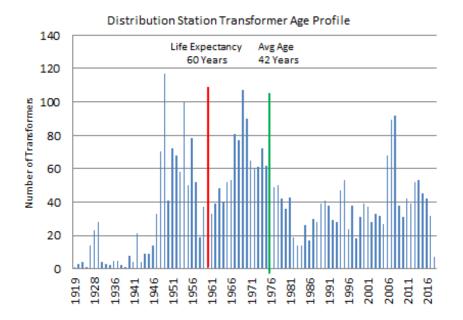
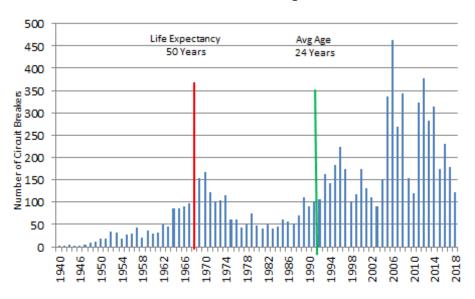


### ROBUST DISTRIBUTION CAPITAL EXPENDITURE OPPORTUNITIES



Distribution Station Circuit Breaker Age Profile



Distribution	Station Transformers	Circuit Breakers
Life Expectancy (years)	60	50
Current Quantity over Life Expectancy	923	993
Quantity that will exceed Life Expectancy in next ten years	514	977
Total Renewal Opportunity over ten years	1,437	1,970



# EXAMPLES OF INCREMENTAL DISTRIBUTION INVESTMENT OPPORTUNITIES

- Grid Modernization
  - Distribution Supervisory Control and Data Acquisition
  - Smart Circuits
- Distribution Line Re-Conductoring
  - Replace deteriorated small wire
  - Increase capacity to facilitate ties for smart circuits
  - Over 86,000 miles of small wire is in service across the operating companies (age profile at least 40 years)

- Pole Replacement Programs
- Obsolete Station Breaker Replacements
- Capacity/Reliability Projects
- Distribution Station Transformers

Represents ~ \$500M/year of incremental investment opportunity to improve system reliability and modernize the system





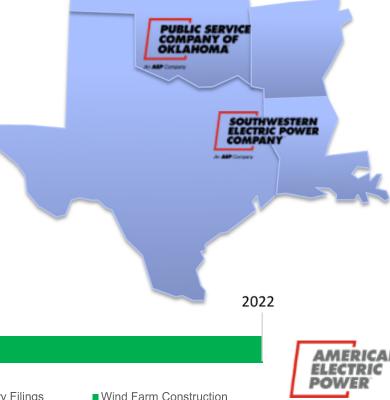
## SWEPCO AND PSO CUSTOMER SAVINGS PLAN

- SWEPCO and PSO draft Integrated Resource Plans (IRP) continue to indicate that customers benefit from additional lowcost wind energy resources
  - Customer benefits realized in part by the federal Production Tax Credit
- Project opportunity will be scalable to align with regulatory approvals by state
- SWEPCO and PSO intend to issue requests for proposals in AR, LA, OK and TX in Q1 2019
  - RFPs will seek to acquire and rate-base wind assets
  - Potential to acquire up to the full IRP amounts, depending upon final outcome of IRP processes and RFP results
- Key considerations in the RFP evaluation process will include cost, performance and long-term deliverability
  - Focused on projects that minimize congestion, which may require a plan to build transmission in the future
  - Approval for any potential future delivery infrastructure would be sought at the time of need
  - Projects must qualify for at least 80% of the federal Production Tax Credit

### **Current Draft IRP Wind Nameplate Forecast**

Wind Procurement *	2021-2023
SWEPCO	Up to 1,200 MW
PSO	Up to 1,000 MW
Total	Up to 2,200 MW

<sup>\*</sup> Outcomes pending applicable state IRP processes





### **AEP OHIO – SOLAR PROJECT FILING**

- ☐ Two solar REPAs with both facilities on line by end of 2021:
  - ➤ Highland Solar, 300 MW
  - Willowbrook Solar, 100 MW
- ☐ Debt Equivalency Cost Mechanism to provide recovery for use of Balance Sheet (approximately \$6M annually)
- ☐ Green Tariff that allows all customer classes the opportunity to purchase RECs to cover some or all of their generation supply
- □ Analysis resulted in nominal savings of over \$200M over the life of the projects when considering base band pricing





## PROJECTED RESOURCE ADDITIONS

Solar Additions (MW) 🎇				
Operating Co:	2021-2023	2024- 2027	2028 <del>-</del> 2030	
AEP Ohio	Up to 400 *	-	-	
APCo	15	300	450	
I&M	-	150	150	
КРСо	30 *	20	40	
PSO	Up to 310	550	450	
SWEPCO	-	450	550	
Totals	Up to 755	1,470	1,640	

Wind Additions (MW) 🌉				
Operating Co:	2021-2023	2024- 2027	2028- 2030	
AEP Ohio	Up to 500*	-	-	
APCo	-	300	-	
I&M	-	600	450	
KPCo	-	-	-	
PSO	Up to 1,000 *	-	200	
SWEPCO	Up to 1,200 *	200	-	
Totals	Up to 2,700	1,100	650	

Natural Gas Additions (MW) 🔬				
Operating Co:	2021-2023	2024- 2027	2028- 2030	
I&M	-	-	1,500	
PSO	780 * (1)	370	-	
Totals	780	370	1,500	

(1) To replace expiring PPA

\* Subject to regulatory filings currently underway

Total Projected Resource Additions (MW)			
Resource	2021-2030		
Solar	Up to 3,865		
Wind Up to 4,450			
Natural Gas 2,650			
Totals Up to 10,965			



## **INTEGRATED RESOURCE PLAN STATUS**

	Draft IRPs Underway/Planned					
Previously Approved IRPs	Q4-18	Q1-19	Q2-19	Q3-19	Q4-19	
An AEP Company BOUNDLESS ENERGY	SOUTHWESTERN ELECTRIC POWER COMPANY  An AEP Company BOUNDLESS ENERGY 12/1/18 (AR)		APPALACHIAN POWER  An AEP Company  BOUNDLESS ENERGY  5/1/19  (VA)	SOUTHWESTERN ELECTRIC POWER COMPANY  An AEP Company  BOUNDLESS ENERGY  9/30/19 (LA)	KENTUCKY POWER	
KENTUCKY POWER  An AEP Company  BOUNDLESS ENERGY	PUBLIC SERVICE COMPANY OF OKLAHOMA  An AEP Company BOUNDLESS ENERGY 12/21/18		INDIANA MICHIGAN POWER  An AEP Company  BOUNDLESS ENERGY  May / June  2019		12/20/19	

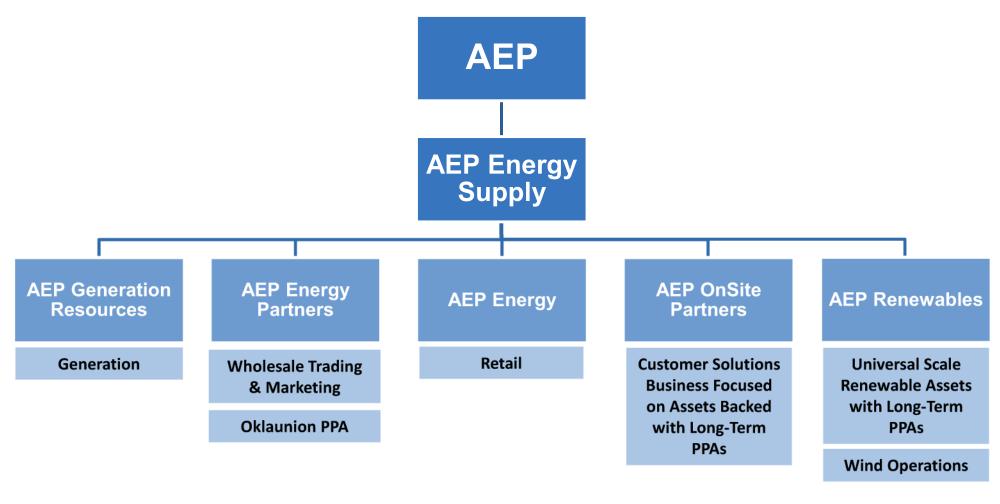
Next IRP filing date for APCo (WV) is January 2021



## **INVESTING IN COMPETITIVE BUSINESS**



# COMPETITIVE OPERATIONS ORGANIZATIONAL STRUCTURE





### INTEGRATED PLATFORM OF COMMODITY AND CLEAN ENERGY SOLUTIONS

### **RETAIL**



- Provides electricity, natural gas, and demand response to residential, commercial and industrial customers in six states
- Customers: 415,000Electricity: 18 TWh
- · Gas: 8 Bcf

- Build, own, operate and maintain customer solutions utilizing existing and emerging distributed technologies
- Asset Base: \$330 million committed
- 51 projects in 15 states



### **COMMODITY**



- Transacts commodity hedges for the retail portfolio and engages in wholesale marketing and trading
- Activity is in PJM, ERCOT, MISO and SPP
- Electricity: 12 TWh

### **ASSETS**

- Develop and/or acquire universal scale renewable projects that are backed with long-term contracts with credit-worthy counterparties
- Asset Base: Over \$420 million
- 5 projects in 4 states

