2029	\$ 6.150	\$	3.294	\$	2.86
2030	\$ 6.479	\$	3.389	\$	3.09
2031	\$ 6.710	\$	3.485	\$	3.23

1 The amount of gas to purchase annually can be somewhat subjective so I
2 considered two scenarios. The first scenario is very conservative as it considers
3 only a straight energy conversion from MWh to MMBtu - this is the standard MWh
4 to MMBtu energy conversion of 3.412.⁵ Under the energy only conversion I used
5 the total annual MWh from AEP's Exhibit JFT-1 and converted the amount to
6 MMBtus which can then be purchased as natural gas contracts at the market rate.
7 I then applied the Difference from Table 1 to the MMBtu amounts to come up with
8 a Total Annual Gain column which quantifies the profit opportunity. As you can tell
9 the nominal gain over the 20-year period is over \$281 million shown in Table 2.

⁵ https://www.eia.gov/energyexplained/index.php?page=about_energy_conversion_calculator (last viewed on Jan. 2, 2019).

Table 2
Difference Between AEP Forecast & Actual Market - Nominal Gains
Using Straight Energy Conversion

Year	AEP Solar Project *	AEP Wind Project**	Total AEP MWh	MWh to MMBtu Conversion***	Per Unit NYMEX	Total Annual
	MWh	MWh		3.412	Gain	Gain
2021	813,900	678,900	1,492,800	5,093,434	\$ 2.06	\$ 10,482,286
2022	809,900	678,900	1,488,800	5,079,786	\$ 2.16	\$ 10,957,944
2023	805,800	678,900	1,484,700	5,065,796	\$ 2.23	\$ 11,315,301
2024	803,300	680,800	1,484,100	5,063,749	\$ 2.32	\$ 11,739,881
2025	797,800	678,900	1,476,700	5,038,500	\$ 2.32	\$ 11,711,994
2026	793,800	678,900	1,472,700	5,024,852	\$ 2.31	\$ 11,587,728
2027	789,800	678,900	1,468,700	5,011,204	\$ 2.30	\$ 11,546,233
2028	787,400	680,800	1,468,200	5,009,498	\$ 2.80	\$ 14,010,732
2029	781,900	678,900	1,460,800	4,984,250	\$ 2.86	\$ 14,233,355
2030	778,000	678,900	1,456,900	4,970,943	\$ 3.09	\$ 15,361,456
2031	774,100	678,900	1,453,000	4,957,636	\$ 3.23	\$ 15,988,789
2032	771,800	680,800	1,452,600	4,956,271	\$ 3.23	\$ 15,984,388
2033	766,400	678,900	1,445,300	4,931,364	\$ 3.23	\$ 15,904,059
2034	762,600	678,900	1,441,500	4,918,398	\$ 3.23	\$ 15,862,243
2035	758,800	678,900	1,437,700	4,905,432	\$ 3.23	\$ 15,820,428
2036	756,500	680,800	1,437,300	4,904,068	\$ 3.23	\$ 15,816,027
2037	751,200	678,900	1,430,100	4,879,501	\$ 3.23	\$ 15,736,798
2038	747,400	678,900	1,426,300	4,866,536	\$ 3.23	\$ 15,694,983
2039	743,700	678,900	1,422,600	4,853,911	\$ 3.23	\$ 15,654,268
2040	741,400	680,800	1,422,200	4,852,546	\$ 3.23	\$ 15,649,867
Totals			29,123,000			\$ 281,058,760

* From Table 5 of AEP's Exhibit JFT-1

** From Table 6 of AEP's Exhibit JFT-1

*** Straight Energy Conversion - no Plant Generation loss

In the second scenario, I considered offsetting AEP's renewable energy projects with a very efficient combined cycle gas fired power unit using a heat rate of 6.5. A heat rate of 6.5 is well below the average natural gas heat rate of 7.812 which was determined by the EIA for the year 2017.⁶ I've added the Average Operating Heat Rate table from the EIA as a reference at the end of my testimony. In Table 3, I used the 6.5 heat rate factor which increases the amount of natural gas

⁶ Ex. PL-4. (found at https://www.eia.gov/electricity/annual/html/epa_08_01.html)

purchased which increases the profit opportunity from roughly \$281 million to over \$535 million over the 20-year period.

Table 3
Difference Between AEP Forecast & Actual Market - Nominal Gains
Using a Very Efficient Combined Cycle Heat Rate

