COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC APPLICATION OF LOUISVILLE	**)**	
GAS AND ELECTRIC COMPANY FOR RENEWAL	**)**	**CASE NO.**
AND PROPOSED MODIFICATION OF ITS	**)**	**2019-00437**
PERFORMANCE-BASED RATEMAKING	**)**	
MECHANISM	**)**	

RESPONSE OF
LOUISVILLE GAS AND ELECTRIC COMPANY
TO
COMMISSION STAFF'S FIRST REQUEST FOR INFORMATION
DATED FEBRUARY 6, 2020

FILED: FEBRUARY 21, 2020

VERIFICATION

COMMONWEALTH OF KENTUCKY)
)
COUNTY OF JEFFERSON)

The undersigned, **J. Clay Murphy**, being duly sworn, deposes and says that he is Director – Gas Management Planning, and Supply for Louisville Gas and Electric Company, and that he has personal knowledge of the matters set forth in the responses for which he is identified as the witness, and the answers contained therein are true and correct to the best of his information, knowledge and belief.

J. Clay Murphy

J. Clay Murphy

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 21st day of February 2020.

Judy Schooler

Notary Public

Notary Public, ID No. 603967

My Commission Expires:

7/11/2022

VERIFICATION

COMMONWEALTH OF KENTUCKY)
)
COUNTY OF JEFFERSON)

The undersigned, **Pamela L. Jaynes**, being duly sworn, deposes and says that she is Manager - Gas Supply for Louisville Gas and Electric Company, and that she has personal knowledge of the matters set forth in the responses for which she is identified as the witness, and the answers contained therein are true and correct to the best of her information, knowledge and belief.

Pamela Jaynes
Pamela L. Jaynes

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 21st day of February 2020.

Judy Schooler
Notary Public

Notary Public, ID No. 603967

My Commission Expires:

7/11/2022

VERIFICATION

COMMONWEALTH OF KENTUCKY)
)
COUNTY OF JEFFERSON)

The undersigned, **Shannon L. Charnas**, being duly sworn, deposes and says that she is Director – Audit Services for LG&E and KU Services Company, and that she has personal knowledge of the matters set forth in the responses for which she is identified as the witness, and the answers contained therein are true and correct to the best of her information, knowledge and belief.

Shannon L Charnas
Shannon L. Charnas

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 21st day of February 2020.

Notary Public

Notary Public, ID No. 629705

My Commission Expires:

9/8/2023

VERIFICATION

COMMONWEALTH OF KENTUCKY)
)
COUNTY OF JEFFERSON)

The undersigned, **Thomas A. Jessee**, being duly sworn, deposes and says that he is Vice President, Gas Operations for Louisville Gas and Electric Company and Kentucky Utilities Company and an employee of LG&E and KU Services Company, and that he has personal knowledge of the matters set forth in the responses for which he is identified as the witness, and the answers contained therein are true and correct to the best of his information, knowledge and belief.

Thomas A. Jessee

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 21st day of February 2020.

Notary Public

Notary Public, ID No. 603967

My Commission Expires:

7/11/2022

LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Commission Staff's First Request for Information
Dated February 6, 2020

Case No. 2019-00437

Question No. 1

Witness: J. Clay Murphy / Pamela L. Jaynes

Q-1. Refer to the Direct Testimony of J. Clay Murphy (Murphy Testimony), page 3, in which he states he has previously testified in LG&E's gas supply cost Performance-Based Ratemaking (PBR) mechanism applications dating back to 1997.

a. Explain the concerns for the cost of natural gas and reliability of supply that existed in the late 1990s.

b. Explain whether the concerns for the cost of natural gas and reliability of supply that existed in the late 1990s still exist in the present day.

c. Compare and contrast the cost and volatility of natural gas as well as the reliability of supply from the late 1990s throughout the present time.

d. Explain in full detail whether LG&E believes a PBR mechanism is still necessary in the current low-cost natural gas environment.

A-1. PBR mechanisms are primarily designed to provide incentives to improve procurement performance beyond what would otherwise be achieved through a prudence standard alone. Well-constructed gas supply PBR mechanisms can function in all kinds of price environments and do not interfere with an LDC's ability to reliably serve its system gas loads. A well-constructed PBR mechanism provides benefits to customers irrespective of price or price volatility levels.

In the response to Question No. 4, LG&E recites the support that the Commission has historically given to PBR mechanisms in all kinds of price environments.

a-b. Below is a table setting forth the average annual natural gas New York Mercantile Exchange ("NYMEX") prices, gas production, imports, total U.S. natural gas demand, (and subsets of that total demand in the form of gas-fired generation, LNG exports, and pipeline exports to Mexico) for the years from 1995 – 2019. The volumetric data was drawn from the "Short-Term Energy Outlook" published by the Energy Information Administration covering data for the years 1995 – 2019.

U.S. Natural Gas Supply and Demand

		Supply		Demand			
				U.S. Natural Gas Demand		Exports	
Year	Average Annual NYMEX Settle Price ($/MMBtu)	Total Dry Gas Production (Bcf/day)	Imports (Bcf/day)	Total U.S. Natural Gas Demand (Bcf/day)	Gas-Fired Generation Only (Bcf/day)	LNG (Bcf/day)	Pipeline / Mexico (Bcf/day)
1995	$1.636	51.0	7.0	59.1	9.3		
1996	$2.591	52.1	7.4	60.4	7.6		
1997	$2.587	51.9	7.8	60.0	8.7		
1998	$2.108	51.9	8.1	58.4	9.4		
1999	$2.268	51.3	9.3	58.7	8.6		
2000	$3.886	52.2	9.6	62.3	8.4		
2001	$4.273	53.0	9.9	59.1	7.4		
2002	$3.221	52.1	9.6	63.5	15.2		
2003	$5.388	52.2	10.7	60.1	13.5		1.9
2004	$6.138	51.6	11.7	61.4	14.7		2.4
2005	$8.616	49.6	11.8	61.4	16.5		2.3
2006	$7.226	50.7	11.3	60.2	17.3		1.9
2007	$6.860	52.0	12.5	62.9	18.7		2.0
2008	$9.035	56.0	10.6	63.6	18.2		2.6
2009	$3.986	57.7	10.3	62.5	18.8		2.9
2010	$4.393	58.9	10.2	66.0	20.2		3.0
2011	$4.042	63.0	9.4	66.9	20.7		4.3
2012	$2.789	65.7	8.8	69.3	25.0		4.4
2013	$3.652	66.5	8.0	71.2	22.3		4.5
2014	$4.415	70.1	8.0	73.6	22.2	0.0	4.1
2015	$2.664	74.4	7.4	75.5	26.5	0.1	4.8
2016	$2.460	72.4	8.1	75.1	27.4	0.5	5.9
2017	$3.108	73.6	8.2	74.0	25.6	1.9	6.6
2018	$3.086	83.3	8.0	81.6	29.0	3.0	7.1
2019	$2.628	92.0	7.5	85.3	31.0	5.0	7.8

As the so-called “gas bubble” ended in the late 1990s, natural gas markets became tight with supply and demand closely balanced which resulted in higher natural gas prices. However, a “tight” market with closely balanced supply and demand characteristics is not the same thing as an unreliable market. Instead, price rationed natural gas supplies in the market which was the design of the Natural Gas Wellhead Decontrol Act of 1989 and other federal efforts aimed at market liberalization, including FERC Order 636.

At the turn of the century, natural gas supplies were expected to remain tight as evidenced by increasing demand for gas-fired generation, lower reserve replacement levels, lower production levels, lower imports from Canada, increased exports to Mexico, and the long lead time to build facilities to increase LNG imports.

Foreshadowing an increasingly tight market, the level of gas reserves in the United States did not increase in 2002 from 2001 levels according to a study done by the American Gas Association ("AGA"). AGA reported that total reserve levels actually finished 2002 slightly below where they ended the year before, at about 183.5 Tcf, compared with a 6-Tcf boost in reserves between 2000 and 2001 and a 10-Tcf increase from 1999 to 2000.[1] During 2003, U.S. gas demand was expected to grow 3.7% or three times faster than production (1.2%).[2]

Pipeline imports from Canada were an important part of the U.S. supply picture at the time. In 2003, industry analyst Raymond James and Associates reported that Canadian gas output had been declining "at an annualized rate of around 5% over the past three months" despite stepped-up drilling. That meant that even with record Canadian drilling activity, Canadian gas exports to the U.S. could be down an estimated 0.5 Bcf/day, or 4% through 2003. Industry analyst Jefferies and Company said that in addition to lower imports and falling domestic delivery, exports to Mexico that continued to exceed year-ago levels were threatening U.S. supply levels.[3]

LNG imports were expected to play a crucial role in meeting U.S. natural gas demands over the next two decades. LNG imports were expected to triple to 800 Bcf/year by 2020, or about 3% of total U.S. consumption. While LNG imports were increasing, LNG imports were not expected to fix near-term gas constraints. A panel of natural gas industry experts told the energy and mineral resource subcommittee of the House Resources Committee in June 2003 that while they agreed that LNG would play a crucial role in providing additional natural gas supplies for the market, the long lead times necessary to expand LNG import capacity in the U.S. would prevent LNG from having a near term impact on supply or high natural gas prices.[4]

In the early 2000s, gas demand for power generation began an upward trajectory. For 2000, EIA reported gas-fired generation demand of 8.4 Bcf/day. By 2005, gas-fired generation demand had nearly doubled to 16.5 Bcf/day. At this stage, natural gas prices

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[1] "Study: U.S. gas reserves didn't grow in '02," *Platts Gas Daily*, April 11, 2003, pp. 1, 6.
[2] "EIA: Demand to grow 3.7%, production 1.2%," *Platts Gas Daily*, March 7, 2003, pp. 1, 4 – 5.
[3] "Blame Canada? Analysts say gas imports falling," *Platts Gas Daily*, July 1, 2003, pp. 1, 5 – 6.
[4] "LNG Won't Fix Gas Constraints; Domestic Drilling Still Needed," *Natural Gas Week*, June 23, 2003, pp. 3 – 4.

had fallen to a level where natural gas could compete for power generation load that was using residual oil as a fuel.[5]

On the demand side, conservation played an important part in balancing the market. In July 2003, Energy Secretary Spencer Abraham said that "[t]he demand for gas is growing faster than producers can get it out of the ground and ship it to consumers." Abraham said that Americans needed to beef up their energy conservation in response to high demand for, and low supplies of, natural gas. The Department of Energy sent a letter to all 50 governors with recommended actions that states could take to improve the natural gas situation, including infrastructure improvements.[6] Absent reduced demand due to factors such as weather and economic slow-down, the supply-demand balance was expected to remain tight.

Beginning in 2005, the "tight" natural gas supply market began to reverse due to the use of "fracking" in combination with horizontal drilling that made it economical to produce gas from formations (such as shale formations) that could not previously be economically produced. From 2005 to 2015, annual U.S. production grew 50% from 49.6 Bcf/day to 74.4 Bcf/day. With these new technologies, the U.S. became the world's largest natural gas producer. This abundance of natural gas has lowered the price of gas over time, but it has also created its own market challenges.

One challenge was the location of the new production. Supplies from the Marcellus and Utica are located in Pennsylvania, Ohio, and West Virginia. Supplies from the Permian are located in West Texas. In order for these supplies to get to market, a considerable pipeline infrastructure build-out was required and continues today. FERC certificated 30.6 Bcf/day of pipeline capacity in 2017, 9.2 Bcf/day in 2018, and 17.8 Bcf/day in 2019.[7] FERC reported that during 2018, 13.0 Bcf/day of new interstate pipeline capacity was placed into service, a 35% increase over the prior year addition of 9.7 Bcf Mcf/day.[8] Currently, there are 20 different pipeline certificate proceedings before FERC in various stages of approval with capacity totaling over 12.0 Bcf/day.[9]

Despite the need for additional pipeline infrastructure, many projects remain challenged. Several pipeline projects are undergoing significant legal challenges and delays.[10] Some states are slowing down pipeline infrastructure project development

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[5] "High Crude Prices Alter LNG, Fuel-Switching Dynamics in US," *Natural Gas Week*, August 30, 2004, pp. 1, 14-15.
[6] "DOE urges conservation to relieve gas crunch," *Platts Gas Daily*, July 10, 2003, pp. 1, 7.
[7] "More FERC gas pipelines certificated in 2019, despite longer reviews," *Platts Gas Daily*, January 17, 2020, p. 6.
[8] "New US gas pipeline capacity installed rose 35% in 2018: FERC report," *Platts Gas Daily*, February 12, 2019, pp. 5 - 7.
[9] See table labelled "Pipeline Projects," *Platts Inside FERC*, January 20, 2020, p. 8.
[10] "PennEast Pipeline seeks two-year in-service delay, citing permitting," *Platts Gas Daily*, January 2, 2020, p. 6; "US Supreme Court takes on A[tlantic] C[oast] P[ipeline] project legal logjam," *Platts Gas Daily*,

and denying the required state permits by relying on the Clean Water Act to stop pipeline development.[11] The ability of interstate pipelines to use eminent domain as granted in the Natural Gas Act has also been challenged and is affecting infrastructure development.[12] These build-out problems are not limited to more heavily populated Marcellus and Utica production areas in the Northeast. The same issues are frustrating pipeline developers in more gas industry-friendly Texas. For example, pipeline development to move gas from the Permian basin in east Texas to the Gulf Coast has been slowed by permitting problems.[13] Projects designed to bring natural gas from the Permian basin to Tennessee Gas Pipeline Company would provide LG&E with indirect access to those Permian supplies.

The availability of supply at a lower price has increased the demand for natural gas both in the U.S. and globally. The demand for gas to produce electricity continues to grow. Additionally, there is new demand in the form of LNG exports to various countries and pipeline exports to Mexico. With these new dynamics, the U.S. set a record demand for natural gas of 145.9 Bcf/day on January 30, 2019.[14]

Gas-fired generation continues to be a growing source of demand.[15] Gas-fired generation has increased 111% from 2004 to 2019. In 2012, the competition between LDCs and gas-fired generators for pipeline capacity was noted as Independent System Operators began trying to address gas-electric coordination issues.[16] FERC soon began its own investigation into the potential resolution of these issues through Docket No. RM14-002 "Coordination of the Scheduling Processes of Interstate Natural Gas Pipelines and Public Utilities" to address the competing needs of pipelines, LDCs, and gas-fired generators. FERC's findings culminated in FERC Order No. 809 requiring pipelines to increase scheduling opportunities for shippers. The role of natural gas is expected to evolve and become more flexible in order to support grid reliability and balance intermittent solar and wind power deliveries.[17] As the natural gas and power

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October 7, 2019, pp. 3 – 4; "Virginia orders Mountain Valley Pipeline to stop work over water-control issues," *Platts Gas Daily*, August 6, 2019, p. 5.

[11] "FERC puts Constitution Pipeline back on track, finding New York waived water authority," *Platts Gas Daily*, August 30, 2019, p. 5; "Trump, lawmakers try to keep states from blocking pipelines, but face hurdles," *Platts Gas Daily*, November 20, 2019, p. 6; "EPA issues proposed rule to limit states' ability to slow pipeline projects," *Platts Gas Daily*, August 12, 2019, p. 4.

[12] "Tug of war emerges at FERC over ruling on eminent domain for gas pipelines," *Platts Gas Daily*, October 22, 2019, pp. 2 – 3.

[13] "Kinder Morgan pushes back Permian Highway gas pipe in-service date, blames permitting," *Platts Gas Daily*, October 18, 2019, pp. 5 – 6; Permian Highway gas pipeline faces challenges to its path through Texas Hill Country," *Platts Gas Daily*, August 27, 2019, pp. 6 – 7; "Property rights tensions stir debate amid continued gas pipeline buildout," *Platts Gas Daily*, October 10, 2019, p. 6.

[14] "Natural Gas Weekly Update for the week ending February 6, 2019," Release Date: February 7, 2019, Energy Information Administration, p. 1.

[15] "Gas-fired generation seen growing across most outlooks: RFF," *Platts Gas Daily*, July 2, 2019, pp. 7 - 8.

[16] "LDCs, generators to square off over capacity," *Platts Gas Daily*, April 16, 2012, pp. 1, 4 - 5.

[17] "Renewables, LNG growth will lead to evolution of gas pipelines, says report," *Platts Gas Daily*, May 8, 2019, p. 7.

sectors have become more integrated and interdependent, there are also growing concerns about physical and cyber-attacks on natural gas infrastructure.[18]

The globalization of natural gas markets could subject domestic U.S. gas markets to a new level of price volatility. Natural gas exports (both as LNG and to Mexico) have increased 433% from 2004 to 2019. These LNG exports have added a new international dimension to U.S. natural gas markets which were previously subject only to domestic influences. Projections for LNG growth in 2020 remain strong.[19] Through the end of 2019, FERC has authorized 32 Bcf/day of liquefaction capacity. About 20.2 Bcf/day of liquefaction capacity has been certificated during 2019 alone.[20] To put that in perspective, 32 Bcf represents about one-third of current total U.S. gas production. New markets for U.S.-sourced LNG include Japan, China,[21] South Korea, and Europe[22], while Qatar[23], Australia, and Malaysia are the chief competitors to the U.S. for world LNG market share.[24] Pipeline exports to Mexico could also expose the U.S. to longer-term price risk and volatility.[25]

The increase in both supply and demand for natural gas has created more competition for pipeline transportation capacity between LDCs, electric generators, exporters and industrial end users which could have an impact on the price and availability of pipeline capacity. As a result, there is a growing concern that the interstate pipeline infrastructure may be taxed beyond its capabilities. The Industrial Energy Consumers of America ("IECA") are concerned that rising exports put capacity at risk for domestic consumers "in light of new energy sector realities, including a drive toward exports and increased hurdles that slow pipeline expansions."[26] IECA is concerned that decreased

[18] "Grid attack exercise to focus on US power grid's reliance on gas pipelines," *Platts Gas Daily*, November 15, 2019, p. 11; "FERC commissioners add to calls for cybersecurity standards for pipelines," *Platts Gas Daily*, June 13, 2019, p. 8; "Threat to grid from simultaneous natural disaster, attack must be weighed: FERC's McNamee," *Platts Gas Daily*, June 12, 2019, pp. 11 - 12.
[19] "Strong market fundamentals drive US gas liquefaction surge into the new year," *Platts Gas Daily*, January 3, 2020, p. 5.
[20] "FERC signs off on four proposed US LNG export projects," *Platts Gas Daily*, November 22, 2019, pp. 2 - 3.
[21] "US-China deal eases trade tensions, but tariffs still cloud LNG, ethanol flows," *Platts Gas Daily*, January 16, 2020, pp. 2 – 4; "China to raise tariff on US LNG to 25% but excludes US crude from list," *Platts Gas Daily*, May 14, 2019, p. 9.
[22] "Europe to be top US LNG export destination: Eni executive," *Platts Gas Daily*, February 13, 2019, pp. 7 - 8.
[23] "US-Iran tensions bring key Qatari LNG role into focus," *Platts Gas Daily*, January 7, 2020, pp. 5 -6; "Qatar sees new LNG mega-trains coming on line in 3 – 6 month intervals: al-Kaabi," *Platts Gas Daily*, October 9, 2019, pp. 7 – 8; "Qatar Petroleum CEO outlines his vision for the world's largest LNG producer," *Platts Gas Daily*, October 8, 2019, pp. 7 - 9.
[24] "US moves into third place among global LNG exporters, says EIA," *Platts Gas Daily*, July 30, 2019, p. 6.
[25] "US natural gas producer price risk climbs with exports: BP exec," *Platts Gas Daily*, August 12, 2019, p. 6; "US LNG exports to increase domestic-market price volatility," *Platts Gas Daily*, April 17, 2019, p. 4.
[26] "Industrials call for extra US FERC oversight of gas pipe capacity reliability," *Platts Gas Daily*, January 23, 2020, pp. 5 - 6.

availability of pipeline capacity will impact gas-fired generators, manufacturers, and homeowners. There are already "emerging pipeline constraints" as natural gas supplies are trying to make their way to meet the demand created by LNG exports.[27] This comes at a time when some pipelines continue to address aging infrastructure problems that can disrupt gas supply flows. For example, the Texas Eastern Transmission outage in August 2019 suspended up to 1.7 Bcf/day in gas flows.[28]

Still another challenge is the impact current price levels are having on the financial health of natural gas producers. The current low-price environment has resulted in a decline in the financial health of many producers who have become over-extended in their efforts to exploit the development of shale-based natural gas resources. Independent gas producers are filing for bankruptcy at a rate not seen in more than five years when low commodity prices pushed more than 100 E&Ps into insolvency.[29] While some gas producers are shutting in production in response to weak prices, weak natural gas commodity prices are also among the factors playing havoc with producer creditworthiness and resulting in a growing list of bankruptcies.[30] Some natural gas producers are selling assets in order to maintain financial viability.[31] Low prices and credit downgrades could result in a stalling of the U.S. shale boom as productivity declines and investors and lenders shun the sector. The decline in the financial health of potential natural gas suppliers makes it increasingly problematic to find financially sound and reliable counterparties.

