

**COMMONWEALTH OF KENTUCKY**  
**BEFORE THE PUBLIC SERVICE COMMISSION**

**In the Matter of:**

**AN EXAMINATION OF THE APPLICATION )**  
**OF THE FUEL ADJUSTMENT CLAUSE OF )**  
**KENTUCKY UTILITIES COMPANY FROM ) CASE NO. 2017-00003**  
**NOVEMBER 1, 2014 THROUGH OCTOBER )**  
**31, 2016 )**

**DIRECT TESTIMONY OF**  
**CHARLES R. SCHRAM**  
**DIRECTOR, POWER SUPPLY**  
**KENTUCKY UTILITIES COMPANY**

**Filed: February 20, 2017**

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

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

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

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

**Q. Have you previously testified before this Commission?**

A. Yes. I have previously testified before this Commission on several occasions in my prior role as Director – Energy Planning, Analysis & Forecasting, including in the prior Fuel Adjustment Clause proceedings and in the Companies’ most recent environmental cost recovery proceedings (Case Nos. 2016-00026 (KU) and 2016-00027 (LG&E)).

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

A. I am submitting this testimony in response to the Order entered in this proceeding by the Commission on February 6, 2017 (“Order”), directing KU to file written direct

testimony on a number of issues relating to natural gas fuel procurement during the two-year period ended October 31, 2016 (“Review Period”).

**Q. Were there any changes in natural gas market conditions that occurred during the Review Period, or that KU expects to occur within the next two years that have significantly affected or will significantly affect the Company’s gas procurement practices?**

A. No changes in the natural gas market affected or are anticipated to affect the Company’s natural gas procurement practices. Overall, the natural gas market has been and is expected to be relatively stable. On-shore shale gas supplies are expected to continue to be a growing part of the U.S. gas supply. Most forecasts continue to indicate that gas prices will avoid sustained periods of volatility given the demonstrated responsiveness of shale gas supplies.

The average monthly natural gas price at Henry Hub during the review period was \$2.60/ MMBtu, compared to \$4.02/MMBtu during the previous two-year period (November 1, 2012 through October 31, 2014). Based on market quotes as of mid-February 2017, prices for natural gas for the next two years (November 1, 2016 through October 21, 2018) currently average \$3.11/MMBtu.

The U.S. Energy Information Administration’s (“EIA”) Short-Term Energy Outlook, released February 7, 2017, forecasts Henry Hub spot prices to average \$3.62/MMBtu for the next two years. EIA expects increasing production over the next two years as noted in the following excerpt:

“U.S. dry natural gas production is forecast to average 73.7 billion cubic feet per day (Bcf/d) in 2017, a 1.3 Bcf/d increase from the 2016 level. This increase

reverses a 2016 production decline, which was the first decline since 2005. Natural gas production in 2018 is forecast to increase by an average of 4.1 Bcf/d from the 2017 level.”

**Q. Please describe KU’s business strategy for the procurement of natural gas as a fuel source for the generation of electricity?**

A. Before the commissioning of the Companies’ first natural gas combined cycle unit, Cane Rune 7 (“CR7”), in 2015, KU’s baseload electric demand was primarily supplied using coal-fired generating units. CR7’s performance has been very good. The 640 MW CR7 unit is required to operate a minimum amount to meet the projected baseload electric demand. In addition, CR7’s high efficiency coupled with low natural gas prices makes this unit competitive with coal-fired base load units. Given this low cost addition to the generating fleet, KU’s fuel procurement strategy now considers the increased use of natural gas and the relationship between coal and natural gas volumes. The strategy establishes guidelines for key metrics related to fuel procurement activities, risk elements and fuel transportation.

**Q. Please describe KU’s transportation of natural gas for electric generation.**

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

**Q. How and when does KU purchase natural gas for its peaking generation?**

A. The need for peaking generation is determined by weather, load, generation availability, and market prices. The variability of these factors makes it difficult to precisely forecast the specific days and hours when peaking generation is needed. Because of this significant uncertainty regarding the volume of natural gas required, KU continues to purchase physical natural gas for peaking generation on an “as-needed” basis, typically in the day-ahead or intra-day spot market.

**Q. How does KU coordinate its procurement of natural gas for CR7 and coal for electric generation?**

A. The minimum projected fuel requirement for gas and coal is first established during the annual planning process and is used to guide procurement decisions. To manage the potential swings in coal and CR7 natural gas requirements, procurement activities of each fuel are coordinated through quarterly market solicitations. Since longer-term purchases of a portion of natural gas for CR7 just began in mid-2016, additional natural gas solicitations are initially necessary to build a longer-term position in accordance with the fuel guidelines.

**Q. For the forward gas purchases, what has been KU’s experience with suppliers and the execution of the agreements?**

A. During 2016, the Companies purchased 20,000 MMBtu/day to 30,000 MMBtu/day of natural gas on a forward basis for delivery in the months of July through October 2016 that are part of this review period. The Companies experienced no issues with the forward purchases and deliveries of natural gas.

**Q. Please comment generally on the reasonableness of KU’s natural gas fuel procurement practices during the Review Period.**

A. KU's natural gas procurement practices are reasonable and sufficiently flexible to allow the Company to respond effectively to changes in market conditions.

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

A. Yes. KU complied with the fuel strategy and procurement policies for natural gas purchases to support the fuel requirements for electricity generation.

Q. Does this conclude your testimony?

A. Yes.

VERIFICATION

COMMONWEALTH OF KENTUCKY )  
 ) SS:  
COUNTY OF JEFFERSON )

The undersigned, **Charles R. Schram**, being duly sworn, deposes and says that he is Director — Power Supply, 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.

  
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Charles R. Schram

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 17th day of February 2017.

 (SEAL)

Notary Public

My Commission Expires:  
JUDY SCHOLER  
Notary Public, State at Large, KY  
My commission expires July 11, 2018  
Notary ID # 512743

## 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 2017 – Present
Director, Energy Planning, Analysis & Forecasting	2008 – 2017
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