Year	AEP Solar Project *	AEP Wind Project**	Total AEP MWh	MWh to MMBtu Conversion***	Per Unit NYMEX	Total Annual
	MWh	MWh		6.5	Gain	Gain
2021	813,900	678,900	1,492,800	9,703,200	\$ 2.06	\$ 19,969,186
2022	809,900	678,900	1,488,800	9,677,200	\$ 2.16	\$ 20,875,333
2023	805,800	678,900	1,484,700	9,650,550	\$ 2.23	\$ 21,556,112
2024	803,300	680,800	1,484,100	9,646,650	\$ 2.32	\$ 22,364,954
2025	797,800	678,900	1,476,700	9,598,550	\$ 2.32	\$ 22,311,829
2026	793,800	678,900	1,472,700	9,572,550	\$ 2.31	\$ 22,075,098
2027	789,800	678,900	1,468,700	9,546,550	\$ 2.30	\$ 21,996,047
2028	787,400	680,800	1,468,200	9,543,300	\$ 2.80	\$ 26,691,020
2029	781,900	678,900	1,460,800	9,495,200	\$ 2.86	\$ 27,115,126
2030	778,000	678,900	1,456,900	9,469,850	\$ 3.09	\$ 29,264,204
2031	774,100	678,900	1,453,000	9,444,500	\$ 3.23	\$ 30,459,300
2032	771,800	680,800	1,452,600	9,441,900	\$ 3.23	\$ 30,450,914
2033	766,400	678,900	1,445,300	9,394,450	\$ 3.23	\$ 30,297,884
2034	762,600	678,900	1,441,500	9,369,750	\$ 3.23	\$ 30,218,225
2035	758,800	678,900	1,437,700	9,345,050	\$ 3.23	\$ 30,138,565
2036	756,500	680,800	1,437,300	9,342,450	\$ 3.23	\$ 30,130,180
2037	751,200	678,900	1,430,100	9,295,650	\$ 3.23	\$ 29,979,246
2038	747,400	678,900	1,426,300	9,270,950	\$ 3.23	\$ 29,899,586
2039	743,700	678,900	1,422,600	9,246,900	\$ 3.23	\$ 29,822,023
2040	741,400	680,800	1,422,200	9,244,300	\$ 3.23	\$ 29,813,638
Totals			29,123,000			\$ 535,428,469

* From Table 5 of AEP's Exhibit JFT-1

** From Table 6 of AEP's Exhibit JFT-1

*** A very efficient combined cycle gas fired generation unit

Q. Are there any risk to AEP for implementing this type of NYMEX natural gas buying strategy?

A. Yes. As mentioned above, the amount of natural gas purchased would change the amount of profit so there's a volumetric risk. Second, I'm assuming AEP's affiliate can buy natural gas contracts close to the market but once it buys the contracts they know the price delta between what was purchased and AEP's forecast so the

1 Per Unit Gain becomes somewhat locked in. Third, there are a lot of factors that
2 go into AEP's power price forecast that are not determined by the natural gas price
3 and if any of these factors change there could be a corresponding change to the
4 AEP power price forecast. Lastly, and most importantly, only considering future
5 natural gas prices, if AEP's natural gas price forecast fails to materialize than this
6 strategy unravels very quickly. If natural gas prices come in well below what Mr.
7 Bletzacker forecasted as they did in 2008, 2009, 2010, 2011, 2012, 2013, 2014,
8 2015, and 2016 then, due to heat rate correlations, power prices will also fall well
9 below Mr. Bletzacker power forecast. If power prices come in well below AEP's
10 forecasted price than many of the assumptions made in AEP's Exhibit JFT-1 fall
11 apart.

12 **Q. Do you agree with Mr. Bletzacker that a Fundamentals Forecast should be**
13 **used in lieu of the NYMEX market for corporate planning purposes?**

14 A. No. As mentioned earlier, many if not most privately held and investor owned
15 corporations rely, at least in some part, on NYMEX market prices for planning
16 purposes when natural gas is involved. Specifically, for planning purposes, step
17 one is to look at forward market prices whether it's for commodities or interest rates
18 or any financial element where a market exists. But, based on page 4 and 5 of Mr.
19 Bletzacker's testimony:

20 "The primary tool used to develop the North American long-term energy market
21 pricing forecast is the Aurora energy market simulation model... AEPSC also has
22 ample energy market research information available for its reference, from sources
23 including third-party consultants, industry groups, governmental agencies, trade

1 press, investment community, AEP-internal expertise, various stakeholders, and
2 others.”

3 Nowhere in Mr. Bletzacker’s testimony does it show that forward NYMEX market
4 prices are used for natural gas and if so, why the internal AEP price forecast stray
5 so far away from what the market believes. Had Mr. Bletzacker used the market
6 prices for natural gas instead of very inflated internal AEP prices, forecasted power
7 prices would be much lower and the project break-even analysis in AEP’s Exhibit
8 JFT-1 would be much different.

9 **Q. Is there anything else in Mr. Bletzacker’s testimony that you would like to**
10 **address?**

11 A. Yes, on page 6, lines 6-9 of Mr. Bletzacker’s testimony, he states that

12 “For example, the last four winters in the lower 48 states were significantly warmer
13 than normal, resulting in reduced natural gas demand and materially depressed
14 natural gas prices.”

15 In fact, only two of the past four winters have been significantly warmer than normal
16 – the winter of November 2015- March 2016, and the winter of November 2016 to
17 March 2017. Based on a Gas Weighted Heating Degree Days (GWHDDs)
18 provided by Radiant Solutions (MDA), the winter of November 2014 to March 2015
19 was cooler than both the 10-year and 30-year average. The winter of November
20 2017 to March 2018 was cooler than the 10-year average but warmer than the 30-
21 year average which I’ll call average especially when you add in a much cooler than
22 normal April 2018, which extended the winter heating season. GWHDDs properly

1 address the heat load for customers in the lower 48 states. For example, cooler
2 than normal in Chicago and normal weather condition in Montana impact natural
3 gas usage much more than very cold conditions in Montana and normal conditions
4 in Chicago.

5 **Q. Does that conclude your testimony?**

6 **A.** Yes, it does. But I reserve the right to supplement my testimony.