The natural gas industry continues to face considerable political uncertainty. While President Trump continues to support fossil fuels, Democrat hopefuls support the Green New Deal that would ban fracking and halt all oil and gas leasing on public lands.[32] U.S. Senator Bernie Sanders has introduced legislation to implement a fracking ban.[33] One CEO estimates that a ban on fracking would cut U.S. oil output by 60%.[34] Because so much shale gas is associated with oil production, the impact to

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[27] "Constraints to Gulf Coast gas market to drive widening basis discounts," *Platts Gas Daily*, January 13, 2020, pp. 3 - 4.
[28] "Following explosion, Texas Eastern line returns to partial service," *Platts Gas Daily*, August 27, 2019, p. 7; Texas Eastern plans service restoration following explosion," *Platts Gas Daily*, August 20, 2019, pp. 5 – 6; "TETCO ELA, WLA spot gas prices jump by double digits on force majeure," *Platts Gas Daily*, August 2, 2019, pp. 2 - 3.
[29] "More Bankruptcy Risk Looms For Gas Producers in 2020," *Natural Gas Week*, December 9, 2019, pp. 6 - 7.
[30] "Looming Debt Threatens Gas-Focused Independents' Capital, Market Access," *Natural Gas Week*, September 2, 2019, pp. 4 - 6.
[31] "EQT dialing back drilling, production, selling assets next year," *Platts Gas Daily*, November 1, 2019, pp. 6 – 7.
[32] "Trump, Democrats offer clear choice on US presidential energy platforms," *Platts Gas Daily*, September 23, 2019, pp. 5 – 9.
[33] "Sanders unveils fracking ban proposal with sweeping prohibitions on pipelines, crackers," *Platts Gas Daily*, February 5, 2020, pp. 2 – 4.
[34] "INTERVIEW: Pioneer CEO says fracking ban would cut US oil output by 60%," *Platts Gas Daily*, September 13, 2019, p. 6.

natural gas could be of a similar magnitude. One estimate is that a fracking ban as proposed by Senator Sanders would deter 2.4 Bcf/day in gas growth.[35] Others see a negative impact on carbon reduction efforts as the result of a fracking ban.[36]

The factors impacting supply reliability today need to be closely monitored to ensure that they do not impact supply reliability for LG&E's customers. These factors are very different and, in some ways, more complex than the reliability concerns facing the nation at the beginning of the 21st century. Current marketplace reliability concerns include:

- The development of new pipeline infrastructure needed to bring natural gas to market could be slowed by environmental reviews and eminent domain issues.
- Globalization could expose domestic U.S. natural gas markets to geopolitical risks and increased natural gas price volatility.
- Increased utilization of pipeline capacity and storage services offered by interstate pipelines (such as that used by LG&E) could decrease available pipeline capacity and increase prices.
- Low gas prices have driven down the creditworthiness of many potential natural gas producers and suppliers thereby reducing the number of reliable natural gas suppliers.
- The underlying fracking technology which created the current natural gas market could be prohibited which could reduce total available gas supply.

c. For the average annual natural gas NYMEX settle prices for 1995 through 2019 and a discussion of natural gas reliability, see the response to parts a and b.

For the 25 years from 1995 to 2019, the average annual volatility associated with gas prices was 20%.[37] During that 25-year period, price volatility was greater than or equal to 20% in ten of the 25 years; and only three of those ten years had price volatility greater than or equal to 30%: 2000 (30%), 2001 (53%), and 2005 (35%). In each of

[35] "Sanders unveils fracking ban proposal with sweeping prohibitions on pipelines, crackers," *Platts Gas Daily*, February 5, 2020, pp. 2 – 4.

[36] "Cassidy slams Democrats for stance on gas, deriding 'foolishness' on LNG," *Platts Gas Daily*, September 13, 2019, pp. 4 – 5.

[37] Volatility As A Percentage ("VAP") measures price volatility and is equal to the Mean Standard Deviation ("MSD") divided by the Mean Weighted Average Price ("MWAP"). The Mean Weighted Average Price ("MWAP") is the average annual price of natural gas. The Mean Standard Deviation ("MSD") is the average standard deviation of prices from the Mean Weighted Average Price ("MWAP"). The standard deviation is a statistical term that can be used to provide an indication of volatility. It measures how widely values (in this case natural gas prices) are dispersed from the average. Dispersion is the difference between the actual price and the average price. The larger the difference between the actual prices and the average price, the higher the standard deviation. The closer the actual prices are to the average price, the lower the standard deviation.

these cases, extreme weather events were the trigger. The Winter of 2000/2001 remains the coldest Winter since that Winter, and 2005 saw extreme levels of hurricane activity in the Gulf of Mexico (*viz*., Katrina and Rita) that significantly affected natural gas infrastructure and production in the Gulf of Mexico.

d. LG&E believes well-constructed PBR mechanisms encourage LDCs to take actions that provide benefits to customers irrespective of the price environment in which they operate.

As described in the response to Question No. 4, the Commission has a long history of supporting the use of "well constructed" PBR mechanisms as a means to achieve superior gas cost performance.

Also, as stated in LG&E's 2019 Report:

> These mechanisms were designed to incentivize local distribution companies ("LDCs") to optimize their gas supply portfolios within the prevailing marketplace in order to provide lower gas costs to customers without diminishing reliability. Natural gas markets in the U.S. continue to undergo significant changes. The general increase in the availability of natural gas is only part of the story. Demands from new, non-traditional sectors are changing the marketplace for natural gas and pipeline services. Through portfolio optimization LDCs respond to these marketplace changes and achieve benefits for customers beyond those that may otherwise have been produced by a prudence standard alone. Well-designed gas supply cost PBR mechanisms encourage optimization along the whole range of gas supply activities, both daily and over much longer periods. Encouraging optimization is important in today's evolving markets for natural gas and interstate pipeline services." (2019 Report at pp. 1 – 2.)

LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Commission Staff's First Request for Information
Dated February 6, 2020

Case No. 2019-00437

Question No. 2

Witness: J. Clay Murphy / Pamela L. Jaynes

Q-2. Refer to the Murphy Testimony, page 4, in which Mr. Murphy states that LG&E is proposing to alter the sharing percentages and threshold to make them consistent with those found in other Kentucky gas supply cost PBR mechanisms. Provide a list of the other Kentucky gas utilities that have a PBR mechanism, and compare and contrast LG&E's current and proposed mechanism to the other gas utilities' PBR mechanisms.

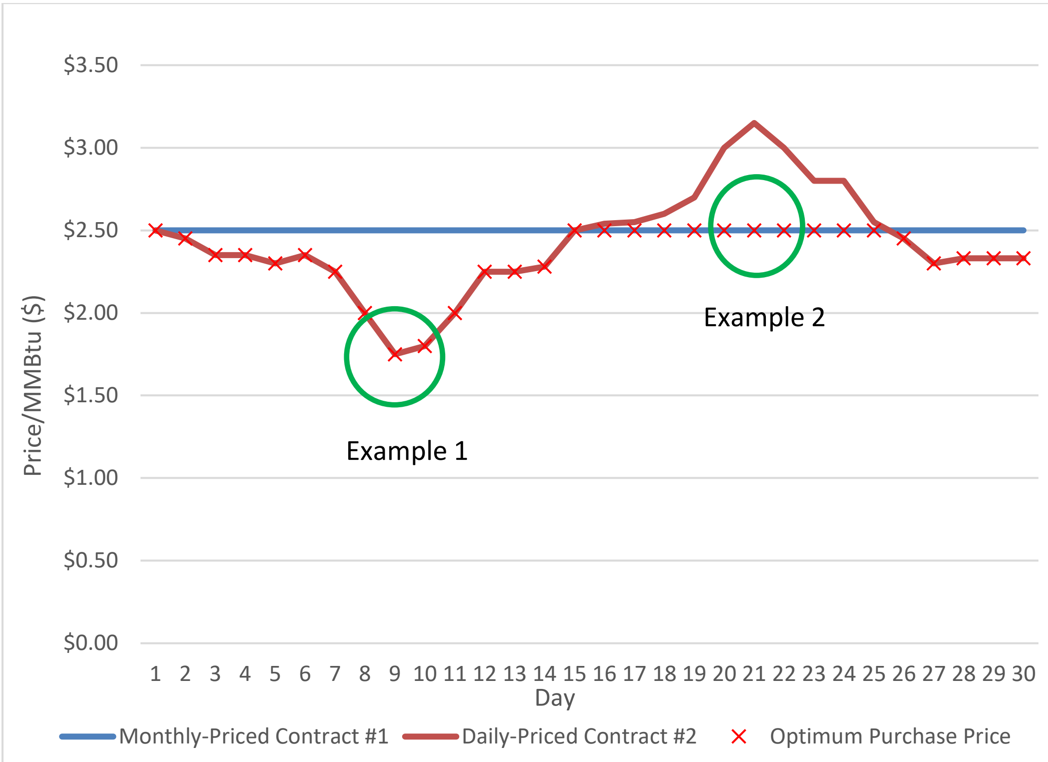
A-2. Atmos Energy Corporation ("Atmos"), Columbia Gas of Kentucky ("Columbia"), and LG&E each have gas supply cost PBR mechanisms. LG&E is not aware of any other Kentucky LDCs that have voluntarily implemented natural gas PBR mechanisms.

The PBR mechanisms of Atmos, Columbia, and LG&E are similar in that they each benchmark similar kinds of gas costs (commodity, transportation, and off-system sales). The gas transportation and off-system sales components of the three mechanisms are very similar; however, there are some important, perhaps significant differences in the gas acquisition benchmarks under the three mechanisms. The differences in the benchmarking mechanisms are important for two reasons. From LG&E's perspective, its benchmarking mechanism is more fully aligned with least cost purchasing strategies. As a result, it incorporates higher risks for LG&E than the level found in the other two LDC's PBR mechanisms. Yet, despite LG&E's higher risk level, LG&E has a lower level of reward when compared to the other two LDCs.

The combination of three particular features found in the gas acquisition component of LG&E's mechanism make it more aligned with a least-cost purchasing strategy: (1) the use of three time-dependent (monthly, weekly, and daily) indices for each supply zone; (2) the use of supply zone firm quantity entitlements ("SZFQE%") to weight benchmark indices; and (3) the ability to benchmark and use delivered supplies.

<u>Time-Dependent Indices</u>: LG&E's PBR mechanism benchmarks all supply zone purchases against an average of three time-dependent indices: a monthly index, a weekly index, and a daily index. Natural gas markets move every day and the indices used by LG&E reflect those price movements over the respective periods. The inclusion of time-dependent price postings used as benchmarks encourages LG&E to maximize purchases of gas at first-of-month prices when prices are rising and maximize the purchases of gas at

daily prices when prices are falling. Below is a chart showing typical price movement during a month.



In Example 1, LG&E optimizes its supply contracts to purchase gas with the <u>lowest cost</u> in order to maximize savings by discontinuing the purchase of gas priced at the first-of-the-month and instead purchasing gas priced at a daily index.

- Volume Purchased: 10,000 MMBtu/day
- Supply Contracts
  - Monthly-Priced Contract #1: $2.50/MMBtu for current month
  - Daily-Priced Contract #2: $1.75/MMBtu for Day 9
- Optimize portfolio by substituting lower daily-priced supply for higher monthly-priced supply
- Savings: ($2.50 - $1.75) x 10,000 MMBtu = $7,500

In Example 2, LG&E optimizes its supply contracts to purchase gas with the <u>lowest cost</u> in order to maximize savings by discontinuing the purchase of gas priced on a daily basis and instead purchasing gas priced at a first-of-month index.

- Volume Purchased: 10,000 MMBtu/day
- Supply Contracts
  - Monthly-Priced Contract #1: $2.50/MMBtu for current month
  - Daily-Priced Contract #2: $3.15/MMBtu for Day 21

- Optimize portfolio by substituting lower monthly-priced supply for higher daily-priced supply
- Savings: ($3.15 - $2.50) x 10,000 MMBtu = $6,500

LG&E optimizes its gas supply portfolio and achieves lower gas costs by maximizing purchases of daily-priced gas when prices fall below monthly prices and minimizing purchases of daily-priced gas when prices rise above monthly prices. LG&E's benchmark is based on a combination of daily, weekly and monthly prices, that encourages it to continuously manage its gas supply purchases in order to outperform the benchmark and create savings. Columbia's PBR mechanism works similarly in this regard.

LG&E's understanding of Atmos's PBR mechanism is that this risk is not included because Atmos segregates its supplies into Base Load and Swing Supplies. Base Load purchases are benchmarked against NYMEX and a first-of-month index while Swing Supplies are benchmarked against a daily index. The result is that Atmos' Base Load purchases are not subjected to downward price risk, and its Swing Supplies are not subject to upward price risk.

<u>Supply Zone Firm Quantity Entitlements ("SZFQE%")</u>: LG&E's PBR mechanism is the only mechanism that incorporates the use of the SZFQE%. The use of the SZFQE% promotes a least-cost acquisition standard by structuring the benchmark so as to include all potential supply zone choices available to LG&E. By weighting all possible supply choices in the calculation of the benchmark, the benchmark encourages LG&E to purchase gas in the lowest cost supply zone first and creates risk of loss under the PBR mechanism if it does not. It is LG&E's understanding of the PBR mechanisms of Atmos and Columbia that they do not incorporate the risk created by the SZFQE% feature. Instead, their mechanisms benchmark the supply zone purchase against a benchmark that includes only gas for the zone of purchase, leaving the LDC free to purchase gas in the zone that results in the greatest savings under the PBR rather than in the zone with the lowest cost.

LG&E's benchmark incorporates a weighted average of contractual supply zone entitlements that encourages LG&E to continuously manage its gas supply purchase options by zone in order to outperform the benchmark and create savings. As an example, below is a table showing supply zone entitlements and prices:

Supply Zone	Pipeline Entitlement (in MMBtu)	Supply Zone Percent	Price/ MMBtu	Benchmark	Difference
A	10,000	40%	$2.00	$2.07	$0.07
B	15,000	60%	$2.05	$2.20	$0.15
	25,000	100%			

In this example, LG&E purchases 5,000 MMBtu in Zone A (the zone with the lowest cost) in order to maximize savings <u>and</u> provide the least costs supply to the customer (5,000 @

$2.00 = $10,000), and not Zone B where the purchase cost would be $10,250 (5,000 @ $2.05 = $10,250).

- Benchmark Gas Cost Component (BMGCC):

Zone A:	40% x 5,000 x $2.07 = $	4,140
Zone B:	60% x 5,000 x $2.20 = $	6,600
	$	10,740

- Savings: Zone A: $10,740 - $10,000 = $740
  Not: Zone B: $10,740 - $10,250 = $490

Gas purchased in Zone A produces the greatest savings by purchasing gas at the lowest cost. LG&E optimizes its gas supply portfolio and achieves lower gas costs by maximizing purchases of gas in lower cost zones and minimizing purchases of gas in higher cost zones.

A well-designed mechanism should not encourage "savings" at the expense of least cost acquisition principles. Without the use of the supply zone entitlement in constructing the benchmark, an LDC would be encouraged to purchase gas in the zone with the biggest difference between the price and the benchmark in order to maximize "savings", as follows:

- Volume Purchased: 5,000 MMBtu purchased in Zone B
  (5,000 @ $2.05 = $10,250)

- Zone B Benchmark: $11,000 (5,000 @ $2.20)
- Zone A Benchmark: $10,350 (5,000 @ $2.07)

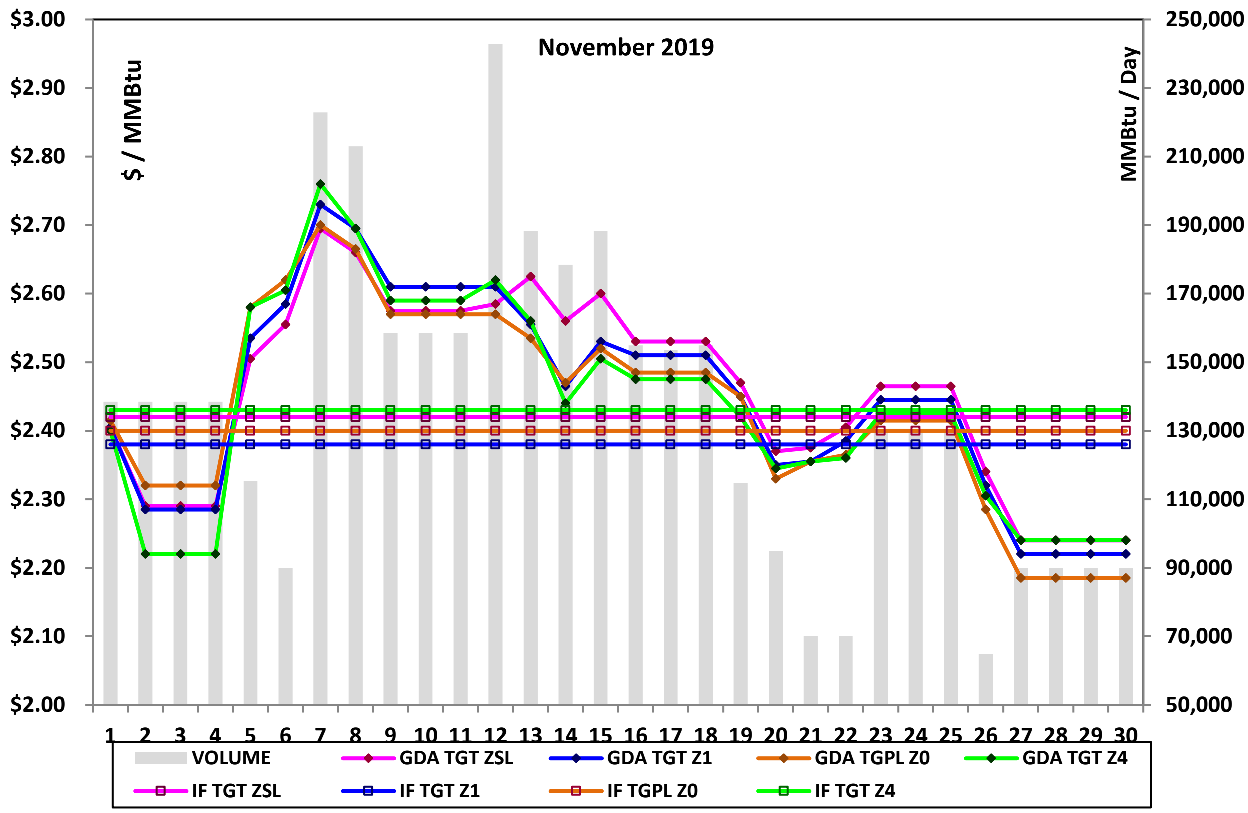
- Savings: Zone B: $11,000 - $10,250 = $750
  Not: Zone A: $10,350 - $10,000 = $350

- Gas purchased in supply Zone B has the greatest "savings" but produces a higher gas cost ($10,250 vs $10,000)

Neither Atmos nor Columbia utilize the SZFQE% concept. The result is that supplies are benchmarked only against the index representative of the zone in which those supplies were purchased. This can have the result of encouraging the purchase of supplies in the zone which will yield the biggest discount to the benchmark, not in purchasing gas in the lowest cost zone from which the LDC can choose.

