

THE COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

AN ELECTRONIC EXAMINATION OF THE)
APPLICATION OF THE FUEL ADJUSTMENT)
CLAUSE OF KENTUCKY UTILITIES COMPANY) **CASE NO. 2023-00010**
FROM NOVEMBER 1, 2020 TO OCTOBER 31,)
2022)

In the Matter of:

AN ELECTRONIC EXAMINATION OF THE)
APPLICATION OF THE FUEL ADJUSTMENT)
CLAUSE OF LOUISVILLE GAS AND ELECTRIC) **CASE NO. 2023-00011**
COMPANY FROM NOVEMBER 1, 2020 TO)
OCTOBER 31, 2022)

DIRECT TESTIMONY OF
ANDREA M. FACKLER
MANAGER – REVENUE REQUIREMENT/COST OF SERVICE
KENTUCKY UTILITIES COMPANY AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Filed: September 22, 2023

1 **Q. Please state your name, position and business address.**

2 A. My name is Andrea M. Fackler. I am the Manager, Revenue Requirement/Cost of
3 Service for LG&E and KU Services Company, which provides services to
4 Kentucky Utilities Company (“KU”) and Louisville Gas and Electric Company
5 (“LG&E”) (collectively, “the Companies”). My business address is 220 West Main
6 Street, Louisville, Kentucky 40202. A complete statement of my work experience
7 and education is contained in Appendix A attached to my testimony.

8 **Q. Please describe your current job responsibilities.**

9 A. I am responsible for the preparation, oversight, and management of KU’s and
10 LG&E’s state regulatory filings concerning revenue requirements, rate
11 mechanisms, or cost of service studies with the Kentucky Public Service
12 Commission (“Commission”) and the Virginia State Corporation Commission. I
13 am also responsible for the preparation, oversight, and management of KU’s and
14 LG&E’s formula rate filings with the Federal Energy Regulatory Commission.

15 **Q. Have you previously submitted testimony before this Commission?**

16 A. Yes. I have previously sponsored data responses in the Companies’ fuel adjustment
17 clause six-month and two-year review cases. I have also previously submitted
18 testimony and sponsored data responses to the Virginia State Corporation
19 Commission regarding KU’s levelized fuel factor filings.

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

21 A. These proceedings were established by the Commission pursuant to 807 KAR
22 5:056, Section 3(4) to allow the Commission to examine KU’s and LG&E’s
23 application of their respective Fuel Adjustment Clauses (“FAC”) for the two-year

1 period from November 1, 2020 to October 31, 2022. In a two-year review
2 proceeding, the Companies also have the opportunity to propose a change in their
3 respective fuel base rate if the base period fuel costs are no longer representative of
4 current costs. My testimony discusses generally the operation of the Companies’
5 FACs during the two-year period ending October 31, 2022 (“Review Period”) and
6 the Companies’ recommendations regarding any changes to their current fuel base
7 rates.

8 **Q. Please provide an overview of the Companies’ cases.**

9 A. As discussed in my testimony that follows, the Companies are each requesting
10 authority to change the respective base period used for establishing the fuel base
11 rate in these review proceedings. The Companies also discuss fuel and power
12 procurement practices and strategies and market conditions during the Review
13 Period. In addition to my testimony, the Companies offer the direct testimonies of
14 the following witnesses:

- 15 • Mr. Charles R. Schram – Director, Power Supply for LG&E and KU Services
16 Company. Mr. Schram reviews the Companies’ business strategy and process
17 for the procurement of natural gas as a fuel source for the generation of
18 electricity.
- 19 • Mr. Delbert Billiter – Director, Coal Supply and By-Products Marketing for
20 LG&E and KU Services Company. Mr. Billiter discusses the Companies’ coal
21 procurement strategies, practices, procedures, and coal market conditions.
- 22 • Mr. Stuart A. Wilson – Director, Energy Planning, Analysis, and Forecasting
23 for LG&E and KU Services Company. Mr. Wilson presents testimony about

1 any changes in the wholesale electric power market that significantly affected,
2 or will significantly affect, the Companies' electric power procurement
3 practices.

- 4 • Mr. Michael P. Drake – Director, Generation Services for LG&E and KU
5 Services Company. Mr. Drake discusses issues relating to plant operations,
6 specifically planned outage extensions and reserve outage coal consumption.

7 **Q. Please summarize the operation of the FAC for the two-year period included**
8 **in this review.**

9 A. The Companies' FAC functioned appropriately during the two-year period.
10 Prudently incurred costs to serve the Companies' customers were reported on a
11 monthly basis to the Commission in compliance with 807 KAR 5:056. The
12 monthly filings supported the actual per unit fuel cost for the expense month and
13 included the resulting FAC billing factor that represented the difference between
14 the actual per unit fuel cost and the fuel base rate established in the Companies' last
15 two-year FAC review proceedings¹. Additionally, the Companies filed their fuel
16 contracts with the Commission throughout the review period pursuant to 807 KAR
17 5:056, Section 2.

18 **Q. Are the Companies proposing any changes to their respective fuel base rates**
19 **in these proceedings?**

20 A. Yes. As discussed in the testimonies of Delbert Billiter and Stuart A. Wilson, fuel
21 costs for both coal and natural gas increased significantly in the Review Period

¹ *Electronic Examination of the Application of the Fuel Adjustment Clause of Kentucky Utilities and Louisville Gas and Electric Companies from November 1, 2018 Through October 31, 2020, Kentucky Public Service Commission, Case No. 2021-00055 and 2021-00056, filed March 22, 2021, Order issued August 2, 2021 establishing base fuel factor effective August 1, 2021.*

1 compared to prior review periods. Based on the Companies' forecasted fuel costs
2 for calendar years 2024 and 2025 when the fuel base rates approved by the
3 Commission in these proceedings are expected to be in effect, the Companies'
4 current fuel base rates are not expected to be representative of future per unit fuel
5 costs.

6 **Q. What fuel base rates are the Companies proposing in these proceedings?**

7 A. KU recommends a fuel base rate of \$0.02905 per kilowatt-hour ("kWh") based on
8 the May 2022 expense month as the base period. LG&E recommends a fuel base
9 rate of \$0.02860 per kWh based on the January 2022 expense period as the base
10 period.

11 **Q. What is the basis for the Companies' recommended fuel base rates?**

12 A. Although the Companies' generating units are dispatched jointly to serve the
13 Companies' native load, each utility has its own unique ownership in generating
14 units; some of which are solely owned by a utility and others that are jointly owned.
15 As such, each utility has its own forecast of fuel costs and sales but the same
16 underlying fuel procurement policies as discussed in the Mr. Billiter's and
17 Schram's testimonies. To determine whether the currently effective fuel base rates
18 are still indicative of current or near future fuel costs, the Companies reviewed the
19 most recent projections of FAC costs and sales, including the following:

- 20 • projected coal, oil, and natural gas expenses;
- 21 • projected purchased power expenses and off-system sales revenues;
- 22 and

- all associated generated, purchased and sold kilowatt-hours for the period.

Due to the timing established by the Commission in the procedural schedule in the instant proceeding, the Companies do not expect the recommended fuel base rates to go into effect until 2024. As such, the Companies considered current expectations for calendar year 2024 and 2025 FAC forecasted costs in addition to reviewing actual FAC costs for each month of the Review Period.

For KU, Page 1 of Exhibit AMF-1 shows that the per unit fuel cost of the May 2022 expense month was \$0.02905 per kWh (see column (e)). Additionally, Page 1 shows that the average actual per unit fuel cost for the last 12 months of the Review Period is \$0.03066 per kWh. Page 2 of Exhibit AMF-1 shows that KU estimates that the average per unit fuel cost for calendar year 2024 will be \$0.02889 per kWh and the average per unit fuel cost for calendar year 2025 will be \$0.02955 per kWh. The collective average for these two years is estimated to be \$0.02923 per kWh. For KU, the actual per unit fuel cost for the May 2022 expense month of \$0.02905 per kWh approximates the \$0.02923 per kWh average projected per unit fuel cost for calendar years 2024 and 2025.

For LG&E, Page 3 of Exhibit AMF-1 shows that the per unit fuel cost of the January 2022 expense month was \$0.02860 per kWh (see column (e)). Additionally, Page 3 shows that the average per unit fuel cost for the last 12 months of the Review Period is \$0.03000 per kWh. Page 4 of Exhibit AMF-1 shows that LG&E estimates that the average per unit fuel cost for calendar year 2024 will be \$0.02778 per kWh and the average per unit fuel cost for calendar year 2025 will be

1 \$0.02960 per kWh. The collective average for these two years is estimated to be
2 \$0.02869 per kWh. For LG&E, the actual per unit fuel cost for the January 2022
3 expense month of \$0.02860 per kWh approximates the \$0.02869 per kWh average
4 projected per unit fuel cost for calendar years 2024 and 2025.

5 Based on this information, KU recommends the use of the actual per unit
6 fuel cost for the May 2022 expense month as the base period, and LG&E
7 recommends the use of the actual per unit fuel cost for the January 2022 expense
8 month as the base period. These expense months during the two-year review period
9 resulted in actual per unit fuel costs that are the closest to the average projected per
10 unit fuel cost for the two-year period when the fuel base rates are expected to be in
11 effect². Additionally, the actual per unit fuel cost for the proposed base periods
12 also are reasonable in comparison to the average actual per unit fuel costs for the
13 last 12 months of the Review Period. This methodology is consistent with what
14 has been used and accepted in previous two-year review cases.

15 **Q. What is the bill impact on a residential customer for the proposed changes in**
16 **the Companies' Respective Base Rates?**

17 A. The proposed changes will have no impact on a customer's total bill. For a KU
18 residential customer using 1,000 kWh during a billing cycle, the change in the fuel
19 base rate will increase the customer's energy charge³ by \$5.10, or 21.3%. For an
20 LG&E electric residential customer using 1,000 kWh during a billing cycle, the

² 807 KAR 5:056, Section 1(2) states that "F(b)/S(b) shall be determined so that on the effective date of the commission's approval of the utility's application of the formula, the resultant adjustment shall be equal to zero." As such, the Companies proposed fuel base rates so that, when the rates are in effect in 2024 and 2025, the resultant FAC billing factor adjustments are expected to be close to zero on average.

³ The fuel base rate is an embedded rate component of each tariff's energy rate.

1 change in the fuel base rate will increase the customer's energy charge by \$5.12, or
2 21.8%. Importantly, each customer will see a corresponding decrease in the FAC
3 billing factor charges applied to their bill. Said another way, the same amount of
4 fuel costs will be recovered from customers, but more will be recovered through
5 base rates and less through the FAC billing factor.

6 **Q. If there is no bill impact, why are the Companies' proposing to change their**
7 **respective fuel base rates?**

8 A. The cost of fuel for electric generation and purchased power is a significant expense
9 for the Companies. For the 12-month period ending July 2023, KU incurred
10 approximately \$581 million on fuel and purchase power, and LG&E incurred
11 approximately \$377 million on fuel and purchase power. This equates to 37% for
12 KU, 27% for LG&E, and 32% for the two utilities together of total operating
13 expenses. Establishing a reasonable fuel base rate to recover these incurred costs
14 permits an electric utility to recover its fuel costs in the month when the costs are
15 incurred. When costs are not recovered in this manner, the remaining difference is
16 recovered on a subsequent bill through the FAC billing factor. Changing the fuel
17 base rate when warranted also protects customers in periods when fuel market
18 prices decline because customers will see a reduction in the rate charged for fuel
19 cost recovery up-front rather than waiting to receive a credit through the FAC
20 billing factor on a subsequent bill.