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the foregoing *Revised Direct Testimony of Paul Leanza on behalf of Interstate Gas Supply, Inc.'s and IGS Solar, LLC*, was served this 10th day of January 2019 via electronic mail upon the following:

Thomas.mcnamee@ohioattorneygeneral.gov William.wright@ohioattorneygeneral.gov Tonnetta.scott@ohioattorneygeneral.gov kboehm@BKLawfirm.com jkylecohn@BKLawfirm.com mpritchard@mwncmh.com fdarr@mwnchm.com paul@carpenterlipps.com bojko@carpenterlipps.com dressel@carpenterlipps.com mleppla@theOEC.org jstock@beneschlaw.com lee@beneschlaw.com jrego@beneschlaw.com msilberman@beneschlaw.com dparram@bricker.com dborchers@bricker.com mdortch@kravitzllc.com cpirik@dickinsonwright.com todonnell@dickinsonwright.com wvorys@dickinsonwright.com cluse@dickinsonwright.com cpirik@dickinsonwright.com	stnourse@aep.com cblend@aep.com egallon@porterwright.com bhughes@porterwright.com christopher.miller@icemiller.com Jason.rafeld@icemiller.com tony.mendoza@sierraclub.org rsahli@columbusrr.com cmoooney@opae.org mnugent@igsenergy.com rdove@keglerbrown.com whitt@whitt-sturtevant.com glover@whitt-sturtevant.com callwein@keglerbrown.com mjsettineri@vorys.com glpetrucci@vorys.com ktreadway@oneenergyllc.com Maureen.willis@occ.ohio.gov William.michael@occ.ohio.gov Christopher.healey@occ.ohio.gov
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/s/ Joseph Olikier

Joseph Olikier

**SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549**

FORM 8-K

**CURRENT REPORT
PURSUANT TO SECTION 13 OR 15(D) OF THE
SECURITIES EXCHANGE ACT OF 1934**

Date of report (Date of earliest event reported)

November 1, 2016

AMERICAN ELECTRIC POWER COMPANY, INC.

(Exact Name of Registrant as Specified in Its Charter)

1-3525

New York

13-4922640

(Commission File Number)

(State or Other Jurisdiction of
Incorporation)

(IRS Employer Identification
No.)

1 Riverside Plaza, Columbus, OH

(Address of Principal Executive Offices)

43215

(Zip Code)

614-716-1000

(Registrant's Telephone Number, Including Area Code)

(Former Name or Former Address, if Changed Since Last Report)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (see General Instruction A.2. below):

- ☐ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
- ☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
- ☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
- ☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Item 2.02. Results of Operations and Financial Condition

The information, including the exhibit attached hereto, in this Current Report is being furnished and shall not be deemed “filed” for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, or otherwise subject to the liabilities of that section. The information in this Current Report shall not be incorporated by reference into any registration statement or other document pursuant to the Securities Act of 1933, except as otherwise stated in such filing.

Attached and incorporated herein by reference as Exhibit 99.1 is a copy of the press release of American Electric Power Company, Inc.’s financial results for the period ending September 30, 2016.

Item 9.01. Financial Statements and Exhibits

(c) Exhibits

Exhibit 99.1 Press Release dated November 1, 2016

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

AMERICAN ELECTRIC POWER COMPANY, INC.

By: /s/ Thomas G. Berkemeyer
Name: Thomas G. Berkemeyer
Title: Assistant Secretary

November 1, 2016

EXHIBIT INDEX

Exhibit No.

Description

99.1

Press Release dated November 1, 2016



NEWS from AEP

MEDIA CONTACT:

Melissa McHenry
Director, External Communications
614/716-1120

ANALYSTS CONTACT:

Bette Jo Rozsa
Managing Director, Investor Relations
614/716-2840

FOR IMMEDIATE RELEASE**AEP REPORTS THIRD-QUARTER 2016 EARNINGS**

- Third-quarter 2016 GAAP loss of \$1.56 per share, primarily driven by impairment of competitive generation assets
- Third-quarter 2016 operating earnings of \$1.30 per share
- 2016 operating earnings guidance increased and narrowed
- Investments in regulated businesses support continued earnings growth

AMERICAN ELECTRIC POWER
Preliminary, unaudited results

	Third Quarter ended September 30			Year-to-date ended September 30		
	2016	2015	Variance	2016	2015	Variance
Revenue (\$ in billions):	4.7	4.4	0.3	12.6	12.8	(0.2)
Earnings (Loss) (\$ in millions):						
GAAP	(765.8)	518.3	(1,284.1)	237.5	1,577.5	(1,340.0)
Operating	639.7	521.2	118.5	1,606.6	1,575.0	31.6
EPS (\$):						
GAAP	(1.56)	1.06	(2.62)	0.48	3.22	(2.74)
Operating	1.30	1.06	0.24	3.27	3.21	0.06

EPS based on 492mm shares 3Q 2016, 491mm shares 3Q 2015, 491mm shares YTD 2016 and 490mm shares YTD 2015.

COLUMBUS, Ohio, Nov. 1, 2016 - American Electric Power (NYSE: AEP) today reported a third-quarter 2016 loss, prepared in accordance with Generally Accepted Accounting Principles (GAAP), of \$766 million or \$1.56 per share, compared with GAAP earnings of \$518 million or \$1.06 per share in third-quarter 2015. Operating earnings for third-quarter 2016 were \$640 million or \$1.30 per share, compared with operating earnings of \$521 million or \$1.06 per share in third-quarter 2015. Operating earnings is a non-GAAP measure representing GAAP earnings excluding special items.

