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March 1, 2023

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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 2023

PUBLIC SERVICE
COMMISSION

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

Dear Ms. Bridwell:

Please accept for filing Kentucky Power Company's 2022 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 2nd day of March, 2023:

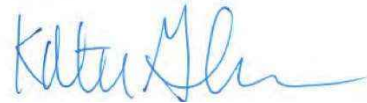
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Katie M. Glass

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, 2023 ANNUAL PERFORMANCE
REPORT AND REPORT ON POTENTIAL IMPACTS OF FUTURE ENVIRONMENTAL
REGULATIONS

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1) **Introduction**

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

Attachment 1: 2022 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: 2022 Unplanned Outages

2) **Mitchell Plant Performance**

Attachment 1 to this report includes 2022 performance data for Mitchell Unit 1 and Unit 2. Annual Net Capacity Factors were 31.45% for Unit 1 and 19.94% for Unit 2. Annual Equivalent Availability Factors were 69.98% for Unit 1 and 47.86% for Unit 2. The 2022 Forced Outage Rate was 12.09% for Unit 1 and 3.76% for Unit 2. The 2022 Equivalent Forced Outage Rate was 16.21% for Unit 1 and 22.50% for Unit 2.

3) **Mitchell Plant Unplanned Outages**

Attachment 2 to this report identifies the unplanned outage events that occurred at Mitchell Units 1 and 2 during the 2022 calendar year. For the purpose of this report, unplanned outages are defined as those outage events not included on the Planned Outage schedule. 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. The dates of the Planned Outages are approved by PJM. Maintenance Outages also are approved by PJM. They 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. 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.

Caused by an economizer issue, the longest 2022 Forced Outage event at Mitchell Unit 1 occurred in late June and lasted 8 days. A maintenance issue caused the longest 2022 Forced Outage event at Mitchell Unit 2. This outage occurred in December and lasted 3 days.

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

Kentucky Power’s share of the 2022 budgeted and actual O&M expenses for the Mitchell Plant, as well as the Company’s share of the budgeted O&M expenses for 2023, are included in Table 1 below. The Company’s share of actual O&M expense in 2022 was \$27.8 million, compared to a budgeted amount of \$25.6 million. This variance was primarily due to non-outage maintenance material costs.

Kentucky Power’s share of the 2023 budgeted O&M expense of \$28.1 million reflects a 10% increase when compared to the 2022 budget amount, largely due to an increase in base cost of operations and non-outage maintenance costs.

Table 1

Mitchell Plant O&M Expense		
2022		2023
Actuals	Budget	Budget
\$27,756,525	\$25,558,881	\$28,118,304
NOTES: Totals reflect Kentucky Power’s 50% ownership share of the Mitchell Plant.		

5) **Mitchell Plant Capital Investments**

Kentucky Power’s share of the 2022 actual and budgeted level of capital investment for the Mitchell Plant, as well as the Company’s forecasted share of capital investment for 2023, are included below in Table 2.

In 2022, the Company’s share of capital spending at the Mitchell Plant was \$18.4 million compared to a budget of \$41.8 million. Capital spending in 2022 was less than budgeted largely due to Kentucky Power’s lower share of environmental costs. The 2023 budget, when compared to the 2022 budget, is lower due to a smaller share of costs being borne by Kentucky Power.

Table 2

Mitchell Plant Capital Investment		
2022		2023
Actuals	Budget	Budget
\$18,443,194	\$41,840,021	\$13,035,782
NOTES:		
Totals reflect Kentucky Power’s 50% ownership share of the Mitchell Plant.		

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 air emissions. They are equipped with ESPs for the removal of approximately 99% of Particulate Matter (“PM”); Selective Catalytic Reduction (“SCR”) systems for reduction of approximately 90% of nitrogen oxide (“NO_x”) emissions; and 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 options viewed as most likely to be implemented by the Company. 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 Requirements

The Clean Air Act (“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 any 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”) rule, (d)

implementation and review of the Cross-State Air Pollution Rule (“CSAPR”), a Federal Implementation Plan (“FIP”) designed to eliminate significant contributions from sources in upwind states to non-attainment or maintenance areas in downwind states and (e) the Federal EPA’s regulation of greenhouse gas emissions from fossil fueled electric generating units under Section 111 of the CAA.

Notable developments in significant CAA regulatory requirements affecting the Company’s operations are discussed in the following sections.

