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March 1, 2024

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DELIVERED VIA EMAIL TO PSCED@KY.GOV

Linda C. Bridwell
Executive Director
Public Service Commission
211 Sower Boulevard
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RECEIVED

MAR 01 2024

PUBLIC SERVICE
COMMISSION

RE: **Case No. 2012-00578** (Post-Case Correspondence File)

Dear Ms. Bridwell:

Please accept for filing Kentucky Power Company's 2023 Mitchell Generating Plant Annual Performance Report. The report is being filed in conformity with the Commission's October 7, 2013 order in Case No. 2012-00578.

A copy of the report and this letter is being served on counsel of record in the case.

Very truly yours,

STITES & HARBISON PLLC



Katie M. Glass

KMG

cc: Michael L. Kurtz
Larry W. Cook
Joe F. Childers
Kristin Henry
Shannon Fisk

CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing letter and accompanying report were served by first class mail, postage prepaid upon the following parties of record, the 1st day of March, 2024:

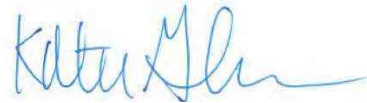
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Katie M. Glass

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

The Application Of Kentucky Power Company For:)
(1) A Certificate Of Public Convenience And Necessity)
Authorizing The Transfer To The Company Of An)
Undivided Fifty Percent Interest In The Mitchell)
Generating Station And Associated Assets; (2) Approval)
Of The Assumption By Kentucky Power Company Of)
Certain Liabilities In Connection With The Transfer Of)
The Mitchell Generating Station; (3) Declaratory Rulings;)
(4) Deferral Of Costs Incurred In Connection With The)
Company's Efforts To Meet Federal Clean Air Act And)
Related Requirements; And (5) For All Other Required)
Approvals And Relief)

Case No. 2012-00578

MITCHELL GENERATING PLANT: MARCH 1, 2024 ANNUAL PERFORMANCE
REPORT AND REPORT ON POTENTIAL IMPACTS OF FUTURE ENVIRONMENTAL
REGULATIONS

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1) **Introduction**

Kentucky Power Company (“Kentucky Power” or “the Company”) files this report in conformity with the Public Service Commission of Kentucky’s (“Commission”) October 7, 2013 Order in Case No. 2012-00578. Portions of the required information are provided in the following attachments:

Attachment 1: 2023 Plant Performance Data

- i. Forced Outage Rate
- ii. Equivalent Forced Outage Rate
- iii. Equivalent Availability Factor
- iv. Net Capacity Factor
- v. Net Unit Heat Rate

Attachment 2: 2023 Planned and Unplanned Outages

2) **Mitchell Plant Performance**

Attachment 1 to this report includes 2023 performance data for Mitchell Unit 1 and Unit 2. Annual Net Capacity Factors were 19.64% for Unit 1 and 28.93% for Unit 2. Annual Equivalent Availability Factors¹ were 42.38% for Unit 1 and 57.02% for Unit 2. The 2023 Forced Outage Rate was 23.22% for Unit 1 and 8.97% for Unit 2. The 2023 Equivalent Forced Outage Rate² was 28.12% for Unit 1 and 12.75% for Unit 2.

As described below, environmental compliance work associated with the Environmental Protection Agency’s Coal Combustion Residuals (“CCR”) Rule was performed at the Mitchell Plant during 2023, which had the effect of increasing the number of or lengthening some planned outages. Absent this work being performed to comply with the CCR Rule, there would have been two weeks less of planned outage at Mitchell Unit 1 and seven weeks less of planned outage at Mitchell Unit 2. This information should be considered when reviewing the Mitchell Plant performance data included with this report.

3) **Mitchell Plant Unplanned Outages**

Attachment 2 to this report identifies the planned and unplanned outage events that occurred at Mitchell Units 1 and 2 during the 2023 calendar year. For purposes of Attachment 2, planned outages include Planned and Maintenance Outages. Unplanned outages include Forced Outages.