The difference between third-quarter 2016 GAAP earnings and operating earnings was largely due to the impairment of certain merchant generation assets.

The \$2.3 billion impairment largely relates to AEP's ownership share of 2,684 megawatts of competitive generation in Ohio, including the Cardinal, Conesville, Stuart and Zimmer plants. It also includes the competitive portion of the Oklaunion Plant in Texas, Desert Sky and Trent Mesa wind farms and some coal-related properties.

A full reconciliation of GAAP earnings to operating earnings for the quarter and year-to-date is included in the tables at the end of this news release.

"Our strategic focus on our regulated operations continues to support strong operating earnings performance. All of our regulated segments grew during the quarter, but we experienced declines in our competitive operations year-over-year. Our AEP Transmission Holding Co. business contributed 14 cents per share to earnings for the quarter, five cents higher than the same period last year. We also benefited from favorable weather with one of the warmest summers in AEP's service area in 35 years," said Nicholas K. Akins, chairman, president and chief executive officer.

"Residential and commercial sales in the third quarter were in line with our expectations, but the weak global economy, low energy prices and a strong dollar are still generating economic headwinds. The growth in residential and commercial sales that we've seen this year is being offset by declining industrial load in many states that we serve," Akins said.

"We took steps in the third quarter to significantly reduce the risk and earnings volatility associated with our competitive businesses, which includes power plants that for many years benefited our Ohio customers. We announced the sale of four of our competitive power plants and took a pre-tax impairment charge to write-down our remaining competitive generation assets to their estimated fair value. We will continue the strategic review of those plants and work on restructuring in Ohio to properly value future generation investments for the benefit of our customers," Akins said.

"Based on our solid operating earnings results for the quarter and the year and our success in managing costs, we are increasing and narrowing our operating earnings guidance for 2016 to \$3.75 to \$3.85 per share," Akins said.

SUMMARY OF RESULTS BY SEGMENT

\$ in millions

GAAP Earnings	3Q 16	3Q 15	Variance	YTD 16	YTD 15	Variance
Vertically Integrated Utilities (a)	342.3	273.5	68.8	829.3	779.7	49.6
Transmission & Distribution Utilities (b)	155.5	113.0	42.5	388.1	287.8	100.3
AEP Transmission Holdco (c)	69.0	45.6	23.4	207.5	146.6	60.9
Generation & Marketing (d)	(1,369.2)	91.6	(1,460.8)	(1,248.8)	360.3	(1,609.1)
Corporate and Other (e)	36.6	(5.4)	42.0	61.4	3.1	58.3
Total GAAP Earnings (Loss)	(765.8)	518.3	(1,284.1)	237.5	1,577.5	(1,340.0)
Operating Earnings	3Q 16	3Q 15	Variance	YTD 16	YTD 15	Variance
Vertically Integrated Utilities (a)	349.1	273.5	75.6	836.1	779.7	56.4
Transmission & Distribution Utilities (b)	155.5	113.0	42.5	388.1	287.8	100.3
AEP Transmission Holdco (c)	69.0	45.6	23.4	207.5	146.6	60.9
Generation & Marketing (d)	81.0	94.5	(13.5)	197.7	357.8	(160.1)
Corporate and Other (e)	(14.9)	(5.4)	(9.5)	(22.8)	3.1	(25.9)
Total Operating Earnings	639.7	521.2	118.5	1,606.6	1,575.0	31.6

A full reconciliation of GAAP earnings to operating earnings is included in tables at the end of this news release.

- a. Includes AEP Generating Co., Appalachian Power, Indiana Michigan Power, Kentucky Power, Kingsport Power, Public Service Company of Oklahoma, Southwestern Electric Power and Wheeling Power.
- b. Includes Ohio Power, AEP Texas Central and AEP Texas North.
- c. Includes wholly-owned transmission-only subsidiaries and transmission-only joint ventures.
- d. Includes AEP OnSite Partners, AEP Renewables, nonregulated generation in ERCOT and PJM as well as marketing, risk management and retail activities in ERCOT, PJM and MISO.
- e. Includes commercial barging operations in prior periods.

EARNING GUIDANCE

AEP increased and narrowed its 2016 operating earnings guidance range to \$3.75 to \$3.85 per share. Operating earnings could differ from GAAP earnings for matters such as impairments, divestitures or changes in accounting principles. AEP management is not able to forecast if any of these items will occur or any amounts that may be reported for future periods. Therefore, AEP is not able to provide a corresponding GAAP equivalent for earnings guidance.

Reflecting special items recorded through the third quarter, the estimated earnings per share on a GAAP basis would be \$0.96 to \$1.06 per share. See the table below for a full reconciliation of 2016 earnings guidance.

2016 EPS Guidance Reconciliation

Estimated EPS on a GAAP basis	\$0.96	to	\$1.06
Impairment of certain merchant generation assets			2.98
Disposition of commercial barge operations			0.01
Capital loss valuation adjustment			(0.09)
Federal tax audit settlement			(0.11)
Operating EPS Guidance	\$3.75	to	\$3.85

WEBCAST

American Electric Power's quarterly discussion with financial analysts and investors will be broadcast live over the Internet at 8 a.m. EDT today at <http://www.aep.com/webcasts>. The webcast will include audio of the discussion and visuals of charts and graphics referred to by AEP management. The charts and graphics will be available for download at <http://www.aep.com/webcasts>.