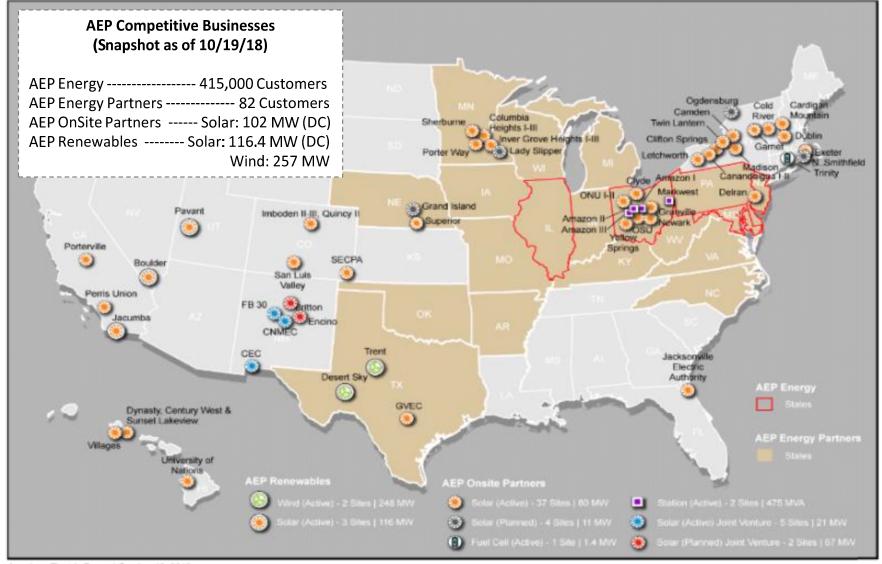


Customer Load 30 TWh

**WHOLESALE** 

\$750M and 487 MW
Committed

## **COMPETITIVE BUSINESS PRESENCE**



American Electric Power | October 18, 2018

## **UNIVERSAL SCALE RENEWABLE PROJECTS**





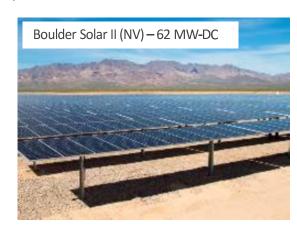
- PPA with City Public Service San Antonio
- Joint Venture with Invenergy
- Repowered in 2018 by GE
- AEP owns 79.9% (134 MW)



- PPAs with various Cooperatives
- Joint Venture with Invenergy
- Repowered in 2018 by GE
- AEP owns 79.9% (123 MW)



- PPA with PacifiCorp
- COD on December 30, 2016
- Constructed by JSI Construction



- PPA with NV Energy
- COD on January 27, 2017
- Constructed by SunPower



- PPA with Southern California Edison
- COD on July 25, 2017
- Constructed by BayWa



## **CUSTOMER ENERGY SOLUTIONS**











An AEP Company

- Committed to nearly \$330 million in energy assets
- Portfolio of 51 operating and under construction projects in 15 different states
- Projects include customer sited solar projects, behind the meter energy storage assets, customer sited substations, and fuel cell projects



## **CONTRACTED CLEAN ENERGY INVESTMENTS** \$2.2B CAPITAL ALLOCATED 2019-2023

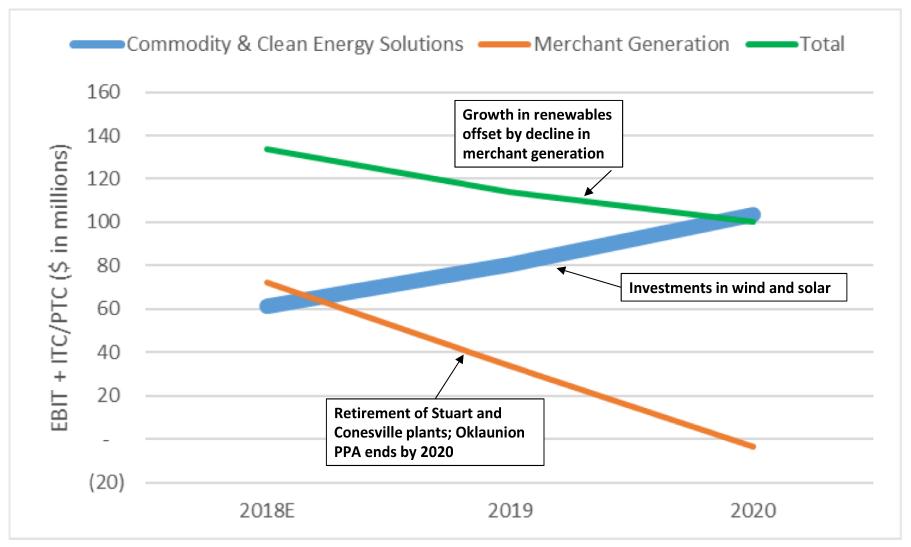




Renewable Generation Asset Owner		
"Behind-the-Meter" Energy Assets		
Universal Scale Energy Assets		
Key Customers	Schools, Cities, Hospitals and Commercial / Industrial Accounts	Utilities, Municipalities, Corporations and Cooperative Accounts
Key Technologies	Distributed Generation, Fuel Cells, Renewables, Storage, Substations and Combined Heat and Power	Wind and Solar



## **AEP ENERGY SUPPLY EARNINGS**





## **AEP GENERATION RESOURCES**

Plant/Unit	MW	Status
Stuart Unit 1	150	Retired September 2017
Stuart Units 2, 3 and 4	450	Retired May 2018
Conesville Units 5 and 6 *	820	Retire May 2019 or May 2020
Conesville Unit 4 *	651	Retire May 2020
Cardinal Unit 1	595	Continued operations
Racine Hydro	48	Restart operation by year-end 2018
Total	2,714	

<sup>\*</sup> Retirement announced on October 5, 2018

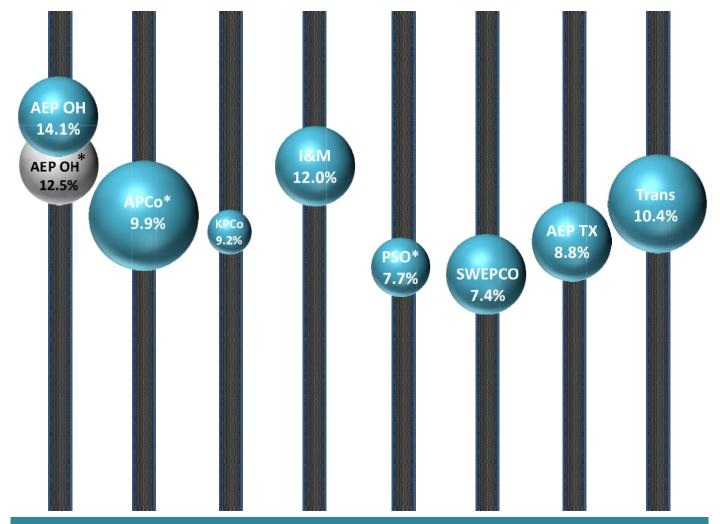
Note: The Oklaunion PPA is not included above; PPA is effective until the plant's planned closure by September 2020





## **REGULATED RETURNS**

Twelve Months Ended 9/30/2018 Earned ROE's (non-GAAP operating earnings, not weather normalized)



2019 Forecasted Regulated ROE is 9.65%; 10.35% for Total AEP

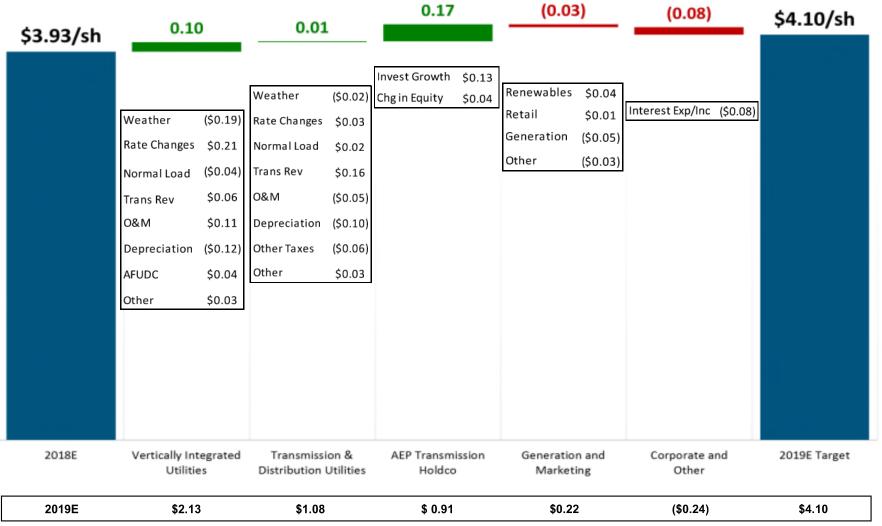
\*AEP Ohio adjusted for SEET items. Base rate cases pending at other operating companies.

Sphere size based on each company's relative equity balance



## 2019 OPERATING EARNINGS GUIDANCE

### Range of \$4.00 - \$4.20/share



Note: Will maintain midpoint of 2019 range. Waterfall components may change based on actual 2018 results.



# **2019 KEY GUIDANCE Sensitivities & Assumptions**

### **Sensitivities**

	Sensitivity	Sensitivity		
Retail Sales:			VIU	T&D
Residential	0.5%	+/-	0.014	0.005
Commercial	0.5%	+/-	0.007	0.001
Industrial	0.5%	+/-	0.007	0.001
O&M Expense (excludes O&M with offsets)	1.0%	+/-	0.	05
Interest Expense (floating debt)	25 basis points	+/-	0.	02
Interest Expense (new issuances)	25 basis points	+/-	0.	01
Regulated ROE	10 basis points	+/-	0.	04
A \$6.3M change in pretax earnings equals \$0.01 per share				

Note: AFUDC earnings move inversely to interest expense from rate changes

### **Assumptions**

Rate Changes: \$150M; \$93M secured

2019 Regulated Connected Load (Billed and Accrued):

Residential	57,755 GWh
Commercial	50,181 GWh
Industrial	60,299 GWh

Average Shares Outstanding: 493.9M



### **CURRENT RATE CASE ACTIVITY**

### **APCo – West Virginia**

Docket #: 18-0646-E-42T Filing Date: 05/09/2018

Requested Rate Base: \$4.1B Requested ROE: 10.22%

Cap Structure: 49.84%D / 50.16%E

Gross Revenue Increase: \$95M

(Less \$32M Depr)

Net Revenue Increase: \$63M

Test Year: 12/31/2017

Procedural Schedule

Hearing: 11/13/2018 Brief: 12/13/2018 Reply Brief: 12/28/2018



### PSO – Oklahoma

Docket #: 201800097 Filing Date: 09/26/2018

Requested Rate Base: \$2.5B Requested ROE: \$10.3%

Cap Structure: 51.86%D / 48.14%E

Gross Revenue Increase: \$88M

(Less \$20M D&A)

