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**27th Annual Ohio Energy
Savings & Management
Conference**
March 1, 2023



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AEP Ohio Overview

- AEP Ohio is engaged in the transmission and distribution of electric power to approximately 1.5 million customers in Ohio.
- AEP Ohio purchases energy and capacity to serve generation service customers who have not switched to a competitive generation supplier.
- AEP Ohio is a member of PJM.
- AEP Ohio Quick Facts
 - Total AEP Ohio Employees 1,723
 - Total Transmission Miles 7,574
 - Total Distribution Miles 46,871
 - Counties Served 61 of 88





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Ohio Rates Key Points

Ohio Rates are unbundled (G, T, D, riders)

- D rates set through a base rate case
 - In March 2021, AEP Ohio and 13 other parties reached a settlement in the rate case that addressed issues of reliability, affordability, and continued investments in providing electric service to our customers.
 - Commission Ordered November 17, 2021, and effective December 1, 2021
 - AEP Ohio's last base rate case was in 2011.
- T rates set as pass through of Open Access Transmission Tariff (OATT) charges
- G rates set through competitive bid auction



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Primary Customer (using 300,000 kWh and 1,000 KW)

Bill Calculation

			Rates					Billing			
			Generation	Transmission	Distribution	Total		Generation	Transmission	Distribution	Total
Customer Charge					\$ 138.50	\$ 138.50				\$ 138.50	\$ 138.50
Energy Charge	300,000 kWh	x					/kWh				
Demand Charge	1,000.0 kW	x			\$ 6.590	\$ 6.590	/kW			\$ 6,590.00	\$ 6,590.00
Excess Reactive Demand Charge	0.0 kVar	x			\$ 1.210	\$ 1.210	/kVar			\$ -	\$ -
Base Charges										\$ 6,728.50	\$ 6,728.50

Riders

Universal Service Fund (first 833,000 kWh)	300,000 kWh	x			\$ 0.0053667	\$ 0.0053667	/kWh			\$ 1,610.01	\$ 1,610.01
Universal Service Fund (in excess of 833,000 kWh)	0 kWh	x			\$ 0.0001756	\$ 0.000176	/kWh			\$ -	\$ -
kWh Tax (first 2000 kWh)	2,000 kWh	x			\$ 0.00465	\$ 0.00465	/kWh			\$ 9.30	\$ 9.30
kWh Tax (next 13,000 kWh)	13,000 kWh	x			\$ 0.00419	\$ 0.00419	/kWh			\$ 54.47	\$ 54.47
kWh Tax (in excess of 15,000 kWh)	285,000 kWh	x			\$ 0.00363	\$ 0.00363	/kWh			\$ 1,034.55	\$ 1,034.55
Bad Debt Rider	\$6,728.50 Base (Dist)	x			0.0000%	0.0000%				\$ -	\$ -
Generation Energy Rider	300,000 kWh	x	\$ 0.0583800			\$ 0.0583800	/kWh	\$ 17,514.00		\$ 17,514.00	
Generation Capacity Rider	300,000 kWh	x	\$ 0.0037300			\$ 0.0037300	/kWh	\$ 1,119.00		\$ 1,119.00	
Auction Cost Reconciliation Rider	300,000 kWh	x	\$ (0.0026951)			\$ (0.0026951)	/kWh	\$ (808.53)		\$ (808.53)	
Legacy Generation Resource Rider	300,000 kWh	x			\$ (0.0007590)	\$ (0.0007590)	/kWh			\$ (227.70)	\$ (227.70)
Basic Transmission Cost Rider	300,000 kWh	x		\$ 0.0004080		\$ 0.0004080	/kWh		\$ 122.40		\$ 122.40
Basic Transmission Cost Rider	1,000.0 kW	x		\$ 7.83		\$ 7.83	/kW		\$ 7,830.00		\$ 7,830.00
Economic Development Cost Recovery	\$6,728.50 Base (Dist)	x			3.77608%	3.77608%				\$ 254.07	\$ 254.07
Enhanced Service Reliability	\$6,728.50 Base (Dist)	x			3.07070%	3.07070%				\$ 206.61	\$ 206.61
gridSMART Phase 2 Rider	Month				\$ 15.57	\$ 15.57				\$ 15.57	\$ 15.57
Retail Reconciliation Rider (in excess of 833,000 kWh)	0 kWh	x				\$ -	/kWh			\$ -	\$ -
Distribution Investment Rider	\$6,728.50 Base (Dist)	x			8.52683%	8.52683%				\$ 573.73	\$ 573.73
Smart City Rider	Month				\$ -	\$ -				\$ -	\$ -
Storm Damage Recovery Rider	Month				\$0.00	\$ -				\$0.00	\$ -
Alternative Energy Rider	300,000 kWh	x	\$ 0.0037618			\$ 0.0037618	/kWh	\$ 1,128.54		\$ 1,128.54	
Tax Savings Credit Rider	300,000 kWh	x			\$ (0.0006200)	\$ (0.0006200)	/kWh			\$ (186.00)	\$ (186.00)
Solar Generation Fund Rider (first 833,000 kWh)	300,000 kWh	x			\$ 0.0002850	\$ 0.0002850	/kWh			\$ 85.50	\$ 85.50
Riders Total								\$ 18,953.01	\$ 7,952.40	\$ 3,430.11	\$ 30,335.52