21 **Q. Have the Companies provided revised tariff sheets incorporating the proposed**
22 **fuel base rates?**

1 A. Yes, I am sponsoring the response to Commission Staff First Request for
2 Information Question No. 28, which includes two attachments. Attachment 1 is a
3 red-lined version of the current tariff sheets reflecting the proposed changes in the
4 base rates. Attachment 2 is a clean version of the proposed tariff sheets that also
5 reflects the proposed changes.

6 **Q. Are there any other corrections to information provided in the monthly filings**
7 **for the two-year period under review?**

8 A. No. Any known corrections identified after the initial filing of the monthly filings
9 have been filed with the Commission.

10 **Q. What is your recommendation to the Commission in this case?**

11 A. For all applicable tariffs, I recommend the Commission approve a revised fuel base
12 rates for KU of \$0.02905 per kWh based on the May 2022 expense period as the
13 base period and approve a revised fuel base rate for LG&E of \$0.02860 per kWh
14 based on the January 2022 expense period as the base period. The Companies
15 request that the revised fuel base rates be approved effective with services rendered
16 on the first day of the month following the Commission's issuance of a Final Order
17 in these proceedings.

18 **Q. Does this conclude your testimony?**

19 A. Yes.

VERIFICATION

COMMONWEALTH OF KENTUCKY)
)
COUNTY OF JEFFERSON)

The undersigned, **Andrea M. Fackler**, being duly sworn, deposes and says that she is Manager - Revenue Requirement/Cost of Service for LG&E and KU Services Company, and that she has personal knowledge of the matters set forth in the foregoing testimony, and that the answers contained therein are true and correct to the best of her information, knowledge, and belief.

Andrea M Fackler

Andrea M. Fackler

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 11th day of September 2023.

Caroline J. Davison

Notary Public

Notary Public ID No. KYNP63286

My Commission Expires:

January 22, 2027



Appendix A

Andrea M. Fackler, CPA, CGMA

Manager, Revenue Requirement/Cost of Service
LG&E and KU Services Company
220 West Main Street
Louisville, Kentucky 40202
Telephone: (502) 627-3442

Previous Positions

LG&E and KU Services Company	
Rate & Regulatory Analyst III & Senior	Jan 2016 – Nov 2019
Accounting Analyst III & Senior	Aug 2012 – Jan 2016
Accounting Analyst II & III	Jul 2010 – Aug 2012
Dean Dorton Ford, PSC	
Supervisor in Accounting and Compliance Services	Jan 2007 – May 2010

Professional/Trade Memberships

American Institute of Certified Public Accountants
Kentucky Society of Certified Public Accountants
Institute of Management Accountants

Education/Certifications/Training

Bachelor of Science in Accounting, University of Kentucky, Dec 2006
Bachelor of Business Administration, University of Kentucky, Dec 2006
Certified Public Accountant License, Feb 2009
Chartered Global Management Accountant Designation, Jul 2014
LG&E and KU Strategic Business Integration, 2017-2018 Cohort

Civic Activities

Troop Leader, Girl Scouts of Kentuckiana, September 2021 – Present
Parent Volunteer, Budget Committee, St. John United Methodist Church, January 2021 – Present
President, LG&E and KU CARE Business Resource Group, January 2021 – Present
PTA Committee Member, Harmony Elementary, August 2020 – Present
Committee Member, Members in Business and Industry, KSCPA, July 2017 – Present
President-Elect, President, and Immediate Past President, LG&E and KU Young Energy Professionals Business Resource Group, 2015-2017

Kentucky Utilities

Retail Fuel Adjustment Clause

Fuel Cost per kWh

For the Expense Months November 2020 through October 2022

Actual*							
	(a)	(b)	(c)	(d)	(e)	(f)	(g)
Line No.	Expense Month	Billing Month	Fuel Expense	kWh Sales	Expense Month (\$/kWh) (Col. c / d)	FAC Base (\$/kWh)	Billing Month FAC Factor (Col. e - f)
(1)	Nov-20	Jan-21	\$ 29,676,019	1,365,233,047	\$ 0.02174	\$ 0.02452	\$ (0.00278)
(2)	Dec-20	Feb-21	\$ 39,232,608	1,738,143,310	\$ 0.02257	\$ 0.02452	\$ (0.00195)
(3)	Jan-21	Mar-21	\$ 41,405,707	1,812,064,985	\$ 0.02285	\$ 0.02452	\$ (0.00167)
(4)	Feb-21	Apr-21	\$ 40,986,015	1,744,371,754	\$ 0.02350	\$ 0.02452	\$ (0.00102)
(5)	Mar-21	May-21	\$ 31,902,530	1,447,350,069	\$ 0.02204	\$ 0.02452	\$ (0.00248)
(6)	Apr-21	Jun-21	\$ 30,554,396	1,337,809,559	\$ 0.02284	\$ 0.02452	\$ (0.00168)
(7)	May-21	Jul-21	\$ 30,493,966	1,385,176,347	\$ 0.02201	\$ 0.02452	\$ (0.00251)
(8)	Jun-21	Aug-21	\$ 36,443,320	1,576,051,424	\$ 0.02312	\$ 0.02452	\$ (0.00140)
(9)	Jul-21	Sep-21	\$ 40,296,995	1,672,384,531	\$ 0.02410	\$ 0.02452	\$ (0.00042)
(10)	Aug-21	Oct-21	\$ 41,816,117	1,733,472,911	\$ 0.02412	\$ 0.02395	\$ 0.00017
(11)	Sep-21	Nov-21	\$ 35,620,188	1,444,793,828	\$ 0.02465	\$ 0.02395	\$ 0.00070
(12)	Oct-21	Dec-21	\$ 35,699,693	1,362,333,204	\$ 0.02620	\$ 0.02395	\$ 0.00225
(13)	Nov-21	Jan-22	\$ 40,828,837	1,515,282,720	\$ 0.02694	\$ 0.02395	\$ 0.00299
(14)	Dec-21	Feb-22	\$ 38,679,214	1,499,904,107	\$ 0.02579	\$ 0.02395	\$ 0.00184
(15)	Jan-22	Mar-22	\$ 55,684,083	1,946,678,390	\$ 0.02860	\$ 0.02395	\$ 0.00465
(16)	Feb-22	Apr-22	\$ 44,417,573	1,596,328,162	\$ 0.02782	\$ 0.02395	\$ 0.00387
(17)	Mar-22	May-22	\$ 41,710,589	1,515,807,187	\$ 0.02752	\$ 0.02395	\$ 0.00357
(18)	Apr-22	Jun-22	\$ 37,289,454	1,370,941,667	\$ 0.02720	\$ 0.02395	\$ 0.00325
(19)	May-22	Jul-22	\$ 41,530,079	1,429,383,923	\$ 0.02905	\$ 0.02395	\$ 0.00510
(20)	Jun-22	Aug-22	\$ 63,163,315	1,637,578,105	\$ 0.03857	\$ 0.02395	\$ 0.01462
(21)	Jul-22	Sep-22	\$ 58,971,295	1,747,437,973	\$ 0.03375	\$ 0.02395	\$ 0.00980
(22)	Aug-22	Oct-22	\$ 59,325,389	1,701,316,269	\$ 0.03487	\$ 0.02395	\$ 0.01092
(23)	Sep-22	Nov-22	\$ 49,049,900	1,433,618,234	\$ 0.03421	\$ 0.02395	\$ 0.01026
(24)	Oct-22	Dec-22	\$ 43,146,129	1,317,757,984	\$ 0.03274	\$ 0.02395	\$ 0.00879
(25)	Overall Average		\$ 41,996,809	1,555,467,487	\$ 0.02700	\$ 0.02416	\$ 0.00284
(26)	Average for the Last Twelve Months		\$ 47,816,321	1,559,336,227	\$ 0.03066	\$ 0.02395	\$ 0.00671

*Source: Form A Monthly Filings to the Kentucky Public Service Commission

Kentucky Utilities

**Forecasted Retail Fuel Adjustment Clause
Fuel Cost per kWh
2023, 2024 and 2025**

Forecast					
	(a)	(b)	(c)*	(d)*	(e)*
Line No.	Expense Month	Billing Month	Forecasted Fuel Expense	Forecasted kWh Sales	Forecasted Expense Month (\$/kWh) (Col. c / d)
(1)	Jan-23	Mar-23	\$ 49,398,019	1,648,784,441	\$ 0.02996
(2)	Feb-23	Apr-23	\$ 43,694,748	1,424,709,235	\$ 0.03067
(3)	Mar-23	May-23	\$ 44,135,489	1,493,522,411	\$ 0.02955
(4)	Apr-23	Jun-23	\$ 36,356,706	1,272,948,133	\$ 0.02856
(5)	May-23	Jul-23	\$ 35,706,197	1,378,800,838	\$ 0.02590
(6)	Jun-23	Aug-23	\$ 35,658,510	1,443,154,939	\$ 0.02471
(7)	Jul-23	Sep-23	\$ 42,424,681	1,655,684,504	\$ 0.02562
(8)	Aug-23	Oct-23	\$ 45,665,000	1,671,545,379	\$ 0.02732
(9)	Sep-23	Nov-23	\$ 38,505,704	1,451,720,660	\$ 0.02652
(10)	Oct-23	Dec-23	\$ 36,072,155	1,367,689,010	\$ 0.02637
(11)	Nov-23	Jan-24	\$ 38,143,580	1,428,737,279	\$ 0.02670
(12)	Dec-23	Feb-24	\$ 45,881,479	1,664,261,345	\$ 0.02757
(13)	Jan-24	Mar-24	\$ 54,043,455	1,846,109,733	\$ 0.02927
(14)	Feb-24	Apr-24	\$ 48,286,765	1,663,259,391	\$ 0.02903
(15)	Mar-24	May-24	\$ 43,986,302	1,538,537,880	\$ 0.02859
(16)	Apr-24	Jun-24	\$ 38,788,120	1,334,303,386	\$ 0.02907
(17)	May-24	Jul-24	\$ 38,513,439	1,408,290,299	\$ 0.02735
(18)	Jun-24	Aug-24	\$ 42,564,760	1,523,542,756	\$ 0.02794
(19)	Jul-24	Sep-24	\$ 47,406,929	1,685,007,553	\$ 0.02813
(20)	Aug-24	Oct-24	\$ 48,239,144	1,694,933,791	\$ 0.02846
(21)	Sep-24	Nov-24	\$ 41,777,978	1,482,055,495	\$ 0.02819
(22)	Oct-24	Dec-24	\$ 41,766,340	1,409,195,652	\$ 0.02964
(23)	Nov-24	Jan-25	\$ 44,983,011	1,477,618,787	\$ 0.03044
(24)	Dec-24	Feb-25	\$ 52,341,640	1,723,503,852	\$ 0.03037
(25)	Jan-25	Mar-25	\$ 59,090,341	1,918,807,087	\$ 0.03080
(26)	Feb-25	Apr-25	\$ 51,314,484	1,685,798,213	\$ 0.03044
(27)	Mar-25	May-25	\$ 46,497,789	1,617,075,074	\$ 0.02875
(28)	Apr-25	Jun-25	\$ 39,804,877	1,406,688,426	\$ 0.02830
(29)	May-25	Jul-25	\$ 41,429,362	1,485,589,495	\$ 0.02789
(30)	Jun-25	Aug-25	\$ 46,061,783	1,602,048,740	\$ 0.02875
(31)	Jul-25	Sep-25	\$ 51,764,743	1,756,829,760	\$ 0.02946
(32)	Aug-25	Oct-25	\$ 52,219,628	1,755,280,578	\$ 0.02975
(33)	Sep-25	Nov-25	\$ 44,877,863	1,528,272,830	\$ 0.02937
(34)	Oct-25	Dec-25	\$ 41,651,744	1,443,963,846	\$ 0.02885
(35)	Nov-25	Jan-26	\$ 44,700,472	1,500,344,302	\$ 0.02979
(36)	Dec-25	Feb-26	\$ 54,989,301	1,735,183,394	\$ 0.03169