Net Revenue Increase: \$68M

Test Year: 03/31/2018

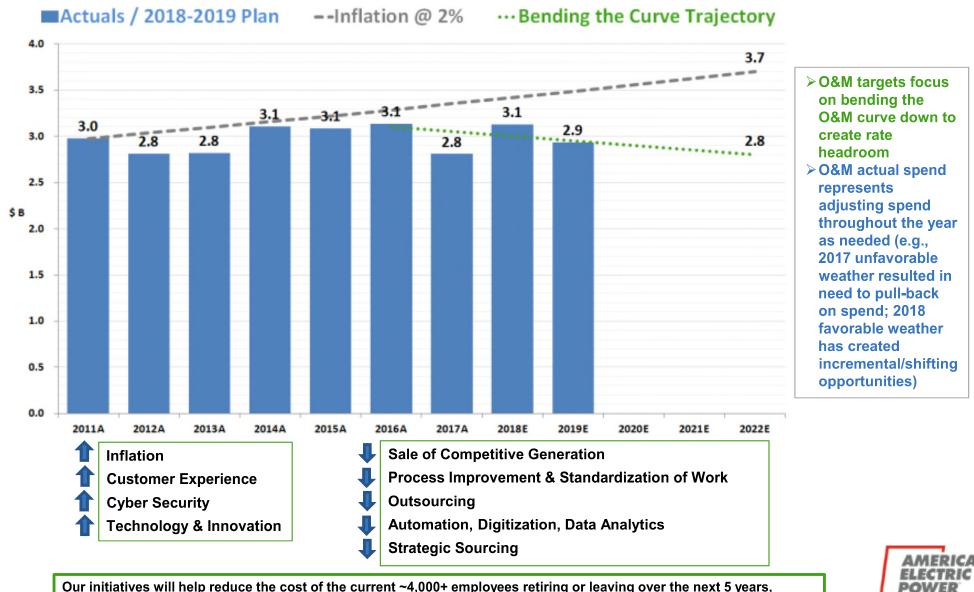
#### **Procedural Schedule**

Intervenor Testimony: 01/11/2019 Rebuttal Testimony: 02/08/2019 Hearing Commences: 03/04/2019 ALJ Report: April 2019





## BENDING THE O&M CURVE WHILE ACHIEVING OUR STRATEGIC GOALS



thereby reducing O&M and allowing us to focus on more value added activities for our customers



## BENDING THE O&M CURVE (INITIATIVES)

## **AEP Transmission Spacer Replacement Capital Program**

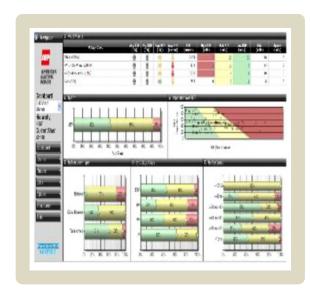


- The replacement program avoids approximately \$80M in O&M expenditures over time
- ~150k spacers that are near or at end of life will be replaced as part of a capital program on nearly 1800 miles of 765kV lines over the next 10 years

## AEP Station Check In/Check Out Application



- The first true mobile application of its kind saves valuable time for field technicians and dispatchers by eliminating nearly 90% of calls into the TDC from field staff entering or exiting secure facilities
- On average since implementation ~\$500K in labor savings on this activity have been realized



#### **AEP Asset Health Centers**

- Analytical software platform and fleet-wide asset monitoring device that provides instantaneous data through a robust communications infrastructure
- Real-time data helps in making data-driven operating decisions. Improves safety, reduces unplanned equipment outages, helps in planning and optimizing maintenance, and prioritizes renewal decisions about the condition of assets
- In use since 2014, AHC has provided performance data on equipment that has allowed Transmission to avoid \$36M and Generation over \$25M in costs related to equipment failure

## BENDING THE O&M CURVE (INITIATIVES)

### **Charge Initiative**

~\$200M in digital and process-enabled savings over five years through O&M reductions/cost avoidance (50%), Capital Reduction/Efficiency (25%), Revenues (10%) & Operational Efficiency (15%)

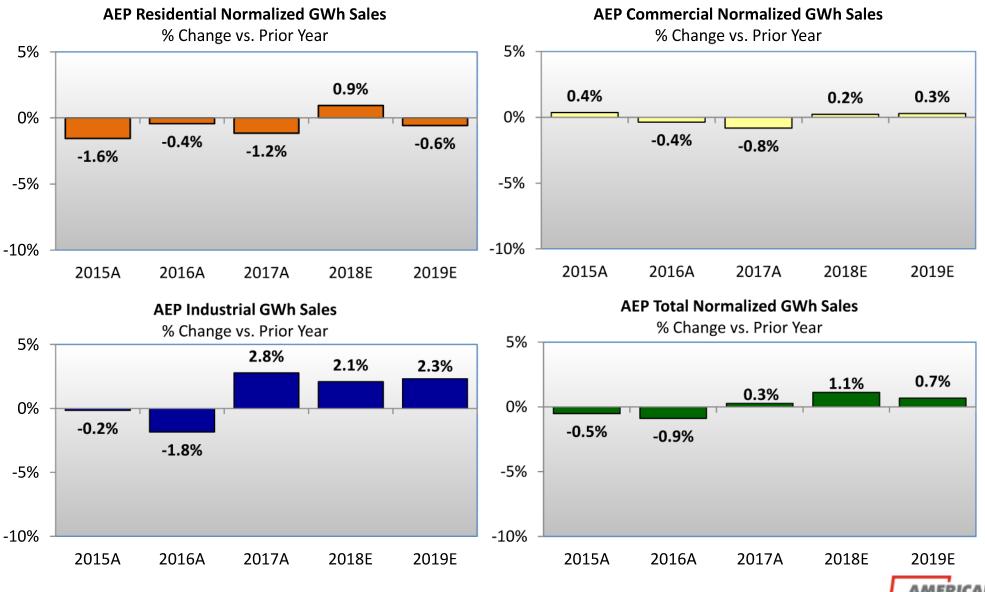
- Distribution/Transmission Field Time Reporting App Mobile app/web that enables contractors to enter time digitally rather than through paper timesheets. Improves efficiency and reduces rework (e.g., audits and audit outcomes).
- Contract Digitization Digital tools & associated analytics that reduce administrative, repetitive work performed by the contract support function.
- ☐ Digitized Inspections Combined use of drones, sensors, and digital user tools to minimize the physical labor associated with distribution, transmission, and generation inspections.
- Transmission Capital Commissioning Checklist Mobile app/web that enables employees and contractors to perform and complete commissioning tasks using handheld technology rather than through a paper process. Improves accuracy, increases operational efficiency, reduces rework, and accelerates time to place projects in service.

### **Other Initiatives**

- Strategic Work and Workforce Planning
- Outsourcing Activities
- Tactical Sourcing through Procurement Management



## **NORMALIZED LOAD TRENDS**



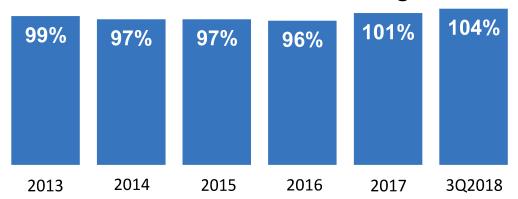
Note: 2018 includes 9 months weather normalized actual results plus 3 months forecasted values. The 2018 and 2019 comparison may change based on actual 2018 results.

## PENSION & OPEB ESTIMATES

Assumptions	2018E	2019E
Pension Discount Rate	3.65%	4.31%
OPEB Discount Rate	3.60%	4.32%
Assumed Long Term Rate of Return on Pension Assets	6.0%	6.0%
Assumed Long Term Rate of Return on OPEB Assets	6.0%	6.0%
Pension/OPEB Funding	\$24M	\$102M
Pension/OPEB Cost *	(\$20M)	(\$33M)
Pension/OPEB Pre-tax Expense	(\$59M)	(\$70M)

<sup>\*</sup> Pre-tax expense and pre-capitalization

### **Qualified Pension Funding**



- YTD pension and OPEB returns were flat at 0.2% and (0.3%) respectively, as modest risk seeking asset returns were offset by fixed income losses attributed to rising yields. Despite these flat returns, the funded status of both plans increased slightly as both plan liabilities decreased more than plan assets due to a rising discount rate.
- We expect combined pension and OPEB pre-tax expense to decrease by \$11M from 2018 to 2019 subject to potential changes in investment results, interest rates and actuarial assumptions.
- Pension expense for regulated subsidiaries is recovered through base rates.



## **AEP AND TAX REFORM SUMMARY**

### **Regulatory Actions**

All jurisdictions opened dockets to defer savings as a regulatory liability and address tax benefit impacts

#### Options for tax benefits:

- ✓ Decrease rates
- ✓ Increase amortization of regulatory assets
- ✓ Accelerate depreciation
- ✓ Offset other rate increases

### Change in Tax Rate from 35% to 21%

- Most jurisdictions have recent rate orders/settlements passing savings to customers
- Remaining jurisdictions are working with regulators to address savings in future rate proceedings using various strategies noted above

### **Unprotected Excess ADFIT**

- Most jurisdictions have recent orders/settlements resolving unprotected portion of excess
- Remaining jurisdictions are working with regulators to address savings in future rate proceedings using various strategies noted above

Normalized portion of excess ADFIT refunded over life of property, over average life of 25 years (40 years for transmission)

### **Other Tax Implications**

- Interest on parent debt expected to be tax deductible
- Generation & Marketing flows to bottom line, but minor

### **Recap of Excess Deferred Taxes**

As of September 30, 2018 (\$ in billions)	21% Tax Rate
Total Regulated Deferred FIT	\$11.1
Total Excess Regulated Deferred FIT	\$4.3
Normalized Portion of Excess DFIT (to be refunded over life of property)	(\$3.4)
Unprotected Portion of Excess	\$0.9

By Operating Company	Percentage of \$0.9 Billion Unprotected Excess DFIT
AEP Ohio	19%
AEP Texas	9%
APCo/WPCo	34%
I&M	16%
KPCo	10%
PSO	7%
SWEPCO	5%
TOTAL	100%