A Planned Outage is an outage lasting several weeks and is taken to permit the Company to perform work on major equipment groups that are not immediately required for the safe operation of the unit. Planned Outages are scheduled approximately a year in advance. Maintenance

¹ The Equivalent Availability Factor is an unweighted (time based) performance metric defined in Appendix F of the NERC’s 2022 GADS Data Reporting Instructions as the ratio of a generating unit’s available hours to the number of hours in the period being measured, expressed as a percentage.

² The PJM Glossary defines Equivalent Forced Outage Factor (Rate) as the equivalent forced outage factor is the proportion of hours in a year that a unit is unavailable because of forced outages.

Outages require shorter lead time for notifying PJM and are taken to perform repair and maintenance work. Maintenance Outages may be initially scheduled for up to nine days, although they may be extended once underway. The dates of the Planned and Maintenance Outages are pre-approved by PJM. A Forced Outage is an unplanned outage to address an immediate operational or safety concern at the generation facility. Forced Outages typically last from a few hours to several days depending on the situation.

The longest unplanned outage event in 2023 at Mitchell Unit 2 occurred in January and lasted 22 days. This outage was taken to perform targeted maintenance activities to enhance precipitator performance and avoid opacity exceedance. The longest unplanned outage event in 2023 at Mitchell Unit 1 occurred in December and lasted from December 19, 2023 through January 28, 2024. This outage was caused by an unexpected water line break that caused severe damage, and which was reported to the Commission initially on January 4, 2024.

4) Mitchell Plant Operations & Maintenance (“O&M ”) Expense

Kentucky Power’s share of the 2023 budgeted and actual O&M expenses for the Mitchell Plant, as well as the Company’s share of the budgeted O&M expenses for 2024, are included in Table 1 below. The Company’s share of actual O&M expense in 2023 was \$26.7 million, compared to a budgeted amount of \$28.1 million.

Table 1

Mitchell Plant O&M Expense		
2023		2024
Actuals	Budget	Budget
\$26,731,093	\$28,118,304	\$28,987,427
NOTES: Totals reflect Kentucky Power’s 50% ownership share of the Mitchell Plant.		

Kentucky Power’s share of the 2024 budgeted O&M expense of \$29.0 million reflects a 7% increase when compared to the 2023 budget amount, largely due to an increase in base cost of operations and scheduled outage costs.

5) Mitchell Plant Capital Investments

Kentucky Power’s share of the 2023 actual and budgeted level of capital investment for the Mitchell Plant, as well as the Company’s forecasted share of capital investment for 2024, are included below in Table 2.

In 2023, the Company’s share of capital spending at the Mitchell Plant was \$12.2 million compared to a budget of \$13.0 million. Capital spending in 2023 was slightly less than budgeted mostly due to a portion of the CCR work budgeted for 2023 being performed in 2022.

Table 2

Mitchell Plant Capital Investment		
2023		2024
Actuals	Budget	Budget
\$12,179,364	\$13,035,782	\$7,634,613
NOTES:		
Totals reflect Kentucky Power’s 50% ownership share of the Mitchell Plant.		

Kentucky Power’s share of the 2024 budgeted capital investment of \$7.6 million reflects an approximately 41% decrease when compared to the 2023 budget amount, largely due to lower capital and environmental costs, including the fact that most CCR work was completed in 2023 and because of Kentucky Power’s declining pro rata share of Mitchell Plant capital costs.

6) Discussion of Environmental Regulations and Potential Future Impacts

The Mitchell Plant is subject to air, water, and solid waste regulations. Both units are fully controlled units with respect to current air emissions. They are equipped with Electrostatic Precipitators (“ESPs”) for the removal of approximately 99% of Particulate Matter (“PM”); Selective Catalytic Reduction (“SCR”) systems for reduction of approximately 90% of nitrogen oxide (“NOx”) emissions; and Flue Gas Desulfurization (“FGD”) systems for the reduction of sulfur dioxide (“SO2”) emissions by approximately 97%. These systems are instrumental in maintaining compliance with existing air pollution regulations. The Mitchell Plant operates in compliance with all applicable environmental regulations.