Delivered Supplies: LG&E includes delivered supply in its portfolio because it can be a cost-effective way to procure reliable gas supplies without the expense of holding pipeline capacity. Because of the nature of these kinds of supply and because of the absence of a readily available and applicable price posting, LG&E has constructed a benchmark ("Delivered Area Index") to account for these purchases. While Atmos's PBR mechanism also includes a benchmark for delivered supplies, Columbia's PBR mechanism does not. Without an appropriately structured benchmark, it would not be feasible for an LDC to use these kinds of supplies.

Importantly, optimization does not occur in a vacuum, and it does not occur without risk of loss. Prices change throughout the month. The relationship of supply zone prices to each other changes throughout the month. Purchase decisions must be made in advance of perfect knowledge about weather, prices, and the relationship of supply zone prices to each other. System operational requirements dictate when gas supply purchases must be made irrespective of supply prices. The chart below shows price movement during a given month and the purchase volumes required to meet system load on a given day. The optimization that occurs under the PBR mechanism takes place in a dynamic environment where many factors come into play. The table below shows how prices move during the month and how system gas needs must be met irrespective of price movements. It is not always possible to avoid making purchases at above benchmark levels when demand is high, and it is not always possible to maximize purchases at below the benchmark level when demand is low.



In order to take into account the higher risk level assumed by LG&E in its PBR mechanism, in Case No. 2014-00476 LG&E proposed to change the PBR sharing mechanism then in effect. At the time, all savings (or expenses) up to 4.5% of the benchmarked gas costs were subject to a 25/75 Company/Customer sharing percentage with amounts in excess of 4.5%

of the benchmarked gas costs shared at the 50/50 level. In that case, LG&E proposed a more balanced sharing of risks and rewards, that is, a 30/70 Company/Customer sharing for all amounts up to 2.0% of the benchmarked gas costs and any amounts in excess of 2.0% of the benchmarked gas costs shared at the 50/50 level. That proposed sharing mechanism was (and is currently) the same as the sharing mechanism approved for Atmos and Columbia in their respective PBR mechanisms. Instead of the sharing mechanism proposed by LG&E in that case, the Commission approved a sharing mechanism with a 25/75 Company/Customer sharing for all savings (and expenses) up to 3.0% of the benchmarked gas costs and any amounts in excess of 3.0% shared at the 50/50 level. In approving that change, the Commission stated that "a change from the current sharing levels to a 70/30 sharing of variances from 0 to 2 percent is too abrupt."[38] LG&E is requesting in this application to complete the transition to the sharing mechanism originally proposed by LG&E in Case No. 2014-00476, specifically, a 30/70 Company/Customer sharing for all amounts up to 2.0% of the benchmarked gas costs and with any amounts in excess of 2.0% of the benchmarked gas costs shared at the 50/50 level. See also the response to Question No. 15. LG&E's proposed sharing mechanism will better reflect the risks inherent in its PBR mechanism when compared to the risks found in the PBR mechanisms of Atmos and Columbia.

[38] See Order in Case No. 2014-00476 dated June 30, 2015 at p. 6.

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Dated February 6, 2020

Case No. 2019-00437

Question No. 3

Witness: J. Clay Murphy / Pamela L. Jaynes

Q-3. Refer to the application generally, and state whether any LG&E affiliate local distribution company (LDC) now operates, or has ever operated, under a gas procurement PBR mechanism. If so, provide details of the mechanism.

A-3. LG&E has no affiliated local gas distribution companies.

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Dated February 6, 2020

Case No. 2019-00437

Question No. 4

Witness: J. Clay Murphy / Pamela L. Jaynes

Q-4. Refer to the application, LG&E's Report to the Kentucky Public Service Commission on Gas Supply Cost Performance-Based Ratemaking Mechanism (Report), pages 1-2. Explain whether LG&E is encouraged to optimize its gas supply portfolio absent a PBR mechanism. If not, explain why not.

A-4. Absent a "well constructed" gas supply cost PBR mechanism, LG&E will follow the otherwise applicable guidance provided by the Commission in its Orders in Administrative Case No. 297[39] and amplified in Administrative Case No. 384[40] which states that "LDCs should maintain their objective of procuring wholesale natural gas supplies at market clearing prices, within the context of maintaining a balanced natural gas supply portfolio that balances the objectives of obtaining low cost gas supplies, minimizing price volatility and maintaining reliability of supply." (Order No. 384 dated July 17, 2001 at p. 18.) However, it should be noted that the Commission has a longstanding history of supporting performance-based ratemaking ("PBR") mechanisms as a means to achieve superior performance by LDCs can be found in these and other Orders issued by the Commission.

In its Order dated May 29, 1987, in Administrative Case No. 297, the Commission stated that "[a] policy allowing LDCs to retain a portion of gas savings below a benchmark level, if well constructed, could provide an additional incentive." (Order at p. 33.) Again, in its Order dated July 17, 2001, in Administrative Case No. 384, the Commission encouraged "LDCs to consider innovative approaches, such as PBRs, as a means of improving their existing gas procurement performance." (Order at p. 7.)

Additionally, in the "Comprehensive Management Audit of Louisville Gas and Electric Company for the Kentucky Public Service Commission" dated July 1995, it was recommended that LG&E "[i]nvestigate the use of Performance-Based Ratemaking as a means to improve the quality of service, reduce costs, and improve returns to shareholders." (Management Audit Report at p. 75.) The audit specifically recognized "Gas Procurement" as a potential subject for such mechanisms. (Audit Report at p. 51.)

[39] "An Investigation of the Impact of Federal Policy on Natural Gas to Kentucky Consumers and Suppliers"
[40] "An Investigation of Increasing Wholesale Natural Gas Prices and the Impacts of Such Increases on the Retail Customers Served by Kentucky's Jurisdictional Natural Gas Distribution Companies"

This recommendation was one that directly influenced LG&E to file with the Commission in Case No. 1997-00171 requesting such a mechanism.

In the 2002 Gas Procurement "Audit of Five Major Kentucky Gas Local Distribution Companies" performed for the Commission, the auditor recognized that the "[e]xistence of the PBR mechanism is always a factor for LG&E as it considers the optimal strategy for a gas supply plan, and the balance of demand versus supply resources, that will result in savings by responding to PBR incentives." (Procurement Audit Report at Page III.C.1.2)

By approving the implementation of and various extensions to LG&E's PBR mechanism over the years, the Commission has recognized the importance of PBRs in the gas procurement process. Since first approved in 1997, there have been four extensions covering 23 years of gas procurement activity.[41]

Gas supply cost PBR mechanisms are, and remain, a voluntary mechanism under which an LDC assumes risks not otherwise applicable absent a PBR mechanism. The elimination of an LDC's PBR mechanism would remove the current incentives for the LDC to outperform market-based benchmarks. Equally concerning would be the extension of a PBR mechanism that has been modified to include punitive changes or poorly constructed benchmarks that create harmful incentives or disincentives that would be detrimental to the LDC and its customers. For example, penalizing an LDC for past successes by creating a punitive mechanism would leave the LDC with no alternative but to seek relief from operating under such a mechanism.

Prior to the implementation of the PBR, LG&E could not foresee many of the innovations and optimization activities that have been encouraged by its PBR mechanism. Similarly, LG&E cannot fully evaluate the impact of either discontinuance of or Commission modifications to LG&E's PBR mechanism. However, such actions will require LG&E to re-evaluate its gas supply strategies, risk thresholds, and planning criteria. LG&E would still undertake some optimization activities, but its re-designed portfolio may provide less opportunity for optimization. Some optimization activities that may cease or be limited absent the presence of a well-constructed and properly incentivized PBR mechanism are as follows:

- Using contracts priced at first-of-month indices to avoid purchasing natural gas as prices move upward during the month

- Using contracts priced at a daily index to purchase natural gas during the month as prices fall

[41] See Case No. 1997-00171 dated September 30, 1997, Case No. 2001-00017 dated October 26, 2001, Case No. 2005-00031 dated May 27, 2005, Case No. 2009-00550 dated April 30, 2010, and Case No. 2014-00476 dated June 30, 2015.

- Shifting purchases made at a market price from one supply zone to another in order to capture a lower zonal price
- Releasing capacity
- Using factors other than operational need to assess pipeline capacity requirements and selection
- Using two-part pricing mechanisms to secure firm gas commodity
- Using term-limited contracting
- Making off-system sales
- Discontinuing use of city-gate deliveries (*e.g.*, deliveries made at LG&E's city-gate station on Tennessee and instead contracting directly with the interstate pipeline for transportation services)
- Seeking new gas supply counterparties
- Seeking out new pricing arrangements and mechanisms
- Discontinuing use of the "swing" methodology available under Texas Gas's Pre-Determined Allocation ("PDA") mechanism to inject gas into LG&E's storage account under Rate NNS
- Stop participating in open seasons for non-traditional capacity and supply sources
- Discontinuing use of storage optimization activities

Most importantly, the absence of a well-constructed PBR mechanism will stifle risk-taking and innovation designed to produce lower gas costs.

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Case No. 2019-00437

Question No. 5

Witness: J. Clay Murphy / Pamela L. Jaynes

Q-5. Refer to LG&E's Report, page 2, the first full sentence.

a. Provide examples and explain in detail the "new, non-traditional sectors" mentioned by LG&E that are changing the marketplace for natural gas and pipeline services.

b. Explain how these examples are affecting the natural gas procurement methods of LG&E.

A-5. a. The reference to demands from "new, non-traditional sectors" is a reference to gas used in electric generation, gas exports to Mexico, and LNG exports. See the response to Question No. 1(b).

b. In the response to Question No. 1(b), LG&E discussed non-traditional sectors impacting natural gas markets which need to be closely monitored to ensure that they do not impact supply reliability for LG&E's customers. LG&E has reacted in several specific ways:

- Contracting with non-traditional Marcellus and Utica suppliers which is especially challenging given the impact of credit downgrades on these producers

- Developing new types of transactions that help mitigate price volatility and enhance supply portfolio optimization

- Competing for firm natural gas supplies and firm pipeline transportation capacity with marketers, producers, and LNG exporters for capacity from non-traditional supply areas (*e.g.*, Texas Gas Transmission's Ohio-Louisiana ("OHLA") Project Open Season)

- Monitoring federal energy regulatory policy to prevent impact on cost and provisions of gas transportation services (*e.g.*, natural gas/electric coordination issues)

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Question No. 6

Witness: J. Clay Murphy / Pamela L. Jaynes

Q-6. Refer to the Report, page 3. Explain in full detail how LG&E's gas supply cost PBR mechanism encourages LG&E to enhance its position as an energy provider.

A-6. LG&E's gas supply cost PBR mechanism encourages LG&E to enhance its position as an energy supplier by rewarding it for seeking innovative supply arrangements and optimizing its gas supply and pipeline transportation portfolio in order to provide low cost and reliable gas supplies to customers.

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Case No. 2019-00437

Question No. 7

Witness: J. Clay Murphy / Pamela L. Jaynes

Q-7. Refer to the Report, page 4.

a. Explain whether the identified risks that LG&E undertakes would exist absent its PBR mechanism.

b. Identify and describe "expenses that might result under the mechanism."

c. Since LG&E's PBR mechanism was established, provide the percentage of total gas sales for which LG&E's purchase price was above the benchmark for that purchase.

A-7. a. LG&E's shareholders would not be subject to these risks absent the PBR mechanism. These risks would be borne by customers absent a finding of imprudence by the Commission. LDCs voluntarily subject themselves to the identified risks by agreeing to a PBR mechanism in return for a share of the savings produced under the mechanism. See also the response to Question No. 4.

b. The expenses that might result under the PBR mechanism are those that would result if LG&E does not outperform the benchmarks. If LG&E were not cognizant of the benchmarks and incentives found in the PBR mechanism and did not take actions to outperform the benchmarks, LG&E would be required to share in those expenses. See also the response to Question Nos. 1 and 4.

c. As set forth in the table below, LG&E estimates that about 23% of the gas commodity purchases were made at a price in excess of the weighted average monthly benchmark. In order to estimate this percentage, LG&E reviewed and sorted monthly transactional data, calculated the average monthly purchase price by transaction (or transaction type) and compared that average monthly purchase price to a weighted average monthly benchmark. Importantly, 77% of the gas commodity purchases contributed to savings under the PBR mechanism.

It should come as no surprise that some transactions perform better under some market conditions than others. For example, if prices fall throughout the month, then the purchases made at the beginning of the month must necessarily be at a higher price than the purchases made at the end of the month. This is a risk that LG&E assumes under the mechanism. It should equally be no surprise that in order to maintain system reliability, purchases must be made even when they exceed the benchmark. For example, if prices rise during the month, then LG&E may be required to make purchases that exceed the benchmark in order to preserve system reliability. This illustrates how the current PBR mechanism does not adversely impact system reliability. (See also the response to Question Nos. 9 and 10).

The table below provides important insights into two aspects of the gas commodity acquisition portion of LG&E's PBR mechanism. Firstly, this table illustrates that there are real risks under the PBR mechanism (specifically the risk that expenses will be incurred). Secondly, and as discussed in the response to Question No. 2 of the 2018 Procurement Audit in Case No. 2018-00302 (at pp. 4 – 6), LG&E has developed new strategies over time to enhance performance under the PBR mechanism. Such successful innovation and supply optimization are encouraged by LG&E's well-constructed PBR mechanism.

(1)	(2)	(3)	(4)
PBR Year	Total Purchase Volumes in MMBtu	Purchase Volumes in Excess of GAIF Benchmark in MMBtu	Percentage (Col. 3 / Col. 2)
19	30,822,330	11,621,548	38%
20	30,490,852	8,265,154	27%
21	36,732,577	6,395,211	17%
22	35,968,915	4,629,667	13%
Total	134,014,674	30,911,580	23%

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Question No. 8

Witness: J. Clay Murphy / Pamela L. Jaynes

Q-8. Refer to the Report, page 5.

a. Explain whether LG&E's PBR mechanism has ever resulted in shared expenses.

b. Explain why the "least cost acquisition" standard in purchasing natural gas supplies and pipeline transportation services does not exist absent LG&E's PBR mechanism.

A-8. a. Some components of LG&E's PBR mechanism have resulted in expenses for some months. See the response to Question No. 13 and Appendix B of LG&E's 2019 report. On the whole, LG&E has been able to offset these expenses with savings in other months so that the each PBR Year has resulted in savings for customers and the Company.

b. See the response to Question No. 4.

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Case No. 2019-00437

Question No. 9

Witness: J. Clay Murphy / Pamela L. Jaynes

Q-9. Refer to the Report, page 6. Explain in full detail how "LG&E's PBR mechanism does not provide incentives that could encourage it to take risks that reduce reliability in order to achieve lower costs."

A-9. LG&E's PBR mechanism does not encourage it to take risks that reduce reliability because the rewards under the mechanism are not great enough to overcome the costs associated with restoring gas customer outages and the related "brand damage" that could result from unreliable contracting practices.

Adequate firm interstate pipeline transportation services are important to providing reliable gas service. As currently constructed, LG&E's PBR mechanism uses the FERC-approved rate for interstate pipeline capacity which encourages LG&E to negotiate a discount for pipeline capacity where possible. Importantly, this benchmark does not discourage LG&E from purchasing the volume or type of firm capacity (*i.e.,* NNS, FT) required to reliably serve customers. Changing the benchmark to something other than or lower than the FERC-approved rate could encourage an LDC to purchase less firm capacity and more recallable or interruptible interstate pipeline capacity in hopes of "beating" the benchmark. It could also discourage an LDC from participating in pipeline Open Seasons that provide access to new supply areas, such as the one LG&E successfully participated in to gain access to supply in the Marcellus/Utica production areas.

Adequate firm gas supplies are also important to providing reliable gas service. As currently constructed, LG&E's PBR mechanism establishes benchmarks that encourage it to purchase firm, least-cost supplies from the supply areas that it can access. Importantly, these benchmarks do not discourage LG&E from purchasing the volume of gas required to serve customers regardless of the market price. The use of the Delivered Area Index ("DAI") also encourages LG&E to purchase firm delivered supply where possible as a less expensive alternative to contracting for additional pipeline capacity. LG&E would not be willing to risk supply reliability in exchange for a lower price offered by a non-credit-worthy supplier.

See also the response to Question No. 10.

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Case No. 2019-00437

Question No. 10

Witness: J. Clay Murphy / Pamela L. Jaynes

Q-10. Refer to the Report, page 7, paragraph 2.

a. Provide whether LG&E would diminish its efforts to maintain service reliability for the benefit of its customers if LG&E's PBR mechanism were discontinued.

b. Explain whether LG&E seeks to purchase the lowest cost natural gas to provide to its customers regardless of whether it has a PBR mechanism or not.

A-10. a. Because LG&E's PBR mechanism does not encourage it to take actions that would diminish reliability, discontinuance of the PBR mechanism would have no impact on reliability. See also the response to Question No. 9.

b. See the response to Question No. 4.

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Question No. 11

Witness: J. Clay Murphy / Pamela L. Jaynes

Q-11. Refer to the Report, pages 9-10, and LG&E's January 2, 2018, December 28, 2018, and December 27, 2019 Performance-Based Ratemaking Mechanism Reports, Section PBR-TIF.[42]

a. Explain why the monthly savings are not volumetric in nature.

b. Explain whether LG&E could be required to pay rates above the FERC-approved tariff rates.

A-11. a. During the PBR years referenced in the question (Years 20, 21, and 22), LG&E did not receive a discount on the volumetric component of the rates associated with its interstate gas pipeline services. During that time frame, LG&E received a discount only on the demand portion of the rate for some services. Hence, during those years there are no volumetric-related savings. However, during Year 19, LG&E did receive and reported volumetric-related savings of $177,325. The underlying transportation agreements (including the associated discount agreements) were terminated effective November 1, 2016. This capacity was replaced by LG&E with transportation capacity that allows LG&E to purchase gas originating in the Marcellus and Utica area.

This illustrates that pipelines control the extent, nature, and timing of the discounts (if any) that they are willing to offer and that those discounts can change depending on market conditions and other factors.

b. LG&E has not paid more than the FERC-approved transportation rate for any interstate pipeline transportation service. In part, this is due to the fact that LG&E has undertaken a rigorous and robust gas supply plan that ensures that LG&E is able to contract for a pipeline service in advance of some unforeseen requirement that may cause it to incur gas transportation costs in excess of the FERC-approved transportation rate for that service. See the response to Question Nos. 16(a), 16(i), and 16(j).

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[42] Case No. 2014-00476, *Louisville Gas and Electric Company's Proposed Renewal and Modification of Its Performance-Based Ratemaking Mechanism* (Ky. PSC June 30, 2015).

It is possible to pay in excess of the FERC-approved transportation rate in at least two different ways:

(a) FERC has regulations in place regarding the release of pipeline capacity from one shipper to another. Under FERC's capacity release regulations, when the term for the capacity release is more than 31 days and not more than one year, the rate for the release is not capped by the pipeline's maximum tariff rate. Instead, the release is subject to bid and may be awarded to the highest bidder irrespective of the applicable maximum FERC-approved rate.

(b) FERC's negotiated rate program allows an interstate pipeline and its customers to negotiate the level of the rates for service. This program affords both the pipeline and the customer greater flexibility than that offered under FERC's discounted rate program. Specifically, negotiated rates may exceed the applicable maximum tariff rates and may deviate from the tariff's rate structure. By way of example, negotiated rates may be required to support a level of pipeline investment required to offer a service that would not be supported by the tariff rates. These negotiated rate agreements must be filed with and accepted (but not approved) by FERC because FERC's assumption is that sophisticated parties will bargain for rates that are just and reasonable.

While LG&E may not have paid in excess of the FERC-approved rate for pipeline services, LG&E has, and does, pay the FERC-approved rate when a discount cannot be achieved. The Natural Gas Act ("NGA") requires that rates charged for interstate pipeline services be "just and reasonable." Under cost-of-service ratemaking, rates are designed based on a pipeline's cost of providing service including an opportunity for the pipeline to earn a reasonable return on its investment. FERC sets rates for interstate pipeline services in various ways. The two most important of these are under either Section 4 or Section 5 of the NGA. The benchmarks for gas transportation costs under the gas supply cost PBR mechanism are revised or reestablished each time these pipeline rates are reviewed and approved by FERC, which is the agency that has the authority over the rates of interstate pipelines. Therefore, whether or not a discount is achievable, the FERC-approved rates continue to be the appropriate benchmark for use in LG&E's PBR mechanism.