National Ambient Air Quality Standards (“NAAQS”)

The CAA requires the EPA to establish and periodically review NAAQS designed to protect public health and welfare. Revisions tend to increase the stringency of the standards, which in turn may require the Company 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 January 2023, the EPA announced its proposed decision to strengthen the primary (health-based) annual PM_{2.5} standard. The Biden administration has previously indicated that it is likely to revisit the NAAQS for ozone, which were left unchanged by the prior administration following its review. Kentucky Power cannot currently predict if any changes to either standard are likely to be finalized or what such changes may be, but will continue to monitor this issue and any future rulemakings.

Cross-State Air Pollution Rule (“CSAPR”)

CSAPR is a regional trading program designed to address interstate transport of emissions that contribute significantly to non-attainment and maintenance of the 1997 ozone and 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.

In January 2021, the EPA finalized a revised CSAPR rule, which substantially reduces the ozone season NO_x budgets in 2021-2024. Several utilities and other entities potentially subject to the Federal EPA’s NO_x regulations have challenged that final rule in the U.S. Court of Appeals for the District of Columbia Circuit and oral arguments were held in September 2022. Kentucky Power cannot predict the outcome of that litigation, but believes it can meet the requirements of the rule in the near term, and is evaluating its compliance options for later years, when the budgets are further reduced. In addition, in February 2023, the EPA Administrator finalized the denial of 2015 Ozone NAAQS SIPs for 19 states. A FIP that further revises the ozone season NO_x budgets under the existing CSAPR program in those states, including Kentucky, is expected to be finalized in spring of 2023 and will likely take effect for the 2023 ozone season. Kentucky Power is evaluating the impact of changes in the rule.

Collectively, the installed SCR and FGD systems’ respective emission reductions of NO_x and SO₂, the use of allocated NO_x and SO₂ emission allowances in conjunction with adjusted banked allowances, and the purchase of additional allowances as needed through the open market position Kentucky Power well moving forward for compliance with CSAPR.

Climate Change, CO₂ Regulation, and Energy Policy

In 2019, the Affordable Clean Energy (“ACE”) rule established a framework for states to adopt standards of performance for utility boilers based on heat rate improvements for such boilers. However, in January 2021, the U.S. Court of Appeals for the District of Columbia Circuit vacated the ACE rule and remanded it to the EPA. In October 2021, the United States Supreme Court granted certiorari and combined four separate petitions seeking review of the District of Columbia Circuit Court decisions. Oral arguments were held in February 2022 and on June 30, 2022, the United States Supreme Court reversed the District of Columbia Circuit Court’s decision and remanded for further proceedings. The EPA must take some action before anything is required of the utilities as a result of this decision. At a minimum, if the EPA intends to implement the ACE rule, it must conduct additional rulemaking to update its applicable deadlines, which have all passed. Alternatively, the EPA may abandon the ACE rule and proceed to regulate greenhouse gases through a new rule, the scope of which is unknown. The EPA has announced it expects to propose a new rule in 2023. Kentucky Power is unable to predict how the EPA will respond to the Court’s remand.

In 2018, the EPA filed a proposed rule revising the standards for new sources and determined that partial carbon capture and storage is not the best system of emission reduction because it is not available throughout the U.S. and is not cost-effective. That rule has not been finalized. The EPA has indicated that it intends to conduct a comprehensive review of the existing standards and, if appropriate, amend the emission standards for new fossil fuel-fired generating units. A proposed rule is expected in 2023. Kentucky Power continues to actively monitor these rulemaking activities.

Kentucky Power continues to analyze the available information and engage with the states and other stakeholders in an effort to understand the available program design options and their potential impacts on its operations.

Coal Combustion Residuals (“CCR”) Rule

The 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.

In 2020, the EPA revised the CCR rule to include a requirement that unlined CCR storage ponds cease operations and initiate closure by April 11, 2021. The revised rule provides two options that allow facilities to extend the date by which they must cease receipt of coal ash and close the ponds.

The first option provides an extension to cease receipt of CCR no later than October 15, 2023 for most units, and October 15, 2024 for a narrow subset of units; however, the EPA’s grant of such an extension will be based upon a satisfactory demonstration of the need for additional time to develop alternative ash disposal capacity and will be limited to the soonest timeframe technically feasible to cease receipt of CCR.

The second option is a retirement option, which provides a generating facility an extended operating time without developing alternative CCR disposal. Under the retirement option, a

generating facility would have until October 17, 2023 to cease operation and to close CCR storage ponds 40 acres or less in size, or through October 17, 2028 for facilities with CCR storage ponds greater than 40 acres in size.

Under both the first and second options, each request must undergo formal review, including public comments, and be approved by the EPA. The Company filed an application for an extension of time to cease receipt of coal ash at the Mitchell Plant. That application is still pending before EPA.