## **AEP AND TAX REFORM BY JURISDICTION**

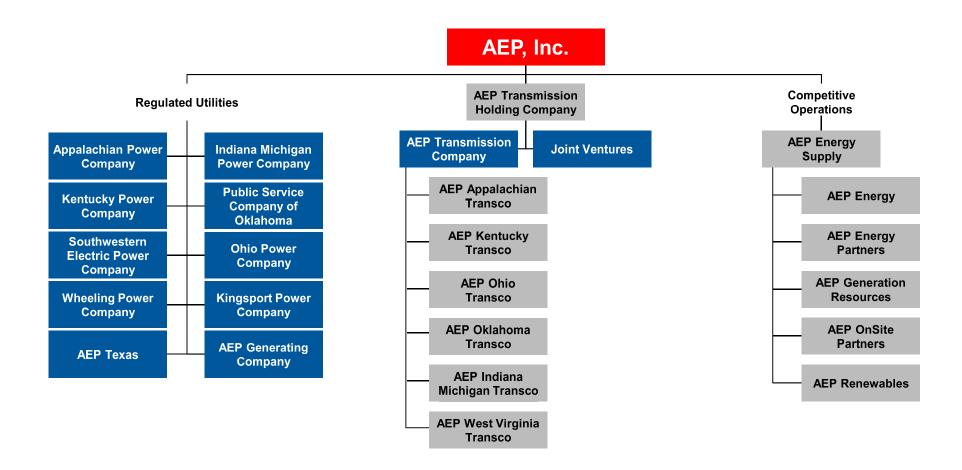
Jurisdiction <sup>1</sup>	Change in Tax Rate	Excess Unprotected ADFIT <sup>2</sup>
AEP Ohio	✓ Order to pass on savings	✓ Order to amortize over 6 years
AEP Texas-Distribution	✓ Order to pass on savings	✓ Partial order to amortize over 5 years
AEP Texas-Transmission	✓ Order to pass on savings	Address in later filing
APCo-Virginia	✓ Legislation enacted to pass on savings	Case pending
APCo-West Virginia	✓ Order to pass on savings	✓ Order to amortize over various periods
I&M-Indiana	✓ Order to pass on savings	✓ Order to offset change in depreciation of Rockport Unit 1
I&M-Michigan	✓ Order to pass on savings	Case pending
Kingsport	Case pending	Case pending
KPCo	✓ Order to pass on savings	✓ Order to amortize over 18 years
PSO	✓ Order to pass on savings	✓ Order to amortize over 10 years
SWEPCO-Arkansas	✓ Order to pass on savings	✓ Order to amortize over 2 years
SWEPCO-Louisiana	✓ Order to pass on savings	✓ Order to amortize over 2 years
SWEPCO-Texas	✓ Order to pass on savings	Case pending
East FERC Transmission	✓ Settlement to pass on savings	✓ Settlement to amortize over 10 years
West FERC Transmission	Address in later filing	Address in later filing

<sup>&</sup>lt;sup>1</sup> All jurisdictions have opened dockets to defer savings as a regulatory liability and address tax benefit impacts



<sup>&</sup>lt;sup>2</sup> Normalized portion of excess ADFIT refunded over life of property, over average life of 25 years (40 years for transmission)

## **OPERATIONAL AND FINANCING STRUCTURE \***



- Uses a combination of external LT financing and commercial paper program
- Uses a combination of external and internal LT financing and money pool
- Uses internal LT financing and money pool

<sup>\*</sup> Does not represent legal structure



## **2018 LONG-TERM DEBT FINANCINGS**

2018 Long-Term Debt Financings as of September 30, 2018<sup>1</sup>

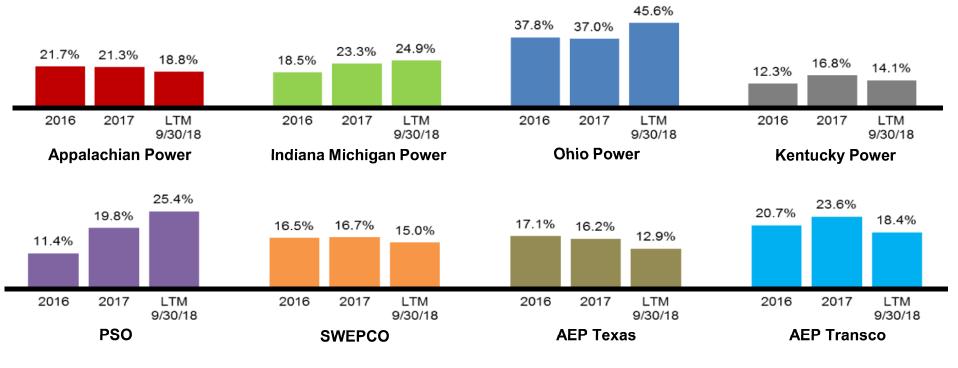
Date	Company	Amount (\$ in millions)	Rate	Term	Credit Ratings (Moody's/S&P)
January 2018	SWEPCO	\$450	3.85%	30-Year	Baa2/A-
March 2018	Ohio Power	\$400	4.15%	30-Year	A2/A-
May 2018	I&M	\$350	3.85%	10-Year	A3/A-
May 2018	I&M	\$200	Variable	3-Year	N/A
May 2018	AEP Texas	\$500	3.95%	10-Year	Baa1/A-
August 2018	I&M	\$475	4.25%	30-Year	A3/A-
September 2018	Transco	\$325	4.25%	30-Year	A2/A-/A- <sup>2</sup>
September 2018	SWEPCO	\$575	4.10%	10-Year	Baa2/A-

<sup>&</sup>lt;sup>1</sup>All senior notes except I&M's \$200M local bank facility renewal



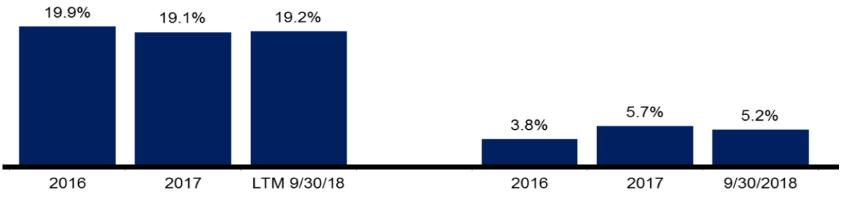
<sup>&</sup>lt;sup>2</sup>AEP Transmission Operating Company, LLC is also rated A- by Fitch

## FFO/DEBT<sup>1</sup> BY OPERATING COMPANY



### Total AEP FFO/Debt1

### Holdco Debt/Total Debt

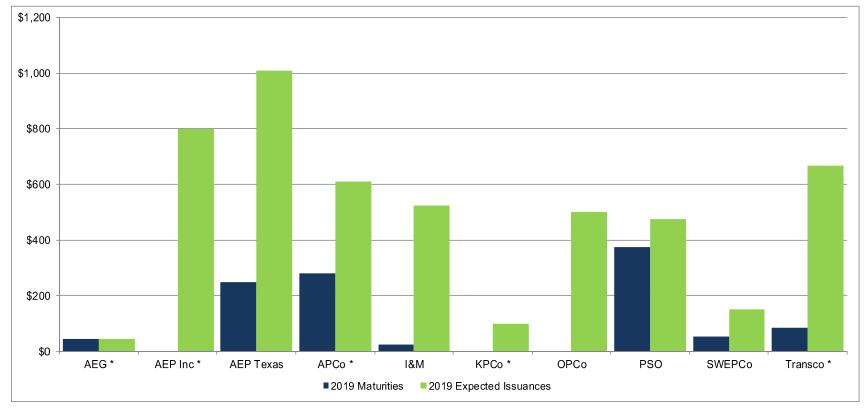


<sup>&</sup>lt;sup>1</sup>FFO/Debt includes capital and operating leases, but excludes securitization and spent nuclear fuel. Ratios do not reflect all of the adjustments made by the rating agencies.



## 2019 DEBT ISSUANCE AND MATURITIES OVERVIEW





*						
(\$ in millions)	<u>Q4 2</u>	Q4 2018 Maturities		<u>Q4 2018 Issuances</u>		
AEG	\$	125	\$	150		
AEP Inc	\$	-	\$	1,000		
APCo	\$	100	\$	100		
KPCo	\$	75	\$	75		
Transco	\$	50	\$	-		
Total	\$	350	\$	1,325		

APCo, KPCo and Transco Q4 2018 maturities and issuances have already occurred



## **AEP CREDIT RATINGS**

Company	Moody's Senior		S&P Senior	
	Unsecured	Outlook	Unsecured	Outlook
American Electric Power Company Inc.	Baa1	S	BBB+	S
AEP, Inc. Short Term Rating	P2	S	A2	S
AEP Texas Inc.	Baa1	S	A-	S
AEP Transmission Company, LLC <sup>1</sup>	A2	S	A-	S
Appalachian Power Company <sup>2</sup>	Baa1	S	A-	S
Indiana Michigan Power Company <sup>2</sup>	A3	S	A-	S
Kentucky Power Company	Baa2	N	A-	S
Ohio Power Company	A2	S	A-	S
Public Service Company of Oklahoma	A3	N	A-	S
Southwestern Electric Power Company	Baa2	S	A-	S
Transource Energy <sup>3</sup>	A2	S	NR	NR

<sup>&</sup>lt;sup>1</sup> AEP Transmission Co. received a senior unsecured debt rating of A- from Fitch. The rating outlook is Stable.

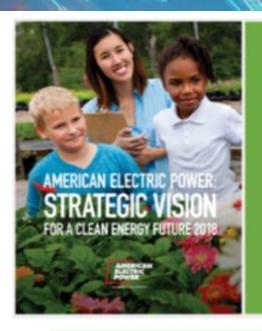
Ratings current as of September 30, 2018



<sup>&</sup>lt;sup>2</sup> In conjunction with the unenhanced VRDN remarketings, APCo and I&M both received short term credit ratings of A-2/P2 from S&P and Moody's, respectively.

<sup>&</sup>lt;sup>3</sup> NR stands for Not Rated.