When a pipeline initiates a rate proceeding, it makes a filing with FERC under Section 4 of the NGA. In this case, FERC reviews all of a pipeline's rates and services. A pipeline can file a general Section 4 rate case anytime it wishes, provided the pipeline did not agree otherwise in a settlement. A pipeline has the burden to demonstrate that the new rates it proposes to charge are just and reasonable. A Section 4 proceeding may be either litigated or settled. In either case, FERC will eventually act either upon the settlement or upon the record in the hearing.

FERC also has authority under Section 5 of the NGA to require prospective changes in the rates charged by a pipeline when it can be demonstrated that the rates are no longer just and reasonable. FERC can initiate a Section 5 proceeding on its own motion or upon a complaint from an interested party. In a Section 5 proceeding, FERC has the burden of demonstrating that the currently effective rates of the pipeline are no longer just and reasonable and of establishing just and reasonable rates.

As discussed in LG&E's 2019 Report at pp. 9 – 10, the tariffed rates of Texas Gas and Tennessee have both recently been examined in the context of the income tax reductions provided by the Tax Cuts and Jobs Act of 2017 and FERC's income tax allowance policies. In the case of Texas Gas, FERC found that Texas Gas's financial data did not support further investigation into Texas Gas's tariffed rates, and Texas Gas's tariffed rates remain unchanged. See Texas Gas's Order in FERC Docket No. RP19-74 dated April 10, 2019. In the case of Tennessee, FERC approved a settlement among Tennessee and its customers to resolve all income tax issues and provide for lower pipeline tariffed rates as follows: an immediate reduction of 8.5% effective November 1, 2019, followed by three further reductions: a 2% reduction effective November 1, 2020, a 2% reduction effective November 1, 2021, and a 1% reduction effective November 1, 2022. All reductions are expressed as a percentage of the Tennessee tariffed rates in effect as of November 1, 2018. See Tennessee's Order in FERC Docket No. RP19-351 dated May 24, 2019. The reduction in Tennessee's tariffed rates does not impact the discounted rates being paid by LG&E.

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Question No. 12

Witness: J. Clay Murphy / Pamela L. Jaynes

Q-12. Refer to the Report, page 10.

a. Explain whether LG&E evaluates the cost-effectiveness of negotiating discounts from firm transportation rates over the life of the contract or a shorter period.

b. Explain how taking advantage of shorter-term capacity release opportunities is reflected in LG&E's PBR mechanism.

A-12. a. LG&E evaluates the value of the pipeline discount over the life of the transportation agreement along with other price and non-price factors. Therefore, where practical, LG&E may consider multiple contract terms with potentially different pricing arrangements as a part of an evaluation.

b. LG&E's capacity release activity is reflected in the TIF component of its PBR mechanism. Savings (or losses) under that component are calculated by comparing the actual transportation costs to the benchmarked transportation costs. Any capacity release activity is reflected by the pipeline as a revenue credit on the invoice it renders to LG&E, thus reducing actual gas costs. LG&E received the following capacity release revenue credits for PBR Years 19 through 22:

PBR Year	Month	Dollars
19	None	$0
20	November 2016	$7,500
20	March 2017	$1,550
21	April 2018	$6,900
22	None	$0
Total		$15,950

LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Commission Staff's First Request for Information
Dated February 6, 2020

Case No. 2019-00437

Question No. 13

Witness: J. Clay Murphy / Pamela L. Jaynes

Q-13. Refer to the Report, page 11 . State whether LG&E has ever incurred out-of-pocket costs for off-system sales of natural gas that exceeded the benchmark.

A-13. Under LG&E's PBR mechanism, for an off-system sale of natural gas, the out-of-pocket cost is the benchmark. Each time LG&E enters into an off-system sale, LG&E incurs an out-of-pocket cost. LG&E has not incurred a loss under the current mechanism while making an off-system sale. The most significant risk of loss under an off-system sale is that the counterparty will not reimburse LG&E for the gas sold.

LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Commission Staff's First Request for Information
Dated February 6, 2020

Case No. 2019-00437

Question No. 14

Witness: J. Clay Murphy / Pamela L. Jaynes

Q-14. Refer to the Report, page 12, in which LG&E asserts that its PBR mechanism is generally flexible enough to allow it to respond appropriately. Also, refer to the Report, page 15, paragraph 2, in which LG&E requests that the Commission authorize the requested extension and modification of its PBR mechanism no later than June 1, 2020, because it needs four months to adjust its gas supply portfolio and supply strategies.

a. Reconcile these two statements of flexibility to allow LG&E to respond appropriately versus the need for four months' notice to adjust gas supply portfolios and strategies.

b. Explain how the PBR modifications proposed by LG&E would require four months to adjust its gas supply portfolio and supply strategies should it be approved by the Commission.

A-14. a. The reference on page 12 of the 2019 Report is an assertion that LG&E's gas supply PBR mechanism is flexible enough to respond to changing market conditions. The two immediately preceding sentences state: "The market for natural gas and interstate pipeline services is a continually evolving one. LG&E's gas supply strategies have evolved and must continue to evolve with the market in order to continue to achieve positive results under the PBR mechanism."

The reference on page 15 of the 2019 Report states that authorization by June 1, 2020 "will allow LG&E adequate time to adjust is gas supply portfolio and supply strategies in response to LG&E's proposed modifications to the PBR mechanism prior to the new mechanism becoming effective November 1, 2020."

In the context in which they were written, the first statement is a reference to external market factors, and the second statement is a reference to internal changes in the PBR mechanism. If the PBR incentives change, then LG&E requires time to align its portfolio with those changes in order to produce positive results for both customers and LG&E. In June, LG&E is finalizing the design of its gas supply portfolio for the upcoming Winter and that is why LG&E is requesting an extension and modification of its PBR Mechanism by June 1, 2020. For example, LG&E has requested to include the New York Mercantile Exchange ("NYMEX") price in its gas commodity benchmarks. (See 2019 Report at pp. 12 -13.) As explained therein "[t]his additional benchmark would expand LG&E's gas supply contracting opportunities similar to those provided for in the mechanism of Atmos Energy Corporation which also includes NYMEX as a benchmark." If the Commission approves this modification, then LG&E would like time to consider this contracting opportunity in its planning process.

b. As referenced above, LG&E did not request a four-month notice period to adjust its portfolio. Instead, LG&E requested a specific date of June 1 to adjust its gas supply portfolio that will be in place for the 2020/2021 Winter beginning November 1, 2020, the start of the gas contracting year. This request is consistent with prior requests in previous renewals of LG&E's PBR mechanisms. Early Summer is the time frame in which LG&E (and many other LDCs) are putting gas supply arrangements in place for the following Winter.

LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Commission Staff's First Request for Information
Dated February 6, 2020

Case No. 2019-00437

Question No. 15

Witness: J. Clay Murphy / Pamela L. Jaynes

Q-15. Refer to the Report, page 14, and the Report, Appendix A. For the period of November 1, 2015, through October 31, 2019, provide the savings portions using LG&E's proposed ratios and threshold in this case.

A-15. The table below shows the recalculated customer and shareholder portions of the PBR results for Years 19, 20, 21, and 22 using the sharing mechanism proposed in this proceeding. See also the response to Question No. 2.

	(1)	*(2)*	*(3)*	*(4)*	*(5)*
Year	*Total Savings*	*Customer Portion*	*Shareholder Portion*	*Total Actual Gas Supply Costs*	*Percentage By Year*
					(1) / (4)
19	*$3,852,257*	*$2,313,162*	*$1,539,095*	*$96,758,276*	*3.98%*
20	*$3,866,311*	*$2,379,656*	*$1,486,655*	*$111,625,084*	*3.46%*
21	*$5,862,580*	*$3,429,721*	*$2,432,859*	*$124,607,779*	*4.70%*
22	*$7,145,317*	*$4,031,418*	*$3,113,899*	*$114,689,853*	*6.23%*
	$20,726,465	*$12,153,957*	*$8,572,508*	*$447,680,992*	*4.63%*

*** Savings/Expenses are shared 30% to Company and 70% to Customer up to 2.0% of benchmarked costs; above 2.0% savings are shared 50%/50%.*

LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Commission Staff's First Request for Information
Dated February 6, 2020

Case No. 2019-00437

Question No. 16

Witness: J. Clay Murphy / Pamela L. Jaynes / Shannon L. Charnas / Thomas A. Jessee

Q-16. Refer to LG&E's responses to Commission Staff's (Staff) requests for information regarding LG&E's gas procurement methodology (Staff's gas procurement methodology request) included in its Gas Cost Adjustment (GCA) report in Case No. 2018-00302.[43] Provide all updates available to the natural gas procurement practices of LG&E as requested below.

a. Provide copies of all interstate pipeline transportation and storage contracts and tariffs utilized during the most recent year. Further, provide a comparison of the terms of these transportation arrangements with those that have been utilized since Staff's gas procurement methodology request. Explain all efforts to ensure that interstate pipeline transportation costs were and remain at the lowest possible cost.

b. Provide all updated copies of all current contracts for commodity supply, updated to reflect any changes made subsequent to Staff's request regarding gas procurement methodology. Provide a comparison of the terms of these commodity supply arrangements with those that were utilized during the five previous calendar years. Provide an explanation of all efforts to ensure that commodity gas supply costs were and remain at the lowest possible cost, consistent with security of supply.

c. Provide updated gas supply and capacity contract summaries showing significant contract terms; daily, monthly, and annual entitlements; and pricing. Identify any capacity changes (renegotiated and expired agreements, contract cancellations, assignments, or long-term re leases) since Staff's gas procurement methodology request.

d. Provide an update of LG&E's storage arrangements, and state the maximum daily injection and withdrawal rates and the decline in deliverability that occurs as gas is withdrawn, updated to reflect any changes occurring subsequent to Staff's request regarding gas procurement methodology.

[43] LG&E's responses to Commission Staff's requests for information in Case No. 2018-00302, *Electronic Purchased Gas Adjustment Filing of Louisville Gas And Electric Company* (filed Sept. 28, 2018 and redacted versions filed October 2, 2018).

e. Provide an update of the capacity of all peaking arrangements made since Staff's gas procurement methodology request.

f. Provide an updated copy of all written procedures in use by LG&E for nominations and dispatching since Staff's gas procurement methodology request.

g. If LG&E has utilized gas marketing/trading organizations to obtain gas supplies subsequent to Staff's gas procurement methodology request, indicate which organizations were employed, gas volumes purchased, prices, terms, and current contractual arrangements between LG&E and these marketing firms.

h. Provide a summary of the Request for Proposal or bidding process for gas supply since Staff's gas procurement methodology request that provides the original bid documents, a listing of the suppliers that were contacted, the responses to the request for bid, the evaluation process that led to the selection of a supplier, and any written procedures that exist for this activity.

i. Provide an updated copy of LG&E's most recent gas supply plan and a written description of its gas supply planning process since Staff's gas procurement methodology request.

j. Provide an updated narrative description of any supply-planning computer models currently being used by LG&E, or being considered for future use, since Staff's gas procurement methodology request.

k. Provide updated organization charts of the overall corporate organization and of the gas planning, gas purchasing, and gas operations functions subsequent to Staff's gas procurement methodology request. Describe any changes that have occurred in the corporate, gas planning and purchasing, and gas operations organizations since Staff's gas procurement methodology request, and describe any changes that are underway or contemplated within the next five years.

l. Provide job descriptions of the personnel working in the gas planning, gas purchasing, and gas operating functions.

m. Provide updated copies of reports or internal audits or reviews of any aspect of the supply function conducted since Staff's gas procurement methodology request. Include reports prepared by LG&E and outside auditors.

n. Provide an updated copy of LG&E's strategic plan with primary emphasis on gas procurement, transmission, delivery, and expansion, including all significant related capital expenditures since Staff's gas procurement methodology request.

A-16. a. For gas supply activity covering the most recent gas contract year (12 months ended October 31, 2019), the capacity contracts with interstate pipelines under Rates NNS, FT, and FT-A are the same as those provided in LG&E's response to Commission Question No. 1 from Case No. 2018-00302 ("2018 Procurement Audit").

As discussed in LG&E's Response to Commission Question No. 1, page 3 of 9, of the 2018 Procurement Audit, the "2-year" NNS contract was subject to termination October 31, 2020. This contract has been extended for an additional 5-year roll-over term through October 31, 2025. No new contractual documents were required to be executed.

There have been no changes to the terms and conditions of these transportation arrangements since the description was provided in LG&E's response to Commission Question No. 1 of the 2018 Procurement Audit except as noted herein.

Except as noted herein, LG&E incorporates by reference its response to Commission Question No. 1 of the 2018 Procurement Audit.

The following updated information has been included as attachments to this response:

- Annual Pipeline Statistics for November 1, 2018, through October 31, 2019

- Texas Gas Tariff Sheets applicable to service from November 1, 2018 through October 31, 2019:
    - Fuel Retention Percentages for Service under Rate Schedule NNS (applicable to service from November 1, 2018 through October 31, 2019)
    - Rate Schedule NNS
      (revision effective October 9, 2019)

- Texas Gas Tariff Sheets:
    - Fuel Retention Percentages for Service under Rate Schedule FT (applicable to service from November 1, 2018 through October 31, 2019)

- Tennessee Tariff Sheets:
    - Rates for Service under Rate Schedule FT-A
      (applicable to service from November 1, 2018 through October 31, 2019)
    - Fuel and EPCR for Service under Rate Schedule FT-A
      (applicable to service from November 1, 2018 through October 31, 2019)

b. Attached are copies of the following documents with respect to LG&E's contracts for gas commodity supply in effect from November 1, 2018, through October 31, 2019. These documents include the following:

- all new base forms of agreement effective since LG&E's filing in Case No. 2018-00302 under which LG&E was able to purchase gas supplies; these base forms of agreement set forth the framework for a potential gas commodity transaction such as billing, payment, title transfer, etc., but do not include the specifics with respect to a particular transaction such as price, volume, or duration (term)

- a listing of base forms of agreement terminated since LG&E's filing in Case No. 2018-00302 under which LG&E was able to purchase gas supplies

- a summary of the key terms and conditions of the gas supply commodity transactions in effect from November 1, 2018, through October 31, 2019, taken from the below referenced Nomination Schedules

- all Nomination Schedules in effect from November 1, 2018, through October 31, 2019, which reference and are Exhibits to the above base forms of agreement which memorialize gas supply transactions, including the specifics of each transaction with respect to price, volume, and duration (term), but excluding transactions for a single day or weekend

As with the inquiry conducted in Case No. 2018-00302, LG&E has not included Nomination Schedules associated with the purchase of any daily gas supplies simply because they are voluminous. However, any updates to the bid solicitations and the awards associated with each daily purchase is provided in LG&E's response to Commission Question No. 1-16(h). These purchases are made under the same base forms of agreements provided herewith and in order to satisfy either daily changes in load requirements or to optimize LG&E's gas supply portfolio as discussed, for example, in any updates to LG&E's response to Commission Question No. 1-16(f).

Except as noted herein, LG&E incorporates by reference its response to Commission Question No. 2 of the 2018 Procurement Audit.

The following updated information has been included as attachments to this response subject to a Petition for Confidential Treatment:

- Annual Supply Statistics for: November 1, 2017, through October 31, 2018 (the original submission in Case No. 2018-00302 included 2 months estimated and has been revised to include actual data) and Annual Supply Statistics for November 1, 2018, through October 31, 2019

- A copy of all base forms of agreement and contractual documentation reflecting name changes and assignments effective since LG&E's filing in Case No. 2018-00302

- A list of base forms of agreement terminated since LG&E's filing in Case No. 2018-00302 under which LG&E was able to purchase gas supplies

- A summary of all transactions in effect from November 1, 2018, through October 31, 2019, (excluding transactions lasting only a single day or weekend)

- The Nomination Schedules for each of the transactions from November 1, 2018, through October 31, 2019, (excluding transactions lasting only a single day or weekend)

c. A discussion of any updates to LG&E's gas transportation contracts and capacity summaries is included in LG&E's response to Commission Question No. 1-16(a). That response includes a discussion of any updates to significant contract terms, daily/monthly/annual entitlements, and pricing. LG&E's response to Commission Question No. 1-16(a) includes any updates to capacity changes (renegotiated and expired agreements, de-contracting, assignment, or long-term release) that have taken place during 2019.

   A discussion of any updates to LG&E's gas supply contracts and related transactions is included in LG&E's response to Commission Question No. 1-16(b). That response includes a discussion of any updates to significant contract terms, daily/monthly/annual entitlements, and pricing.

d. LG&E's off-system storage arrangements are made under Texas Gas's No-Notice Service ("NNS") which is a bundled service that includes pipeline transportation capacity and storage service. As such, the injection and withdrawal parameters associated with off-system storage are discussed in LG&E's response to Commission Question No. 1-16(a).

   Parameters associated with LG&E's on-system storage are included with the 2019 Annual Gas Supply Plan provided in LG&E's response to Commission Question No. 1-16(i). Specifically, LG&E's on-system storage injection parameters can be found in Exhibit V of Exhibit 4 of the 2019 Annual Gas Supply Plan; and LG&E's on-system withdrawal parameters can be found in Exhibit V of Exhibit 4 of the 2019 Annual Gas Supply Plan.

e. There has been no change in the information submitted by LG&E in response to Commission Question No. 5 of the 2018 Procurement Audit. Updated information with respect to storage facilities, pipeline transportation services and gas supply agreements have been identified in response to Commission Questions Nos. 1-16(a), 1-16(b), 1-16(c), and 1-16(d).

f. The summary of the process for nominating and dispatching gas supplies provided in LG&E's response to Commission Question No. 6 of the 2018 Procurement Audit is unchanged. The written procedures themselves have undergone minor changes and updates and are provided herewith.

The following written procedures have been included as attachments and are used by LG&E's Gas Supply Department in support of its gas supply nomination and dispatching process:

- Section 2.9: "Determination of Volumes of Natural Gas to Dispatch and Purchase"; original submission dated October 1, 2016; revised submission dated August 1, 2019

- Section 2.10: "Compliance with Pipeline Services"; original submission dated June 1, 2018; revised submission dated August 1, 2019

- Section 2.11: "Nominations to Texas Gas"; original submission dated April 1, 2018; revised submission dated August 1, 2019

- Section 2.12(a): "Nominations to Tennessee Utilizing LG&E's Firm Pipeline Capacity"; original submission dated October 1, 2016; revised submission dated August 1, 2019

- Section 2.12(b): "Verifying Supplier Nominations to Tennessee Utilizing Supplier's Pipeline Capacity"; original submission dated October 1, 2016; revised submission dated August 1, 2019

g. There has been no change in the information submitted by LG&E in response to Commission Question No. 7 of the 2018 Procurement Audit. LG&E has not used a gas marketing or trading organization to manage the purchase or delivery of natural gas to LG&E. LG&E's gas supply arrangements (which may include arrangements with both producers and marketers) are discussed in LG&E's response to Commission Question Nos. 1-16(a), 1-16(b) and 1-16(c).

h. Attached are copies of LG&E's gas commodity supply solicitations conducted between September 1, 2018 and October 31, 2019 (including any bids solicited for gas supplies commencing on or after November 1, 2018, but released before September 1, 2018; and including any bids for gas supplies solicited before October 31, 2019, to commence on or after November 1, 2019). The documentation is provided in the date order of the bid release. These documents include the original bid documents, a listing of the suppliers that were contacted, the responses to the request for bid, and the evaluation process that led to the selection of a supplier. The longer-term bid solicitations associated with the 2019 Annual Gas Supply Plan (including original bid documents, a listing of the suppliers that were contacted, the responses to the request for bid, and the evaluation process that led to the selection of a supplier) are included with LG&E's 2019 Annual Gas Supply Plan provided as a part of the response to Question No. 16(i).

Gas supplies may be purchased for terms ranging from a single day up to a month or for multiple months or years. While certain aspects of the solicitation process may vary in detail depending on the duration of the intended purchase, fundamentally the process used for each supply purchase is the same.