It should be noted that the following discussion of environmental regulations is based on the requirements currently in effect and those compliance requirements viewed by the Company as most likely to be implemented. Activity including but not limited to Presidential Executive Orders, litigation, petitions for review, and Federal Environmental Protection Agency (“EPA”) proposals may delay the implementation of these rules, or alter the requirements set forth by these regulations. While such activities have the potential to materially change the compliance options available to the Company in the future, all potential outcomes cannot be reasonably foreseen or estimated and the assumptions represent the Company’s best estimation of outcomes as of the filing date. The Company is committed to closely following developments related to environmental regulations and will update its analysis of compliance options and timelines when sufficient information becomes available to make such judgments.

Clean Air Act (“CAA”) Requirements

The CAA establishes a comprehensive program to protect and improve the nation’s air quality and control sources of air emissions. The states implement and administer many of these programs and could impose additional or more stringent requirements. The primary regulatory programs that continue to drive investments in the Company’s existing generating units include: (a) periodic revisions to National Ambient Air Quality Standards (“NAAQS”) and the development of State Implementation Plans (“SIPs”) to achieve more stringent standards, (b) implementation of the regional haze program by the states and the Federal EPA, (c) regulation of hazardous air pollutant emissions under the Mercury and Air Toxics Standard (“MATS”), (d) implementation and review of the Cross-State Air Pollution Rule (“CSAPR”) and (e) the Federal EPA’s regulation of greenhouse gas emissions from fossil generation under Section 111 of the CAA. Notable developments in significant CAA regulatory requirements affecting AEP’s operations are discussed in the following sections.

National Ambient Air Quality Standards

The Federal EPA periodically reviews and revises the NAAQS for criteria pollutants under the CAA. Revisions tend to increase the stringency of the standards, which in turn may require Kentucky Power to make investments in pollution control equipment at existing generating units, or, since most units are already well controlled, to make changes in how units are dispatched and operated. In February 2024, the Federal EPA finalized a new more stringent annual primary PM2.5 standard. Areas with air quality that does not meet the new standard will be designated by the Federal EPA as “nonattainment,” which will trigger an obligation for states to revise their SIPs to obtain further emission reductions to ensure that the new standard will be met. Areas around some of the Company’s generating facilities may be deemed nonattainment, which may subject those facilities to additional pollution controls or operational constraints. The nonattainment designations by the Federal EPA and the subsequent SIP revisions by the affected states will take some time to complete, therefore, it is too soon to predict how SIP requirements may impact the Company’s operations. Kentucky Power will continue to monitor the issue.

Cross-State Air Pollution Rule

CSAPR is a regional trading program that the Federal EPA began implementing in 2015, which was designed to address interstate transport of emissions that contribute significantly to non-attainment and interfere with maintenance of the 1997 ozone NAAQS and the 1997 and 2006 PM NAAQS in downwind states. CSAPR relies on SO₂ and NO_x allowances and individual state budgets to compel further emission reductions from electric utility generating units. Interstate trading of allowances is allowed on a restricted basis. The Federal EPA has revised, or updated, the CSAPR trading programs several times since they were established.

In January 2021, the Federal EPA finalized a revised CSAPR, which substantially reduced the ozone season NO_x budgets beginning in ozone season 2021. In addition, in February 2023, the Federal EPA Administrator finalized the disapproval of interstate transport SIPs submitted by 19 states – including Kentucky -- addressing the 2015 Ozone NAAQS. Disapproval of the SIPs provides the Federal EPA with authority to impose a Federal Implementation Plan (“FIP”) for those states, replacing the SIPs that were disapproved. In August 2023, a FIP went into effect that further revises the ozone season NO_x budgets under the existing CSAPR program in states to which the FIP applies. Courts have stayed Federal EPA’s SIP disapprovals in several states,

including Kentucky, which prevents the FIP from being implemented at this time. Kentucky Power will continue to monitor the outcome of this litigation and any potential impact to operations.

Climate Change, CO2 Regulation, and Energy Policy

In May 2023, the Federal EPA proposed greenhouse gas standards and guidelines for new and existing fossil-fuel fired sources. The proposal relies heavily on carbon capture and sequestration and natural gas co-firing as means to reduce CO2 emissions from coal fired plants and hydrogen co-firing and carbon capture and sequestration to reduce CO2 emissions from gas turbines. Kentucky Power is evaluating the proposed rule. While no federal regulatory requirements to reduce CO2 emissions are in place, the Company has taken action to reduce and offset CO2 emissions from its generating fleet.