* January 2023 through July 2023 are actual Fuel Cost per kWh

(37)	2023-2024 Average		\$ 43,097,506	1,528,663,198	\$ 0.02819
(38)	2023 Average		\$ 40,970,189	1,491,796,514	\$ 0.02746
(39)	2024 Average		\$ 45,224,824	1,565,529,881	\$ 0.02889
(40)	2024-2025 Average		\$ 46,545,845	1,592,593,347	\$ 0.02923
(41)	2025 Average		\$ 47,866,866	1,619,656,812	\$ 0.02955

Louisville Gas and Electric Company
Retail Fuel Adjustment Clause
Fuel Cost per kWh
For the Expense Months November 2020 through October 2022

Actual*							
	(a)	(b)	(c)	(d)	(e)	(f)	(g)
Line No.	Expense Month	Billing Month	Fuel Expense	kWh Sales	Expense Month (\$/kWh) (Col. c / d)	FAC Base (\$/kWh)	Billing Month FAC Factor (Col. e - f)
(1)	Nov-20	Jan-21	\$ 18,000,496	788,717,686	\$ 0.02282	\$ 0.02428	\$ (0.00146)
(2)	Dec-20	Feb-21	\$ 22,786,104	931,084,598	\$ 0.02447	\$ 0.02428	\$ 0.00019
(3)	Jan-21	Mar-21	\$ 23,325,931	948,200,236	\$ 0.02460	\$ 0.02428	\$ 0.00032
(4)	Feb-21	Apr-21	\$ 21,832,614	897,741,557	\$ 0.02432	\$ 0.02428	\$ 0.00004
(5)	Mar-21	May-21	\$ 19,207,529	821,507,984	\$ 0.02338	\$ 0.02428	\$ (0.00090)
(6)	Apr-21	Jun-21	\$ 18,239,148	782,218,893	\$ 0.02332	\$ 0.02428	\$ (0.00096)
(7)	May-21	Jul-21	\$ 20,284,376	875,165,354	\$ 0.02318	\$ 0.02428	\$ (0.00110)
(8)	Jun-21	Aug-21	\$ 24,737,563	1,063,918,918	\$ 0.02325	\$ 0.02428	\$ (0.00103)
(9)	Jul-21	Sep-21	\$ 27,833,527	1,170,033,819	\$ 0.02379	\$ 0.02428	\$ (0.00049)
(10)	Aug-21	Oct-21	\$ 28,983,919	1,215,584,840	\$ 0.02384	\$ 0.02348	\$ 0.00036
(11)	Sep-21	Nov-21	\$ 23,550,976	976,974,624	\$ 0.02411	\$ 0.02348	\$ 0.00063
(12)	Oct-21	Dec-21	\$ 22,170,258	864,570,101	\$ 0.02564	\$ 0.02348	\$ 0.00216
(13)	Nov-21	Jan-22	\$ 21,468,396	824,585,553	\$ 0.02604	\$ 0.02348	\$ 0.00256
(14)	Dec-21	Feb-22	\$ 22,643,811	846,876,265	\$ 0.02674	\$ 0.02348	\$ 0.00326
(15)	Jan-22	Mar-22	\$ 28,239,885	987,324,317	\$ 0.02860	\$ 0.02348	\$ 0.00512
(16)	Feb-22	Apr-22	\$ 23,144,205	847,111,231	\$ 0.02732	\$ 0.02348	\$ 0.00384
(17)	Mar-22	May-22	\$ 21,785,673	835,316,942	\$ 0.02608	\$ 0.02348	\$ 0.00260
(18)	Apr-22	Jun-22	\$ 20,845,429	786,651,498	\$ 0.02650	\$ 0.02348	\$ 0.00302
(19)	May-22	Jul-22	\$ 26,491,750	935,708,130	\$ 0.02831	\$ 0.02348	\$ 0.00483
(20)	Jun-22	Aug-22	\$ 40,017,458	1,110,962,287	\$ 0.03602	\$ 0.02348	\$ 0.01254
(21)	Jul-22	Sep-22	\$ 38,016,045	1,225,092,428	\$ 0.03103	\$ 0.02348	\$ 0.00755
(22)	Aug-22	Oct-22	\$ 38,064,324	1,174,712,755	\$ 0.03240	\$ 0.02348	\$ 0.00892
(23)	Sep-22	Nov-22	\$ 31,427,025	960,365,913	\$ 0.03272	\$ 0.02348	\$ 0.00924
(24)	Oct-22	Dec-22	\$ 27,581,980	789,771,812	\$ 0.03492	\$ 0.02348	\$ 0.01144
(25)	Overall Average		\$ 25,444,934	944,174,906	\$ 0.02695	\$ 0.02378	\$ 0.00317
(26)	Average for the Last Twelve Months		\$ 28,310,498	943,706,594	\$ 0.03000	\$ 0.02348	\$ 0.00652

*Source: Form A Monthly Filings to the Kentucky Public Service Commission

Louisville Gas and Electric Company
Forecasted Retail Fuel Adjustment Clause
Fuel Cost per kWh
2023, 2024 and 2025

Forecast					
	(a)	(b)	(c)*	(d)*	(e)*
Line No.	Expense Month	Billing Month	Forecasted Fuel Expense	Forecasted kWh Sales	Forecasted Expense Month (\$/kWh) (Col. c / d)
(1)	Jan-23	Mar-23	\$ 26,075,628	896,143,690	\$ 0.02910
(2)	Feb-23	Apr-23	\$ 22,948,081	768,257,578	\$ 0.02987
(3)	Mar-23	May-23	\$ 22,610,481	812,650,209	\$ 0.02782
(4)	Apr-23	Jun-23	\$ 20,365,187	764,586,509	\$ 0.02664
(5)	May-23	Jul-23	\$ 22,162,710	878,384,938	\$ 0.02523
(6)	Jun-23	Aug-23	\$ 23,495,159	961,615,150	\$ 0.02443
(7)	Jul-23	Sep-23	\$ 29,284,489	1,182,663,489	\$ 0.02476
(8)	Aug-23	Oct-23	\$ 29,740,811	1,169,981,298	\$ 0.02542
(9)	Sep-23	Nov-23	\$ 23,855,636	953,372,210	\$ 0.02502
(10)	Oct-23	Dec-23	\$ 20,405,577	818,587,805	\$ 0.02493
(11)	Nov-23	Jan-24	\$ 20,983,501	805,330,956	\$ 0.02606
(12)	Dec-23	Feb-24	\$ 24,268,631	893,173,416	\$ 0.02717
(13)	Jan-24	Mar-24	\$ 25,493,503	951,096,056	\$ 0.02680
(14)	Feb-24	Apr-24	\$ 23,367,380	863,180,063	\$ 0.02707
(15)	Mar-24	May-24	\$ 22,195,163	831,375,125	\$ 0.02670
(16)	Apr-24	Jun-24	\$ 21,010,972	770,280,836	\$ 0.02728
(17)	May-24	Jul-24	\$ 23,948,673	892,823,767	\$ 0.02682
(18)	Jun-24	Aug-24	\$ 28,856,043	1,049,897,672	\$ 0.02748
(19)	Jul-24	Sep-24	\$ 33,234,885	1,182,373,835	\$ 0.02811
(20)	Aug-24	Oct-24	\$ 32,915,011	1,165,031,233	\$ 0.02825
(21)	Sep-24	Nov-24	\$ 26,574,331	948,891,093	\$ 0.02801
(22)	Oct-24	Dec-24	\$ 23,581,751	814,212,207	\$ 0.02896
(23)	Nov-24	Jan-25	\$ 22,946,946	801,679,182	\$ 0.02862
(24)	Dec-24	Feb-25	\$ 25,949,426	889,500,672	\$ 0.02917
(25)	Jan-25	Mar-25	\$ 28,686,317	945,137,830	\$ 0.03035
(26)	Feb-25	Apr-25	\$ 25,136,558	832,091,039	\$ 0.03021
(27)	Mar-25	May-25	\$ 23,553,739	823,619,413	\$ 0.02860
(28)	Apr-25	Jun-25	\$ 21,548,739	763,061,793	\$ 0.02824
(29)	May-25	Jul-25	\$ 25,474,754	886,095,503	\$ 0.02875
(30)	Jun-25	Aug-25	\$ 30,270,142	1,042,359,555	\$ 0.02904
(31)	Jul-25	Sep-25	\$ 34,648,778	1,174,148,391	\$ 0.02951
(32)	Aug-25	Oct-25	\$ 34,162,184	1,157,126,615	\$ 0.02952
(33)	Sep-25	Nov-25	\$ 28,117,442	942,192,527	\$ 0.02984
(34)	Oct-25	Dec-25	\$ 23,558,867	808,776,063	\$ 0.02913
(35)	Nov-25	Jan-26	\$ 24,061,162	797,295,034	\$ 0.03018
(36)	Dec-25	Feb-26	\$ 28,070,184	885,214,122	\$ 0.03171

* January 2023 through July 2023 are actual Fuel Cost per kWh

(37)	2023-2024 Average		\$ 24,844,582	919,378,708	\$ 0.02702
(38)	2023 Average		\$ 23,849,658	908,728,937	\$ 0.02625
(39)	2024 Average		\$ 25,839,507	930,028,478	\$ 0.02778
(40)	2024-2025 Average		\$ 26,556,790	925,727,484	\$ 0.02869
(41)	2025 Average		\$ 27,274,072	921,426,490	\$ 0.02960

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

AN ELECTRONIC EXAMINATION OF THE)
APPLICATION OF THE FUEL ADJUSTMENT)
CLAUSE OF KENTUCKY UTILITIES COMPANY) CASE NO. 2023-00010
FROM NOVEMBER 1, 2020 TO OCTOBER 31,)
2022)

In the Matter of:

AN ELECTRONIC EXAMINATION OF THE)
APPLICATION OF THE FUEL ADJUSTMENT)
CLAUSE OF LOUISVILLE GAS AND ELCTRIC) CASE NO. 2023-00011
COMPANY FROM NOVEMBER 1, 2020 TO)
OCTOBER 31, 2022)

DIRECT TESTIMONY OF
CHARLES R. SCHRAM
DIRECTOR, POWER SUPPLY
KENTUCKY UTILITIES COMPANY AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Filed: September 22, 2023

1 **Q. Please state your name, position and business address.**

2 A. My name is Charles R. Schram. I am the Director – Power Supply for LG&E and KU
3 Services Company, which provides services to Kentucky Utilities Company (“KU”)
4 and Louisville Gas and Electric Company (“LG&E”) (collectively, “the Companies”).
5 My business address is 220 West Main Street, Louisville, Kentucky 40202. A complete
6 statement of my education and work experience is attached to this testimony as
7 Appendix A.

8 **Q. Please describe your current job responsibilities.**

9 A. As Director – Power Supply, I have responsibility for the Companies’ economic joint
10 dispatch of their generating units to reliably meet customers’ energy demands, the
11 Companies’ sales of excess power when market conditions are favorable, and the
12 Companies’ purchases of power from the market during periods when low cost power
13 is available. The Power Supply business group also purchases natural gas that is used
14 to fuel the Companies’ natural gas-fired generating units.

15 **Q. Have you previously submitted testimony before this Commission?**

16 A. Yes. I have previously submitted testimony before this Commission on several
17 occasions, including prior 6-month Fuel Adjustment Clause (“FAC”) review
18 proceedings and two-year FAC review proceedings.