American Electric Power is one of the largest electric utilities in the United States, delivering electricity and custom energy solutions to nearly 5.4 million customers in 11 states. AEP owns the nation's largest electricity transmission system, a more than 40,000-mile network that includes more 765-kilovolt extra-high voltage transmission lines than all other U.S. transmission systems combined. AEP also operates 224,000 miles of distribution lines. AEP ranks among the nation's largest generators of electricity, owning approximately 31,000 megawatts of generating capacity in the U.S. AEP also supplies 3,200 megawatts of renewable energy to customers. AEP's utility units operate as AEP Ohio, AEP Texas, Appalachian Power (in Virginia and West Virginia), AEP Appalachian Power (in Tennessee), Indiana Michigan Power, Kentucky Power, Public Service Company of Oklahoma, and Southwestern Electric Power Company (in Arkansas, Louisiana and east Texas). AEP's headquarters are in Columbus, Ohio.

AEP's earnings are prepared in accordance with accounting principles generally accepted in the United States and represent the company's earnings as reported to the Securities and Exchange Commission. The company's operating earnings, a non-GAAP measure representing GAAP earnings excluding special items as described in the news release and charts, provide another representation for investors to evaluate the performance of the company's ongoing business activities. AEP uses operating earnings as the primary performance measurement when communicating with analysts and investors regarding its earnings outlook and results. The company uses operating earnings data internally to measure performance against budget and to report to AEP's Board of Directors and also as an input in determining performance-based compensation under the company's employee incentive compensation plans.

This report made by American Electric Power and its Registrant Subsidiaries contains forward-looking statements within the meaning of Section 21E of the Securities Exchange Act of 1934. Although AEP and each of its Registrant Subsidiaries believe that their expectations are based on reasonable assumptions, any such statements may be influenced by factors that could cause actual outcomes and results to be materially different from those projected. Among the factors that could cause actual results to differ materially from those in the forward-looking statements are: the economic climate, growth or contraction within and changes in market demand and demographic patterns in AEP's service territory; inflationary or deflationary interest rate trends; volatility in the financial markets, particularly developments affecting the availability or cost of capital to finance new capital projects and refinance existing debt; the availability and cost of funds to finance working capital and capital needs, particularly during periods when the time lag between incurring costs and recovery is long and the costs are material; electric load, customer growth and the impact of competition, including competition for retail customers; weather conditions, including storms and drought conditions, and AEP's ability to recover significant storm restoration costs; the cost of fuel and its transportation and the creditworthiness and performance of fuel suppliers and transporters; availability of necessary generating capacity and the performance of AEP's generating plants; AEP's ability to recover fuel and other energy costs through regulated or competitive electric rates; AEP's ability to build transmission lines and facilities (including the ability to obtain any necessary regulatory approvals and

permits) when needed at acceptable prices and terms and to recover those costs; new legislation, litigation and government regulation, including oversight of nuclear generation, energy commodity trading and new or heightened requirements for reduced emissions of sulfur, nitrogen, mercury, carbon, soot or particulate matter and other substances that could impact the continued operation, cost recovery, and/or profitability of AEP's generation plants and related assets; evolving public perception of the risks associated with fuels used before, during and after the generation of electricity, including nuclear fuel; a reduction in the federal statutory tax rate that could result in an accelerated return of deferred federal income taxes to customers; timing and resolution of pending and future rate cases, negotiations and other regulatory decisions, including rate or other recovery of new investments in generation, distribution and transmission service and environmental compliance; resolution of litigation; AEP's ability to constrain operation and maintenance costs; AEP's ability to develop and execute a strategy based on a view regarding prices of electricity and gas; prices and demand for power generated and sold at wholesale; changes in technology, particularly with respect to energy storage and new, developing, alternative or distributed sources of generation; AEP's ability to recover through rates or market prices any remaining unrecovered investment in generating units that may be retired before the end of their previously projected useful lives; volatility and changes in markets for capacity and electricity, coal, and other energy-related commodities, particularly changes in the price of natural gas and capacity auction returns; changes in utility regulation and the allocation of costs within regional transmission organizations, including ERCOT, PJM and SPP; the market for generation in Ohio and PJM and the ability to recover investments in Ohio generation assets; AEP's ability to successfully and profitably manage competitive generation assets, including the evaluation and execution of strategic alternatives for these assets as some of the alternatives could result in a loss; changes in the creditworthiness of the counterparties with whom AEP has contractual arrangements, including participants in the energy trading market; actions of rating agencies, including changes in the ratings of AEP debt; the impact of volatility in the capital markets on the value of the investments held by AEP's pension, other postretirement benefit plans, captive insurance entity and nuclear decommissioning trust and the impact of such volatility on future funding requirements; accounting pronouncements periodically issued by accounting standard-setting bodies; and other risks and unforeseen events, including wars, the effects of terrorism (including increased security costs), embargoes, cyber security threats and other catastrophic events.