### AEP's CO<sub>2</sub> Emission Reduction Goals

INTERMEDIATE GOAL:

60% reduction from 2000 CO<sub>2</sub> emission levels by 2030 LONG-TERM GOAL:

80% reduction from 2000 CO<sub>2</sub> emission levels by 2050

### **Strategy to Achieve:**

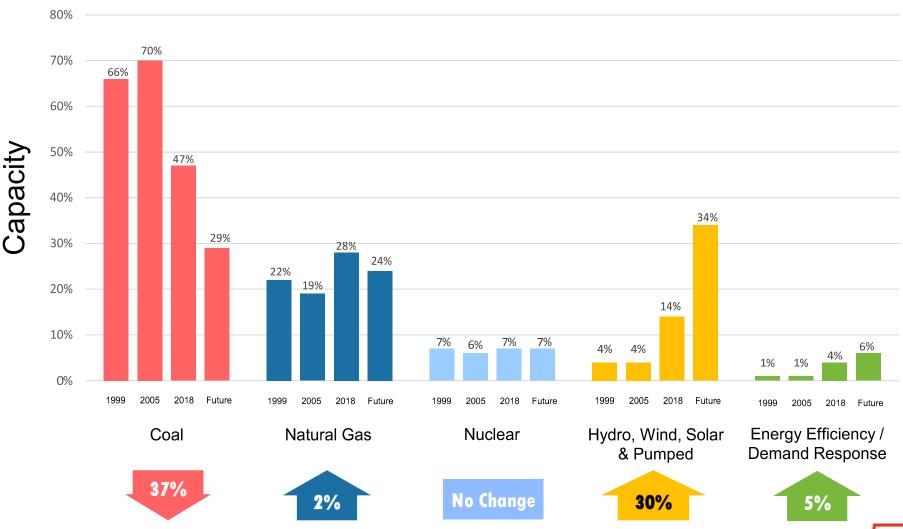
- ☐ Investments in renewable energy within and outside of our traditional service territory
- ☐ Technology deployment (e.g., energy storage)
- ☐ Modernization of the grid with significant investments in transmission & distribution
- ☐ Increased use of natural gas
- Optimization of our existing generating fleet

# Environmental, Social & Governance (ESG) Reporting:

- AEP's Corporate Accountability Report
- Clean Energy Strategy:
   American Electric Power:
   Strategic Vision for a Clean
   Energy Future
- ➤ EEI ESG Sustainability
  Reporting: AEP's 2018 EEI
  ESG Report
- > AEP's CDP Survey Responses
- > AEP's GRI Report
- ➤ AEP also responds to investorrelated surveys, including MSCI and Sustainalytics



# TRANSFORMING OUR GENERATION FLEET



As of September 30, 2018
Future includes IRP forecasted additions and retirements through 2030
Energy Efficiency / Demand Response represents avoided capacity rather than physical assets



# PROJECTED RESOURCE ADDITIONS

Solar Additions (MW) 🎇					
Operating Co:	2021-2023	2024- 2027	2028 <del>-</del> 2030		
AEP Ohio	Up to 400 *	-	-		
APCo	15	300	450		
I&M	-	150	150		
КРСо	30 *	20	40		
PSO	Up to 310	550	450		
SWEPCO	-	450	550		
Totals	Up to 755	1,470	1,640		

	Wind Addition	ns (MW) 🤱	2
Operating Co:	2021-2023	2024- 2027	2028- 2030
AEP Ohio	Up to 500*	-	-
APCo	-	300	-
I&M	-	600	450
KPCo	-	-	-
PSO	Up to 1,000 *	-	200
SWEPCO	Up to 1,200 *	200	-
Totals	Up to 2,700	1,100	650

Natural Gas Additions (MW) 🏽 🛦					
Operating Co:	2021-2023	2024- 2027	2028- 2030		
I&M	-	-	1,500		
PSO	780 * (1)	370	-		
Totals	780	370	1,500		

(1) To replace expiring PPA

\* Subject to regulatory filings currently underway

Total Projected Resource Additions (MW)			
Resource	2021-2030		
Solar	Up to 3,865		
Wind	Up to 4,450		
Natural Gas 2,650			
Totals	Up to 10,965		



# **INTEGRATED RESOURCE PLAN STATUS**

	Draft IRPs Underway/Planned					
Previously Approved IRPs	Q4-18	Q1-19	Q2-19	Q3-19	Q4-19	
An AEP Company BOUNDLESS ENERGY	SOUTHWESTERN ELECTRIC POWER COMPANY  An AEP Company BOUNDLESS ENERGY 12/1/18 (AR)		APPALACHIAN POWER  An AEP Company  BOUNDLESS ENERGY  5/1/19  (VA)	SOUTHWESTERN ELECTRIC POWER COMPANY  An AEP Company  BOUNDLESS ENERGY  9/30/19 (LA)	KENTUCKY POWER	
KENTUCKY POWER  An AEP Company  BOUNDLESS ENERGY	PUBLIC SERVICE COMPANY OF OKLAHOMA  An AEP Company BOUNDLESS ENERGY 12/21/18		INDIANA MICHIGAN POWER  An AEP Company  BOUNDLESS ENERGY  May / June  2019		12/20/19	

Next IRP filing date for APCo (WV) is January 2021



# **COAL RETIREMENT PROGRESS AND PLANS**

	Operating Company	Plant	MW	Retirement Date
APCo		Glen Lyn 5	95	2015
		Glen Lyn 6	240	2015
		Clinch River 3	235	2015
		Sporn 1	150	2015
		Sporn 3	150	2015
		Kanawha River 1	200	2015
		Kanawha River 2	200	2015
		Total MW	1,270	
I&M		Tanners Creek 1-4	995	2015
		Total MW	995	
KPCo		Big Sandy 2	800	2015
		Total MW	800	
PSO		Northeastern 4	470	2016
		Oklaunion	105	Announced closure by 2020
		Total MW	575	·
SWEPCO		Welsh 2	528	2016
		Total MW	528	
AEP Texas		Oklaunion	<u>355</u>	Announced closure by 2020
		Total MW	355	
Total Regu	lated Retirements		4,523	

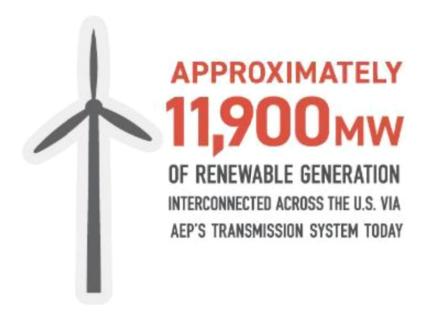
Operating Company	Plant	MW	Retirement Date
AEP Generation Resources	Beckjord	53	2014
	Conesville 3	165	2012
	Muskingum River 1-5	1,440	2015
	Picway 5	100	2015
	Sporn 2,4	300	2015
	Sporn 5	450	2011
	Stuart 1-4 *	600	2018
	Kammer 1-3	630	2015
* Includes 150 MW of Stuart Unit 1 mothballed in October 2017	Conesville 4	651	Announced closure in 2020
i motribalied in October 2017	Conesville 5 & 6	820	Announced closure in 2019 or 2020
Total Competitive Retirements		5,209	
Total Regulated & Competitive		9,732	



# **DELIVERING CLEAN ENERGY RESOURCES**

### AEP's September 30, 2018 Renewable Portfolio, in MW

Hydro, Wind, Solar & Pumped Storage	Owned MW	PPA MW	Total MW
AEP Ohio		209	209
Appalachian Power Company	816	575	1,391
Indiana Michigan Power Company	36	450	486
Public Service of Oklahoma		1,137	1,137
Southwestern Electric Power Company		469	469
Competitive Wind, Solar & Hydro	Wind, Solar & Hydro 473 175 <b>64</b>		648
Total	1,325	3,015	4,340