Base + Rider Total

\$ 18,953.01 \$ 7,952.40 \$ 10,158.61 \$ 37,064.02

Minimum Charge

\$ 37,064.02

Total Ohio Power Billing Charge:

<https://www.aepohio.com/company/about/rates/>

\$ 37,064.02



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Transmission Customer (using 10,000,000 kWh and 20,000 KW)

Bill Calculation

				Rates				Billing						
				Generation	Transmission	Distribution	Total	Generation	Transmission	Distribution	Total			
Customer Charge														
Energy Charge	10,000,000 kWh	x												
Demand Charge	20,000.0 kW	x												
Excess Reactive Demand Charge	0.0 kVar	x												
Base Charges														
						\$ 3,600.00	\$ 3,600.00					\$ 3,600.00	\$ 3,600.00	
						\$ -	\$ -					\$ -	\$ -	
						\$ 0.700	\$ 0.700					\$ -	\$ -	
												\$ 3,600.00	\$ 3,600.00	

Riders

Universal Service Fund (first 833,000 kWh)	833,000 kWh	x				\$ 0.0053667	\$ 0.0053667				\$ 4,470.46	\$ 4,470.46		
Universal Service Fund (in excess of 833,000 kWh)	9,167,000 kWh	x				\$ 0.0001756	\$ 0.000176				\$ 1,609.73	\$ 1,609.73		
kWh Tax (first 2000 kWh)	2,000 kWh	x				\$ 0.00465	\$ 0.00465				\$ 9.30	\$ 9.30		
kWh Tax (next 13,000 kWh)	13,000 kWh	x				\$ 0.00419	\$ 0.00419				\$ 54.47	\$ 54.47		
kWh Tax (in excess of 15,000 kWh)	9,985,000 kWh	x				\$ 0.00363	\$ 0.00363				\$ 36,245.55	\$ 36,245.55		
Bad Debt Rider	\$3,600.00	Base (Dist) x				0.0000%	0.00000%				\$ -	\$ -		
Generation Energy Rider	10,000,000 kWh	x				\$ 0.0573200	\$ 0.0573200				\$ 573,200.00	\$ 573,200.00		
Generation Capacity Rider	10,000,000 kWh	x				\$ 0.0027800	\$ 0.0027800				\$ 27,800.00	\$ 27,800.00		
Auction Cost Reconciliation Rider	10,000,000 kWh	x				\$ (0.0026951)	\$ (0.0026951)				\$ (26,951.00)	\$ (26,951.00)		
Legacy Generation Resource Rider	833,000 kWh	x				\$ (0.0007590)	\$ (0.0007590)				\$ (632.25)	\$ (632.25)		
Basic Transmission Cost Rider	10,000,000 kWh	x				\$ 0.0004006	\$ 0.0004006				\$ 4,006.00	\$ 4,006.00		
Basic Transmission Cost Rider	20,000.0 kW	x				\$ 8.54	\$ 8.54				\$ 170,800.00	\$ 170,800.00		
Economic Development Cost Recovery	\$3,600.00	Base (Dist) x				3.77608%	3.77608%				\$ 135.94	\$ 135.94		
Enhanced Service Reliability	\$3,600.00	Base (Dist) x				3.07070%	3.07070%				\$ 110.55	\$ 110.55		
gridSMART Phase 2 Rider	Month					\$ 15.57	\$ 15.57				\$ 15.57	\$ 15.57		
Distribution Investment Rider	\$3,600.00	Base (Dist) x				8.52683%	8.52683%				\$ 306.97	\$ 306.97		
Smart City Rider	Month					\$ -	\$ -				\$ -	\$ -		
Storm Damage Recovery Rider	Month					\$0.00	\$ -				\$0.00	\$ -		
Alternative Energy Rider	10,000,000 kWh	x				\$ 0.0036866	\$ 0.0036866				\$ 36,866.00	\$ 36,866.00		
Tax Savings Credit Rider	10,000,000 kWh	x				\$ (0.0006200)	\$ (0.0006200)				\$ (6,200.00)	\$ (6,200.00)		
Solar Generation Fund Rider (first 833,000 kWh)	833,000 kWh	x				\$ 0.0002850	\$ 0.0002850				\$ 237.41	\$ 237.41		
Riders Total											\$ 610,915.00	\$ 174,806.00	\$ 36,363.70	\$ 822,084.70