In January 2022, the EPA proposed to deny several extension requests filed by the other utilities based on allegations that those utilities are not in compliance with the CCR Rule (the January Actions). In November 2022, the Federal EPA finalized one of these denials. The Federal EPA's allegations of noncompliance rely on new interpretations of the CCR Rule requirements. The January Actions of the Federal EPA have been challenged in the U.S. Court of Appeals for the District of Columbia Circuit as unlawful rulemaking that revises the existing CCR Rule requirements without proper notice and without opportunity for comment. Kentucky Power is unable to predict the outcome of that litigation.

Kentucky Power's Mitchell Plant is equipped with a dry fly ash handling system and dry ash landfill to meet current permit requirements, and these in-place controls position the plant well for future compliance with the CCR rulemaking. On July 15, 2021, in Case No. 2021-00004, the KPSC 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. Kentucky Power has been working diligently to convert the units to dry bottom ash handling. That work has been delayed slightly due to supply chain issues and is expected to be completed this fall. The Bottom Ash Pond is expected to cease receipt of wastes and begin closure this fall as well.

On May 3, 2022, in Case No. 2021-00421, the KPSC entered an order approving Kentucky Power's amended application for approval of the Mitchell Ownership Agreement and Mitchell Operations and Maintenance Agreement between Kentucky Power and its current affiliate, Wheeling Power Company.

Clean Water Act Regulations

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, establishes additional options for reusing and discharging small volumes of bottom ash transport water, provides an exception for retiring units and extends the compliance deadline to a date as soon as possible beginning one year after the rule was published but no later than December 2025. The EPA has announced its intention to reconsider the 2020 rule and to further revise limits applicable to discharges of landfill and impoundment leachate. A proposed rule is expected in early 2023. AEP has assessed technology additions and retrofits to comply with the 2020 rule and the impacts of the EPA's recent actions on facilities' wastewater discharge permitting for FGD wastewater and bottom ash transport water. Permit modifications for affected facilities were filed

in January 2021 that reflect the outcome of that assessment. AEP continues to work with state agencies to finalize permit terms and conditions.

AEP's current assessment is that the existing dry fly ash handling system and dry ash landfill, along with the existing wastewater treatment plant for FGD blowdown, mitigates the impact of the final ELG Rule on Mitchell Plant compliance costs. Modifications to the bottom ash handling systems and FGD wastewater treatment plant at Mitchell Plant are being made.

In October 2022, the United States Supreme Court heard an appeal related to the scope of "waters of the United States," specifically which wetlands can be regulated as waters of the United States. AEP cannot predict the outcome of that litigation.

In January 2023, the EPA finalized a new rule revising the definition of "waters of the United States," which will become effective in March 2023. The new rule expands the scope of the definition, which means that permits may be necessary where none were previously required and issued permits may need to be reopened to impose additional obligations. AEP is evaluating what impacts the revised rule will have on operations.

Attachment 1

**Mitchell Generating Plant
Performance Data
2022**

Unit	Year	Month	Forced Outage Rate [%]	Equivalent Forced Outage Rate [%]	Equivalent Availability Factor [%]	Net Capacity Factor [%]	Net Heat Rate [Btu/kWh]
Mitchell 1	2022	Jan	0.00	11.21	88.69	37.70	10780
Mitchell 1	2022	Feb	100.00	100.00	45.65	0.00	0
Mitchell 1	2022	Mar	94.08	94.08	75.55	0.08	82864
Mitchell 1	2022	Apr	6.31	8.05	77.73	24.47	11486
Mitchell 1	2022	May	0.00	5.98	92.41	44.97	11395
Mitchell 1	2022	Jun	12.90	14.00	85.00	50.58	10920
Mitchell 1	2022	Jul	17.72	18.69	80.82	54.81	10966
Mitchell 1	2022	Aug	0.00	2.95	96.85	70.15	10736
Mitchell 1	2022	Sep	0.00	0.44	75.69	46.09	10547
Mitchell 1	2022	Oct	0.00	0.00	0.00	0.00	0
Mitchell 1	2022	Nov	0.00	0.00	0.00	1.79	14025
Mitchell 1	2022	Dec	24.39	35.17	50.02	43.64	10998
Mitchell 1	2022	Jan-Dec	12.09	16.21	69.98	31.45	10965