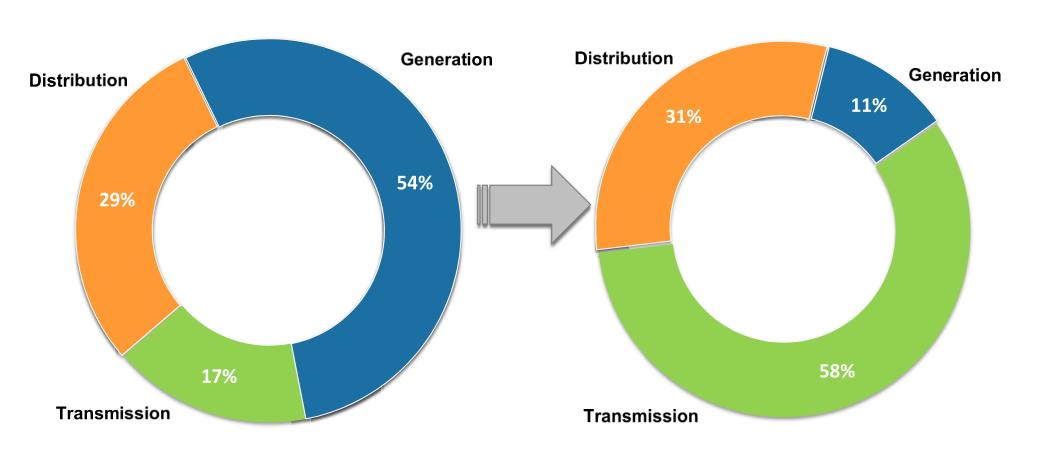




# CAPITAL ALLOCATION SHIFTED TO WIRES FROM GENERATION



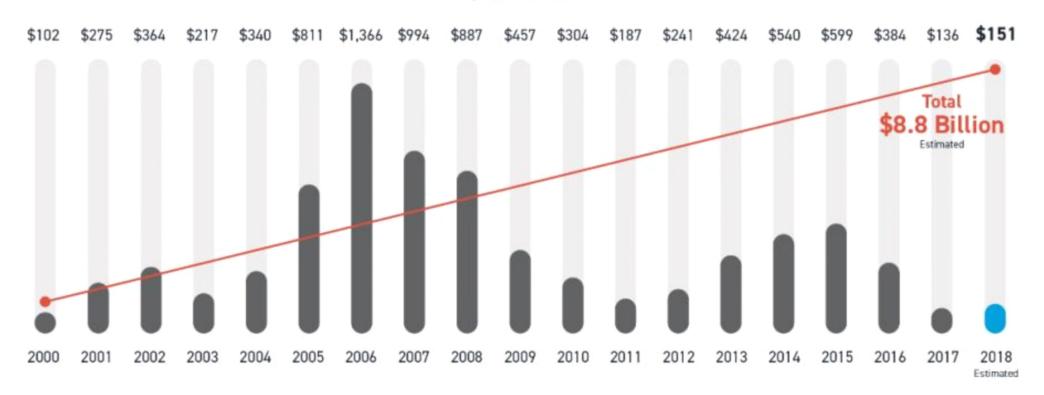
2018 2019-2023 Capital Forecast





# LARGEST INVESTMENT IN ENVIRONMENTAL CONTROLS

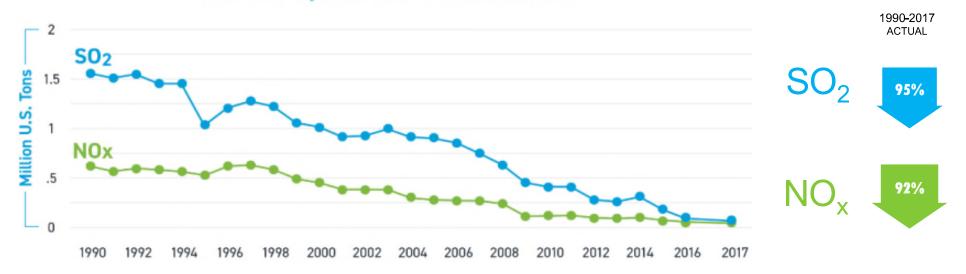




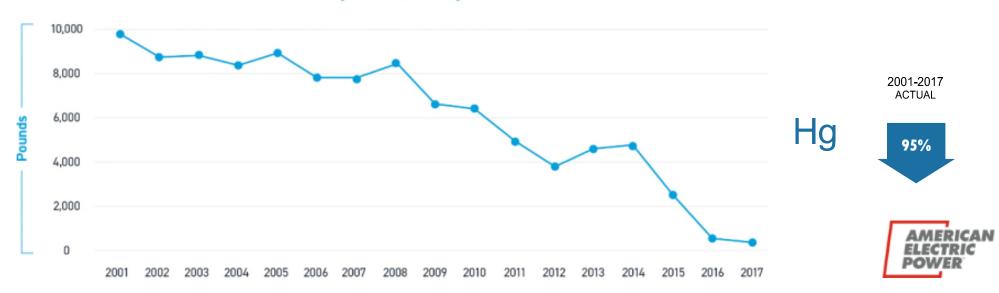


# DRAMATIC REDUCTIONS IN EMISSIONS

Total AEP System NOx & SO<sub>2</sub> Emissions



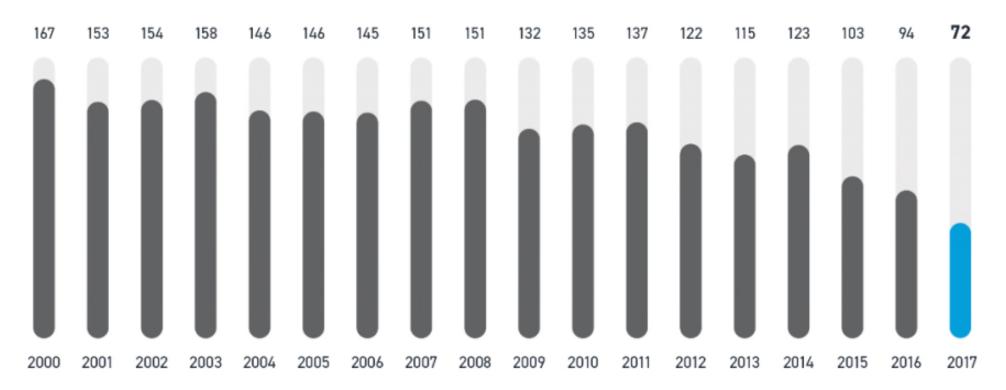
## **Total AEP System Mercury Emissions**

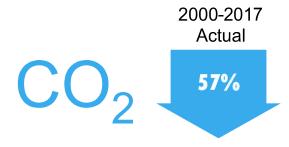


# DRAMATIC REDUCTIONS IN EMISSIONS

# Total AEP System - Annual CO<sub>2</sub> Emissions

in million metric tons









# **LOAD GROWTH INITIATIVES**







# **Economic Development**

## nomic bevelopment

### Strategy:

 Attract capital investment from new and existing customers to grow revenues, create jobs, and foster community development

### **Deliverable**:

- Identify, pursue, and support new capital investment projects through business attraction targeting
- Generate business development opportunities through national account relationships

## **Efficient Electrification**

### Strategy:

 Market electric technologies and solutions that reduce overall customer cost and energy consumption, lead to better productivity, improved safety and comfort, enhanced competitiveness, and greater overall sustainability

### **Deliverable:**

- Build technical capability of employees
- Educate customers and promote technologies that match their needs
- Set and achieve operating company load growth targets that increase revenue and customer satisfaction

# **Electric Vehicles (EVs)**

### Strategy:

 Reduce total customer energy cost by expanding EV adoption in our service territory (load) and provide customer charging options that optimize the use of the system to benefit all customers (load management)

### **Deliverable:**

- Provide strategic support for infrastructure buildout, customer education and outreach
- Demonstrate viability by our own use while developing and generally supporting the reduction of friction of EV ownership



# **CUSTOMER-FOCUSED SOLUTIONS**







## Microgrid / Distributed Energy Resources

### Strategy:

 Deploy solutions that meet customer and community desires for customized distributed energy solutions for resiliency, reliability, and/or economy

### Deliverable:

 Seek utility-owned assets located on-site that benefit the customer. Focus on unique opportunities with the military, universities, commercial/industrial customers seeking distributed solutions for expanding their use of renewable energy and/or enhancing reliability and resiliency.

# Commercial and Industrial Sustainability

### Strategy:

 Seek solutions to our C&I customer's sustainability initiatives by more aggressively focusing on their respective carbon reduction and reporting goals

### **Deliverable**:

- Share our vision and gain feedback on potential solutions. The solutions, including new and modified tariffs, will be designed to reduce customer friction and allow us to effectively compete in this area.
- Continuous engagement with customers to get feedback so solutions can be refined as circumstances and technology change

## **Home Energy Management**

### Strategy:

 Provide customers with relevant information and home energy solutions needed to understand and control energy consumption in a manner consistent with their lifestyle

### **Deliverable:**

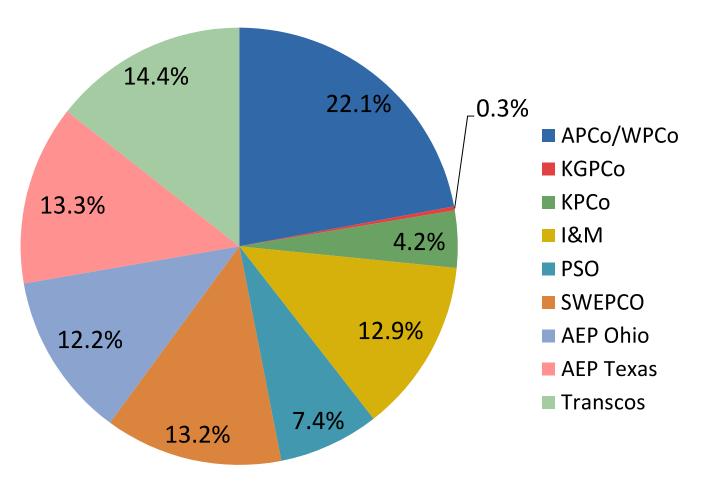
 Pursue as many pilots as feasible based on current cost recovery opportunities and resources (financial and people)





# COMPOSITION OF RATE BASE BY OPERATING COMPANY

# **TOTAL 2017 RATE BASE OF \$38B**

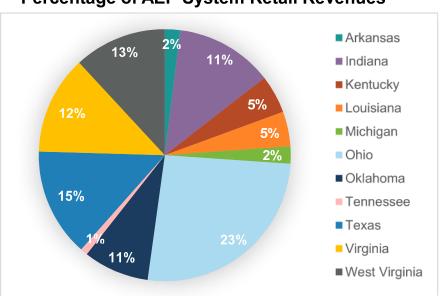




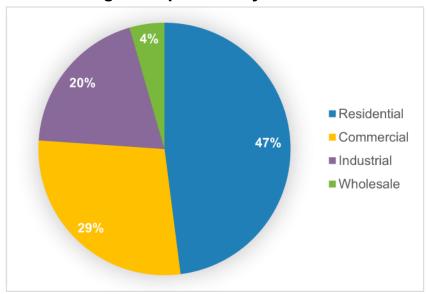
# **RETAIL REVENUE**

# CUSTOMER PROFILE AEP'S SERVICE TERRITORY ENCOMPASSES APPROXIMATELY 5.4 MILLION CUSTOMERS IN 11 STATES

## **Percentage of AEP System Retail Revenues**



## **Percentage Composition by Customer Class**



Top 10 Industrial Sectors Across the AEP System By NAICS Code	% of Total Industrial Sales
331 Primary Metal Manufacturing	15.5%
325 Chemical Manufacturing	13.5%
324 Petroleum and Coal Products Manufacturing	11.6%
486 Pipeline Transportation	8.1%
322 Paper Manufacturing	6.5%
211 Oil and Gas Extraction	5.7%
212 Mining (except Oil and Gas)	5.6%
326 Plastics and Rubber Products Manufacturing	5.4%
336 Transportation Equipment Manufacturing	4.4%
311 Food Manufacturing	4.4%



# CAPITAL FORECAST 2019 - 2023 BY SUBSIDIARY

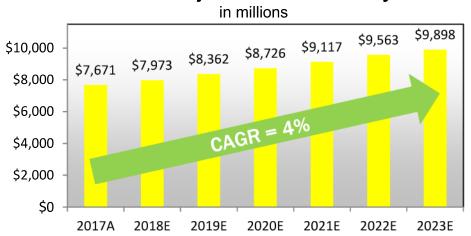
\$ in millions (excluding AFUDC)	2019E	2020E	2021E	2022E	2023E	Total
Appalachian Power Company	\$821	\$786	\$847	\$939	\$875	\$4,267
Wheeling Power Company	\$42	\$43	\$52	\$56	\$33	\$226
Kingsport Power Company	\$17	\$15	\$21	\$19	\$25	\$97
Indiana Michigan Power Company	\$647	\$609	\$611	\$519	\$506	\$2,892
Kentucky Power Company	\$220	\$229	\$227	\$228	\$226	\$1,130
Ohio Power Company	\$720	\$554	\$600	\$640	\$694	\$3,208
Public Service Company of Oklahoma	\$339	\$365	\$338	\$487	\$450	\$1,978
Southwestern Electric Power Company	\$421	\$473	\$523	\$587	\$675	\$2,679
AEP Texas Company	\$1,271	\$1,031	\$1,069	\$1,146	\$1,245	\$5,763
AEP Generating Company	\$72	\$40	\$29	\$24	\$10	\$175
AEP Transmission Holdco	\$1,590	\$1,536	\$1,578	\$1,719	\$1,829	\$8,252
Generation and Marketing	\$332	\$389	\$444	\$494	\$543	\$2,202
Other	\$10	\$6	\$6	\$6	\$4	\$32
Total Capital and Equity Contributions	\$6,500	\$6,077	\$6,345	\$6,865	\$7,115	\$32,902

Capital plans are continuously optimized which may result in redeployment between functions and companies. Table may not foot due to rounding.