Base + Rider Total

\$ 610,915.00 \$ 174,806.00 \$ 39,963.70 \$ 825,684.70

Minimum Charge

\$ 825,684.70

Total Ohio Power Billing Charge:

\$ 825,684.70



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Ohio Base Distribution Case

- Set a GS-1 and Primary rate energy and demand charge that changes annually until December 1, 2024.

Primary Customers				
	Ohio Power Rate Zone		Columbus Southern Power Rate Zone	
	Customer Charge	KW Charge	Customer Charge	KW Charge
12/1/2021	\$ 9.40	\$ 6.72	\$ 9.40	\$ 5.85
12/1/2022	\$ 9.40	\$ 6.59	\$ 9.40	\$ 6.01
12/1/2023	\$ 9.40	\$ 6.46	\$ 9.40	\$ 6.17
12/1/2024	\$ 9.40	\$ 6.33	\$ 9.40	\$ 6.33

GS-1 Customers				
	Ohio Power Rate Zone		Columbus Southern Power Rate Zone	
	Customer Charge	kWh Charge	Customer Charge	kWh Charge
12/1/2021	\$ 9.40	\$ 0.0138367	\$ 9.40	\$ 0.0279184
12/1/2022	\$ 9.40	\$ 0.0160846	\$ 9.40	\$ 0.0254723
12/1/2023	\$ 9.40	\$ 0.0183324	\$ 9.40	\$ 0.0230262
12/1/2024	\$ 9.40	\$ 0.0205802	\$ 9.40	\$ 0.0205802



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ESP History

- Senate Bill No. 221 adopted a new hybrid process for setting generation rates starting in 2008- either an Electric Security Plan (ESP) or a Market-Rate Offer (MRO)

Purpose of an ESP

- To fulfill obligation to provide a Standard Service Offering (SSO) to customers
- Propose provisions/programs regarding distribution service
 - Deploy technologies and infrastructure to modernize and improve the distribution system for customers
 - Economic development
- Seek approval of new rates/riders
- Extend existing riders/set new rates for existing riders (i.e. DIR)