Unit	Year	Month	Forced Outage Rate [%]	Equivalent Forced Outage Rate [%]	Equivalent Availability Factor [%]	Net Capacity Factor [%]	Net Heat Rate [Btu/kWh]
Mitchell 2	2022	Jan	0.00	18.64	80.27	55.82	11052
Mitchell 2	2022	Feb	0.00	35.06	45.96	38.96	11394
Mitchell 2	2022	Mar	0.00	0.00	18.71	0.00	0
Mitchell 2	2022	Apr	3.72	18.53	90.52	23.59	10583
Mitchell 2	2022	May	12.49	16.53	94.72	13.52	10077
Mitchell 2	2022	Jun	0.00	9.64	58.27	23.40	10202
Mitchell 2	2022	Jul	1.51	19.29	55.95	39.50	10187
Mitchell 2	2022	Aug	0.00	18.49	92.70	23.43	10324
Mitchell 2	2022	Sep	0.00	0.00	6.34	0.00	0
Mitchell 2	2022	Oct	0.00	0.00	0.00	0.00	0
Mitchell 2	2022	Nov	0.00	0.00	0.00	0.00	0
Mitchell 2	2022	Dec	20.04	40.45	29.53	21.84	11089
Mitchell 2	2022	Jan-Dec	3.76	22.50	47.86	19.94	10705

Attachment 2

Mitchell Generating Plant
Unplanned Outages
2022

Unit	Start Date	End Date	Duration [Hours]	Event Type	Event Description
Mitchell 1	1/31/2022 1:06	2/11/2022 2:00	265	MO	Induced draft fan lubrication systems
Mitchell 1	2/11/2022 7:50	2/16/2022 11:05	123	U1	Condenser tube leaks
Mitchell 1	3/9/2022 7:00	3/12/2022 0:29	65	MO	Boiler Inspections - scheduled or routine
Mitchell 1	3/24/2022 12:00	3/27/2022 2:41	63	U1	Auxiliary boiler
Mitchell 1	3/27/2022 10:00	3/29/2022 15:30	54	U2	Other pulverizer problems
Mitchell 1	4/5/2022 12:30	4/5/2022 14:24	2	SF	Boiler, miscellaneous
Mitchell 1	4/13/2022 16:24	4/14/2022 13:25	21	U1	Deaerator (including level control)
Mitchell 1	4/14/2022 13:26	4/19/2022 22:00	129	MO	Boiler Inspections - scheduled or routine
Mitchell 1	6/27/2022 2:07	7/5/2022 1:00	191	U1	Economizer
Mitchell 1	7/5/2022 1:00	7/5/2022 2:06	1	SF	Other exciter problems
Mitchell 1	7/5/2022 4:34	7/6/2022 3:00	22	U1	Other high pressure heater problems (see condensate system for LP and IP heater codes)
Mitchell 1	7/6/2022 3:00	7/6/2022 13:17	10	SF	Condensate booster pump
Mitchell 1	9/23/2022 23:00	10/7/2022 23:00	336	MO	IP Extraction steam valves
Mitchell 1	11/29/2022 11:45	11/29/2022 18:03	6	SF	Burner management system
Mitchell 1	12/3/2022 1:47	12/8/2022 9:18	128	MO	Economizer
Mitchell 1	12/8/2022 11:45	12/9/2022 0:00	12	U1	SCR NOx Ammonia tanks, piping and valves (not injection)
Mitchell 1	12/9/2022 0:00	12/10/2022 8:01	32	U1	SCR NOx Ammonia tanks, piping and valves (not injection)
Mitchell 1	12/10/2022 13:07	12/13/2022 16:30	75	U1	Startup bypass system valves
Mitchell 1	12/14/2022 2:45	12/14/2022 19:15	17	SF	Other circulating water system problems
Mitchell 1	12/30/2022 0:00	1/22/2023 17:59	48	MO	Other slag and ash removal problems
Mitchell 2	2/20/2022 19:45	3/26/2022 4:00	800	MO	Boiler Inspections - scheduled or routine
Mitchell 2	4/15/2022 15:03	4/16/2022 4:07	13	U1	Startup bypass system valves
Mitchell 2	5/22/2022 5:06	5/23/2022 10:19	29	SF	Miscellaneous turbine piping
Mitchell 2	6/7/2022 23:00	6/13/2022 1:00	122	MO	Boiler Inspections - scheduled or routine
Mitchell 2	6/24/2022 23:00	7/2/2022 13:34	183	MO	Boiler Inspections - scheduled or routine
Mitchell 2	7/11/2022 14:00	7/11/2022 21:47	8	U1	Induced draft fan lubrication systems
Mitchell 2	7/16/2022 2:33	7/23/2022 23:31	189	MO	Induced draft fans
Mitchell 2	9/2/2022 23:00	9/9/2022 23:00	168	MO	Boiler Inspections - scheduled or routine
Mitchell 2	12/17/2022 14:12	12/20/2022 16:08	74	U1	Maintenance personnel error

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
SF	Startup Failure - results when a unit is unable to synchronize within a specified startup time following an outage or reserve shutdown
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