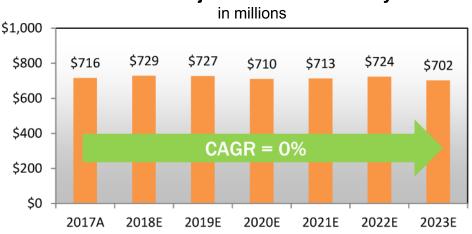


# APPALACHIAN POWER & WHEELING POWER RATE BASE, SALES & CAP-EX

### **APCo Projected Rate Base Proxy**

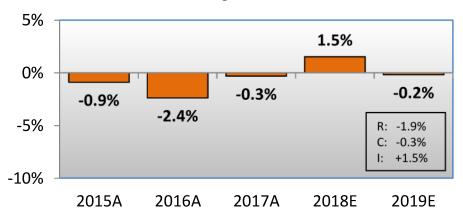


### **WPCo Projected Rate Base Proxy**



## **APCo/WPCo Normalized GWh Sales**

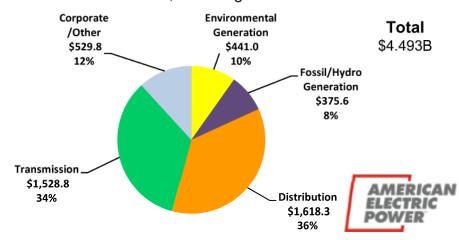
% Change vs. Prior Year



### \* 2018 includes 9 months weather normalized actual results plus 3 months forecast

## APCo/WPCo 2019-2023 Capital by Function

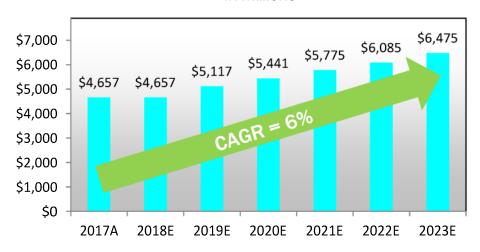
in millions, excluding AFUDC



# AEP OHIO RATE BASE, SALES & CAP-EX

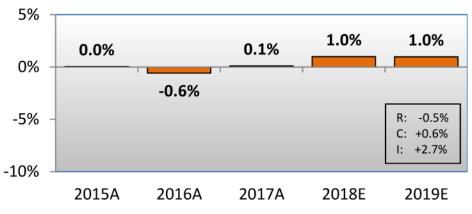
## **AEP Ohio Projected Rate Base Proxy**

in millions



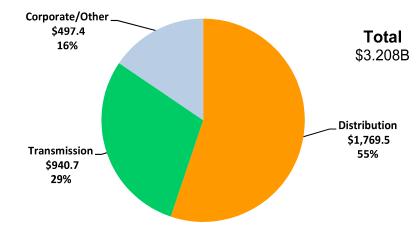
## **AEP Ohio Normalized GWh Sales**

% Change vs. Prior Year



\* 2018 includes 9 months weather normalized actual results plus 3 months forecast

AEP Ohio 2019-2023
Capital by Function
in millions, excluding AFUDC





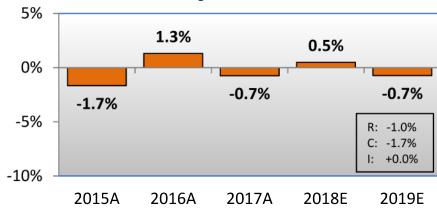
# INDIANA MICHIGAN POWER RATE BASE, SALES & CAP-EX

## **I&M Projected Rate Base Proxy**

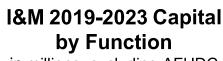


## **I&M Normalized GWh Sales**

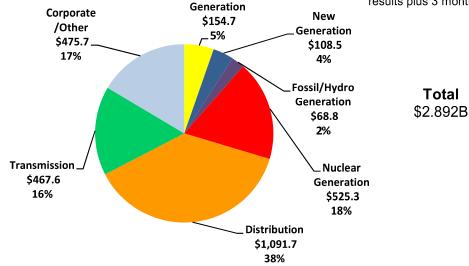
% Change vs. Prior Year



\* 2018 includes 9 months weather normalized actual results plus 3 months forecast



in millions, excluding AFUDC

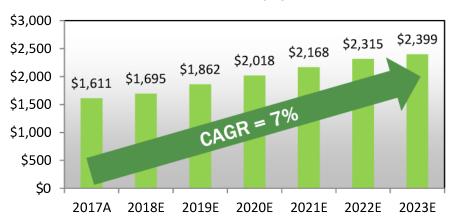


**Environmental** 

# KENTUCKY POWER RATE BASE, SALES & CAP-EX

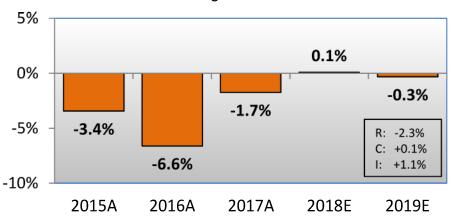
## **KPCo Projected Rate Base Proxy**

in millions

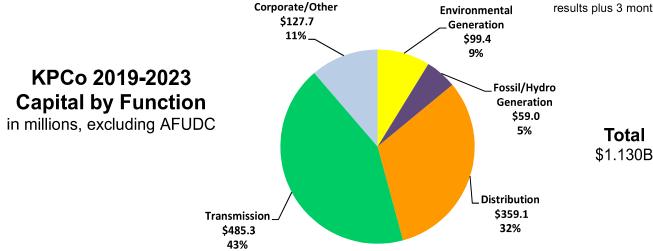


## **KPCo Normalized GWh Sales**

% Change vs. Prior Year



\* 2018 includes 9 months weather normalized actual results plus 3 months forecast

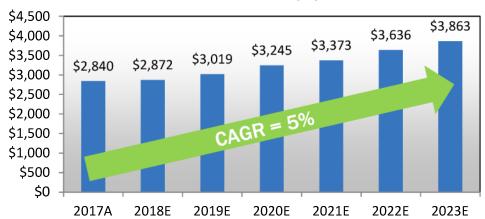




# PUBLIC SERVICE COMPANY OF OKLAHOMA RATE BASE, SALES & CAP-EX

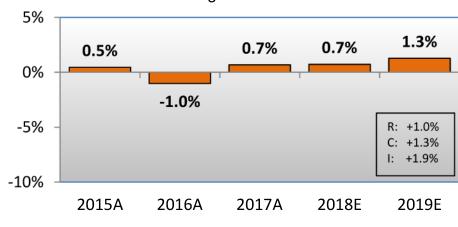
## **PSO Projected Rate Base Proxy**

in millions



### **PSO Normalized GWh Sales**

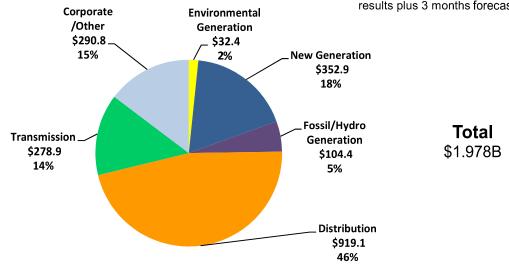
% Change vs. Prior Year



\* 2018 includes 9 months weather normalized actual results plus 3 months forecast

PSO 2019-2023 Capital by Function

in millions, excluding AFUDC



# SOUTHWESTERN ELECTRIC POWER COMPANY RATE BASE, SALES & CAP-EX

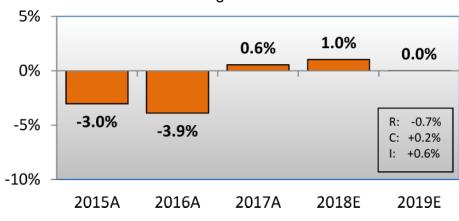
# **SWEPCO Projected Rate Base Proxy**

in millions



### **SWEPCO Normalized GWh Sales**

% Change vs. Prior Year

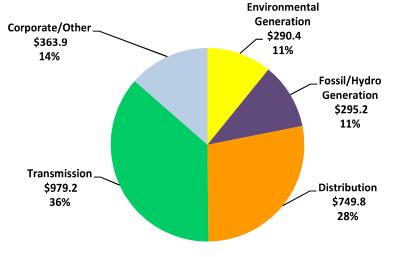


\* 2018 includes 9 months weather normalized actual results plus 3 months forecast

**Total** 

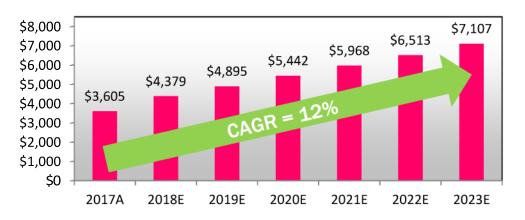
\$2.679B





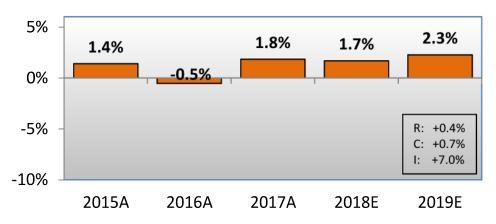
# AEP TEXAS RATE BASE, SALES & CAP-EX

# Texas Central Company Projected Rate Base Proxy in millions



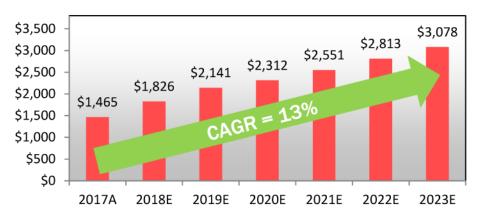
## **AEP Texas Normalized GWh Sales**

% Change vs. Prior Year



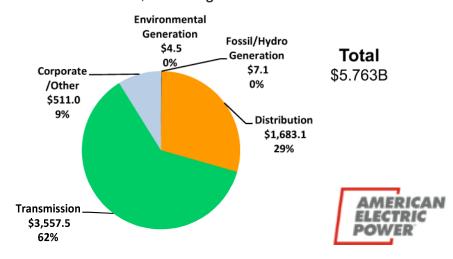
<sup>\* 2018</sup> includes 9 months weather normalized actual results plus 3 months forecast