The summary of the bidding process provided in LG&E's response to Question No. 8 of the 2018 Procurement Audit in Case No. 2018-00302 is unchanged. The written procedures themselves have undergone minor changes and updates and are provided herewith.

Except as noted herein, LG&E incorporates by reference its response to Commission Question No. 8 of the 2018 Procurement Audit.

The following written procedures have been included as attachments and are used by LG&E in support of its gas supply planning process:

- Section 2.4: "Winter Season Gas Supply Plan and Bid Process"; original submission dated October 1, 2016; revised submission dated January 1, 2020

- Section 2.5: "Negotiating and Executing a Nomination Schedule or Transaction Confirmation"; original submission dated March 1, 2018; revised submission dated January 1, 2020

- Section 2.7: "Executing a Base Agreement for Natural Gas Sales and Purchases"; original submission dated August 1, 2017; revised submission dated January 1, 2020

- Section 2.8: "Purchase of Natural Gas Supplies Under a Base Agreement for Natural Gas Sales and Purchases"; original submission dated June 1, 2018; revised submission dated January 1, 2020

- Section 2.15: "Supplier Credit Assessment and Daily Net Exposure"; original submission dated February 1, 2018; revised submission dated August 1, 2019

The following information has been included as an attachment to this response subject to a Petition for Confidential Treatment:

- Bid documentation for gas commodity supply solicitations conducted between September 1, 2018, and October 31, 2019 (including any bids solicited for gas supplies commencing on or after November 1, 2018, but released before September 1, 2018; and including any bids for gas supplies solicited before October 31, 2019, to commence on or after November 1, 2019)

i. LG&E's gas supply planning process is governed by several guiding principles set forth and described in the Preface to the Procedures Manual for the Gas Supply Department. The Preface acts as a risk management policy for LG&E's Gas Supply Department. The Preface also describes the major functions of the Gas Supply Department, the potential risks and risk mitigation strategies related to natural gas purchases, the general activities of the Gas Supply Department, and the roles played by Gas Supply Department personnel. The Preface to the Procedures Manual itself has undergone minor changes and updates and are provided herewith.

Using the guiding principles from the Preface referenced above, LG&E develops its annual gas supply plan. LG&E's 2019 Annual Gas Supply Strategies ("Gas Supply Plan") was prepared by the Gas Management, Planning, and Supply Department. Exhibit 1 to the 2019 Annual Gas Supply Plan includes the "Summary of Bid Evaluations for Natural Gas Supply Transactions (2019 Gas Supply Plan)" including the Bid Evaluation (Appendix A), Bid Invitation (Appendix B), list of suppliers invited to bid (Appendix C), bids provided by suppliers (Appendix D), and Bid Evaluation Methodology (Appendix E).

While the Annual Gas Supply Plan develops details for the upcoming year, it is primarily focused on deliveries for the upcoming winter season. The Summer Plan is more closely focused on summer season purchases which are primarily used for storage refill. The 2020 Summer Purchase Plan Analysis is not yet scheduled to be completed.

Except as noted herein, LG&E's response to Commission Question No. 9 of the 2018 Procurement Audit is unchanged.

The following information has been included as an attachment to this response:

- Preface to Gas Supply Department Procedures Manual; original submission dated March 2013; revised submission dated February 2019

The following information has been included as attachments to this response subject to a Petition for Confidential Treatment:

- 2019 Annual Gas Supply Plan (including 2019 bid documentation)

j. LG&E's response to Commission Question No. 10 of the 2018 Procurement Audit is unchanged.

k. Beginning in 2020, Tom Jessee became Vice President - Gas Operations. Tom succeeded John Malloy, who retired from the Company. See the attached organizational chart.

Other changes to the organizational structure periodically occur as people retire or otherwise leave their position, to provide developmental opportunities for employees or to simply make improvements to existing structure. Currently, no major reorganizations of Gas Operations are under consideration.

l. See attached.

m. LG&E's response to Question No. 13 of the 2018 Procurement Audit in Case No. 2018-00302 is unchanged.

n. See attached.

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PIPELINE STATISTICS
FOR THE 12 MONTHS ENDED OCTOBER 31, 2019

NATURAL GAS PIPELINE CAPACITY ENTITLEMENTS IN MMBTU/DAY

	NOV	DEC	JAN	FEB	MAR	APR - OCT
TEXAS GAS TRANSMISSION						
RATE NNS						
CONRACT # 29781 *	184,900	184,900	184,900	184,900	184,900	60,000
RATE FT						
CONTRACT # 34951	60,000	60,000	60,000	60,000	60,000	60,000
RATE STF						
	0	0	0	0	0	0
SUB TOTAL	244,900	244,900	244,900	244,900	244,900	120,000
TENNESSEE GAS PIPELINE						
RATE FT-A						
CONTRACT # 111110	20,000	20,000	20,000	20,000	20,000	20,000
SUB TOTAL	20,000	20,000	20,000	20,000	20,000	20,000
TOTAL	264,900	264,900	264,900	264,900	264,900	140,000

* EXCLUDES CERTAIN SHOULDER MONTH QUANTITIES FOR APRIL AND OCTOBER

Schedule of Currently Effective Fuel Retention Percentages
Pursuant to Section 6.9 of the General Terms and Conditions

NNS/NNL/SGT/SGL/SNS/WNS Rate Schedules

Delivery Fuel Zone	EFRP [1]
South	1.57%
Middle	1.76%
North	1.70%

FT/STF/IT Rate Schedules

Rec/Del Fuel Zone	EFRP
South/South	0.86%
South/Middle	0.77%
South/North	1.32%
Middle/South	0.86%
Middle/Middle	0.27%
Middle/North	0.77%
North/South	1.41%
North/Middle	0.54%
North/North	0.54%

FSS/FSS-M/ISS/ISS-M Rate Schedules

Injection / Withdrawal
1.01%

Swing Allocation Hybrid Rate
NNS/NNL/SGT/SGL/SNS/WNS

Delivery Fuel Zone	EFRP
South	0.52%
Middle	1.17%
North	0.81%

[1] Effective Fuel Retention Percentage Schedule of Currently Effective Fuel Retention Percentages Pursuant to Section 6.9 of the General Terms and Conditions

Rate Schedule NNS
No-Notice Transportation Service

1. Availability

This rate schedule is available for the firm transportation of natural gas by Texas Gas for any Customer:

1.1 Where Customer:

(a) Has submitted a valid request for firm service pursuant to this Rate Schedule NNS;
(b) Is the successful bidder for available capacity or for capacity released by a customer having an NNS service agreement pursuant to the terms and conditions of the Capacity Release Program in Section 6.16 of the General Terms and Conditions of this Tariff;
(c) Has met the credit requirements of Section 6.5 of the General Terms and Conditions;
(d) Will deliver or cause to be delivered natural gas to Texas Gas for delivery by Texas Gas to or for the account of Customer in one or more of Texas Gas' Service Zones; and
(e) Has executed a Transportation Service Agreement with Texas Gas for service under Rate Schedules NNS-SL, NNS-1, NNS-2, NNS-3, NNS-4, or NNS-Fayetteville, or NNS-Greenville for a term of not less than one (1) contract year ending October 31st.

1.2 No-notice service under this Rate Schedule NNS is available only at an NNS Customer's primary delivery point(s).

1.3 Service under this Rate Schedule NNS is available to any Customer, provided that there are operational and/or administrative arrangements in place to meet the requirements of such service.

2. Applicability and Character of Service

2.1 The transportation service provided under this Rate Schedule is a firm service being offered in compliance with 18 C.F.R. Section 284.8(a)(4) and shall be performed under Subparts B or G of Part 284 of the Commission's regulations, or any other applicable commission regulations governing such no-notice transportation service.

2.2 The transportation service offered under this Rate Schedule is provided by combining pipeline capacity and storage capacity into a single no-notice service. Customer's seasonal Contract Demands are thus supplied by a combination of Nominated (pipeline) and Unnominated (storage) Quantities as more fully defined below and as set forth in Customer's NNS Service Agreement.

2.3 Notwithstanding anything else to the contrary in this Rate Schedule or Section 6.6[3] of the General Terms and Conditions of this Tariff, the parties may agree at the time of contract execution that the Contract Demand will increase by specified amounts at specific point in time.

2.4 Notwithstanding any other provision hereof, Customer shall be required to nominate any Unnominated Daily Quantity at a primary delivery point where an Operational Balancing Agreement is in effect.

3. Categories and Priorities of Transportation Services

Refer to Section 6.12 of the General Terms and Conditions of this Tariff.

4. Rates and Charges

The applicable rates per MMBtu under this Rate Schedule for firm transportation service to each zone are set forth on currently effective Section 4.4 and Section 4.16 of this Tariff, and these rates are incorporated herein by reference.

4.1 Rates

Unless otherwise agreed to in writing by Texas Gas and Customer, Customer shall pay to Texas Gas each month a Reservation Charge which shall consist of the applicable Contract Demand as specified in Customer's NNS Service Agreement multiplied by the applicable demand rate per MMBtu. The Reservation Charge shall be billed as of the effective date of the NNS Service Agreement. Unless otherwise agreed to in writing by Texas Gas and Customer, Customer shall also pay Texas Gas the Maximum Commodity Rate per MMBtu of gas delivered by Texas Gas for no-notice transportation services rendered to Customer up to Customer's applicable Contract Demand. For all gas quantities delivered in excess of Customer's applicable Contract Demand on any day, Customer shall pay the NNS Overrun Rate per MMBtu under this Rate Schedule. In addition, Customer shall pay any and all currently effective demand or commodity surcharges, including but not limited to, the FERC ACA Unit Charge, Texas Gas' Take-or-Pay surcharge, and Order 636 Transition Costs surcharge.

4.2 Fuel, Company Use, and Unaccounted For Quantities

Fuel, company use gas, and unaccounted for quantities shall be in accordance with Section 6.9[2] of the General Terms and Conditions of this Tariff.

4.3 Processing Rights

Processing rights and the transportation of liquids/liquefiables shall be in accordance with Section 6.22 of the General Terms and Conditions of this Tariff.

4.4 Adjustment of Rates

Texas Gas shall have the right to propose and file with the Commission or other body having jurisdiction, changes and revisions of any effective rate schedule, or to propose and file superseding rate schedules, for the purpose of changing the rate, charges, or other provisions thereof effective as to Customer.

4.5 Secondary Point(s) in Zone Outside Transportation Path

Customer may not designate a secondary point in a zone outside of its transportation path unless Customer enters into an Additional Zone Letter Agreement to also pay the

Daily Demand reservation charge applicable to such zones as shown in Section 4.4 and Section 4.16 for the number of days the secondary point is used.

5. Minimum Monthly Bill

5.1 The minimum monthly bill for transportation service rendered hereunder on a firm basis shall consist of the monthly Reservation Charge as described in Section 5.4[4.1] of this Rate Schedule.

5.2 There shall be no minimum commodity bill for transportation service rendered hereunder on a firm basis.

6. Daily Overruns

6.1 Authorized Daily Overruns, Allowable Variation, and Unauthorized Contract Demand Overrun Quantity

(a) Authorized Daily Overrun

Where Customer has obtained Texas Gas' prior consent to transport quantities on any day in excess of its Daily Contract Demand, such excess quantities shall be considered authorized overruns. In such circumstances, Customer shall pay the NNS overrun rate for such authorized overruns and no penalty shall be assessed.

(b) Allowable Variation

Notwithstanding anything herein to the contrary, Customer takes between 100% of Contract Demand and 102% of Contract Demand shall be considered an allowable variation in the delivery of the Contract Demand and shall not require Texas Gas' prior consent. In such circumstances, the Customer shall pay the NNS Overrun Rate for such takes and no penalty shall be assessed. Customer may rely on daily operational information provided by Texas Gas to determine if its takes have exceeded its daily Contract Demand and, if so, whether such excess takes are within 102% of Contract Demand and shall be considered allowable variation. Texas Gas shall use the lesser of operational information or actual data to determine whether Customer's excess takes are allowable variation or unauthorized overrun quantity.

(c) Unauthorized Contract Demand Overrun Quantity

Customer takes in excess of 102% of the Contract Demand on any day, without Texas Gas' prior consent, shall constitute Unauthorized Contract Demand Overrun Quantity.

6.2 Unauthorized Contract Demand Overrun Penalty

In any month in which Customer takes an Unauthorized Contract Demand Overrun, Customer shall pay to Texas Gas the following penalties in addition to the charges otherwise payable hereunder:

(a) A "Nominal Overrun Penalty" equal to twice the effective FT Overrun Rate for all Unauthorized Contract Demand Overrun Quantities taken on any day over 102% of the Contract Demand; and

(b) An "Excess Overrun Penalty" of $10.00 per MMBtu for all Unauthorized Contract Demand Overrun Quantities taken on any day in excess of 105% of Contract Demand.

In the event a Customer incurs an Excess Overrun Penalty, Texas Gas will credit any amounts collected as a Nominal Overrun Penalty against amounts collected as an Excess Overrun Penalty, so that the total Overrun Penalty collected does not exceed $10.00 per MMBtu for overruns in excess of 105% of Contract Demand.

The payment of a penalty for Unauthorized Contract Demand Overrun by a Customer shall not under any circumstances be considered as giving such Customer the right to take Unauthorized Contract Demand Overrun nor shall such payment be considered as a substitute for any other remedies available to Texas Gas or any of Texas Gas' other Customers against the offending Customer for failure to respect its obligation to adhere to the provisions of its contract with Texas Gas.

Texas Gas shall have the right, without obligation, to waive, on a non-discriminatory basis, any Nominal Overrun Penalty for an Unauthorized Contract Demand Overrun if, on the day when the Unauthorized Contract Demand Overrun was taken, deliveries to Texas Gas' other Customers were not adversely affected by the taking of such Unauthorized Contract Demand Overrun or if Texas Gas' pipeline operations, including gas storage operations, were not impaired thereby. Texas Gas must waive any Excess Overrun Penalty if the Unauthorized Contract Demand Overrun occurs in a non-critical situation and does not cause operational problems.

Texas Gas shall be obligated to waive any penalty for Unauthorized Contract Demand Overrun:

(i) when such overrun is taken under circumstances beyond the control of Customer due to emergency conditions on Texas Gas' facilities, or

(ii) when such overrun is due to accident to or breakage of pipelines, machinery or equipment of the Customer; provided, however, Customer shall promptly and diligently take such action as may be necessary and practicable under the then existing circumstances to repair or otherwise remedy the situation and furnish Texas Gas satisfactory evidence that such accident or breakage was not due to Customer's gross negligence.

Whenever Texas Gas waives the penalty for Unauthorized Contract Demand Overrun, Customer shall pay Texas Gas the daily demand rate per MMBtu of the Unauthorized Contract Demand Overrun quantity in addition to the commodity charge payable hereunder. The daily demand rate is set forth on currently effective Section 4.4 and Section 4.16 of this Tariff.

7. Seasonal Quantity Entitlement Overrun Charge and Nominal Penalty

7.1 If Customer and Customer's Replacement Shipper(s) take quantities of gas during the five-month period commencing November 1 of each year in excess of the Winter Season Quantity Entitlement, or during the seven-month period commencing April 1 of each year in excess of the Adjusted Summer Season Quantity Entitlement, such excess shall constitute Seasonal Quantity Entitlement Overrun.

For all gas taken in excess of 100% of the applicable Seasonal Quantity Entitlement, there shall be a charge consisting of the daily demand rate for the applicable zone in addition to all other charges payable hereunder. The daily demand rate is set forth on currently effective Section 4.4 and Section 4.16 of this tariff.

7.2 In addition to the charge contained in Section 5.4[7.1] above and all other applicable charges, if Customer takes quantities of gas in any season in excess of 102% of the applicable Seasonal Quantity Entitlement, there shall be a penalty of twice the effective FT Overrun Rate; provided, however, such seasonal penalties shall be charged only for unauthorized seasonal overruns.

Texas Gas shall have the right, without obligation, to waive, on a non-discriminatory basis, any penalty under this Section 5.4[7.2] for Seasonal Quantity Entitlement Overrun if, as a result of such overrun, deliveries to Texas Gas' other Customers were not adversely affected or if Texas Gas' pipeline operations, including gas storage operations, were not impaired thereby.

7.3 Texas Gas will assess only one penalty for any infraction (i.e., a Customer will not incur both unauthorized Contract Demand overrun and seasonal quantity overrun charges or penalties based on a single infraction).

8. Reimbursement of Fees and Taxes

Customer shall reimburse Texas Gas for all fees, if any, required by the Commission or any regulatory body related to service provided under this Rate Schedule, including filing, reporting, and application fees. Provided, however, Texas Gas may waive filing fees for Customer on a non-discriminatory basis in the event of an administrative error.

9. Nominations, Receipts, and Deliveries

Customer shall be responsible for nominating gas supply into Texas Gas' system up to Customer's Nominated Daily Quantity, pursuant to Section 6.12 of the General Terms and Conditions. Receipts and deliveries under this Rate Schedule shall be governed by Section 6.6[3] of the General Terms and Conditions.

10. Winter Season Provisions

During the Winter Season, Texas Gas will deliver to Customer up to Customer's Winter Contract Demand and Customer's Winter Quantity Entitlement as set forth below.

10.1 Customer will only be required to nominate into Texas Gas' system a quantity of gas up to the Nominated Daily Quantity.

10.2 In addition to the Nominated Daily Quantity actually scheduled by Customer, Texas Gas will adjust deliveries from storage up to Customer's Unnominated Daily Quantity to meet Customer's city-gate requirements up to Customer's Winter Contract Demand.

10.3 In addition, Customer may exceed its Unnominated Daily Quantity by a quantity equal to its Excess Unnominated Daily Quantity (i.e. 10% of its Winter Contract Demand) for up to two (2) consecutive gas days without a penalty; however, total deliveries to the

Customer may not exceed the Customer's Winter Contract Demand. Texas Gas will notify the Customer within four (4) hours of the end of the gas day in which Customer has exceeded its Unnominated Daily Quantity. If the Customer does not cease taking such Excess Unnominated Daily Quantity from Texas Gas' storage after two (2) consecutive gas days, then Texas Gas may assess a penalty of $15 per MMBtu of such excess gas taken and may issue an operational flow order requiring Customer to immediately inject additional gas supply and/or reduce city-gate deliveries so that the Customer is no longer exceeding its Unnominated Daily Quantity.

10.4 Monthly Maximum Withdrawal: No more than 50% of Customer's Unnominated Seasonal Quantity shall be withdrawn in any consecutive thirty (30) day period.

10.5 Seasonal Minimum and Maximum Withdrawal: No more than 105% of Customer's Unnominated Seasonal Quantity shall be withdrawn or otherwise diminished (e.g., through in-field transfers and/or releases of storage) by March 1 of any winter season; provided further, that no less than 53% and no more than 100% of Customer's Unnominated Seasonal Quantity shall be withdrawn or otherwise diminished (e.g., through in-field transfers and/or releases of storage) by April 1 (the end of the Winter Season).

10.6 Adjusted Unnominated Daily Quantity: As Customer's Unnominated Seasonal Quantity is withdrawn or otherwise diminished (e.g., through in-field transfers and/or releases of storage), that portion of Customer's Unnominated Daily Quantity available to Customer shall be adjusted. Customer's Adjusted Unnominated Daily Quantity shall be equal to the greater of its average winter daily unnominated quantity (i.e., the Customer's USQ divided by the total number of Winter days the UDQ is available) or the applicable percentage of its Unnominated Daily Quantity as set forth in the following table:

% USQ Withdrawn	% UDQ Available
75%	90%
80%	85%
85%	80%
90%	75%

10.7 During the Winter Season, Texas Gas will also inject gas into storage on a best efforts basis as part of NNS service. Although such injections will be done on a best efforts basis, Texas Gas will be presumed, unless it gives notice to the contrary, to be able to inject into storage such quantities of gas as to take into account routine variations in no-notice deliveries. If Texas Gas is unable to make such best efforts injections, it will advise Customer by posting on its Internet Website. However, no presumption will exist for non-routine situations (e.g. injections in excess of 15% of Customer's Winter Contract Demand or sustained injections of more than five days) and, in such non-routine situations, Customer must give 24 hours advance written notice to Texas Gas of quantities it desires to inject into storage, so that Texas Gas can determine the extent to which it can make such injections and adjust its operations accordingly.