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

20 A. I am submitting this testimony in response to the Order entered in this proceeding by
21 the Commission on September 6, 2023 (“Order”), directing the Companies to file
22 written direct testimony on a number of topics relating to fuel procurement practices
23 during the two-year period ended October 31, 2022 (“Review Period”).

1 **Q. Please describe the Companies' business strategy for the procurement of natural**
2 **gas as a fuel source for the generation of electricity.**

3 A. The Companies procure natural gas for their Cane Run 7 ("CR7") combined cycle unit
4 as well as their simple cycle peaking units. When natural gas prices are low, CR7's
5 high efficiency makes the unit competitive with coal-fired baseload units. While the
6 640 MW CR7 unit operated as one of the Companies' lowest cost units based on the
7 gas prices during the Review Period, CR7 is required to operate a minimum amount to
8 meet the projected baseload electric demand, regardless of gas price. The Companies'
9 fuel procurement strategy considers the relationship between coal and natural gas
10 volumes. The strategy establishes guidelines for key metrics related to fuel
11 procurement activities, risk elements and fuel transportation. Forward purchases of gas
12 for CR7 serve as a physical hedge to reduce customers' bill volatility induced by the
13 variability of natural gas prices.

14 **Q. Please describe the Companies' transportation of natural gas for electric**
15 **generation.**

16 A. Natural gas for CR7 and the simple cycle natural gas-fired units is transported from the
17 producing regions to the Companies' generating units by the natural gas interstate
18 pipeline system. Some units are served by a single interstate pipeline, and some are
19 served by two interstate pipelines. Appropriate amounts of firm natural gas
20 transportation capacity to support system reliability are procured on a long-term basis
21 for those units that are served by only one interstate pipeline.

22 **Q. How and when do the Companies purchase natural gas for their peaking**
23 **generation?**

1 A. The need for peaking generation is determined by weather, load, generation
2 availability, and market prices. The variability of these factors makes it difficult to
3 precisely forecast the specific days and hours when peaking generation is needed.
4 Because of this significant uncertainty regarding the volume of natural gas required,
5 the Companies continue to purchase physical natural gas for peaking generation on an
6 “as-needed” basis, typically in the day-ahead or intra-day spot market from multiple
7 marketers and suppliers.

8 **Q. How do the Companies coordinate their procurement of natural gas for CR7 and**
9 **coal for electric generation?**

10 A. The minimum projected fuel requirement for gas and coal is first established during the
11 annual planning process and is used to guide procurement decisions. To manage the
12 potential swings in fuel requirements for coal units and CR7, procurement activities of
13 each fuel are coordinated through market solicitations that generally occur each quarter.

14 **Q. For the forward gas purchases during the Review Period, what was the**
15 **Companies’ experience with suppliers and the execution of the agreements?**

16 A. The Companies made various purchases of up to 60,000 MMBtu/day of natural gas for
17 CR7 on a forward basis for delivery in the months of the Review Period. The
18 Companies experienced no issues with the forward purchases and deliveries of natural
19 gas.

20 **Q. Did the Companies comply with the fuel strategy guidelines and procurement**
21 **policies for natural gas purchases during the Review Period?**

1 A. Yes. The Companies complied with the fuel strategy guidelines and procurement
2 policies for natural gas purchases to support the fuel requirements for electricity
3 generation.

4 **Q. When do the Companies make off-system sales and how does this benefit**
5 **customers?**

6 A. The Companies make off-system sales when market prices are higher than the cost of
7 the Companies' generation, including fuel costs, and the Companies' have the capacity
8 to generate energy available to sell. Seventy-five percent of off-system sales margins
9 are returned to customers through the Companies' Off-System Sales Adjustment
10 Clause.

11 **Q. When do the Companies purchase power and how does this benefit customers?**

12 A. The Companies purchase power in the wholesale power market when it is economical
13 for customers – when market prices are lower than the Companies' cost of generating
14 power.

15 **Q. What actions were taken by the Companies to mitigate high natural gas prices or**
16 **purchased power related costs for customers?**

17 A. No events occurred during the Review Period where the Companies experienced
18 generating fleet conditions that resulted in the need to purchase power at high prices.
19 In addition to the impact of reducing gas price volatility using forward natural gas
20 purchases for CR7, the Companies' utilize the imbalance provisions of the
21 transportation agreements to reduce gas purchases during limited periods of gas price
22 spikes that can occur during extreme weather, for example during Winter Storm Yuri
23 in 2021.

1 **Q. Please comment generally on the reasonableness of the Companies' natural gas**
2 **fuel procurement practices during the Review Period.**

3 A. The Companies' natural gas procurement practices are reasonable and sufficiently
4 flexible to allow the Companies to respond effectively to changes in market conditions
5 and support reliability.

6 **Q. Does this conclude your testimony?**

7 A. Yes.

APPENDIX A

Charles R. Schram

Director, Power Supply
LG&E and KU Services Company
220 West Main Street
Louisville, Kentucky 40202
(502) 627-3250

Professional Experience

LG&E and KU

Director, Power Supply	May 2016 – Present
Director, Energy Planning, Analysis & Forecasting	2008 – 2016
Manager, Transmission Protection & Substations	2006 – 2008
Manager, Business Development	2005 – 2006
Manager, Strategic Planning	2001 – 2005
Manager, Distribution System Planning & Eng.	2000 – 2001
Manager, Electric Metering	1997 – 2000
Information Technology Analyst	1995 – 1997

U.S. Department of Defense – Naval Ordnance Station

Manager, Software Integration	1993 – 1995
Electronics Engineer	1984 – 1993

Education

Master of Business Administration
University of Louisville, 1995
Bachelor of Science – Electrical Engineering
University of Louisville, 1984
E.ON Academy General Management Program: 2002-2003
Center for Creative Leadership, Leadership Development Program: 1998

Civic Activities

The Housing Partnership – Board of Directors, 2017 – Present
Leadership Louisville – Bingham Fellows class of 2020

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

AN ELECTRONIC EXAMINATION OF THE)
APPLICATION OF THE FUEL ADJUSTMENT)
CLAUSE OF KENTUCKY UTILITIES COMPANY) CASE NO. 2023-00010
FROM NOVEMBER 1, 2020 TO OCTOBER 31,)
2022)

In the Matter of:

AN ELECTRONIC EXAMINATION OF THE)
APPLICATION OF THE FUEL ADJUSTMENT)
CLAUSE OF LOUISVILLE GAS AND ELECTRIC) CASE NO. 2023-00011
COMPANY FROM NOVEMBER 1, 2020 TO)
OCTOBER 31, 2022)

DIRECT TESTIMONY OF
DELBERT BILLITER
DIRECTOR – COAL SUPPLY & BY-PRODUCTS MARKETING
KENTUCKY UTILITIES COMPANY AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Filed: September 22, 2023

1 **Q. Please state your name, position, and business address.**

2 A. My name is Delbert Billiter. I am the Director, Coal Supply & By-Products Marketing
3 for LG&E and KU Services Company, which provides services to Kentucky Utilities
4 Company (“KU”) and Louisville Gas and Electric Company (“LG&E”) (collectively,
5 “the Companies”). My business address is 220 West Main Street, Louisville, Kentucky
6 40202. A statement of my education and work experience is attached to this testimony
7 as Appendix A.

8 **Q. Please describe your current job responsibilities.**

9 A. The department I direct is responsible for purchasing coal, fuel oil, reagents, and the
10 transportation and other services associated with these products for the Companies’
11 coal-fired generation stations. The department is also responsible for the marketing of
12 by-products generated from these units.

13 **Q. Have you previously submitted testimony before this Commission?**

14 A. Yes. I have previously submitted testimony before this Commission, including prior
15 Fuel Adjustment Clause (“FAC”) six-month and two-year review proceedings.

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

17 A. I am submitting this testimony in response to the Order entered in this proceeding by
18 the Commission on September 6, 2023 (“Order”) directing the Companies to file
19 written direct testimony on a number of issues relating to fuel procurement during the
20 two-year period ended October 31, 2022 (“Review Period”).

21 **Q. Please comment generally on the reasonableness of the Companies’ coal**
22 **procurement practices during the Review Period.**

1 A. The Companies' coal procurement practices are sufficiently flexible to allow for an
2 effective response to changes in market conditions while maintaining a reliable,
3 reasonable cost coal supply. Although the Companies typically issue formal, sealed-
4 bid solicitations to meet their coal consumption and inventory needs, under their written
5 coal procurement procedures, the Companies may solicit offers through more informal
6 means or may respond to unsolicited offers to the extent prices and terms and
7 conditions of such offers are competitive with existing market conditions. These
8 practices, which allow the Companies to make optimal use of the market, are
9 memorialized in the Companies' written Corporate Coal Supply and By-Products
10 Marketing Procurement Procedures.

11 During the last six months of the Review Period, the Companies conducted two
12 (2) written and no oral coal supply solicitations in the competitive marketplace. The
13 solicitations and associated bid tabulation sheets are contained in the response and
14 confidential attachment to the Commission's First Data Request Question No. 4(a) and
15 (b). In addition, each vendor from whom the Companies purchased coal under long-
16 term contract during the Review Period, and the quantities and current price, are
17 identified in the response to the Commission's First Data Request Question No. 2.

18 **Q. Did the Companies comply with these fuel procurement procedures during the**
19 **Review Period?**

20 A. Yes.

21 **Q. Please describe the coal suppliers' adherence to contract delivery schedules**
22 **during the Review Period.**

1 A. Generally, performance compared to contract was good for the Companies' suppliers
2 during the Review Period. The Companies continually monitor contract requirements
3 against actual deliveries and regularly check the weight and quality of the coal
4 delivered. In addition, the Companies have a mining engineer who visits and inspects
5 coal suppliers on a regular basis to help identify any potential supply disruptions and
6 verify the existence of conditions that are impacting supplier performance. In 2021
7 and 2022, the Companies experienced reduced deliveries from contracted supply,
8 including White Stallion Energy (which rejected the Companies' contract in
9 bankruptcy), a force majeure at Foresight's Deer Run and Sugar Camp mines (because
10 of mine fires), and the closure of Western Kentucky Minerals' Joes Run mine. Spot
11 purchases and increased nominations on existing contracts were used to backfill the
12 underdeliveries resulting from these events. Poor performance from Norfolk Southern
13 ("NS") during 2021 and 2022 also negatively impacted coal deliveries to the E. W.
14 Brown Station. NS's performance during 2023 has improved.

15 A list of the Companies' purchases under long-term fuel contracts compared to
16 the ratable contract obligation for the last six months of the Review Period is contained
17 in the response to the Commission's First Data Request Question No. 2.

18 **Q. What were the Companies' efforts to ensure the coal suppliers' adherence to**
19 **contract delivery schedules during the Review Period?**

20 A. The Companies regularly communicate with suppliers to identify any potential
21 problems in meeting agreed-upon delivery schedules. This includes daily
22 correspondence between logistics personnel and periodic on-site mine visits by the
23 Companies' representatives. When suppliers experience issues meeting the delivery

1 schedule, the Companies work with suppliers to explore options to meet the contract
2 requirement. These options include adjusting future schedule quantity, allowing
3 deliveries from alternate sources, and/or utilizing alternative transportation options or
4 a combination of these options.

5 The Companies also work with suppliers on deliveries and make-up of force
6 majeure events. This has proven to be an effective strategy over time that results in
7 reasonably priced coal being delivered to the Companies' generation stations.