American Electric Power

Financial Results for the Third Quarter of 2016 Reconciliation of GAAP to Operating Earnings

		2016							
		Vertically Integrated Utilities	Transmission & Distribution Utilities	AEP Transmission Holdco	Generation & Marketing	Corporate and Other	Total		EPS
		(\$ millions)							
GAAP Earnings (Loss)		342.3	155.5	69.0	(1,369.2)	36.6	(765.8)	\$	(1.56)
Special Items									
Mark-to-Market Impact of Commodity Hedging Activities	(a)	—	—	—	2.1	—	2.1	\$	—
Disposition of Commercial Barge Operations	(b)	—	—	—	—	(17.7)	(17.7)		(0.03)
Capital Loss Valuation Adjustment	(b)	—	—	—	(10.1)	(33.8)	(43.9)		(0.09)
Impairment of Certain Merchant Generation Assets	(c)	6.8	—	—	1,458.2	—	1,465.0		2.98
Total Special Items		6.8	—	—	1,450.2	(51.5)	1,405.5	\$	2.86
Operating Earnings (Loss)		349.1	155.5	69.0	81.0	(14.9)	639.7	\$	1.30

Financial Results for the Third Quarter of 2015 Reconciliation of GAAP to Operating Earnings

		2015							
		Vertically Integrated Utilities	Transmission & Distribution Utilities	AEP Transmission Holdco	Generation and Marketing	Corporate and Other	Total		EPS
		(\$ millions)							
GAAP Earnings (Loss)		273.5	113.0	45.6	91.6	(5.4)	518.3	\$	1.06
Special Items									
Mark-to-Market Impact of Commodity Hedging Activities	(a)	—	—	—	2.9	—	2.9		—
Total Special Items		—	—	—	2.9	—	2.9	\$	—
Operating Earnings (Loss)		273.5	113.0	45.6	94.5	(5.4)	521.2	\$	1.06

(a) Reflected in Revenues and Income Tax Expense

(b) Reflected in Income Tax Expense

(c) Reflected in Asset Impairments and Other Related Charges and Income Tax Expense

American Electric Power
Summary of Selected Sales Data
Regulated Connected Load
(Data based on preliminary, unaudited results)

ENERGY & DELIVERY SUMMARY	Three Months Ended September 30		
	2016	2015	Change
Vertically Integrated Utilities			
Retail Electric (in millions of kWh):			
Residential	9,575	9,019	6.2 %
Commercial	7,137	7,008	1.8 %
Industrial	8,655	8,882	(2.6)%
Miscellaneous	634	616	2.9 %
Total Retail	26,001	25,525	1.9 %
Wholesale Electric (in millions of kWh): (a)	6,765	6,577	2.9 %
Total KWHs	32,766	32,102	2.1 %
Transmission & Distribution Utilities			
Retail Electric (in millions of kWh):			
Residential	8,325	7,590	9.7 %
Commercial	7,287	7,033	3.6 %
Industrial	5,518	5,665	(2.6)%
Miscellaneous	187	194	(3.6)%
Total Retail (b)	21,317	20,482	4.1 %
Wholesale Electric (in millions of kWh): (a)	654	497	31.6 %
Total KWHs	21,971	20,979	4.7 %

(a) Includes Off-System Sales, Municipalities and Cooperatives, Unit Power, and Other Wholesale Customers.

(b) Represents energy delivered to distribution customers.

American Electric Power

Financial Results for Year-to-Date 2016 Reconciliation of GAAP to Operating Earnings

2016							
	Vertically Integrated Utilities	Transmission & Distribution Utilities	AEP Transmission Holdco	Generation & Marketing	Corporate and Other	Total	EPS
	(\$ millions)						
GAAP Earnings (Loss)	829.3	388.1	207.5	(1,248.8)	61.4	237.5	\$ 0.48
Special Items							
Mark-to-Market Impact of Commodity Hedging Activities (a)	—	—	—	(1.6)	—	(1.6)	\$ —
Disposition of Commercial Barge Operations (b)	—	—	—	—	5.2	5.2	0.01
Federal Tax Audit Settlement (c)	—	—	—	—	(55.6)	(55.6)	(0.11)
Capital Loss Valuation Adjustment (c)	—	—	—	(10.1)	(33.8)	(43.9)	(0.09)
Impairment of Certain Merchant Generation Assets (d)	6.8	—	—	1,458.2	—	1,465.0	2.98
Total Special Items	6.8	—	—	1,446.5	(84.2)	1,369.1	\$ 2.79
Operating Earnings (Loss)	836.1	388.1	207.5	197.7	(22.8)	1,606.6	\$ 3.27

Financial Results for Year-to-Date 2015 Reconciliation of GAAP to Operating Earnings

2015							
	Vertically Integrated Utilities	Transmission & Distribution Utilities	AEP Transmission Holdco	Generation & Marketing	Corporate and Other	Total	EPS
	(\$ millions)						
GAAP Earnings (Loss)	779.7	287.8	146.6	360.3	3.1	1,577.5	\$ 3.22
Special Items							
Mark-to-Market Impact of Commodity Hedging Activities (a)	—	—	—	(2.5)	—	(2.5)	(0.01)
Total Special Items	—	—	—	(2.5)	—	(2.5)	\$ (0.01)
Operating Earnings (Loss)	779.7	287.8	146.6	357.8	3.1	1,575.0	\$ 3.21

(a) Reflected in Revenues and Income Tax Expense

(b) Reflected in Discontinued Operations, Equity Earnings and Income Tax Expense

(c) Reflected in Income Tax Expense

(d) Reflected in Asset Impairments and Other Related Charges and Income Tax Expense