Coal Combustion Residuals (“CCR”) Rule

The Federal EPA’s CCR rule regulates the disposal and beneficial re-use of CCR, including fly ash and bottom ash created from coal-fired generating units and FGD gypsum generated at some coal-fired plants. The rule applies to active and inactive CCR landfills and surface impoundments at facilities of active electric utility or independent power producers.

Kentucky Power’s Mitchell Plant is equipped with a dry fly ash handling system and dry ash landfill to meet current permit requirements. On July 15, 2021, in Case No. 2021-00004, the Public Service Commission of Kentucky granted Kentucky Power’s application for a Certificate of Public Convenience and Necessity to construct environmental projects at the Mitchell Plant to comply with the CCR rule, but not the ELG Rule. Kentucky Power has converted the units to dry bottom ash handling and has begun closure of the Bottom Ash Pond. Closure is expected to be complete in 2024.

Clean Water Act Regulations

The Federal EPA’s ELG rule for generating facilities establishes limits for FGD wastewater, fly ash and bottom ash transport water and flue gas mercury control wastewater, which are to be implemented through each facility’s wastewater discharge permit. A revision to the ELG rule, published in October 2020, established additional options for reusing and discharging small volumes of bottom ash transport water, provided an exception for retiring units and extended the compliance deadline to a date as soon as possible beginning one year after the rule was published but no later than December 2025. For affected facilities that must install additional technologies to meet the ELG rule limits, permit modifications were filed in January 2021 that reflect the outcome of that assessment. AEP continues to work with the state agency to finalize permit terms and conditions.

In March 2023, the Federal EPA proposed further revisions to the ELG rule which, if finalized, would establish a zero discharge standard for FGD wastewater and bottom ash transport water, and more stringent discharge limits for combustion residual leachate. AEP is evaluating the impacts of the proposed rule to operations.

Attachment 1

**Mitchell Generating Plant
Performance Data
2023**

Unit	Year	Month	Forced Outage Rate [%]	Equivalent Forced Outage Rate [%]	Equivalent Availability Factor [%]	Net Capacity Factor [%]	Net Heat Rate [Btu/kWh]
Mitchell 1	2023	Jan	81.01	81.01	5.67	1.90	15177
Mitchell 1	2023	Feb	13.04	21.30	83.51	22.95	11358
Mitchell 1	2023	Mar	0.00	7.86	74.20	33.07	11566
Mitchell 1	2023	Apr	0.00	3.13	44.98	20.10	11247
Mitchell 1	2023	May	37.21	38.75	37.94	16.19	12070
Mitchell 1	2023	Jun	26.51	27.87	71.33	40.05	10887
Mitchell 1	2023	Jul	14.82	28.92	70.88	51.68	11353
Mitchell 1	2023	Aug	18.75	19.01	80.50	31.71	11683
Mitchell 1	2023	Sep	0.00	6.90	25.54	12.15	10720
Mitchell 1	2023	Oct	0.00	0.00	0.00	0.00	0
Mitchell 1	2023	Nov	0.00	0.00	0.00	0.00	0
Mitchell 1	2023	Dec	68.45	69.86	17.25	6.04	12574
Mitchell 1	2023	Jan-Dec	23.22	28.12	42.38	19.64	11423

Unit	Year	Month	Forced Outage Rate [%]	Equivalent Forced Outage Rate [%]	Equivalent Availability Factor [%]	Net Capacity Factor [%]	Net Heat Rate [Btu/kWh]
Mitchell 2	2023	Jan	0.00	57.18	17.26	4.12	8355
Mitchell 2	2023	Feb	0.00	7.22	91.75	45.65	10666
Mitchell 2	2023	Mar	27.84	28.84	68.27	31.60	10741
Mitchell 2	2023	Apr	90.13	90.13	36.03	1.39	12604
Mitchell 2	2023	May	0.00	4.24	42.73	21.35	10575
Mitchell 2	2023	Jun	26.19	28.75	69.93	40.93	9835
Mitchell 2	2023	Jul	0.00	2.53	97.29	74.07	9611
Mitchell 2	2023	Aug	0.00	1.46	97.89	51.40	10461
Mitchell 2	2023	Sep	0.00	9.05	30.33	16.39	10283
Mitchell 2	2023	Oct	0.00	0.00	0.00	0.00	0
Mitchell 2	2023	Nov	0.00	0.83	37.16	15.82	10968
Mitchell 2	2023	Dec	0.00	0.00	97.27	44.76	10708
Mitchell 2	2023	Jan-Dec	8.97	12.75	57.02	28.93	10291