8 **Q. Please describe the Companies' efforts to maintain the adequacy of coal supplies**
9 **in light of any coal supplier's inability or unwillingness to make contract coal**
10 **deliveries.**

11 A. If, after making efforts to mitigate a supplier's inability to make contract deliveries, as
12 described above, a supplier is unable to make contract deliveries, or if a supplier is
13 unwilling to make contract deliveries, the Companies could, as necessary, solicit the
14 coal market to purchase additional coal to offset the delivery deficits. The Companies
15 could also utilize on-site inventory to address delivery deficits. In addition, the
16 Companies would exercise contractual rights to address any delivery deficits with the
17 supplier.

18 To mitigate potential delivery issues with any one supplier or source, the
19 Companies maintain, when operationally possible and economically practical, a
20 diversity of suppliers and sources. This diversity assists in maintaining an adequate
21 supply by limiting the impact of a delivery shortfall from an individual supplier or
22 source. Maintaining supplier and source diversity has become increasingly more

1 difficult as the number of coal suppliers and mines continues to decline because of
2 falling coal demand and industry consolidation.

3 These efforts, coupled with ongoing procurement pursuant to the Companies’
4 procedures, produced adequate coal supplies through the end of the Review Period.

5 **Q. Were there any changes in coal market conditions that occurred during the**
6 **Review Period or that the Companies expect to occur within the next two years**
7 **that have significantly affected or will significantly affect the Companies’ coal**
8 **procurement practices?**

9 A. During the Review Period, the coal market experienced significant changes that
10 resulted in increased demand, tight supply, and record high prices. Increased demand
11 from the electric power sector was primarily a result of higher natural gas prices making
12 more coal-fired generation competitive. As coal demand increased, production
13 increases did not keep pace. U.S. Coal suppliers experienced many challenges to
14 increased production (labor shortages, supply chain issues for parts and supplies,
15 transportation issues, etc. The supply/demand imbalance resulted in rising coal prices
16 starting in the summer of 2021 and continuing through the fall of 2022—more than
17 quadrupling the spring 2021 levels. During this period, due to the limited coal
18 availability, high coal prices, and coal transportation issues, electric utilities
19 implemented strategies to increase natural gas-fired generation and reduce coal-fired
20 generation in order to maintain sufficient inventory. Although these changes affected
21 the Companies’ bargaining power with suppliers, they did not alter, nor are they
22 expected to alter, the Companies’ coal procurement practices. The Companies’ coal

1 procurement practices allow the Companies to respond effectively to changes in market
2 conditions.

3 In the months following the Review Period the coal market experienced a major
4 correction. This has resulted from a decrease in coal demand at U.S. coal-fired
5 generating units – primarily driven by mild weather, low natural gas prices, and coal-
6 fired unit retirements. This shift in supply and demand has resulted in a significant
7 drop in U.S. coal prices from the record levels achieved during the summer of 2022.

8 Export prices have also fallen from the record levels they achieved in 2022. The
9 primary driver is the reduced demand in Europe following a mild winter and a
10 rebalancing of worldwide coal supply chains following several boycotts of Russian
11 coal after Russia’s invasion of Ukraine.

12 The U.S. Energy Information Administration’s (“EIA”) *Short-Term Energy*
13 *Outlook* released September 12, 2023, provides an overview of the coal market and
14 changes expected in the U. S. coal market over the next couple of years:

15 **Coal markets:** Coal production in our forecast falls to 583 million short tons
16 (MMst) in 2023, 2% less than the 597 MMst mined in 2022. We expect a steeper
17 decline in 2024 when coal production drops 20% to 464 MMst. The reduction
18 in 2024 is due largely to a 20% decrease in electric power sector coal use this
19 year. The delayed response of production to the drop in coal-fired generation
20 results from coal producers fulfilling supply contracts already in place for 2023
21 and the contracts not being renewed for 2024.

22
23 At prevailing prices, coal-fired plants are unable to compete effectively with
24 lower-priced natural gas-fired and renewable energy generation. Poor
25 economics for coal are also resulting in an estimated 9.8 GW (5%) of coal-fired
26 generating capacity being permanently retired this year. Because of reduced
27 power generation from coal, we forecast that inventories of coal held by power
28 companies will increase 60% in 3Q23 compared with 3Q22. Even though we
29 forecast coal stocks to decline slightly by early 2024, the gap between coal
30 produced and consumed will remain wide in 2023 compared with 2022, when
31 high natural gas prices increased summer demand for coal, but labor shortages
32 slowed coal production and delivery, depleting coal stocks.

1
2 Coal stocks allow utilities to generate electricity in times of high demand and
3 when coal production is low or coal delivery is slow. Almost 60 GW of coal-
4 fired generation has retired since the end of 2018, a reduction of 25%, and
5 because older units are usually retired first, the current fleet is more energy
6 efficient and needs less stock to produce the same amount of burn days. As of
7 the end of August, we estimate utilities held coal stocks that would cover 140
8 days of power burn, compared with an average of 76 days over the past five
9 Augusts.
10

11 **Q. Please describe any actions the Companies' have taken to mitigate high coal**
12 **prices.**

13 A. The Companies' have continued to utilize a strategy of maintaining a significant
14 portion of its projected future needs under long-term contracts. This contract portfolio
15 provided insulation from the record coal market prices experienced during the Review
16 Period. During 2021 and early 2022, the Company purchased additional spot coal for
17 2021 and 2022 delivery to cover increased burn and reduced deliveries from contracted
18 supply (discussed in detail above). The cost for the additional spot purchases were
19 higher than contract prices but much lower than record prices set during 2022. The
20 Company also increased nominations under existing contracts, increased the blend of
21 powder river basin ("PRB") coal already under contract at lower pricing, and utilized
22 onsite inventory to cover the shortfalls and additional coal needs. In addition, to the
23 extent possible, the Companies delayed making long-term purchases during the record
24 high pricing environment to allow more time for a market correction.

25 **Q. Were the Companies' costs of coal for the Review Period reasonable?**

26 A. Yes. The Companies' costs of coal for the Review Period were reasonable. While the
27 energy markets have impacted all utilities, individual utilities saw different impacts on
28 coal cost depending on their contract position and success procuring spot coal. Based

1 on reported data, it appears that the Companies were impacted to a lesser degree. The
2 Companies' coal prices for the Review Period, on a cents/MMBtu delivered basis, were
3 the lowest (KU ranked the lowest and LG&E ranked 3rd lowest of the 20 utilities in the
4 survey) among other similar electric utilities in the region. This analysis indicates that
5 demand and prices in the coal market impacted other utilities more and further show
6 that the prices the Companies are paying for coal are reasonable based on current
7 market conditions.

8 **Q. Were the Companies' coal purchases and procurement practices during the**
9 **Review Period reasonable?**

10 A. Yes. The Companies continued to follow the same sound coal procurement practices
11 previously reviewed by the Commission and in my opinion, the Companies' coal
12 purchases and procurement practices were reasonable during the Review Period.

13 **Q. Does this conclude your testimony?**

14 A. Yes.

VERIFICATION

COMMONWEALTH OF KENTUCKY)
)
COUNTY OF JEFFERSON)

The undersigned, **Delbert Billiter**, being duly sworn, deposes and says that he is Director – Coal Supply and By Product Marketing for LG&E and KU Services Company, and that he has personal knowledge of the matters set forth in the foregoing testimony, and that the answers contained therein are true and correct to the best of his information, knowledge, and belief.

Delbert Billiter

Delbert Billiter

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 18th day of September 2023.

Caroline J. Davison

Notary Public

Notary Public ID No. KYNP63286

My Commission Expires:

January 22, 2027



APPENDIX A

Delbert D. Billiter

Director, Coal Supply and By-Products Marketing
LG&E and KU Services Company
220 W. Main Street
Louisville, KY 40202

Work Experience

LG&E and KU

Director, Coal Supply and By-Products Marketing	Dec 2021 – Present
Manager, LG&E and KU Fuels	2017 – Dec 2021
Manager, Fuels Risk Management	2011 – 2017
Manager, Fuels Technical Services	2005 – 2011
Lead Mining Engineer	1996 – 2005

Arch Coal

Manager, Engineering and Preparation	1995 – 1996
Various engineering positions in IL, KY, and WV	1988 – 1995

Education

Bachelor of Science – Mining Engineering
University of Kentucky, 1988

Professional

Registered Professional Engineer in KY	1994 – Present
--	----------------

Civic Activities

Waterways Council Inc. – Board of Directors, 2021 – Present
Leader, Middle School and High School Ministry Southeast Christian Church, 2019 – Present
American Coal Council – Board of Directors, 2018 – Present
Sponsor/Leader, Barret Middle School Fellowship of Christian Athletes, 2009 – 2020
Volunteer, Junior Achievement of Kentuckiana, 2008 – 2019

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

**AN ELECTRONIC EXAMINATION OF THE)
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**AN ELECTRONIC EXAMINATION OF THE)
APPLICATION OF THE FUEL ADJUSTMENT)
CLAUSE OF LOUISVILLE GAS AND ELECTRIC) CASE NO. 2023-00011
COMPANY FROM NOVEMBER 1, 2020 TO)
OCTOBER 31, 2022)**

**DIRECT TESTIMONY OF
STUART A. WILSON
DIRECTOR – ENERGY PLANNING, ANALYSIS & FORECASTING
KENTUCKY UTILITIES COMPANY AND
LOUISVILLE GAS AND ELECTRIC COMPANY**

Filed: September 22, 2023

1 **Q. Please state your name and business address.**

2 A. My name is Stuart A. Wilson. My position is Director – Energy Planning, Analysis,
3 and Forecasting for LG&E and KU Services Company, which provides services to
4 Kentucky Utilities Company (“KU”) and Louisville Gas and Electric Company
5 (“LG&E”) (collectively, “the Companies”). My business address is 220 West Main
6 Street, Louisville, Kentucky 40202. A complete statement of my education and
7 work experience is attached to this testimony as Appendix A.

8 **Q. Please describe your current job responsibilities.**

9 A. As Director – Energy Planning, Analysis, and Forecasting, I have responsibility for
10 forecasting activities and generation planning. For forecasting, this includes the
11 forecasting of fuel prices, electricity prices, and load requirements. For generation
12 planning, this includes the modeling of generation production costs and the
13 development of planned outage schedules.

14 **Q. Have you previously submitted testimony before this Commission?**

15 A. Yes. I have previously submitted testimony before this Commission on several
16 occasions, including prior 6-month Fuel Adjustment Clause (“FAC”) review
17 proceedings and two-year FAC review proceedings.

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

19 A. I am submitting this testimony in response to the Order entered in this proceeding
20 by the Commission on September 6, 2023 (“Order”) directing the Companies to file
21 written direct testimony to address any changes in the wholesale electric power
22 market that significantly affected, or will significantly affect, the Companies’
23 electric power procurement practices during the two-year period ended October 31,

1 2022 (“Review Period”). I also comment on the status of the Companies’ RTO
2 membership analyses.

3 **Q. Were there any changes in the wholesale electric power market during the**
4 **Review Period that significantly affected the Companies’ electric power**
5 **procurement practices?**

6 A. Market power prices were significantly higher due to higher natural gas and coal
7 prices, but the Companies’ electric power procurement practices were not
8 significantly affected by any changes in the wholesale electric power market during
9 the Review Period.

10 **Q. How did prices develop in the wholesale power market during the Review**
11 **Period?**

12 A. The average monthly electric power price during the Review Period was
13 \$51.13/MWh, compared to \$24.54/MWh during the previous two-year review
14 period from November 1, 2018 through October 31, 2020.¹ Electricity prices rose
15 significantly during the Review Period with average monthly prices exceeding
16 \$100/MWh in August 2022 due to increased fuel prices that arose from post-
17 pandemic supply chain problems coupled with Russia’s war in Ukraine. Natural
18 gas prices increased due to strong power demand and record international exports.
19 Coal prices also increased due to tight supply and increased demand. The
20 Companies continue to look for opportunities to purchase hourly power from the
21 wholesale market when the cost is lower than their own resources and when import

¹ Based on average monthly around-the-clock real-time prices for PJM West Hub.