# Texas North Company Projected Rate Base Proxy in millions



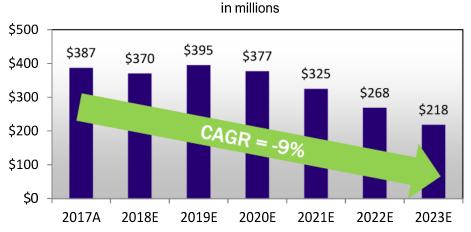
## AEP Texas 2019-2023 Capital by Function

in millions, excluding AFUDC



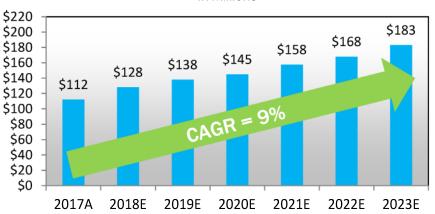
# OTHER UTILITY SUBSIDIARIES RATE BASE & CAP-EX

# **AEP Generating Projected Rate Base Proxy**



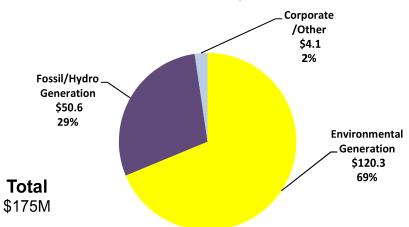
## **Kingsport Projected Rate Base Proxy**

in millions



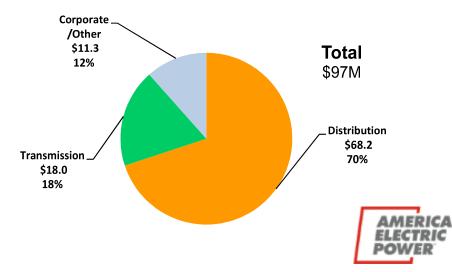
## AEP Generating 2019-2023 Capital by Function

in millions, excluding AFUDC



## Kingsport 2019-2023 Capital by Function

in millions, excluding AFUDC



### **CERTIFICATE OF SERVICE**

In accordance with Rule 4901-1-05, Ohio Administrative Code, the PUCO's e-filing system will electronically serve notice of the filing of this document upon the following parties. In addition, I hereby certify that a service copy of the foregoing *Direct Testimony of Kevin M. Murray on Behalf of Industrial Energy Users-Ohio* was sent by, or on behalf of, the undersigned counsel for IEU-Ohio to the following parties of record this 2nd day of January 2019, *via* electronic transmission.

### /s/ Frank P. Darr

Frank P. Darr

Steven T. Nourse (REG. No. 0046705) (Counsel of Record) Christen M. Blend (Reg. No. 0086881) American Electric Power Service Corporation 1 Riverside Plaza, 29<sup>th</sup> Floor Columbus, OH 43215 stnourse@aep.com cmblend@aep.com

Eric B. Gallon (Reg. No. 0071465)
L. Bradfield Hughes (Reg. No. 0070997)
Porter Wright Morris & Arthur, LLP
41 South High Street, 30<sup>th</sup> Floor
Columbus, OH 43215
egallon@porterwright.com
bhughes@porterwright.com

Christopher L. Miller (Reg. No. 0063259)
Jason M. Rafeld (Reg. No. 0079809)
Ice Miller LLP
250 West Street
Columbus, OH 43215
Christopher.miller@icemiller.com
Jason.rafeld@icemiller.com

**COUNSEL FOR OHIO POWER COMPANY** 

Michael L. Kurtz
Kurt J. Boehm
Jody Kyler Cohn
Boehm, Kurtz & Lowry
36 East Seventh Street, Suite 1510
Cincinnati, OH 45202
mkurtz@BLKlawfirm.com
kboehm@BLKlawfirm.com
jkylercohn@BLKlawfirm.com

### **COUNSEL FOR THE OHIO ENERGY GROUP**

Colleen L. Mooney (Reg. No. 0015668)
Christopher J. Allwein (Reg. No. 0084914)
Ohio Partners for Affordable Energy
PO Box 12451
Columbus, OH 43212-2451
cmooney@opae.org
callwein@opae.org

COUNSEL FOR OHIO PARTNERS FOR AFFORDABLE ENERGY

Angela Paul Whitfield (Reg. No. 0068774)
Carpenter Lipps & Leland LLP
280 North High Street, Suite 1300
Columbus, OH 43215
paul@carpenterlipps.com

### COUNSEL FOR THE KROGER CO.

Richard C. Sahli (Reg. No. 0007360) Richard Sahli Law Office, LLC 981 Pinewood Lane Columbus, OH 43230-3662 rsahli@columbus.rr.com

### **Tony Mendoza**

Staff Attorney Sierra Club 2101 Webster St., 13<sup>th</sup> Floor Oakland, CA 94612 tony.mendoza@sierraclub.org

### COUNSEL FOR THE SIERRA CLUB

Maureen R. Willis (Reg. No. 002847)
Senior Counsel (Counsel of Record)
William J. Michael (Reg. No. 0070921)
Christopher Healey (Reg. No. 0086027)
Assistant Consumers' Counsel
Office of the Ohio Consumers' Counsel
65 East State Street, 7th Floor
Columbus, OH 43215
Maureen.willis@occ.ohio.gov
William.michael@occ.ohio.gov
Christopher.healey@occ.ohio.gov

# COUNSEL FOR THE OFFICE OF THE OHIO CONSUMERS' COUNSEL

Kimberly W. Bojko (Reg. No. 0069402) Brian W. Dressel (Reg. No. 0097163) Carpenter Lipps & Leland LLP 280 North High Street, Suite 1300 Columbus, OH 43215 Bojko@carpenterlipps.com Dressel@carpenterlipps.com

Counsel for Ohio Manufacturers' Association Energy Group

Joseph Oliker (Reg. No. 0086088) (Counsel of Record) Michael Nugent (Reg. No. 0090408) IGS Energy and IGS Solar, LLC 6100 Emerald Parkway Dublin, OH 43016 joliker@igsenergy.com mnugent@igsenergy.com

### COUNSEL FOR IGS ENERGY AND IGS SOLAR

Miranda Leppla (Reg. No. 0086351) Ohio Environmental Council 1145 Chesapeake Avenue, Suite 1 Columbus, OH 43212-3449 mleppla@theOEC.org

#### COUNSEL FOR THE OHIO ENVIRONMENTAL COUNCIL

Robert Dove (Reg. No. 0092019) Kegler Brown Hill Ritter Co., LPA 65 East State Street, Suite 1800 Columbus, OH 43215-4295 rdove@keglerbrown.com

# COUNSEL FOR NATURAL RESOURCES DEFENSE COUNCIL

Mark A. Whitt (Reg. No. 0067996) Rebekah J. Glover (Reg. No. 0088798 WHITT STURTEANT LLP The KeyBank Building, Suite 1590 88 East Broad Street Columbus, OH 43215 whitt@whitt-sturtevant.com glover@whitt-sturtevant.com

# COUNSEL FOR DIRECT ENERGY, LP AND RETAIL ENERGY SUPPLY ASSOCIATION

John F. Stock (Reg. No. 0004921)
Orla E. Collier (Reg. No. 0014317)
Benesch, Friedlander, Coplan & Aronoff LLP
41 S. High Street, 26th Floor
Columbus, OH 43215
jstock@beneschlaw.com
ocollier@beneschlaw.com

John Rego (Reg. No. 0039774)
Michael Montgomery (Reg. No. 0070922)
200 Public Square, Suite 2300
Cleveland, OH 44114
jrego@beneschlaw.com
mmontgomery@beneschlaw.com

### **COUNSEL FOR OHIO COAL ASSOCIATION**

C0116725:1 2

**Devin D. Parram** (Reg. No. 0082507)

Bricker & Eckler LLP 100 South Third Street Columbus, OH 43215 dparram@bricker.com

#### **COUNSEL FOR THE OHIO HOSPITAL ASSOCIATION**

Katie Johnson Treadway (Reg. No. 0091064)

One Energy Enterprises LLC 12385 Township Rd. 215 Findlay, OH 45840 ktreadway@oneenergyllc.com

#### COUNSEL FOR ONE ENERGY ENTERPRISES LLC

Christine M. T. Pirik (Reg. No. 0029759) (Counsel of Record)
Terrence O'Donnell (Reg. No. 0074213)
William V. Vorys (Reg. No. 0093479)
Dickinson Wright PLLC
150 East Gay Street, Suite 2400
Columbus, OH 43215
cpirik@dickinsonwright.com
todonnell@dickinsonwright.com
wvorys@dickinsonwright.com

# COUNSEL FOR MID-ATLANTIC RENEWABLE ENERGY COALITION

Michael D. Dortch (Reg. No. 0043897)
Richard R. Parsons (Reg. No. 0082270)
Justin M. Dortch (Reg. No. 0090048)
Kravitz, Brown & Dortch, LLC
65 E. State Street, Suite 200
Columbus, OH 43215
mdortch@kravitzllc.com
rparsons@kravitzllc.com
jdortch@kravitzllc.com

### COUNSEL FOR CALPINE RETAIN HOLDINGS, LLC

Michael J. Settineri (Reg. No. 0073369) (Counsel of Record Gretchen L. Petrucci (Reg. No. 0046608) Vorys, Sater, Seymour and Pease LLP 52 East Gay Street Columbus, OH 43215 mjsettineri@vorys.com glpetrucci@vorys.com

COUNSEL FOR PJM POWER PROVIDERS GROUP AND THE ELECTRIC POWER SUPPLY ASSOCIATION

Thomas McNamee (Reg. No. 0018010)

Public Utilities Section Assistant Attorney General Office of the Ohio Attorney General 30 E. Broad St., 16th Floor Columbus, OH 43215 thomas.mcnamee@ohioattorneygeneral.gov

# COUNSEL FOR THE STAFF OF THE PUBLIC UTILITIES COMMISSION OF OHIO

### Sarah Parrot Greta See

Attorney Examiners
Public Utilities Commission of Ohio
180 East Broad Street, 12<sup>th</sup> Floor
Columbus, OH 43215
Sarah.Parrot@puc.state.oh.us
Greta.See@puc.state.oh.us

#### **ATTORNEY EXAMINERS**

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Case No(s). 18-0501-EL-FOR, 18-1392-EL-RDR, 18-1393-EL-ATA

Summary: Testimony Direct Testimony of Kevin M. Murray on Behalf of Industrial Energy Users-Ohio (Part 4 of 4) electronically filed by Mr. Frank P Darr on behalf of Industrial Energy Users-Ohio