Attachment 2

Mitchell Generating Plant
Unplanned and Planned Outages
2023

Unit	Start Date	End Date	Duration [Hours]	Event Type	Event Description
Mitchell 1	1/24/2023 12:09	2/3/2023 16:27	244	U1	Startup bypass system valves
Mitchell 1	3/16/2023 1:28	3/16/2023 14:53	13	MO	Main Steam Lead greylock drain line leak
Mitchell 1	3/16/2023 14:53	3/21/2023 23:17	128	MO	Main Steam Line Above Seat Drain steam leak
Mitchell 1	4/15/2023 4:31	5/12/2023 18:00	661	PO	Boiler inspection and repair, Precipitator inspection and repair, Sicon Conveyor Tail Pulley structural steel repairs, relocation of the 2#4 River Water feed to FGD in the foundation of the new ash bunker, BOP repairs, dual outage to prep for Fall Outage
Mitchell 1	5/12/2023 18:00	5/19/2023 7:25	157	U1	Feedwater chemistry (not specific to condenser, polishers, or chemical addition)
Mitchell 1	5/19/2023 11:27	5/20/2023 1:57	15	U1	Feedwater pump problems
Mitchell 1	6/15/2023 15:12	6/23/2023 6:32	183	U2	Boiler tube Leak, waterwall (furnace wall)
Mitchell 1	7/27/2023 9:43	8/6/2023 19:30	250	U2	Boiler tube Leak, waterwall (furnace wall)
Mitchell 1	9/9/2023 5:29	12/6/2023 5:56	2113	PO	HP/RH Turbine replacement, LPT A replacement, Cooling Tower inspection and repair, AH Basket inspection and repair, BFPT Stop and Control Valve inspection and repair, ID Fan inspection and repair
Mitchell 1	12/9/2023 1:36	12/16/2023 20:28	187	MO	Main and Aux Condenser inspection and repair, Water Box inspections, Generator Hydrogen Cooler inspection and repair
Mitchell 1	12/19/2023 17:16	1/28/2024 2:28	295	U1	Exciter transformer
Mitchell 2	1/7/2023 0:00	1/29/2023 19:04	547	MO	Precipitator inspection and repair, Balance Shot on LP turbines., Boiler inspection and repair, Duct Repairs
Mitchell 2	3/23/2023 9:10	4/4/2023 14:00	293	U1	Feedwater pump drive - main shaft
Mitchell 2	4/15/2023 0:00	4/30/2023 14:35	375	PO	Boiler inspection and repair, Sicon Conveyor Tail Pulley structural steel repairs, relocation of the #24 River Water feed to FGD in the foundation of the new ash bunker, BOP repairs, dual outage to prep for Fall Outage
Mitchell 2	5/15/2023 1:27	6/1/2023 0:00	407	MO	Repair #3 Control Valve, Boiler inspection and repair, Boiler Feed Pump #2 Bearing oil leak repairs, FMO 402 (Second RH By-Pass Valve) repairs
Mitchell 2	9/11/2023 1:36	11/19/2023 17:33	1673	PO	Boiler inspection and repair, Chemical Clean, Furnace Wall inspection and repair. Boiler inspection and repair, CCR/ELG Project
Mitchell 2	6/1/2023 0:00	6/8/2023 20:33	189	U1	Control valves

Event Type	NERC Description
MO	Maintenance Outage - can be deferred beyond the end of the next weekend but must occur before the next planned outage
PO	Planned Outage - scheduled approximately a year in advance and approved by PJM. Normally lasts several weeks
U1	Unplanned (Forced) Outage - requires immediate removal from service
U2	Unplanned (Forced) Outage - removal from service delayed due to day and time of occurrence
U3	Unplanned (Forced) Outage - can be postponed beyond 6 hours but requires removal from service before the end of the next weekend