1 of this power is supported by adequate transmission availability and other
2 operational parameters.

3 **Q. What changes do the Companies expect to occur in the wholesale power**
4 **market within the next two years that may significantly affect their electric**
5 **power procurement practices?**

6 A. The Companies do not expect changes in the wholesale power market in the next
7 two years that would significantly affect their power procurement practices.
8 Forward market prices for fuel and electricity have moderated since the Review
9 Period as balance in supply and demand has returned to these markets. Natural gas
10 continues to set marginal on-peak electricity prices in the region. International
11 exports, specifically via liquified natural gas (“LNG”), have grown significantly
12 and will continue to be a competing source of natural gas demand for the
13 foreseeable future.

14 Regardless of the development of wholesale markets, electric transmission
15 constraints and congestion may, at times, limit the Companies’ ability to import
16 power from the wholesale market to serve native load, highlighting the continuing
17 importance of the Companies’ ability to serve customers with their own supply side
18 resources to ensure security of supply. The Companies will continue to look for
19 opportunities to purchase economy power when it is below their cost of production.

20 **Q. What cost-benefit analyses have the Companies performed regarding future**
21 **participation in a Regional Transmission Organization (“RTO”)?**

22 A. The Companies perform an annual joint RTO analysis, which was most recently
23 completed in November 2022 and filed in the records of Case Nos. 2020-00349 for

1 KU and 2020-00350 for LG&E.² The study concluded that RTO membership was
2 not in customers' best interest at that time. The Companies will file their next RTO
3 analysis in the same case records by October 31, 2023.

4 **Q. Does this conclude your testimony?**

5 A. Yes.

² Available at https://psc.ky.gov/pscecf/2020-00349/rick.lovekamp@lge-ku.com/11142022034935/Closed/03-2022_LGE_KU_RTO_Membership_Analysis.pdf.

VERIFICATION

COMMONWEALTH OF KENTUCKY)
)
COUNTY OF JEFFERSON)

The undersigned, Stuart A. Wilson, being duly sworn, deposes and says that he is Director, Energy Planning, Analysis & Forecasting for LG&E and KU Services Company, and that he has personal knowledge of the matters set forth in the foregoing testimony, and that the answers contained therein are true and correct to the best of his information, knowledge, and belief.

[Handwritten signature of Stuart A. Wilson]
Stuart A. Wilson

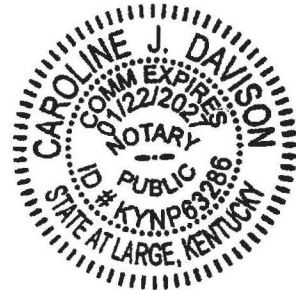
Subscribed and sworn to before me, a Notary Public in and before said County and State, this 12th day of September 2023.

[Handwritten signature of Caroline J. Davison]
Notary Public

Notary Public ID No. KYNP63286

My Commission Expires:

January 22, 2027



Appendix A

Stuart A. Wilson, CFA

Director, Energy Planning, Analysis, and Forecasting
LG&E and KU Services Company
220 West Main Street
Louisville, KY 40202
Telephone: (502) 627-4993

Previous Positions

Manager, Generation Planning & Analysis	October 2009 – April 2016
Manager, Sales Analysis & Forecasting	May 2008 – October 2009
Supervisor, Sales Analysis & Forecasting	Aug 2006 – April 2008
Economic Analyst	Aug 2000 – July 2006
Compensation Analyst	Aug 1999 – July 2000
Business Analyst	June 1997 – July 1999

Civic Activities

Barren Heights Christian Retreat – Board of Directors: 2015 – Present
Big Brothers Big Sisters of Kentuckiana – Board of Directors: 2017 – Present

Professional Memberships

CFA Society of Louisville

Education/Certifications

E.ON Emerging Leaders Program: 2004-2006

CFA Charterholder: September 2003

LG&E Energy Leadership Development Program: 1997-2002

Master of Business Administration;
Indiana University, May 1997

Master of Engineering in Electrical Engineering;
University of Louisville, December 1995

Bachelor of Science in Electrical Engineering;
University of Louisville, December 1995

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

AN ELECTRONIC EXAMINATION OF THE)
APPLICATION OF THE FUEL ADJUSTMENT)
CLAUSE OF KENTUCKY UTILITIES COMPANY) CASE NO. 2023-00010
FROM NOVEMBER 1, 2020 TO OCTOBER 31,)
2022)

In the Matter of:

AN ELECTRONIC EXAMINATION OF THE)
APPLICATION OF THE FUEL ADJUSTMENT)
CLAUSE OF LOUISVILLE GAS AND ELECTRIC) CASE NO. 2023-00011
COMPANY FROM NOVEMBER 1, 2020 TO)
OCTOBER 31, 2022)

DIRECT TESTIMONY OF
MICHAEL P. DRAKE
DIRECTOR – GENERATION SERVICES
KENTUCKY UTILITIES COMPANY AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Filed: September 22, 2023

1 **Q. Please state your name and business address.**

2 A. My name is Michael P. Drake. I am the Director, Generation Services for LG&E
3 and KU Services Company, which provides services to Kentucky Utilities
4 Company (“KU”) and Louisville Gas and Electric Company (“LG&E”)
5 (collectively, “the Companies”). My business address is 220 West Main Street,
6 Louisville, Kentucky 40202. A statement of my education and work experience is
7 attached to this testimony as Appendix A.

8 **Q. Please describe your current job responsibilities.**

9 A. As Director, Generation Services, I manage and oversee a technical services staff
10 that offers support for the Companies’ Power Generation fleet. This includes
11 Compliance & Document Management, System Laboratory, and Generation
12 Engineering. In addition, Generation Services interacts with many other internal
13 groups as a central point of contact for Power Generation.

14 **Q. Have you previously submitted testimony before this Commission?**

15 A. I have previously sponsored data responses in the Companies’ fuel adjustment
16 clause six-month and two-year review cases.

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

18 A. I am submitting this testimony in response to the Order entered in this proceeding
19 by the Commission on September 6, 2023 (“Order”) directing the Companies to
20 file written direct testimony on issues relating to plant operations, specifically
21 planned outage extensions and reserve outage coal consumption during the two-
22 year period ending October 31, 2022 (“Review Period”).

1 **Q. Please explain any planned outages that extended beyond the estimated time**
2 **of the outage, how the Companies addressed the extended outage, and any**
3 **resulting capacity and energy shortfalls.**

4 A. A listing of all Planned and Maintenance Outages, as defined by the NERC GADS
5 manual, that went longer than their scheduled total hours during the time period,
6 and the reasons for those extensions are located in Exhibit MPD-1. None of the
7 outages during the specified time period resulted in any capacity or energy
8 shortfalls. In some cases, system conditions allowed units to start their planned
9 outages early but were returned to service as per their original schedule. In other
10 cases, outages went longer than scheduled due to emergent outage scope or start-
11 up issues. As a rule, the plants work closely with Generation Dispatch to ensure
12 any delays do not have fleet impacts.

13 **Q. Please describe how coal consumption is recorded for a unit that is in reserve**
14 **shutdown.**

15 A. Coal is regulated into each unit by multiple coal feeders that utilize variable speed
16 belts. These belts are equipped with scales that continuously measure the amount
17 of coal traveling across the belts. This measurement is recorded on an electronic
18 totalizer. The sum of all unit belt scale totalizers for that day is the tonnage of coal
19 consumption for that unit. If a unit is on reserve shutdown, the feeders do not
20 operate, and therefore, there will be no coal consumption recorded.

21 **Q. Does this conclude your testimony?**

22 A. Yes.

APPENDIX A

Michael P. Drake

Director, Generation Services
LG&E and KU Services Company
220 W. Main Street
Louisville, KY 40202

Work Experience

LG&E and KU		
Director, Generation Services		2017 – Present
KU Ghent Station		
Manager, Engineering and Technical Services		2015 – 2017
Manager, Maintenance		2010 – 2015
LG&E Cane Run Station		
Production Supervisor		2005 – 2010
Mechanical Maintenance Supervisor		2003 – 2005
LG&E Roanoke Valley Energy Station, NC		
Manager, Maintenance		1999 – 2003
Plant Engineer		1997 – 1999
Riley Stoker Corporation		
Various field engineering positions nationwide		1990 – 1997

Education

MBA – Indiana Wesleyan University, 2008
Bachelor of Science – Mechanical Engineering Clarkson University, 1990

Professional

EPRI Sector Council Chair, Generation Sector Council, 2022 – Present
EPRI Generation Sector Council, 2017 – Present
American Society of Mechanical Engineers, 1990 – Present

Civic Activities

Cabbage Patch Settlement House - Board President, 2022 – Present
Cabbage Patch Settlement House - Board of Directors, 2019 – Present
Southeast Christian Church Leader - Middle School and High School Ministry, 2011 – 2017
Carroll County Training Consortium, 2015 – 2017
Carroll County Chamber of Commerce, 2011 – 2014
Court Appointed Special Advocate (Jefferson County), 2004 – 2006
Committee for the Business and Education Partnership - Halifax County Chamber of Commerce, June 1997 – June 1999