American Electric Power
Summary of Selected Sales Data
Regulated Connected Load
(Data based on preliminary, unaudited results)

ENERGY & DELIVERY SUMMARY	Nine Months Ended September 30		
	2016	2015	Change
Vertically Integrated Utilities			
Retail Electric (in millions of kWh):			
Residential	25,373	26,070	(2.7)%
Commercial	19,207	19,315	(0.6)%
Industrial	25,576	26,178	(2.3)%
Miscellaneous	1,740	1,739	0.1 %
Total Retail	71,896	73,302	(1.9)%
Wholesale Electric (in millions of kWh): (a)	17,253	20,748	(16.8)%
Total KWHs	89,149	94,050	(5.2)%
Transmission & Distribution Utilities			
Retail Electric (in millions of kWh):			
Residential	20,575	20,486	0.4 %
Commercial	19,676	19,320	1.8 %
Industrial	16,522	16,754	(1.4)%
Miscellaneous	528	532	(0.8)%
Total Retail (b)	57,301	57,092	0.4 %
Wholesale Electric (in millions of kWh): (a)	1,389	1,460	(4.9)%
Total KWHs	58,690	58,552	0.2 %

(a) Includes Off-System Sales, Municipalities and Cooperatives, Unit Power, and Other Wholesale Customers.

(b) Represents energy delivered to distribution customers.

American Electric Power

2016 Annual Report

**Audited Consolidated Financial Statements and
Management's Discussion and Analysis of Financial Condition and Results of Operations**



BOUNDLESS ENERGY

If OPCo is ultimately not permitted to fully collect all components of its ESP rates, it could reduce future net income and cash flows and impact financial condition. See “Ohio Electric Security Plan Filings” section of Note 4.

Merchant Generation Assets

In September 2016, AEP signed an agreement to sell Darby, Gavin, Lawrenceburg and Waterford Plants (“Disposition Plants”) totaling 5,329 MWs of competitive generation to a nonaffiliated party. As of December 31, 2016, the net book value of these assets, including related materials and supplies inventory and CWIP, was \$1.8 billion. The sale closed in January 2017 for approximately \$2.2 billion. The net proceeds from the transaction are approximately \$1.2 billion in cash after taxes, repayment of debt associated with these assets and transaction fees, which resulted in an after tax gain of approximately \$130 million. AEP plans to primarily use these proceeds to reduce outstanding debt and invest in its regulated businesses, including transmission and contracted renewable projects.

The assets and liabilities included in the sale transaction have been recorded as Assets Held for Sale and Liabilities Held for Sale, respectively, on the balance sheet as of December 31, 2016. See “Assets and Liabilities Held for Sale” section of Note 7 for additional information.

In September 2016, due to AEP’s ongoing evaluation of strategic alternatives for its merchant generation assets, declining forecasts of future energy and capacity prices, and a decreasing likelihood of cost recovery through regulatory proceedings or legislation in the state of Ohio providing for the recovery of AEP’s existing Ohio merchant generation assets, AEP performed an impairment analysis at the unit level on the remaining merchant generation assets in accordance with accounting guidance for impairments of long-lived assets. The evaluation was performed using generating unit specific estimated future cash flows and resulted in a material impairment of certain merchant generation fleet assets. As a result, AEP recorded a pretax impairment of \$2.3 billion (\$1.5 billion, net of tax) in Asset Impairments and Other Related Charges on the statements of income related to 2,684 MWs of Ohio merchant generation including Cardinal, Unit 1, 43.5% ownership interest in Conesville, Unit 4, Conesville, Units 5 and 6, 26.0% ownership interest in Stuart, Units 1-4, and 25.4% ownership interest in Zimmer, Unit 1, as well as Putnam coal and I&M’s Price River coal reserves, Desert Sky and Trent Wind Farms and the merchant generation portion of the Oklaunion Plant. As of December 31, 2016, the remaining net book value of these assets is \$57 million. See “Merchant Generating Assets (Generation & Marketing Segment)” section of Note 7 for additional information.

Management continues to evaluate potential alternatives for the remaining merchant generation assets. These potential alternatives may include, but are not limited to, transfer or sale of AEP’s ownership interests, or a wind down of merchant coal-fired generation fleet operations. In February 2017, AEP signed an agreement to purchase Dynegy Corporation’s 40% ownership share of Conesville Plant, Unit 4. Simultaneously, AEP signed an agreement to sell its 25.4% ownership share of Zimmer Plant, Unit 1 to Dynegy Corporation. The transactions are expected to close in the second quarter of 2017, subject to FERC approval and are not expected to have a material impact on net income, cash flows and financial condition. AEP is also continuing a separate strategic review and evaluating alternatives related to the 48 MW Racine Hydroelectric Plant. Management has not set a specific time frame for a decision on these assets. These alternatives could result in additional losses which could reduce future net income and cash flows and impact financial condition.

Renewable Generation Portfolio

The growth of AEP’s renewable generation portfolio reflects the company’s strategy to diversify generation resources to provide clean energy options to customers that meet both their energy and capacity needs.