11. Summer Season Provisions

11.1 Texas Gas shall deliver to Customer at the city-gate during each Summer Season up to the Customer's Summer Contract Demand and Adjusted Summer Quantity Entitlement as nominated by Customer.

11.2 Pursuant to the provisions set forth below, Customer shall deliver in kind to Texas Gas during each Summer Season a quantity of gas equal to that portion of Customer's Unnominated Seasonal Quantity actually utilized by Customer (including any in-field transfers pursuant to Section 6.16.6[c] of the General Terms and Conditions of this tariff) during the prior Winter Season (as well as any Shoulder Month quantities delivered to Customer during the Summer Season). Customer shall reserve and utilize such portion of its Summer Contract Demand as necessary to redeliver such volumes into storage.

11.3 Maximum Daily Injection Quantity:

To protect the storage formations and allow uniform filling of the storage reservoirs, Customer will be required to adhere to certain injection limits (calculated as a percentage of the Unnominated Seasonal Quantity), throughout the summer injection period. During the Summer Season Customer may, on a daily basis, inject according to the following table, but not to exceed Customer's Summer Contract Demand:

% of Unnominated Seasonal Quantity Injected	Maximum Available Injection Rate (% of USQ)
0% - 65%	1.3%
65% - 90%	1.1%
>90%	0.6%

11.4 Inventory verification tests will be conducted as operationally necessary, but in no event less than once per calendar year. These tests require the temporary suspension of individual storage field activities (injections and withdrawals) for a period of approximately two (2) weeks. If conditions will not permit the full maximum daily injection or withdrawal quantity, Texas Gas may temporarily adjust the limit and allow make-up quantities on succeeding days. Texas Gas will provide at least 45 days notice on its Internet Website in regard to the scheduling of these shut-in periods to allow Customers to adjust for the interruption of storage.

11.5 During the Summer Season (except as provided in Section 5.4[11.6] below), Texas Gas will also withdraw gas from storage on a best efforts basis as part of the NNS service. Although such withdrawals will be done on a best efforts basis, Texas Gas will be presumed, unless it gives notice to the contrary, to be able to withdraw from storage such quantities of gas as to take into account routine variations in no-notice services. If Texas Gas is unable to make such best efforts withdrawals, it will advise Customer by posting on its Internet Website. However, no presumption will exist for non-routine situations (e.g. withdrawals in excess of 10% of Customer's Winter Contract Demand or sustained withdrawals of more than five days) and, in such non-routine situations, Customer must give 24 hours advance written notice to Texas Gas of quantities it desires to withdraw from storage, so that Texas Gas can determine the extent to which it can make such withdrawals and adjust its operations accordingly.

11.6 To assist Texas Gas' operational and maintenance scheduling through the Summer Season, Customer will notify Texas Gas by March 15 of each year, with updates monthly, of the quantities it intends to inject monthly during the immediately upcoming Summer Season; such injection schedule provided by Customer is a best efforts estimate and may be revised as necessary. Texas Gas will use its reasonable efforts to coordinate its test, maintenance, alteration and repair activities during such Summer Season to accommodate Customer's request.

12. Shoulder Month Flexibility

12.1 During the Shoulder Months of April and October, Texas Gas will deliver to Customer at the city-gate the Customer's Shoulder Month Contract Demand, which shall, unless otherwise agreed, be the sum of Customer's Summer Contract Demand, Customer's Excess Unnominated Quantity and the applicable percentage as set forth below of Customer's Unnominated Daily Quantity for the Winter Season:

Shoulder Month	Percent of Unnominated Daily Quantity
April	50%
October	70%

In the event that Customer's Unnominated Seasonal Quantity is available in quantities sufficient to support additional access to Customer's Unnominated Daily Quantity the applicable percentage available to Customer during such Shoulder Month will be as follows:

Shoulder Month	% of Unnominated Seasonal Quantity Withdrawn	% of Unnominated Daily Quantity Available
April/October	75%	90%
	80%	85%
	85%	80%
	90%	75%
	95%	70%

Such Shoulder Month Contract Demand shall be available during any day of the Shoulder Month for a minimum of fifteen (15) gas days during such month; provided, however, Shoulder Month Contract Demand shall be available for additional gas days to the extent operationally feasible.

12.2 In the event that Customer's Unnominated Seasonal Quantity has been exhausted prior to the April Shoulder Month period, Customer shall retain access to 50 % of its Unnominated Daily Quantity up to an aggregate monthly total equivalent to 10% of Customer's Unnominated Seasonal Quantity, as set forth above from that date until April 30.

13. Supply Lateral Capacity

The provisions of Section 6.8[6] of the General Terms and Conditions of this tariff, Supply Lateral Capacity, shall apply to NNS service, except that NNS Customers may be allocated or may bid on supply lateral capacity on the basis of their Nominated Daily Quantities rather than their Contract Demand.

14. Capacity Release

Customer may release and assign all or any part of its NNS Service pursuant to the provisions of Section 6.16.6 of Texas Gas' General Terms and Conditions; provided, however, Customer shall be responsible for retaining adequate capacity to meet its obligations under Section 5.4[11.2] of this Rate Schedule NNS to redeliver quantities into storage.

15. Hourly Deliveries

    Texas Gas shall not be obligated to deliver to Customer at all points of delivery in any hour more than one-sixteenth of Customer's Contract Demand, subject to Section 6.18 of the General Terms and Conditions of this tariff.

16. Penalty for Failure to Redeliver Borrowed Gas Prior to Contract Termination

    In the event Customer fails to deliver in kind to Texas Gas any portion of its Unnominated Seasonal Quantity it has borrowed from Texas Gas prior to termination of its contract for service under this Rate Schedule, Customer shall, within 30 days of contract termination, pay Texas Gas an amount equal to the greater of 200% of Texas Gas' book value of its working gas in storage or 200% of the highest monthly average index price calculated pursuant to Section 6.14 of the General Terms and Conditions, using a twelve month period ending on the date of contract termination.

17. General Terms and Conditions

    All of the General Terms and Conditions of this Tariff are applicable to and are hereby incorporated as a part of this Rate Schedule NNS.

Schedule of Currently Effective Fuel Retention Percentages
Pursuant to Section 6.9 of the General Terms and Conditions

NNS/NNL/SGT/SGL/SNS/WNS Rate Schedules

Delivery Fuel Zone	EFRP [1]
South	1.57%
Middle	1.76%
North	1.70%

FT/STF/IT Rate Schedules

Rec/Del Fuel Zone	EFRP
South/South	0.86%
South/Middle	0.77%
South/North	1.32%
Middle/South	0.86%
Middle/Middle	0.27%
Middle/North	0.77%
North/South	1.41%
North/Middle	0.54%
North/North	0.54%

FSS/FSS-M/ISS/ISS-M Rate Schedules

Injection / Withdrawal
1.01%

Swing Allocation Hybrid Rate
NNS/NNL/SGT/SGL/SNS/WNS

Delivery Fuel Zone	EFRP
South	0.52%
Middle	1.17%
North	0.81%

[1] Effective Fuel Retention Percentage Schedule of Currently Effective Fuel Retention Percentages Pursuant to Section 6.9 of the General Terms and Conditions

RATES PER DEKATHERM

FIRM TRANSPORTATION RATES
RATE SCHEDULE FOR FT-A

Base Reservation Rates

RECEIPT ZONE	DELIVERY ZONE 0	L	1	2	3	4	5	6
0	$5.4269		$11.3406	$15.2546	$15.5246	$17.0584	$18.1067	$22.7176
L		$4.8178						
1	$8.1697		$7.8313	$10.4219	$14.7637	$14.5399	$16.3977	$20.1633
2	$15.2547		$10.3593	$5.3879	$5.0367	$6.4446	$8.8638	$11.4421
3	$15.5246		$8.2056	$5.4314	$3.9184	$6.0190	$10.8858	$12.5789
4	$19.7110		$18.1718	$6.9250	$10.5240	$5.1514	$5.5711	$7.9589
5	$23.5025		$16.5148	$7.2643	$8.7898	$5.7227	$5.3680	$6.9882
6	$27.1880		$18.9685	$13.0548	$14.3818	$10.1587	$5.3443	$4.6263

Daily Base Reservation Rate 1/

RECEIPT ZONE	DELIVERY ZONE 0	L	1	2	3	4	5	6
0	$0.1784		$0.3728	$0.5015	$0.5104	$0.5608	$0.5953	$0.7469
L		$0.1584						
1	$0.2686		$0.2575	$0.3426	$0.4854	$0.4780	$0.5391	$0.6629
2	$0.5015		$0.3406	$0.1771	$0.1656	$0.2119	$0.2914	$0.3762
3	$0.5104		$0.2698	$0.1786	$0.1288	$0.1979	$0.3579	$0.4136
4	$0.6480		$0.5974	$0.2277	$0.3460	$0.1694	$0.1832	$0.2617
5	$0.7727		$0.5430	$0.2388	$0.2890	$0.1881	$0.1765	$0.2297
6	$0.8939		$0.6236	$0.4292	$0.4728	$0.3340	$0.1757	$0.1521

Maximum Reservation Rates 2/, 3/

RECEIPT ZONE	DELIVERY ZONE 0	L	1	2	3	4	5	6
0	$5.4437		$11.3574	$15.2714	$15.5414	$17.0752	$18.1235	$22.7344
L		$4.8346						
1	$8.1865		$7.8481	$10.4387	$14.7805	$14.5567	$16.4145	$20.1801
2	$15.2715		$10.3761	$5.4047	$5.0535	$6.4614	$8.8806	$11.4589
3	$15.5414		$8.2224	$5.4482	$3.9352	$6.0358	$10.9026	$12.5957
4	$19.7278		$18.1886	$6.9418	$10.5408	$5.1682	$5.5879	$7.9757
5	$23.5193		$16.5316	$7.2811	$8.8066	$5.7395	$5.3848	$7.0050
6	$27.2048		$18.9853	$13.0716	$14.3986	$10.1755	$5.3611	$4.6431

Notes:

1/ Applicable to demand charge credits and secondary points under discounted rate agreements.

2/ Includes a per Dth charge for the PCB Surcharge Adjustment per Article XXXII of the General Terms and Conditions of $0.0000.

3/ Includes a per Dth charge for the PS/GHG Surcharge Adjustment per Article XXXVIII of the General Terms and Conditions of $0.0168.

RATES PER DEKATHERM

COMMODITY RATES
RATE SCHEDULE FOR FT-A

Base Commodity Rates

RECEIPT ZONE	DELIVERY ZONE 0	L	1	2	3	4	5	6
0	$0.0032		$0.0115	$0.0177	$0.0219	$0.2613	$0.2494	$0.2968
L		$0.0012						
1	$0.0042		$0.0081	$0.0147	$0.0179	$0.2222	$0.2266	$0.2587
2	$0.0167		$0.0087	$0.0012	$0.0028	$0.0719	$0.1153	$0.1278
3	$0.0207		$0.0169	$0.0026	$0.0002	$0.0961	$0.1330	$0.1452
4	$0.0250		$0.0205	$0.0087	$0.0105	$0.0445	$0.0629	$0.1019
5	$0.0284		$0.0256	$0.0100	$0.0118	$0.0626	$0.0620	$0.0770
6	$0.0346		$0.0300	$0.0143	$0.0163	$0.0963	$0.0522	$0.0317

Minimum Commodity Rates 1/, 2/

RECEIPT ZONE	DELIVERY ZONE 0	L	1	2	3	4	5	6
0	$0.0032		$0.0115	$0.0177	$0.0219	$0.0250	$0.0284	$0.0346
L		$0.0012						
1	$0.0042		$0.0081	$0.0147	$0.0179	$0.0210	$0.0256	$0.0300
2	$0.0167		$0.0087	$0.0012	$0.0028	$0.0056	$0.0100	$0.0143
3	$0.0207		$0.0169	$0.0026	$0.0002	$0.0081	$0.0118	$0.0163
4	$0.0250		$0.0205	$0.0087	$0.0105	$0.0028	$0.0046	$0.0092
5	$0.0284		$0.0256	$0.0100	$0.0118	$0.0046	$0.0046	$0.0066
6	$0.0346		$0.0300	$0.0143	$0.0163	$0.0086	$0.0041	$0.0020

Maximum Commodity Rates 1/, 2/, 3/

RECEIPT ZONE	DELIVERY ZONE 0	L	1	2	3	4	5	6
0	$0.0038		$0.0121	$0.0183	$0.0225	$0.2619	$0.2500	$0.2974
L		$0.0018						
1	$0.0048		$0.0087	$0.0153	$0.0185	$0.2228	$0.2272	$0.2593
2	$0.0173		$0.0093	$0.0018	$0.0034	$0.0725	$0.1159	$0.1284
3	$0.0213		$0.0175	$0.0032	$0.0008	$0.0967	$0.1336	$0.1458
4	$0.0256		$0.0211	$0.0093	$0.0111	$0.0451	$0.0635	$0.1025
5	$0.0290		$0.0262	$0.0106	$0.0124	$0.0632	$0.0626	$0.0776
6	$0.0352		$0.0306	$0.0149	$0.0169	$0.0969	$0.0528	$0.0323

Notes:

1/ Rates stated above exclude the ACA Surcharge as revised annually and posted on the FERC website at http://www.ferc.gov on the Annual Charges page of the Natural Gas section. The ACA Surcharge is incorporated by reference into Transporter's Tariff and shall apply to all transportation under this Rate Schedule as provided in Article XXIV of the General Terms and Conditions.

2/ The applicable F&LR's and EPCR's, determined pursuant to Article XXXVII of the General Terms and Conditions, are listed on Sheet No. 32.

3/ Includes a per Dth charge for the PS/GHG Surcharge Adjustment per Article XXXVIII of the General Terms and Conditions of $0.0006.

Issued: September 27, 2018
Effective: November 1, 2018

Docket No. RP15-990-002
Accepted: November 1, 2018

FUEL AND EPCR

F&LR 1/, 2/, 3/, 4/

RECEIPT ZONE	DELIVERY ZONE 0	L	1	2	3	4	5	6
0	0.51%		1.54%	2.28%	2.86%	3.33%	3.75%	4.44%
L		0.26%						
1	0.63%		1.12%	1.92%	2.31%	2.82%	3.41%	3.88%
2	2.33%		1.19%	0.25%	0.46%	0.85%	1.43%	1.93%
3	2.86%		2.31%	0.46%	0.14%	1.17%	1.69%	2.20%
4	3.33%		2.62%	1.19%	1.41%	0.48%	0.73%	1.24%
5	3.88%		3.41%	1.44%	1.69%	0.72%	0.71%	0.91%
6	4.63%		4.02%	1.93%	2.20%	1.17%	0.57%	0.30%

Broad Run Expansion Project – Market Component (Z3-Z1): 5/ 4.76%

EPCR 3/, 4/

RECEIPT ZONE	DELIVERY ZONE 0	L	1	2	3	4	5	6
0	$0.0039		$0.0151	$0.0233	$0.0290	$0.0350	$0.0398	$0.0477
L		$0.0013						
1	$0.0053		$0.0105	$0.0193	$0.0236	$0.0293	$0.0359	$0.0412
2	$0.0233		$0.0113	$0.0012	$0.0034	$0.0076	$0.0138	$0.0190
3	$0.0290		$0.0236	$0.0034	$0.0000	$0.0111	$0.0164	$0.0219
4	$0.0350		$0.0271	$0.0113	$0.0137	$0.0036	$0.0063	$0.0118
5	$0.0398		$0.0359	$0.0138	$0.0164	$0.0062	$0.0061	$0.0082
6	$0.0477		$0.0412	$0.0190	$0.0219	$0.0110	$0.0046	$0.0017

Broad Run Expansion Project – Market Component (Z3-Z1): 5/ $0.0308

1/ Included in the above F&LR is the Losses component of the F&LR equal to 0.10%.

2/ For service that is rendered entirely by displacement and for gas scheduled and allocated for receipt at the Dracut, Massachusetts receipt point, Shipper shall render only the quantity of gas associated with Losses of 0.10%.

3/ The F&LR's and EPCR's listed above are applicable to FT-A, FT-BH, FT-G, FT-GS, and IT.

4/ The F&LR's and EPCR's determined pursuant to Article XXXVII of the General Terms and Conditions.

5/ The incremental F&LR and EPCR set forth above are applicable to a Shipper(s) utilizing capacity on the Broad Run Expansion Project – Market Component facilities, from any receipt point(s) to any delivery point(s) located on the project's transportation path. Any service provided to a Shipper(s) outside the project's transportation path shall be subject to the greater of the incremental F&LR and EPCR for the project or the applicable F&LR and EPCR for the applicable receipt(s) and delivery point(s) as shown in the rate matrices above.

FUEL AND EPCR

F&LR 1/, 2/, 3/, 4/

RECEIPT ZONE	DELIVERY ZONE 0	L	1	2	3	4	5	6
0	0.46%		1.71%	2.68%	3.32%	3.86%	4.36%	5.18%
L		0.17%						
1	0.62%		1.21%	2.17%	2.71%	3.25%	3.95%	4.51%
2	2.61%		1.30%	0.16%	0.41%	0.88%	1.57%	2.18%
3	3.32%		2.64%	0.41%	0.02%	1.27%	1.89%	2.52%
4	3.86%		3.01%	1.29%	1.56%	0.43%	0.73%	1.35%
5	4.56%		3.95%	1.57%	1.89%	0.72%	0.72%	0.95%
6	5.46%		4.72%	2.18%	2.52%	1.26%	0.55%	0.21%

Broad Run Expansion Project – Market Component (Z3-Z1): 5/ 4.62%

EPCR 3/, 4/

RECEIPT ZONE	DELIVERY ZONE 0	L	1	2	3	4	5	6
0	$0.0033		$0.0129	$0.0199	$0.0248	$0.0299	$0.0340	$0.0408
L		$0.0011						
1	$0.0045		$0.0090	$0.0165	$0.0202	$0.0251	$0.0307	$0.0353
2	$0.0199		$0.0097	$0.0010	$0.0029	$0.0065	$0.0118	$0.0162
3	$0.0248		$0.0202	$0.0029	$0.0000	$0.0095	$0.0140	$0.0187
4	$0.0299		$0.0231	$0.0096	$0.0117	$0.0031	$0.0054	$0.0101
5	$0.0340		$0.0307	$0.0118	$0.0140	$0.0053	$0.0052	$0.0070
6	$0.0408		$0.0353	$0.0162	$0.0187	$0.0094	$0.0040	$0.0014

Broad Run Expansion Project – Market Component (Z3-Z1): 5/ $0.0308

1/ Included in the above F&LR is the Losses component of the F&LR equal to -0.04%.
2/ For service that is rendered entirely by displacement and for gas scheduled and allocated for receipt at the Dracut, Massachusetts receipt point, Shipper shall render only the quantity of gas associated with Losses of 0.00%.
3/ The F&LR's and EPCR's listed above are applicable to FT-A, FT-BH, FT-G, FT-GS, and IT.
4/ The F&LR's and EPCR's determined pursuant to Article XXXVII of the General Terms and Conditions.
5/ The incremental F&LR and EPCR set forth above are applicable to a Shipper(s) utilizing capacity on the Broad Run Expansion Project – Market Component facilities, from any receipt point(s) to any delivery point(s) located on the project's transportation path. Any service provided to a Shipper(s) outside the project's transportation path shall be subject to the greater of the incremental F&LR and EPCR for the project or the applicable F&LR and EPCR for the applicable receipt(s) and delivery point(s) as shown in the rate matrices above. Included in the above F&LR is the Losses component of the F&LR equal to -0.04%.

The entire attachment is confidential and provided separately under seal.

PROCEDURE NAME Determination of Volumes of Natural Gas to Dispatch and Purchase		**SECTION NO.** 2.9
VERSION NO. 4	**DATE ISSUED** August 1, 2019	**PAGE** 1 of 3

PURPOSE

The purpose of this procedure is to outline the method used to determine the volumes of natural gas to purchase and/or dispatch.

The task of determining purchase volumes is governed by factors that include volumetric requirements and pricing considerations.