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ESP V Summary

- **Filed ESP V Case on January 6, 2023, in Case 23-0023-EL-SSO**
- **Period of June 2024-May 2030**
 - **Distribution Investment -**
 - Proposed investments to upgrade aging infrastructure, improve reliability and to meet new growth requirements
 - **Resiliency & Grid Hardening** – Focus on circuit backbones, switching capabilities
 - **Veg Impact Mitigation** – Targets overhead facilities impacted by frequent outages due to trees. Strategic undergrounding, line relocation, and/or insulated conductor.
 - **Directed Reliability** - Address worst performing circuits by sectionalizing and adding circuit ties.
 - **Distribution Substation Rehab** – Rebuild stations at or beyond useful life over next 10 years. 350 transformers, 475 breakers, and 560 regulators.
 - **Distribution Substation Exits** – Rebuild substation exit cables and replace cable that is at or beyond useful life.
 - **Vegetation Management Rider -**
 - Continuation and expansion of our tree trimming program. Integration of our danger tree program (outside the right-of-way).



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ESP V Summary

- **New Energy Efficiency Program**

- **Continuation of IRP Credits**
 - Legacy will be reduced \$1 each year starting June 2025
 - Expanded IRP will continue with existing customers
 - New Industry will not be capped and requires RRA

- **EV Program**
 - Builds on success of our Smart City EV charger rebate program
 - Residential, Corridor, and Commercial/Public programs

- **Sets auction rules and schedule for ESP term**



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Generation Riders

- The Standard Service Offer (SSO) Price to Compare is made up of the following Generation Riders:
 - The Generation Energy (GENE)
 - Generation Capacity (GENC)
 - Alternative Energy Rider (AER)
 - Auction Cost Reconciliation Rider (ACRR)
- Generation Rates for the SSO are determined through an Auction or Competitive Bid Process.
- All Ohio Electric Distribution Utilities hold a Competitive Bid Process to procure Generation for their SSO load which is accomplished through a descending clock auction.
- A descending clock auction:
 - Starts with a higher price which gradually decreases by round.
 - Bidders gradually drop out as pricing becomes unacceptable for them.
 - This continues until the remaining bids are just enough to fill the target volume.
 - The price of the last dropped bid used to fulfill the volume target will determine the auction clearing price.



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Current Price to Compare (PTC)

Calculation of Blended Competitive Bid Price				
Delivery Period: June 2022 - May 2023				
Procurement	No. of		Clearing	
Date	Tranches	Delivery Period	Price	
Nov-21	50	June 2022 - May 2023	\$ 55.14	/MWh
Mar-22	50	June 2022 - May 2023	\$ 69.27	/MWh
Total	100			
Blended SSO Competitive Bid Price			\$ 62.21	/MWh

- The bypassable SSO Generation Rate or Price to Compare:
 - The blended auction price determines the basis for GENE and GENC rates
 - The ACRR which trues-up generation and auction costs
 - The AER which recovers the Compliance costs associated with Alternative Energy Requirements
- Current Residential, Commercial, industrial, and Transmission Generation rates for the SSO:

Rider	GENE	GENC	ACRR	AER	SSO PTC
Residential	\$ 0.0604100	\$ 0.0058100	\$ (0.0026951)	\$ 0.0038973	\$ 0.0674222
Secondary	\$ 0.0604100	\$ 0.0047100	\$ (0.0026951)	\$ 0.0038973	\$ 0.0663222
Primary	\$ 0.0583800	\$ 0.0037300	\$ (0.0026951)	\$ 0.0037618	\$ 0.0631767
Transmission	\$ 0.0573200	\$ 0.0027800	\$ (0.0026951)	\$ 0.0036866	\$ 0.0610915



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Transmission Rider: BTCR Pilot Program

- The Basic Transmission Cost Rider (“BTCR”) – This Rider allows the Company to recover non-market-based transmission charges from both shopping and non-shopping customers.

- BTCR Pilot Program:
 - Established – Joint Stipulation and Recommendation (December 21, 2016) in Case No. 10-2929-EL-UNC,
 - Continued – ESPIII in case no: 16-1852-EL-SSO (Ordered April 25, 2018), and
 - Updated – Base Distribution Case No: 20-585-EL-AIR (Ordered November 17, 2021).
 - Program allows enrolled customers to be billed based on their previously established single highest coincident peak (“1CP”) in PJM.