Kentucky Utilities Company
November 2020 through October 2022

Unit and Outage Type (F=Forced; S=Scheduled; PO=Planned Outage; PE=Planned Extension; MO=Maintenance Outage; ME=Maintenance Extension; U1=Unplanned (Forced) Outage/Immediate; SF=Startup Failure)		Event Type	Scheduled		Actual		HOURS OF DURATION		REASON FOR DEVIATION FROM SCHEDULED MAINTENANCE OR REASON FOR FORCED OUTAGE AS APPROPRIATE
			FROM	TO	FROM	TO	Scheduled	Actual	
E. W. Brown Unit 3 - Coal - 413 MW In-service July 1971	BR3	S MO	1/2/2021 8:30	1/8/2021 0:01	1/2/2021 8:30	1/8/2021 0:01	135:31	135:31	Flue Gas Desulfurization (FGD) Reactor Module Door Repair
		S ME	1/8/2021 0:01	1/8/2021 19:15	1/8/2021 0:01	1/8/2021 19:15	19:14	19:14	Boiler Maintenance - Tube Repair
		S PO	10/15/2022 0:00	11/6/2022 0:00	10/14/2022 21:25	11/7/2022 8:53	528:00	563:28	Minor boiler outage
Ghent Unit 1 - Coal - 479 MW In-service February 1974	GH1	S PO	3/6/2021 0:00	5/9/2021 0:00	3/5/2021 23:26	5/10/2021 0:00	1536:00	1560:34	Major turbine overhaul
		S PE	5/10/2021 0:00	5/11/2021 7:40	5/10/2021 0:00	5/11/2021 7:40	31:40	31:40	Major turbine overhaul extension
Ghent Unit 2 - Coal - 486 MW In-service April 1977	GH2								
Ghent Unit 3 - Coal - 476 MW In-service May 1981	GH3	S PO	9/25/2021 0:00	10/24/2021 0:00	9/24/2021 21:56	10/24/2021 8:52	696:00	706:56	Circulating Water Line Repairs
Ghent Unit 4 - Coal - 478 MW In-service August 1984	GH4	S MO	5/14/2021 21:58	5/18/2021 0:00	5/14/2021 21:58	5/18/2021 0:00	74:02	74:02	Air heater fouling
		S ME	5/18/2021 0:00	5/25/2021 16:27	5/18/2021 0:00	5/25/2021 16:27	184:27	184:27	Air heater fouling
Trimble County Unit 2 - Coal - 570 MW In-service January 2011 75% ownership share of 732 MW jointly owned with LG&E	TC2								
Cane Run Unit 7 - Gas - 683 MW In-service June 2015 Jointly owned with LG&E	CR7	S MO	5/6/2021 21:38	5/11/2021 0:01	5/6/2021 21:38	5/11/2021 0:01	98:23	98:23	HRSR Hot Reheat Steam Valve Repair
		S ME	5/11/2021 0:01	5/12/2021 15:09	5/11/2021 0:01	5/12/2021 15:09	39:08	39:08	HRSR Hot Reheat Steam Valve Repair
		S PO	10/30/2021 0:00	11/21/2021 0:00	10/29/2021 23:22	11/21/2021 16:24	528:00	545:02	HRSR Kettle Boiler Replacement
		S PO	4/9/2022 0:00	5/1/2022 0:00	4/8/2022 22:32	5/1/2022 13:47	528:00	543:15	Generator Scheduled Inspections
		S MO	5/6/2022 23:44	5/7/2022 12:01	5/6/2022 23:44	5/7/2022 12:01	12:17	12:17	Boiler feedwater pump/turbine lube oil system
		S ME	5/7/2022 12:01	5/8/2022 5:20	5/7/2022 12:01	5/8/2022 5:20	17:19	17:19	Boiler feedwater pump/turbine lube oil system
		S MO	5/24/2022 15:38	5/31/2022 5:30	5/24/2022 15:38	5/31/2022 5:30	157:52	157:52	Hot Reheat Steam Leak
		F U1			5/31/2022 5:30	6/1/2022 7:40		26:10	Turbine/Generator Repair
E. W. Brown Unit 5 - Gas CT - 130 MW In-service June 2001 Jointly owned with LG&E	BR5								
E. W. Brown Unit 6 - Gas CT - 171 MW In-service August 1999 Jointly owned with LG&E	BR6	S PO	10/17/2020 0:00	11/1/2020 0:00	10/16/2020 6:00	11/2/2020 0:00	360:00	402:00	Fuel Gas System
		S PE	11/2/2020 0:00	11/6/2020 17:19	11/2/2020 0:00	11/6/2020 17:19	113:19	113:19	Generator Exciter Controls
		S MO	10/18/2021 7:23	10/22/2021 0:00	10/18/2021 7:23	10/22/2021 0:00	88:37	88:37	Borescope inspection
		S ME	10/22/2021 0:00	10/22/2021 8:50	10/22/2021 0:00	10/22/2021 8:50	8:50	8:50	Borescope inspection
E. W. Brown Unit 7 - Gas CT - 171 MW In-service August 1999 Jointly owned with LG&E	BR7	S PO	10/17/2020 0:00	11/1/2020 0:00	10/16/2020 6:00	11/2/2020 0:00	360:00	402:00	Fuel Gas System
		S PE	11/2/2020 0:00	11/5/2020 18:37	11/2/2020 0:00	11/5/2020 18:37	90:37	90:37	Generator Exciter Controls
		S PO	10/23/2021 0:00	12/13/2021 0:00	10/23/2021 0:00	12/13/2021 12:24	1224:00	1236:24	Hot gas path inspection
E. W. Brown Unit 8 - Gas CT - 128 MW In-service February 1995	BR8	S PO	3/22/2021 0:01	3/24/2021 23:59	3/22/2021 0:01	3/26/2021 9:15	71.9666667	105:14	Borescope Inspection
E. W. Brown Unit 9 - Gas CT - 138 MW In-service January 1995	BR9								

Kentucky Utilities Company
November 2020 through October 2022

Unit and Outage Type (F=Forced; S=Scheduled; PO=Planned Outage; PE=Planned Extension; MO=Maintenance Outage; ME=Maintenance Extension; U1=Unplanned (Forced) Outage/Immediate; SF=Startup Failure)		Event Type	Scheduled		Actual		HOURS OF DURATION		REASON FOR DEVIATION FROM SCHEDULED MAINTENANCE OR REASON FOR FORCED OUTAGE AS APPROPRIATE	
			FROM	TO	FROM	TO	Scheduled	Actual		
E. W. Brown Unit 10 - Gas CT - 138 MW In-service December 1995	BR10	S	MO	12/6/2021 8:17	12/7/2021 0:00	12/6/2021 8:17	12/7/2021 0:00	15:43	15:43	Borescope inspection
		S	ME	12/7/2021 0:00	12/7/2021 19:48	12/7/2021 0:00	12/7/2021 19:48	19:48	19:48	Borescope inspection
E. W. Brown Unit 11 - Gas CT - 128 MW In-service May 1996	BR11									
Haefling Unit 1 - Gas CT - 14 MW In-service October 1970	HA1									
Haefling Unit 2 - Gas CT - 14 MW In-service October 1970	HA2									
Paddys Run Unit 13 - Gas CT - 175 MW In-service June 2001 Jointly owned with LG&E	PR13	S	PO	12/5/2020 0:00	12/20/2020 0:00	12/4/2020 6:15	12/20/2020 18:07	360:00	395:52	Compressor Inspection
		F	U1			12/20/2020 18:07	12/21/2020 22:57		28:50	Startup System - turning gear
		S	PO	11/27/2021 0:00	12/5/2021 0:00	11/27/2021 6:12	12/5/2021 13:23	192:00	199:11	Borescope Inspection
Trimble County Unit 5 - Gas CT - 179 MW In-service May 2002 Jointly owned with LG&E	TC5	S	PO	11/7/2020 0:00	12/31/2020 0:00	11/7/2020 0:00	1/1/2021 0:00	1296:00	1320:00	Major Overhaul
		S	PO	1/1/2021 0:00	5/16/2021 0:00	1/1/2021 0:00	4/15/2021 7:08	3240:00	2503:08	Major Overhaul - continued
		S	MO	4/17/2021 12:15	4/22/2021 10:00	4/17/2021 12:15	4/22/2021 10:00	117:45	117:45	Major overhaul - testing and commissioning
		S	ME	4/22/2021 10:00	5/10/2021 7:54	4/22/2021 10:00	5/10/2021 7:54	429:54	429:54	Major overhaul - testing and commissioning
Trimble County Unit 6 - Gas CT - 179 MW In-service May 2002 Jointly owned with LG&E	TC6	S	PO	11/14/2020 0:00	11/22/2020 0:00	11/13/2020 23:25	11/22/2020 12:00	192:00	204:35	Transmission line maintenance
		S	MO	3/1/2021 6:30	3/1/2021 17:01	3/1/2021 6:30	3/1/2021 17:01	10:31	10:31	Inlet guide vane actuator
		S	ME	3/1/2021 17:01	3/2/2021 17:28	3/1/2021 17:01	3/2/2021 17:28	24:27	24:27	Inlet guide vane actuator
		S	PO	3/27/2021 0:00	4/18/2021 0:00	3/26/2021 21:30	4/5/2021 7:00	528:00	225:30	Lube Oil System Maintenance
		S	PE	4/5/2021 7:00	4/6/2021 7:18	4/5/2021 7:00	4/6/2021 7:18	24:18	24:18	Lube Oil System Maintenance
		S	PO	3/19/2022 0:00	4/10/2022 0:00	3/18/2022 7:00	4/11/2022 0:00	528:00	569:00	Gas turbine control system upgrades
		S	PE	4/11/2022 0:00	4/18/2022 7:19	4/11/2022 0:00	4/18/2022 7:19	175:19	175:19	Combustion System Hardware
Trimble County Unit 7 - Gas CT - 179 MW In-service June 2004 Jointly owned with LG&E	TC7	S	PO	11/14/2020 0:00	11/22/2020 0:00	11/13/2020 23:25	11/22/2020 13:19	192:00	205:54	Transmission line maintenance
		S	PO	10/1/2022 0:00	10/16/2022 0:00	10/1/2022 0:01	10/17/2022 0:00	360:00	383:59	Gas turbine inlet filter replacement
		S	PE	10/17/2022 0:00	11/12/2022 15:15	10/17/2022 0:00	11/12/2022 15:15	639:15	639:15	Combustion Turbine Blade Repair
Trimble County Unit 8 - Gas CT - 179 MW In-service June 2004 Jointly owned with LG&E	TC8	S	PO	10/9/2021 0:00	11/21/2021 0:00	10/8/2021 23:15	11/21/2021 11:52	1032:00	1044:37	Hot Gas Path Inspection
		S	PO	10/1/2022 0:00	10/16/2022 0:00	9/30/2022 6:02	10/17/2022 0:00	360:00	401:58	Gas turbine inlet filter replacement
		S	PE	10/17/2022 0:00	10/25/2022 7:01	10/17/2022 0:00	10/25/2022 7:01	199:01	199:01	Combustion Turbine Blade Repair
Trimble County Unit 9 - Gas CT - 179 MW In-service July 2004	TC9	S	PO	4/30/2022 0:00	5/8/2022 0:00	4/30/2022 0:01	5/8/2022 8:06	192:00	200:05	Borescope inspection
Trimble County Unit 10 - Gas CT - 179 MW In-service July 2004	TC10	S	PO	4/30/2022 0:00	5/8/2022 0:00	4/29/2022 13:30	5/8/2022 6:41	192:00	209:11	Borescope inspection