Gas Supply Department personnel meet with the Manager, Gas Control on a monthly basis to determine anticipated system requirements for the upcoming month. The Manager, Gas Control provides a Purchase Gas Estimate (Appendix 2-M) including forecasted minimum and maximum load expectations and on-system storage injection/withdrawal plans. The Gas Supply Department uses the Purchase Gas Estimate as provided by Gas Control to develop the natural gas purchase requirements for the upcoming month.

Gas Control provides a 5-Day System Sendout Forecast (Appendix 2-N) to the Gas Supply Department at least once daily and more often if needed due to changing weather or other conditions. The 5-Day System Sendout Forecast reflects anticipated system load, most recent temperature forecasts, scheduled supply by pipeline, end-use customer requirements, on-system storage injection/withdrawal requirements by storage field, and total pipeline requirements.

Gas Supply Department endeavors to purchase natural gas at the lowest cost while accomplishing the following: (1) maintaining an adequate and reliable supply of natural gas, (2) purchasing natural gas with accountability and transparency, and (3) remaining in compliance with all contract terms.

PROCEDURE NAME		**SECTION NO.**
Determination of Volumes of Natural Gas to Dispatch and Purchase		2.9
VERSION NO.	**DATE ISSUED**	**PAGE**
4	August 1, 2019	2 of 3

RESPONSIBILITY	**ACTION**
Gas Control Department	1. Forecasts total daily system requirements in the form of the Purchase Gas Estimate (Appendix 2-M) and gives same to the Gas Supply Department prior to the beginning of the month at monthly planning meeting. Purchase Gas Estimate includes monthly minimum and maximum daily requirements. Provides "5-Day System Sendout Forecast" of requirements to the Gas Supply Department each day. (Appendix 2-N.)
Gas Supply Department	2. Calculates total volume to purchase as follows: Pipeline Purchases = (a) Total Pipeline Requirements, less (b) Planned NNS Withdrawal Volume, plus (c) Planned NNS Injection Volume, less (d) Scheduled Deliveries by end-use transportation customers.
	3. Determines volumes, in accordance with the Monthly Supply Plan (Report 6.2.2), to be purchased or dispatched under each supply agreement. Purchases gas in accordance with Section 2.8 or dispatches existing supply transactions executed in accordance with Section 2.4 after considering market price, contract price, and pipeline contract constraints. Notifies suppliers of volumes required and effective purchase date(s) in compliance with applicable contract provisions.

PROCEDURE NAME Determination of Volumes of Natural Gas to Dispatch and Purchase		**SECTION NO.** 2.9
VERSION NO. 4	**DATE ISSUED** August 1, 2019	**PAGE** 3 of 3

RESPONSIBILITY	**ACTION**
Gas Supply Department (cont.)	4. Makes necessary pipeline nominations and confirmations in accordance with Sections 2.11, 2.12(a), or 2.12(b). 5. Documents volume and term of natural gas purchased or dispatched in Gas Supply Purchase Record and Daily Supply Plan (Supply) spreadsheets. 6. Provides appropriate Daily Supply Plan (Supply) to Gas Control in accordance with Report 6.1.5 and retains a copy of such Plan in the Gas Supply Department in an organized and secure manner. 7. Designates the Daily Supply Plan (Supply) and Gas Supply Purchase Record spreadsheets as "read-only" following the close of the applicable month.

Approved: Director – Gas Management, Planning, and Supply	Approved: Manager, Gas Supply	Approved: Gas Supply Specialist (Reviewer)	Approved: Gas Supply Specialist (Owner)

PROCEDURE NAME Compliance with Pipeline Services		SECTION NO. 2.10
VERSION NO. 12	**DATE ISSUED** August 1, 2019	**PAGE** 1 of 4

PURPOSE

The purpose of this procedure is to ensure LG&E is in compliance with the interstate pipelines' transportation tariffs. Such compliance enhances the certainty of correct nominations, and ensures there are no penalties, adverse billing charges, or incurrence of penalties resulting from the violation of pipeline Operational Flow Orders ("OFOs").

Below is a brief description of LG&E's pipeline transportation agreements. A more complete description of the contracted terms and conditions, as well as the operational constraints associated with each service, is set forth in the applicable FERC-approved tariff of each pipeline transporter.

LG&E has a portfolio of firm pipeline services offering various features. LG&E currently has contracted for 20,000 MMBtu per day of annual service under Rate FT-A from Tennessee.

LG&E has contracted for service under Rate NNS and Rate FT from Texas Gas. Effective November 1, 2018, LG&E's winter contract demand is equal to 244,900 MMBtu per day on Texas Gas. Of this winter contract demand, 184,900 MMBtu per day is the contract demand under NNS service, and 60,000 MMBtu per day is the contract demand under North-to-South FT service. Except during April and October, LG&E's summer contract demand is equal to 120,000 MMBtu per day on Texas Gas. Of this summer contract demand, 60,000 MMBtu per day is the contract demand under NNS service, and 60,000 MMBtu per day is the contract demand under North-to-South FT service. For the months of April and October, LG&E has contracted for pipeline services to meet the flexibility requirements of these shoulder months.

Please note that these contract demand quantities do not include additional volumes that LG&E may contract for delivery to its city-gate meters utilizing the supplier's transportation capacity.

The following table summarizes LG&E's pipeline transportation services:

PROCEDURE NAME Compliance with Pipeline Services		**SECTION NO.** 2.10
VERSION NO. 12	**DATE ISSUED** August 1, 2019	**PAGE** 2 of 4

PURPOSE (cont.)

SUMMARY OF PIPELINE SERVICES (MMBTU)
EFFECTIVE NOVEMBER 1, 2019

	WINTER	SUMMER		
	NOV - MAR	APR	MAY - SEP	OCT
TEXAS GAS NNS				
FLOWING GAS	147,000	60,000	60,000	72,000
STORAGE	37,900 (1)	18,950	0	26,530
2-DAY 10% (2)	18,490	18,490 (3)	18,490	18,490 (3)
SUBTOTAL	184,900	97,440	60,000	117,020
TEXAS GAS FT (North to South)	60,000	60,000	60,000	60,000
TENNESSEE FT-A	20,000	20,000	20,000	20,000
TENNESSEE DEL (4)	0	0	0	0
TOTAL	264,900	177,440	140,000	197,020

(1) Available NNS storage withdrawal volume is adjusted progressively downward at various step intervals during the winter; steps begin when 75% of Unnominated Seasonal Quantity has been withdrawn.

(2) Volumes taken pursuant to the "2-Day 10%" provision are available to the extent that pipeline capacity and storage volumes are available.

(3) During shoulder months of April and October, the "2-Day 10%" is additive and the storage withdrawal quantities are limited to 15 days.

(4) No Tennessee Delivered Supplies are planned at this time. However, depending on price, LG&E may purchase up to 35,000 MMBtu (32,864 Mcf) per day of this supply

PROCEDURE NAME		SECTION NO.
Compliance with Pipeline Services		2.10
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PURPOSE (cont.)

Pipeline services can have substantially different characteristics. Texas Gas's service under Rate FT and Tennessee's service under Rate FT-A both provide a "no frills" service requiring LG&E to nominate the receipt and the delivery of natural gas volumes. Receipts and deliveries are made at uniform hourly rates of flow, that is, at 1/24th of the daily volume nominated and scheduled. On the other hand, NNS service provides, through a bundling of storage and pipelines facilities, a firm and flexible service to ensure the delivery of gas supplies. No nomination is needed to effectuate the delivery of the storage portion of the service. NNS also provides LG&E with variable hourly flow rates up to 1/16 of daily contract demand, a "cushion" volume equal to 10% of winter contract demand (or 18,490 MMBtu per day based on current contract demand levels), and the ability to inject or withdraw gas during the withdrawal or injection seasons (within certain limits), thereby providing significant shoulder month and year-round operational flexibility. LG&E is subject to a minimum withdrawal requirement applicable to the NNS storage quantity of 4,548,000 MMBtu (37,900 MMBtu x 120 days). LG&E also has the obligation to refill NNS storage during the Summer in order to ensure adequate delivery during the following winter season.

LG&E's Seasonal Quantity Entitlement ("SQE"), the maximum quantity of gas which Texas Gas is obligated to transport and deliver to LG&E as a part of No-Notice Service, is 26,220,000 MMBtu for the Winter and 8,292,000 MMBtu for the Summer. Pursuant to Texas Gas's Tariff, LG&E's Summer SQE is adjusted upward to include any unused portion of its Unnominated Seasonal Quantity from the previous winter season.

PROCEDURE NAME Compliance with Pipeline Services		**SECTION NO.** 2.10
VERSION NO. 12	**DATE ISSUED** August 1, 2019	**PAGE** 4 of 4

RESPONSIBILITY	**ACTION**
Pipeline Transporter	1. Updates web site with volume and storage data.
Gas Supply Department	2. Logs on to web site **(as listed below)** and verifies daily volumes nominated and delivered by contract, receipt points, and storage capacity. a.) For Texas Gas, log on to "GasQuest" at www.gasquest.txgt.com. b.) For Tennessee, log on to "DART" at http://pipeportal.kindermorgan.com/PortalUI/DefaultKM.aspx?TSP=TGPD. 3. Tracks Texas Gas's NNS storage balance maintained in the Daily Supply Plan (Supply) to ensure proper quantities are injected or withdrawn. Refer to Report 6.1.5. 4. Maintains departmental records to correspond with daily nominated volumes as confirmed by pipeline. 5. Maintains accurate records to ensure that nominated daily volumes are in compliance with transportation agreements, Texas Gas Tariff, Tennessee Tariff, supplier agreements, and adequate to meet delivery requirements.

Approved: Director – Gas Management, Planning, and Supply	Approved: Manager, Gas Supply	Approved: Gas Supply Specialist (Reviewer)	Approved: Gas Supply Specialist (Owner)

PROCEDURE NAME Nominations to Texas Gas		**SECTION NO.** 2.11
VERSION NO. 8	**DATE ISSUED** August 1, 2019	**PAGE** 1 of 8

PURPOSE

The purpose of this procedure is to outline the process for making nominations on the internet website of Texas Gas Transmission.

Texas Gas provides both "manual" and "auto-confirm" options for verifying transportation volumes nominated for delivery to LG&E's city gate for system supply and by third parties for end-use customers. LG&E currently utilizes the "manual" confirmation method. LG&E has not selected the "auto-confirm" option because of the potential for changes to nominations by third parties for end-use customers. Without manual confirmation of these nominations by LG&E, supply reliability could be adversely impacted in the event that nomination changes made by or on behalf of end-use transportation customers are not detected.

PROCEDURE NAME Nominations to Texas Gas		**SECTION NO.** 2.11
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RESPONSIBILITY

Gas Supply Department

ACTION

1. Logs onto the Texas Gas internet website (See Section 2.10) and selects "Nominations". Submits nomination for each supplier by performing the following actions:

   a) Enter/Select appropriate LG&E transportation contract Number;
   b) Select effective beginning date and effective time of flow;
   c) Select Transaction Type ("TT"). For LG&E system supply, the appropriate TT is "01 Current Business";

NOTE: In instances where LG&E determines to flow no volume on its NNS Contract #29781, at least one (1) MMBtu should be nominated on the contract (29781) using a TT 06 "Storage Injection" or TT 07 "Storage Withdrawal" in order for all flowing supplies to be properly allocated by the pipeline.

   d) Select "Create" in the upper right-hand portion of the screen;
   e) Select effective ending date and effective time of flow;
   f) Enter/Select Receipt Loc Meter Number;
   g) Enter/Select upstream supplier name;
   h) Enter/Select upstream contract number or, for Lebanon supplies, enter the appropriate GID number;
   i) Enter Receipt Qty (MMBtu);

PROCEDURE NAME Nominations to Texas Gas		**SECTION NO.** 2.11
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RESPONSIBILITY | **ACTION**

Gas Supply Department (cont.)

j) Enter receipt rank (in the event of supply disruptions, a lower number is last to be cut), typically Champlin supply = Rank 1, longer-term and seasonal supplies = Rank 2, daily spot purchase = Rank 3, or higher;
k) Enter/Select Delivery Loc Meter Number (typically Louisville Shipper Deduct 1529);
l) Enter/Select downstream ID (LG&E's DUNS number – 006945505);
m) Enter delivery rank (in the event of supply disruptions, a lower number is last to be cut), typically Champlin supply = Rank 1, longer-term and seasonal supplies = Rank 2, daily spot purchases= Rank 3, or higher;
n) Enter Package ID name (optional);
o) Select "Validate" in the upper right-hand portion of the screen. Delivery quantity will populate.

NOTE: Should nominations be entered which create circumstances outside of contractual limitations, i.e. surpassing daily contract demand, hourly flow restrictions, etc., (an) Error Message(s) will appear upon selecting "Validate".

p) Assuming no error messages appear, select "Submit" in the upper right-hand portion of the screen.

PROCEDURE NAME Nominations to Texas Gas		**SECTION NO.** 2.11
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RESPONSIBILITY	**ACTION**
Gas Supply Department (cont.)	2. Confirms nominated volumes for the appropriate Location (1529), Nomination Cycle, Nomination Level (typically "Nom") and selecting "Y" ("yes") to "Confirm Subsequent Cycles", on "Confirmation" screen of the Texas Gas internet website by entering the volume to be confirmed, selecting the line-item to be confirmed and selecting "Confirm" in the upper right-hand portion of the screen.
Pipeline Transporter	3. Matches nomination from supplier and LG&E.
	4. Advises the Gas Supply Department, by phone and/or e-mail, of any discrepancies between supplier and LG&E nominations because LG&E has selected the Manual Confirm option.
Gas Supply Department	5. Contacts supplier to reconcile any discrepancies in nomination. Corrects any discrepancies by repeating any necessary Action 1 steps.
Supplier(s)	6. Notifies LG&E of any changes in supply volumes or receipt locations.
Gas Supply Department	7. Repeats necessary Action 1 steps for any nomination change. Such changes must be reflected in the Nomination Schedule, Daily Supply Plan (Supply), Gas Supply Purchase Record, Bill Calculation Letter, etc. (See Sections 2.5, 2.6, 2.8, and 2.13).

PROCEDURE NAME Nominations to Texas Gas		**SECTION NO.** 2.11
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RESPONSIBILITY	**ACTION**
Pipeline Transporter(s)	8. Texas Gas posts "Scheduled Quantities" Report for verification of scheduled volumes. Report includes gross receipts and net deliveries for each supplier by receipt point and pipeline contract. (Appendix 2-O.)
Gas Supply Department	9. Following each nomination cycle, verifies nomination of natural gas supplies made by all suppliers by viewing the "Confirmations" screen or by using the "Scheduled Quantities" report from Texas Gas internet website as necessary to identify discrepancies.
	10. Contacts supplier to reconcile any discrepancies between posted nominations and scheduled quantities. Corrects any discrepancies by repeating any necessary Action 1 steps.

PROCEDURE NAME Nominations to Texas Gas		**SECTION NO.** 2.11
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RESPONSIBILITY

Gas Supply Department (cont.)

ACTION

11. Enters Predetermined Allocation ("PDA") on "PDA" screen of the Texas Gas internet website to inform the pipeline how volumes of gas delivered to Louisville Shipper Deduct 1529 are to be allocated.

    a). LG&E currently utilizes a Swing Allocation methodology for allocation of supplies into its system. With the Swing Allocation, only supplies scheduled for delivery on LG&E's NNS contract #29781 are ranked on the pipeline website. All other supplies scheduled for delivery to LG&E's city-gate "swing" on LG&E's storage account, thereby allowing supplies other than those flowing on the NNS contract, specifically FT North-to-South supplies, to be injected into LG&E's NNS Storage account.

NOTE: Care should be taken to ensure that the volume of gas delivered to LG&E's city-gate is at least equal to the volume of gas scheduled for delivery by end-use customers. Under no circumstances should third-party gas supply be injected into LG&E's NNS storage.

PROCEDURE NAME Nominations to Texas Gas		**SECTION NO.** 2.11
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RESPONSIBILITY	**ACTION**
Gas Supply Department (cont.)	12. When using a Ranking Allocation methodology, a PDA is entered for each natural gas contract, including system supply and end-use customer supply, scheduled and confirmed for delivery to LG&E's city-gate on a given day.

a). With the ranking method for PDA entry, LG&E ranks gas supplies delivered to its system with the following allocation priorities:

Rank 1 - End-use customer supplies.

Rank 2 - All supplies scheduled for delivery on LG&E's Firm Transportation ("FT North-to-South") contract 34951.

Rank 3 - All supplies scheduled for delivery on LG&E's Interruptible Transportation ("IT") contract 29668.

Rank 4 - All supplies scheduled for delivery on LG&E's No-Notice Service ("NNS") contract 29781.

PROCEDURE NAME Nominations to Texas Gas		**SECTION NO.** 2.11
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RESPONSIBILITY	**ACTION**
Gas Supply Department (cont.)	13. Volumes associated with an existing nomination may be changed on the "Nominations" screen of any transportation contract by selecting the "Retrieve" button, selecting the line of the nomination to be changed, and selecting "Edit" in the upper right-hand portion of the screen.
	Any other changes to an existing nomination (transportation contract number, receipt point, delivery point, etc.) require the cancellation of the existing nomination and the creation of a new nomination. (Action 1 above).
	NOTE: Texas Gas Transmission utilizes Gas Day dates and times for scheduling rather than Calendar Day dates. As such, a nomination for a single day must be entered as beginning at 9:00 AM Central Time on the date of flow, and ending at 9:00 AM Central Time on the following day.

Approved: Director – Gas Management, Planning, and Supply	Approved: Manager, Gas Supply	Approved: Gas Supply Specialist (Reviewer)	Approved: Gas Supply Specialist (Owner)
			Laura Theelen

PROCEDURE NAME		**SECTION NO.**
Nominations to Tennessee Utilizing LG&E's Firm Pipeline Capacity		2.12 (a)
VERSION NO.	**DATE ISSUED**	**PAGE**
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PURPOSE

The purpose of this procedure is to outline the process for making nominations on the internet website of Tennessee Gas Pipeline for natural gas purchases to be delivered to LG&E utilizing LG&E's pipeline capacity.

Tennessee provides both "manual" and "auto-confirm" options for verifying transportation volumes nominated for delivery to LG&E's city-gate for system supply and by third parties for end-use customers. LG&E currently utilizes the "auto-confirm" method. LG&E has not selected the "manual-confirm" option because there is currently no activity at the city-gate associated with nominations by third parties for end-use customers. These procedures are written in light of the selection of that confirmation option by LG&E. If nomination activity by third parties for end-use customers becomes the standard mode of operation for LG&E, it will then be necessary to re-evaluate, and perhaps modify, the current option from "auto-confirm" to the "manual-confirm" option.

To verify supplier nominations of natural gas supplies to be delivered to LG&E utilizing the supplier's pipeline capacity, see Section 2.12 (b).

PROCEDURE NAME Nominations to Tennessee Utilizing LG&E's Firm Pipeline Capacity		**SECTION NO.** 2.12 (a)
VERSION NO. 5	**DATE ISSUED** August 1, 2019	**PAGE** 2 of 7

RESPONSIBILITY	**ACTION**
Gas Supply Department	1. Logs onto the Kinder Morgan internet website (See Section 2.10). 2. From the main page, places cursor on the "Interstate" label and select "Tennessee Gas Pipeline" from the dropdown menu. 3. From the Tennessee Gas Pipeline home page, selects "DART Login". 4. Enters User Name and Password. 5. Clicks on "Navigation Panel" and selects "Nominations" from the dropdown menu. Selects "Nomination" and "Not Submitted". Submits nomination for each supply package by performing the following actions: a) From "Batch List" screen, select "Add Batch"; b) Enter nomination beginning and ending date, beginning nomination time cycle (typically "Timely" or "Best Available"), and a brief description of the nomination. Confirm the "Shipper" button is highlighted and select "Save"; **NOTE:** Tennessee Gas Pipeline utilizes Calendar Day dates for scheduling rather than Gas Day dates and times. As such, a nomination for a single day must be entered as beginning, and ending, on the same date.

PROCEDURE NAME		**SECTION NO.**
Nominations to Tennessee Utilizing LG&E's Firm Pipeline Capacity		2.12 (a)
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RESPONSIBILITY

Gas Supply Department (cont.)