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Transmission Rider: BTCR Pilot Program

- Pilot program details:
 - Enrollment only available to sponsoring groups for a total of 50 participation slots.
 - 50 participation slots: 15 for OMAEG; 15 for OEG ; 15 for IEU-Ohio; 3 for public school customers of Direct Energy Services, LLC and Direct Energy Business, LLC; and 2 for IGS customers.
 - Program MW Caps: 900 in 2023 and 1,000 for 2024, plus an additional 20 MWs for schools, subject to the reallocation if the enrollment exceeds the MW Cap. New Load shall be excluded from the participation cap for the duration of the pilot.
 - Participation notification through sponsor groups: intent to participate preliminary non-binding notice due by December 15th of each year. Final, binding election made annually by February 15th.
- Program Rates:
 - Pilot Rates Effective Cycle 1 April each year.
 - Pilot 1CP Rate calculated as the Company's total forecasted demand costs divided by the Network Service Peak Load (NSPL).
 - Each customer will be billed for transmission demand based on their 1CP demand.
 - Current calendar year 1CP established 11/1-10/31 based on PJM peak (1CP zonal load contributions for PJM Network Service billing).



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gridSMART Summary

- Filed gridSMART Phase III Case on July 26, 2019, in Case 19-1475-EL-RDR
- Joint Stipulation and Recommendation filed October 27, 2021
- Opinion and Order adopting the Stipulation issued December 1, 2021
 - Total estimated costs: Capital \$223 million, O&M \$79 million
 - Phase III capital investments:
 - \$94 million for the final phase of Advanced Metering Infrastructure (“AMI”) rollout to all AEP Ohio customers
 - \$115 million for Volt/Var Optimization
 - \$10 million for remaining Phase II Distribution Automation Circuit Reconfiguration (“DACR”) deployments
 - \$2.8 million for Electronic Data Interchange improvements
 - Withdraw proposed Phase III DACR
 - Can refile a new application on or after June 1, 2022
 - Withdraw fiber plan without prejudice
 - \$500,000 shareholder funded thermostat pilot
 - \$250,000 one-time shareholder donation to Neighbor-to-Neighbor Fund

BakerHostetler

AEP Ohio SSO Auction Schedule for June 1, 2023 – May 31, 2024 Service Year

- **November 1, 2022 (50 tranches or 50% of load)**
- **March 7, 2023 (50 tranches)**
 - Competitive Auctions
 - Full Requirements Load Contracts
 - Impact of Load Migration – Increased Risk Premium
 - SSO Rates Expected to Increase June 1, 2023

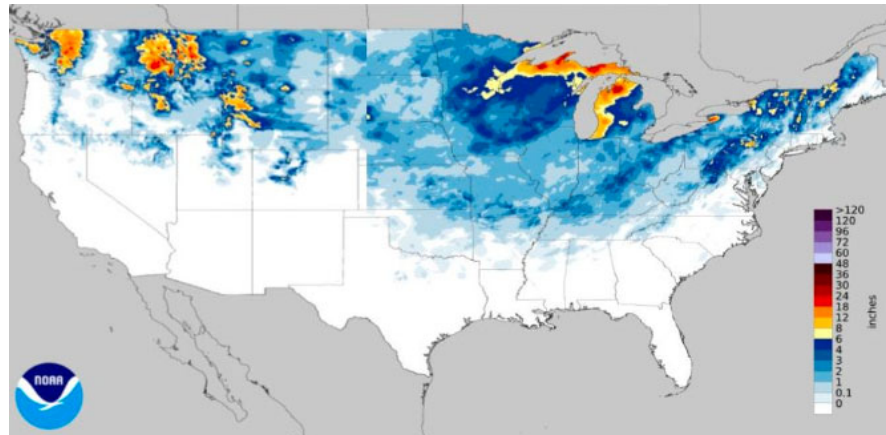
November 1, 2022 Auction Results

Table 1. Summary of Auction Results

	Delivery Period
	June 1, 2023 to May 31, 2024
Number of Registered Bidders	7
Total initial eligibility of Registered Bidders (# of tranches)	
Total initial eligibility divided by volume	
Number of bidders that submitted a non-zero bid in round 1	
Number of tranches bid in round 1	72
Number of tranches bid in round 1 divided by tranche target	1.44
Number of tranches to procure in auction (tranche target)	50
Number of tranches procured in auction	45
Number of rounds in the auction	4
Number of winning bidders	6
Starting price range (\$/MWh)	100.00 - 130.00
Starting price (\$/MWh)	
Clearing price (\$/MWh)	119.98