Louisville Gas & Electric Company

November 2020 through October 2022

Unit and Outage Type (F=Forced; S=Scheduled; PO=Planned Outage; PE=Planned Extension; MO=Maintenance Outage; ME=Maintenance Extension; U1=Unplanned (Forced) Outage/Immediate; SF=Startup Failure)		Event Type	Scheduled		Actual		HOURS OF DURATION		REASON FOR DEVIATION FROM SCHEDULED MAINTENANCE OR REASON FOR FORCED OUTAGE AS APPROPRIATE
			FROM	TO	FROM	TO	Scheduled	Actual	
Mill Creek Unit 1 - Coal - 300 MW In-service August 1972	MC1	S PO	2/20/2021 0:00	3/28/2021 0:00	2/21/2021 14:22	3/1/2021 0:00	864:00	177:38	Turbine Valve Maintenance
		S PO	2/20/2021 0:00	3/28/2021 0:00	3/1/2021 0:00	3/29/2021 0:00	864:00	672:00	Turbine Valve Maintenance
		S PE	3/29/2021 0:00	3/29/2021 6:05	3/29/2021 0:00	3/29/2021 6:05	6:05	6:05	Turbine Valve Maintenance
		S MO	6/8/2021 5:00	6/19/2021 0:00	6/8/2021 5:00	6/19/2021 0:00	259:00	259:00	Control valve repair
		S ME	6/19/2021 0:00	6/21/2021 7:00	6/19/2021 0:00	6/21/2021 7:00	55:00	55:00	Control valve repair
Mill Creek Unit 2 - Coal - 295 MW In-service July 1974	MC2	S PO	2/20/2021 0:00	4/4/2021 0:00	2/20/2021 14:23	3/1/2021 0:00	1032:00	201:37	Cooling tower
		S PO	2/20/2021 0:00	4/4/2021 0:00	3/1/2021 0:00	4/1/2021 0:00	1032:00	744:00	Cooling tower
		S PO	2/20/2021 0:00	4/4/2021 0:00	4/1/2021 0:00	4/5/2021 1:55	1032:00	97:55	Cooling tower
		S MO	8/2/2021 6:00	8/6/2021 0:00	8/2/2021 6:00	8/6/2021 0:00	90:00	90:00	Turbine Bearing
		S ME	8/6/2021 0:00	8/10/2021 19:07	8/6/2021 0:00	8/10/2021 19:07	115:07	115:07	Turbine Bearing
		F U1			2/19/2022 13:52	2/26/2022 14:35		168:43	Unit Controls Hardware
		F SF			2/26/2022 14:35	2/27/2022 21:39		31:04	Blowdown piping leak repair
		S PO	4/30/2022 0:00	5/29/2022 0:00	4/28/2022 23:02	5/27/2022 5:49	696:00	678:47	FGD Absorber Module Floor Repair
F SF			5/27/2022 5:49	6/5/2022 3:30		213:41	Circulating Water System Outage		
Mill Creek Unit 3 - Coal - 394 MW In-service August 1978	MC3	S PO	10/9/2021 0:00	11/21/2021 0:00	10/9/2021 23:29	11/1/2021 0:00	1032:00	528:31	Boiler Maintenance
		S PO	10/9/2021 0:00	11/21/2021 0:00	11/1/2021 0:00	11/22/2021 0:00	1032:00	504:00	Boiler Maintenance
		S PE	11/22/2021 0:00	11/29/2021 14:32	11/22/2021 0:00	11/29/2021 14:32	182:32	182:32	Boiler Maintenance
		F SF			11/29/2021 14:32	11/30/2021 11:45		21:13	Air Heater Gearbox Repair
Mill Creek Unit 4 - Coal - 486 MW In-service September 1982	MC4	S PO	10/24/2020 0:00	12/6/2020 0:00	10/23/2020 21:45	11/1/2020 0:00	1032:00	194:15	Planned Outage - boiler maintenance
		S PO	10/24/2020 0:00	12/6/2020 0:00	11/1/2020 0:00	12/1/2020 0:00	1032:00	720:00	Planned Outage - boiler maintenance
		S PO	10/24/2020 0:00	12/6/2020 0:00	12/1/2020 0:00	12/6/2020 14:20	1032:00	134:20	Planned Outage - boiler maintenance
		F SF			12/6/2020 14:20	12/7/2020 6:43		16:23	Main Steam Valve Drain Piping
		F U1			12/7/2020 8:02	12/8/2020 7:42		23:40	Main Steam Valve Drain Piping
		F SF			12/8/2020 7:42	12/9/2020 4:30		20:48	Main Steam Valve Drain Piping
		S PO	9/24/2022 0:00	11/27/2022 0:00	9/23/2022 0:37	11/28/2022 0:01	1536:00	1583:24	Major Turbine Overhaul
Trimble County Unit 1 - Coal - 370 MW In-service December 1990 75% ownership share of 511 MW	TC1	S PO	10/8/2022 0:00	10/23/2022 0:00	10/8/2022 2:05	10/22/2022 2:19	360:00	336:14	Boiler Maintenance Outage
		F SF			10/22/2022 2:19	10/22/2022 13:06		10:47	Turbine EHC System
Trimble County Unit 2 - Coal - 570 MW In-service January 2011 75% ownership share of 732 MW jointly owned with KU	TC2								

Louisville Gas & Electric Company

November 2020 through October 2022

Unit and Outage Type (F=Forced; S=Scheduled; PO=Planned Outage; PE=Planned Extension; MO=Maintenance Outage; ME=Maintenance Extension; U1=Unplanned (Forced) Outage/Immediate; SF=Startup Failure)	Event Type	Scheduled		Actual		HOURS OF DURATION		REASON FOR DEVIATION FROM SCHEDULED MAINTENANCE OR REASON FOR FORCED OUTAGE AS APPROPRIATE	
		FROM	TO	FROM	TO	Scheduled	Actual		
Cane Run Unit 7 - Gas - 683 MW In-service June 2015 Jointly owned with KU	CR7	S MO	5/6/2021 21:38	5/11/2021 0:01	5/6/2021 21:38	5/11/2021 0:01	98:23	98:23	HRS G Hot Reheat Steam Valve Repair
		S ME	5/11/2021 0:01	5/12/2021 15:09	5/11/2021 0:01	5/12/2021 15:09	39:08	39:08	HRS G Hot Reheat Steam Valve Repair
		S PO	10/30/2021 0:00	11/21/2021 0:00	10/29/2021 23:22	11/21/2021 16:24	528:00	545:02	HRS G Kettle Boiler Replacement
		S PO	4/9/2022 0:00	5/1/2022 0:00	4/8/2022 22:32	5/1/2022 13:47	528:00	543:15	Generator Scheduled Inspections
		S MO	5/6/2022 23:44	5/7/2022 12:01	5/6/2022 23:44	5/7/2022 12:01	12:17	12:17	Boiler feedwater pump/turbine lube oil system
		S ME	5/7/2022 12:01	5/8/2022 5:20	5/7/2022 12:01	5/8/2022 5:20	17:19	17:19	Boiler feedwater pump/turbine lube oil system
		S MO	5/24/2022 15:38	5/31/2022 5:30	5/24/2022 15:38	5/31/2022 5:30	157:52	157:52	Hot Reheat Steam Leak
		F U1			5/31/2022 5:30	6/1/2022 7:40		26:10	Turbine/Generator Repair
E. W. Brown Unit 5 - Gas CT - 130 MW In-service June 2001 Jointly owned with KU	BR5								
E. W. Brown Unit 6 - Gas CT - 171 MW In-service August 1999 Jointly owned with KU	BR6	S PO	10/17/2020 0:00	11/1/2020 0:00	10/16/2020 6:00	11/2/2020 0:00	360:00	402:00	Fuel Gas System
		S PE	11/2/2020 0:00	11/6/2020 17:19	11/2/2020 0:00	11/6/2020 17:19	113:19	113:19	Generator Exciter Controls
		S MO	10/18/2021 7:23	10/22/2021 0:00	10/18/2021 7:23	10/22/2021 0:00	88:37	88:37	Borescope inspection
		S ME	10/22/2021 0:00	10/22/2021 8:50	10/22/2021 0:00	10/22/2021 8:50	8:50	8:50	Borescope inspection
E. W. Brown Unit 7 - Gas CT - 171 MW In-service August 1999 Jointly owned with KU	BR7	S PO	10/17/2020 0:00	11/1/2020 0:00	10/16/2020 6:00	11/2/2020 0:00	360:00	402:00	Fuel Gas System
		S PE	11/2/2020 0:00	11/5/2020 18:37	11/2/2020 0:00	11/5/2020 18:37	90:37	90:37	Generator Exciter Controls
		S PO	10/23/2021 0:00	12/13/2021 0:00	10/23/2021 0:00	12/13/2021 12:24	1224:00	1236:24	Hot gas path inspection
Cane Run Unit 11 - Gas CT - 14 MW In-service June 1968	CR11								
Paddys Run Unit 11 - Gas CT - 13 MW In-service June 1968	PR11								
Paddys Run Unit 12 - Gas CT - 28 MW In-service July 1968	PR12								
Paddys Run Unit 13 - Gas CT - 175 MW In-service June 2001 Jointly owned with KU	PR13	S PO	12/5/2020 0:00	12/20/2020 0:00	12/4/2020 6:15	12/20/2020 18:07	360:00	395:52	Compressor Inspection
		F U1			12/20/2020 18:07	12/21/2020 22:57		28:50	Startup System - turning gear
		S PO	11/27/2021 0:00	12/5/2021 0:00	11/27/2021 6:12	12/5/2021 13:23	192:00	199:11	Borescope Inspection
		F U1			12/5/2021 13:23	12/12/2021 13:30		168:07	Generator Protection System

Louisville Gas & Electric Company

November 2020 through October 2022

Unit and Outage Type (F=Forced; S=Scheduled; PO=Planned Outage; PE=Planned Extension; MO=Maintenance Outage; ME=Maintenance Extension; U1=Unplanned (Forced) Outage/Immediate; SF=Startup Failure)	Event Type	Scheduled		Actual		HOURS OF DURATION		REASON FOR DEVIATION FROM SCHEDULED MAINTENANCE OR REASON FOR FORCED OUTAGE AS APPROPRIATE	
		FROM	TO	FROM	TO	Scheduled	Actual		
Trimble County Unit 5 - Gas CT - 179 MW In-service May 2002 Jointly owned with KU	TC5	S PO	11/7/2020 0:00	12/31/2020 0:00	11/7/2020 0:00	1/1/2021 0:00	1296:00	1320:00	Major Overhaul
		S PO	1/1/2021 0:00	5/16/2021 0:00	1/1/2021 0:00	4/15/2021 7:08	3240:00	2503:08	Major Overhaul continued
		S MO	4/17/2021 12:15	4/22/2021 10:00	4/17/2021 12:15	4/22/2021 10:00	117:45	117:45	Major overhaul - testing and commissioning
		S ME	4/22/2021 10:00	5/10/2021 7:54	4/22/2021 10:00	5/10/2021 7:54	429:54	429:54	Major overhaul - testing and commissioning
Trimble County Unit 6 - Gas CT - 179 MW In-service May 2002 Jointly owned with KU	TC6	S PO	11/14/2020 0:00	11/22/2020 0:00	11/13/2020 23:25	11/22/2020 12:00	192:00	204:35	Transmission line maintenance
		S MO	3/1/2021 6:30	3/1/2021 17:01	3/1/2021 6:30	3/1/2021 17:01	10:31	10:31	Inlet guide vane actuator
		S ME	3/1/2021 17:01	3/2/2021 17:28	3/1/2021 17:01	3/2/2021 17:28	24:27	24:27	Inlet guide vane actuator
		S PO	3/27/2021 0:00	4/18/2021 0:00	3/26/2021 21:30	4/5/2021 7:00	528:00	225:30	Lube Oil System Maintenace
		S PE	4/5/2021 7:00	4/6/2021 7:18	4/5/2021 7:00	4/6/2021 7:18	24:18	24:18	Lube Oil System Maintenace
		S PO	3/19/2022 0:00	4/10/2022 0:00	3/18/2022 7:00	4/11/2022 0:00	528:00	569:00	Gas turbine control system upgrades
		S PE	4/11/2022 0:00	4/18/2022 7:19	4/11/2022 0:00	4/18/2022 7:19	175:19	175:19	Combustion System Hardware
Trimble County Unit 7 - Gas CT - 179 MW In-service June 2004 Jointly owned with KU	TC7	S PO	10/1/2022 0:00	10/16/2022 0:00	10/1/2022 0:01	10/17/2022 0:00	360:00	383:59	Gas turbine inlet filter replacement
		S PE	10/17/2022 0:00	11/12/2022 15:15	10/17/2022 0:00	11/12/2022 15:15	639:15	639:15	Combustion Turbine Blade Repair
Trimble County Unit 8 - Gas CT - 179 MW In-service June 2004 Jointly owned with KU	TC8	S PO	10/9/2021 0:00	11/21/2021 0:00	10/8/2021 23:15	11/21/2021 11:52	1032:00	1044:37	Hot Gas Path Inspection
		S PO	10/1/2022 0:00	10/16/2022 0:00	9/30/2022 6:02	10/17/2022 0:00	360:00	401:58	Gas turbine inlet filter replacement
		S PE	10/17/2022 0:00	10/25/2022 7:01	10/17/2022 0:00	10/25/2022 7:01	199:01	199:01	Combustion Turbine Blade Repair
Trimble County Unit 9 - Gas CT - 179 MW In-service July 2004 Jointly owned with KU	TC9	S PO	4/30/2022 0:00	5/8/2022 0:00	4/30/2022 0:01	5/8/2022 8:06	192:00	200:05	Borescope inspection
Trimble County Unit 10 - Gas CT - 179 MW In-service July 2004 Jointly owned with KU	TC10	S PO	4/30/2022 0:00	5/8/2022 0:00	4/29/2022 13:30	5/8/2022 6:41	192:00	209:11	Borescope inspection