AEP has formed two new subsidiaries within the Generation & Marketing segment to further develop its renewable portfolio. AEP OnSite Partners, LLC works directly with wholesale and large retail customers to provide tailored solutions based upon market knowledge, technology innovations and deal structuring which may include distributed solar, wind, combined heat and power, energy storage, waste heat recovery, energy efficiency, peaking generation and other forms of cost reducing energy technologies. AEP OnSite Partners, LLC pursues projects where a suitable termed agreement is entered into with a credit-worthy counterparty. AEP Renewables, LLC develops and/or acquires large



6 Dec, 2018

AEP chief sees market rule changes falling behind investment shifts

**Author** Jared Anderson**Theme** Energy

Market reforms are not happening rapidly enough to help keep certain types of power generation viable, American Electric Power Co. Inc. Chairman, President and CEO Nick Akins said Dec. 6.

It is going to take a long time to sort out some of the issues competitive wholesale power markets grapple with today like accommodating state renewable energy policies, Akins said during the S&P Global Platts Global Energy Outlook Forum in New York.

"Clearly [the market reform process] is not moving quickly enough to keep some generation in place," he said, adding there is no doubt that the states are stepping in because of the lack of movement from the federal standpoint.

'Kiss of death'

The stakeholder process at the regional transmission organizations that run the power markets is "practically the kiss of death" for some projects, Akins said, adding that is why the boards of the RTOs are having to step in to take things directly to the Federal Energy Regulatory Commission.

With regard to fuel security, which is an issue being studied in the PJM Interconnection, New York ISO and ISO New England, looking at the attributes of each individual type of generation will take a long time, and "I don't know that we have the time to do that," Akins said.

It is the American way to wait for a calamity to occur before an adjustment is made, he said.

Coal, nuclear bailout

Asked whether any new coal-fired generation would be built in the U.S., Akins focused on the economics and the risk being taken.

Major capital investments such as coal-fired or nuclear plants transcend political term limits and for coal, regardless of what the Trump administration does, there is always another administration, Akins said. "It's very clear that today those capital investments need to be shortened ... to mitigate the risk to our consumers and investors," he said.

"We were supportive of [the U.S. Department of Energy] and FERC looking at baseload generation attributes because there is a level required to maintain reliability," he said. AEP wanted studies to be done to determine which baseload units are needed for each part of the grid and figure out how to pay for them.

There has been an ongoing grid resilience debate, which started last year when the Trump administration floated plans to prop up struggling coal and nuclear plants in the name of fuel security.

In addition, FirstEnergy Corp. unit FirstEnergy Solutions Corp. in late March filed a request with the DOE under Section 202(c) of the Federal Power Act and Section 301(b) of the DOE Organization Act to declare an emergency requiring PJM to arrange contracts and provide compensation to merchant coal and nuclear plants that have become unprofitable in PJM's competitive wholesale power markets.

It remains unclear what action, if any, the federal government may take on this issue.

'Nothing more risky'

From an investment standpoint, AEP has shifted gears from retrofitting coal plants for environmental compliance requirements toward other priorities.

Investment six or seven years ago was about 65% centered on coal-fired power plant scrubbers and today 75% is centered on transmission and distribution, Akins said. The power generation resource rebalancing occurring today at AEP is centered on less coal and moving toward other forms of energy.

"If you look at our resource plan for the next few years, all of it practically is solar, wind and natural gas. There is nothing more risky for us to make in our industry today than a generation-related investment," Akins said.

The company has a goal to reduce the carbon dioxide emissions of its generating units 60% by 2030 and 80% by 2050 from 2000 levels.

Jared Anderson is a reporter for S&P Global Platts which, like S&P Global Market Intelligence, is owned by S&P Global Inc.

Autor

Table 8.1. Average Operating Heat Rate for Selected Energy Sources,
2007 through 2017 (Btu per Kilowatthour)

Year	Coal	Petroleum	Natural Gas	Nuclear
2007	10375	10794	8403	10489
2008	10378	11015	8305	10452
2009	10414	10923	8160	10459
2010	10415	10984	8185	10452
2011	10444	10829	8152	10464
2012	10498	10991	8039	10479
2013	10459	10713	7948	10449
2014	10428	10814	7907	10459
2015	10495	10687	7878	10458
2016	10493	10811	7870	10459
2017	10465	10834	7812	10459

Coal includes anthracite, bituminous, subbituminous and lignite coal. Waste coal and synthetic coal are included starting in 2002.
Petroleum includes distillate fuel oil (all diesel and No. 1 and No. 2 fuel oils), residual fuel oil (No. 5 and No. 6 fuel oils and bunker C fuel oil, jet fuel, kerosene, petroleum coke, and waste oil.

Notes:
Included in the calculation for coal, petroleum, and natural gas average operating heat rate are electric power plants in the utility and independent power producer sectors.
Combined heat and power plants, and all plants in the commercial and industrial sectors are excluded from the calculations.
The nuclear average heat rate is the weighted average tested heat rate for nuclear units as reported on the Form EIA-860.

Sources: U.S. Energy Information Administration, Form EIA-923, "Power Plant Operations Report," and predecessor form(s) including U.S. Energy Information Administration, Form EIA-906, "Power Plant Report," and Form EIA-920, "Combined Heat and Power Plant Report," Form EIA-860, "Annual Electric Generator Report."

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Summary: Testimony Revised Testimony of Paul Leanza electronically filed by Mr. Joseph E. Oliker on behalf of IGS Energy and IGS Solar, LLC