Winter Storm Elliott



Overview: Weather and PJM

- Winter Storm Elliott led to extremely cold temperatures with wind chill factors approaching -30° F for much of the AEP Zone on the evening of December 23, 2022.
- Most drastic temperature drop in PJM in over a decade.
- PJM's forecasted load for December 23 was 29 GW under their planned operating capacity for the day, but actual load came in at over 10% of forecasted load.
- As PJM called on reserves, a significant portion of fleet failed to perform.
- PJM generation outages peaked at $\sim 46,000$ MW of capacity on December 24.

PJM Demand Response Events

- December 23, 2023
 - Two Synchronized Reserve Events
 - 10:14 AM
 - 4:17 PM
 - Emergency Load Management Event (EEA2)
 - 5:45 PM – 9:30 PM
- December 24, 2023:
 - Three Synchronized Reserve Events
 - 12:04 AM
 - 2:23 AM
 - 4:23 AM
 - Emergency Load Management Event (EEA2)
 - 4:20 AM – 8:30 PM

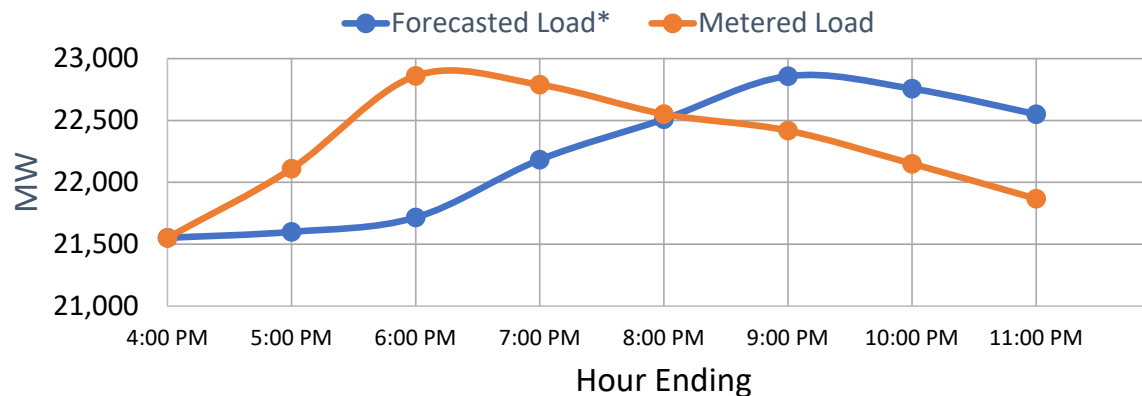
AEP Interruptible Notices

- In response to PJM's emergency events, AEP issued interruption notices to participants in their interruptible programs:
 - Interruptible Power Rider – Discretionary - Legacy (IRP-L)
 - Interruptible Power Rider – Discretionary - Expanded (IRP-E)
- IRP-L and IRP-E are scheduled to sunset with the June 1, 2024 billing cycle at the end of AEP's ESP IV.

AEP 1 CP Peak Load-To-Date

Date	Load (MW)	Hour Ending	Brakey Energy Alert Issued	Assigned Probability
12/23/22	22,783*	6:00 PM	Yes	35%
12/24/22	21,460	9:00 AM	Yes	10%

*Highest load in the AEP Zone since February 2015.



Load on December 23 could set AEP's 1 CP for Nov 1, 2022 – Oct 31, 2023 period.



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QUESTIONS?