ACTION

c) A new window will appear indicating the batch was successfully saved. Select "Enter New Nominations";

d) Enter receipt meter number (ex. 405345 – Zone 0 South Pool) and select the "New" button. The Nomination Matrix will appear;

NOTE: Any existing "upstream" nomination that requires modification may be changed at this time. The modification will remain in effect during the time specified for the new nomination "Batch" entered in Actions 5a and 5b above.

Modification of existing nominations outside the date range of the new nomination must be entered separately as a new "Unsubmitted" nomination.

e) In the "Upstream Nominations" matrix, click the "Vol Type" field and select "Buy (Current Business)" from the dropdown menu;

f) Tab to "Rec Loc Prop/Up ID Prop" column. Manually enter supplier Global Identification Number ("GID"), or double-click and select supplier GID.

g) Tab to "Rec Qty (Gross)" field. Enter receipt quantity including volume for fuel retention.

<table>
<tr><td colspan="2">PROCEDURE NAME

Nominations to Tennessee Utilizing LG&E's Firm Pipeline Capacity</td><td>SECTION NO.

2.12 (a)</td></tr>
<tr><td>VERSION NO.

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</table>

RESPONSIBILITY	**ACTION**
Gas Supply Department (cont.)	h) Tab to the "Del Qty (Net)" field, which will populate automatically. i) Tab to "Up Rank/Del Rank" and enter the nomination rank (default is 500) and Package ID (if desired); **NOTE:** If a package ID is desired, the "Package ID" box must be checked near the top of the screen. j) Go to the "Downstream Nominations" matrix and click the "Vol Type" field. Select "Transport (Current Business)" from the dropdown menu; k) Tab to the "Svc Req K" box and enter the appropriate LG&E transportation contract number, or double-click on the field and select the appropriate contract number from the dropdown menu; l) Tab to the "Del Loc Prop/Dn ID Prop" field and enter the delivery meter number (ex. 420843-Monroe, 420844-Calvary); m) Tab to the "Rec Qty (Gross)" field. Enter the gross volume (including fuel retention) and "Tab". n) Tab to the "Del Qty (Net)" field, which will be calculated automatically. o) Tab to "Dn Rank/Rec Rank" and enter the nomination rank (default is 500) and Package ID (if desired).

PROCEDURE NAME Nominations to Tennessee Utilizing LG&E's Firm Pipeline Capacity		**SECTION NO.** 2.12 (a)
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RESPONSIBILITY | **ACTION**

Gas Supply Department (cont.)

p) Click the "Save" button at the top of the screen.

q) In the "Downstream Nominations" matrix, click the "GO" button to proceed to completion of downstream information. A new window will appear for downstream info.

NOTE: Any existing "downstream" nomination that requires modification may be changed at this time. The modification will remain in effect during the time specified for the new nomination "Batch" entered in Actions 5a and 5b above.

Modification of existing nominations outside the date range of the new nomination must be entered separately as a new "Unsubmitted" nomination.

r) Click on the "Vol Type" field and select "Off-System Market" from the dropdown menu.

s) Tab to the "Del Loc Prop/Dn ID Prop" field and enter LG&E's GID (1650).

t) Tab to the "Rec Qty (Gross)" field. The volume to be entered must match the "Del Qty (Net)" volume in the "Upstream Nominations" field above.

PROCEDURE NAME Nominations to Tennessee Utilizing LG&E's Firm Pipeline Capacity		**SECTION NO.** 2.12 (a)
VERSION NO. 5	**DATE ISSUED** August 1, 2019	**PAGE** 6 of 7

RESPONSIBILITY	**ACTION**
Gas Supply Department (cont.)	u) Tab to the "Del Qty (Net)" field, which will populate automatically. v) Rank nomination (default is 500) and enter a Package ID, if desired. w) Click the "Save" button at the top of the screen. x) Click the "Batch Locations" button on the top-left side of the screen. y) Click the "Validate" button on the top-right side of the screen. Any errors to this point will appear in a new window to allow for correction. y) Click the "Submit" button to submit nominations to the pipeline. z) A message will appear at the bottom of the screen to confirm submission to the pipeline, or to indicate nomination errors requiring correction prior to final submission.
Pipeline Transporter	6. Matches nomination volumes from supplier and LG&E. 7. Posts nominated volumes on "Scheduled Quantities" report under the "Nominations" tab (Appendix 2-O) on DART website because LG&E has selected the Auto-Confirm option.
Supplier(s)	8. Notifies LG&E of any changes in supply volumes or receipt points.

PROCEDURE NAME Nominations to Tennessee Utilizing LG&E's Firm Pipeline Capacity		**SECTION NO.** 2.12 (a)
VERSION NO. 5	**DATE ISSUED** August 1, 2019	**PAGE** 7 of 7

RESPONSIBILITY	**ACTION**
Gas Supply Department	9. Repeats any necessary Action 1 steps for any nomination change. Such changes must be reflected in the Nomination Schedule, Daily Supply Plan (Supply), Gas Supply Purchase Record, Bill Calculation Letter, etc. (See Sections 2.5, 2.6, 2.8, and 2.13).
Pipeline Transporter(s)	10. Tennessee posts "Schedules Quantities" report for verification of nominated and scheduled volumes. Report indicates volumes scheduled for delivery at each delivery location, by supplier. (Appendix 2-O.)
Gas Supply Department	11. Following each nomination cycle, verifies nomination of natural gas supplies made by supplier using "Scheduled Quantities" report from the DART website. (Appendix 2-O.)
	NOTE: If viewing multiple days, DART requires a cycle time of 8 A.M.
	12. Contacts supplier to reconcile any discrepancies between posted nominations and scheduled quantities. Corrects any discrepancies by repeating any necessary Action 1 steps.

Approved: Director – Gas Management, Planning, and Supply	Approved: Manager, Gas Supply	Approved: Gas Supply Specialist (Reviewer)	Approved: Gas Supply Specialist (Owner)
Shelley Murphy	Tom Jaynes	Gregory O. Kim	Gregory O. Kim Laura Thielen

PROCEDURE NAME		SECTION NO.
Verifying Supplier Nominations to Tennessee Utilizing Supplier's Pipeline Capacity		2.12 (b)
VERSION NO.	**DATE ISSUED**	**PAGE**
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PURPOSE

The purpose of this procedure is to outline the process for verifying nominations made by suppliers on the internet website of Tennessee Gas Pipeline for LG&E natural gas purchases to be delivered to LG&E utilizing the supplier's pipeline capacity.

LG&E may, on occasion, elect to purchase delivered supply on Tennessee due to load requirements, operational limitations, economic benefits, or for other reasons. Such supplies are "delivered" to LG&E's city-gate meters, Monroe (420843) or Calvary (420844), by the supplier utilizing the supplier's own firm pipeline capacity. When making such purchases, LG&E is not required to either make a pipeline nomination or to confirm scheduled supplies because it has elected the "auto-confirm" option as described in Section 2.12 (a). However, LG&E can, and does, verify that purchased delivered supply has been scheduled on Tennessee's website (DART) by the supplier.

To verify nominations of natural gas supplies to be delivered to LG&E utilizing LG&E's pipeline capacity, see Section 2.12 (a).

PROCEDURE NAME		**SECTION NO.**
Verifying Supplier Nominations to Tennessee Utilizing Supplier's Pipeline Capacity		2.12 (b)
VERSION NO.	**DATE ISSUED**	**PAGE**
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RESPONSIBILITY	**ACTION**
Gas Supply Department	1. Logs onto the Kinder Morgan internet website (See Section 2.10).
	2. From the main page, places cursor on the "Interstate" label and select "Tennessee Gas Pipeline" from the dropdown menu.
	3. From the Tennessee Gas Pipeline home page, selects "DART Login".
	4. Enters User Name and Password.
	5. Click on "Navigation Panel" and selects "Nominations" from the dropdown menu.
	6. Select "Scheduled Quantity" and then select "Sched Qty Oper".
	NOTE: For this purpose, do not select either "Sched Qty Oper Detail" or "Sched Qty Oper Summary". "Sched Qty Oper Detail" produces a report showing only volumes scheduled by individual supplier. "Sched Qty Oper Summary" produces a report showing only total scheduled volumes, but no supplier information.
	7. Enter the date and scheduling cycle to be reviewed into the appropriate locations.
	NOTE: If viewing multiple days, DART requires a cycle time of 8 A.M.

PROCEDURE NAME Verifying Supplier Nominations to Tennessee Utilizing Supplier's Pipeline Capacity		**SECTION NO.** 2.12 (b)
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RESPONSIBILITY	**ACTION**
Gas Supply Department (cont.)	8. Clicks "Retrieve" located in the upper right-hand corner of the screen. 9. Verifies total quantities nominated and scheduled for the selected time period. 10. To select a particular line item to be reviewed for additional detail, click on the line to be reviewed. 11. Click on "Sched Qty Op Matrix" button in the upper left-hand corner of the screen. 12. Verifies nominated and scheduled volumes by individual supplier. 13. Contacts supplier to reconcile any discrepancies between agreed-upon transaction volumes and those posted as being nominated and scheduled on the pipeline website. 14. Repeats Actions 1 – 13 as necessary until supplier scheduled volumes match the agreed-upon transaction volumes.

PROCEDURE NAME Verifying Supplier Nominations to Tennessee Utilizing Supplier's Pipeline Capacity		**SECTION NO.** 2.12 (b)
VERSION NO. 1	**DATE ISSUED** August 1, 2019	**PAGE** 4 of 4

RESPONSIBILITY	**ACTION**
Gas Supply Department (cont.)	15. Any nomination changes must be reflected in the Nomination Schedule, Daily Supply Plan (Supply), Gas Supply Purchase Record, Bill Calculation Letter, etc. (See Sections 2.5, 2.6, 2.8, and 2.13).

Approved: Director – Gas Management, Planning, and Supply	Approved: Manager, Gas Supply	Approved: Gas Supply Specialist (Reviewer)	Approved: Gas Supply Specialist (Owner)
			Laura Thielen

PROCEDURE NAME		**SECTION NO.**
Winter Season Gas Supply Plan and Bid Process		2.4
VERSION NO.	**DATE ISSUED**	**PAGE**
7	January 1, 2020	1 of 4

PURPOSE

The purpose of this procedure is to outline the method used for determining longer-term, winter season, and peaking gas supply requirements, developing bid invitations and evaluating supplier proposals. To the extent practicable, discussions related to these transactions between the Gas Supply Department and the potential supplier are made in (or reduced to) writing.

PROCEDURE NAME		**SECTION NO.**
Winter Season Gas Supply Plan and Bid Process		2.4
VERSION NO.	**DATE ISSUED**	**PAGE**
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RESPONSIBILITY	**ACTION**
Gas Supply Department	1. Develops and documents supply strategies and Bid Evaluation Methodology for planning period. 2. Determines supply requirements for planning period based upon analysis utilizing the ABB SENDOUT® Model which reflects load forecast (see Section 2.1), pipeline services, storage operating parameters, and existing supplies. Documents ABB SENDOUT® analysis. 3. Determines supply packages to include in the annual Bid Invitation Letter for winter-season supplies. Determines any additional supply packages to be purchased through the shorter-term bid process outlined in Section 2.8. 4. Develops bid specifications (including volume, flexibility, term, pricing arrangements, etc.) and formulates Bid Invitation Letter and Gas Supply Proposal Form(s). Director – Gas Supply reviews and initials Bid Invitation Letter and distribution list. 5. Sends Bid Invitation Package, via e-mail, including Bid Invitation Letter, Gas Supply Proposal Form(s), and draft Nomination Schedule to qualified and creditworthy suppliers as identified on Approved Transaction List (Appendix 2-P).

PROCEDURE NAME		**SECTION NO.**
Winter Season Gas Supply Plan and Bid Process		2.4
VERSION NO.	**DATE ISSUED**	**PAGE**
7	January 1, 2020	3 of 4

RESPONSIBILITY	**ACTION**
	NOTE: The Bid Invitation Package shall be labeled as "Confidential".
Supplier	6. Provides Gas Supply Proposal Form(s) and proposed Nomination Schedule revisions by deadline as set forth in the Bid Invitation Letter.
Gas Supply Department	7. Reviews supplier proposal(s) and requests supplier clarification of proposal(s), if required.
Supplier	8. Clarifies any portion of supplier's proposal(s) as requested in Action 7.
Gas Supply Department	9. Evaluates supply proposals according to a pre-determined Bid Evaluation Methodology.
	10. Selects supplier(s) subject to management approval. Notifies supplier(s) and begins negotiation of required contract documents.
	11. Documents bid evaluation and supplier selection as a part of the annual Supply Plan. (Report 6.2.10).

PROCEDURE NAME Winter Season Gas Supply Plan and Bid Process		SECTION NO. 2.4
VERSION NO. 7	**DATE ISSUED** January 1, 2020	**PAGE** 4 of 4

RESPONSIBILITY	ACTION
Gas Supply Department (cont.)	12. Negotiates a Base Agreement for Natural Gas Sales and Purchases (if applicable) in accordance with Section 2.7.
	NOTE: Supplier and LG&E may mutually agree to perform the transaction under the base agreement already in effect between the parties, assuming the parties mutually agree to language to be included in the Nomination Schedule.
	13. Negotiates a Nomination Schedule describing the transaction and makes sure to include any provisions required to update the supplier's existing base agreement in accordance with Section 2.5.
	14. Notifies Supplier Diversity Manager, via e-mail quarterly, of actual value of any supply transactions entered into with suppliers identifying themselves as a Minority Business Enterprise ("MBE"), Women-Owned Business Enterprise ("WBE"), or Small Business ("SBA"). Such notification is sent on the first day of each calendar quarter pursuant to Report 6.1.4. Copy Director- Gas Supply and Manager, Gas Supply on e-mail transmission.

Approved: Director – Gas Management, Planning, and Supply	Approved: Manager, Gas Supply	Approved: Gas Supply Specialist (Reviewer)	Approved: Manager, Gas Supply (Owner)

PROCEDURE NAME Negotiating and Executing a Nomination Schedule or Transaction Confirmation		**SECTION NO.** 2.5
VERSION NO. 5	**DATE ISSUED** January 1, 2020	**PAGE** 1 of 6

PURPOSE

The purpose of this procedure is to outline the method used to negotiate and execute a Nomination Schedule to confirm a transaction performed under the base natural gas sales and purchase agreement between LG&E and the counterparty. If the Agreement is a NAESB, the Nomination Schedule may be referenced as a Transaction Confirmation.

The Nomination Schedule or Transaction Confirmation memorializes the agreement of LG&E and the counterparty to a specific supply transaction and is executed by LG&E in accordance with LG&E's ALM described in the Preface of Section 2.

The Nomination Schedule or Transaction Confirmation for gas supply purchased on a "daily" basis will identify specific purchase information including the supplier name, effective date of the base agreement, the term of the transaction, the price (or index used to determine the price), the daily volume, transaction type, the name and meter number of the point of receipt/delivery, and the upstream contract/GID number, as applicable.

For purchases of a greater term, generally one month or longer, the Nomination Schedule or Transaction Confirmation will include the information above, as well as additional terms and conditions related to the transaction. These additional terms and conditions may include monthly demand charges, volumetric change flexibility, nomination dates and times, as well as any required provisions not included in the base agreement.

PROCEDURE NAME Negotiating and Executing a Nomination Schedule or Transaction Confirmation		**SECTION NO.** 2.5
VERSION NO. 5	**DATE ISSUED** January 1, 2020	**PAGE** 2 of 6

RESPONSIBILITY	**ACTION**
Gas Supply Department	1. **SARBANES-OXLEY KEY CONTROL (22.04.01)** - The Gas Supply Specialist prepares a Nomination Schedule which may also be entitled "Transaction Confirmation" if required by the Base Agreement for Natural Gas Sales and Purchases. This document will include specific transaction information such as supplier information, term of transaction, price or indices, daily volume, type of transaction, receipt/delivery point name and meter number, and upstream contract/GID number, as applicable. (Appendix 2-L).
	2. **SARBANES-OXLEY KEY CONTROL (22.04.01)** – Appropriate Gas Supply Specialists review the terms of the transaction on the Nomination Schedule or Transaction Confirmation and, if accurate, initial the document which is then executed by LG&E in accordance with the ALM as described in the Preface of Section 2.
	NOTE: Transactions entered into pursuant to Section 2.4 must be reviewed and initialed by the Manager, Gas Supply.

PROCEDURE NAME Negotiating and Executing a Nomination Schedule or Transaction Confirmation		**SECTION NO.** 2.5
VERSION NO. 5	**DATE ISSUED** January 1, 2020	**PAGE** 3 of 6

RESPONSIBILITY	**ACTION**
Gas Supply Department (cont.)	3. In order to determine ALM compliance, the "Term and Tenor Calculations" form is completed for all transactions, with a term of one month or greater, using current natural gas NYMEX prices adjusted for any basis, discount, premium, or other factors as applied to the contract volumes for the term of the transaction. a) Ensures compliance with the ALM by estimating contract value and reviewing term and tenor as specified in the ALM. b) Facilitates execution of the Nomination Schedule by appropriate LG&E personnel as described in the Preface of Section 2. 4. Prepares and sends a .pdf of the Nomination Schedule or Transaction Confirmation, via e-mail to the supplier for verification pursuant to the terms of the applicable base agreement. Saves the file in "G://GSUPPLY/Suppliers/" folder under the supplier name, and in the "/Nomination Schedules – Bill Calculations/" folder.

PROCEDURE NAME Negotiating and Executing a Nomination Schedule/Transaction Confirmation		**SECTION NO.** 2.5
VERSION NO. 5	**DATE ISSUED** January 1, 2020	**PAGE** 4 of 6

RESPONSIBILITY	**ACTION**
Supplier	5. Reviews Nomination Schedule. a) If in agreement with the Nomination Schedule or Transaction Confirmation, supplier will perform the action required by the Base Agreement for Natural Gas Sales and Purchases which may be as follows: (1) execute the document and return it to Gas Supply, or (2) forward its own executed confirmation document, or (3) accept LG&E's confirmation document as the only confirmation document without dispute. Skip Actions 6 and 7; Go to Action 8. b) If not in agreement with Nomination Schedule or Transaction Confirmation, notifies the Gas Supply Department of any discrepancies in the document by the date specified in the applicable base agreement. Go to Action 6.
Gas Supply Department	6. Negotiates the Nomination Schedule with supplier while consulting with appropriate counsel, as necessary. 7. Resolves any discrepancies associated with the Nomination Schedule. Prepares and e-mails supplier a .pdf of a revised Nomination Schedule. Back to Action 5 above.

PROCEDURE NAME Negotiating and Executing a Nomination Schedule/Transaction Confirmation		**SECTION NO.** 2.5
VERSION NO. 5	**DATE ISSUED** January 1, 2020	**PAGE** 5 of 6

RESPONSIBILITY	**ACTION**
Gas Supply Department (cont.)	8. **SARBANES-OXLEY KEY CONTROL (22.04.01)** – Maintains LG&E's Nomination Schedule or Transaction Confirmation in an organized and secure fashion in the supplier's contract binder.
	9. **SARBANES-OXLEY KEY CONTROL (22.04.01)** - If the supplier sends either a binding or non-binding confirmation of the transaction, the confirmation is reviewed by the appropriate Gas Supply Specialists. If correct, it is initialed by those Gas Supply Specialists on a timely basis and then filed in the supplier's contract binder. If incorrect, discrepancies are reported to the supplier on a timely basis. For transactions entered into pursuant to Section 2.4, the Manager Gas Supply will perform the review and initial the document.
	10. Transactions required pursuant to the Winter Season planning process are described in the "Summary of Longer-Term Gas Supply Transaction Provisions" which is signed by Gas Supply Specialist, reviewed by Manager, Gas Supply and approved by the Director – Gas Supply (Appendix 2-F).

PROCEDURE NAME Negotiating and Executing a Nomination Schedule/Transaction Confirmation		**SECTION NO.** 2.5
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RESPONSIBILITY	**ACTION**
Gas Supply Department (cont.)	11. Prepares a .pdf file of the Winter Season Nomination Schedule or Transaction Confirmation and saves file in gassupply/Long Term Bidding/year contract was executed. 12. Reports new summer or winter seasonal transactions to VP – Gas Operations in next monthly "Report of Key Performance Indicators" (Report 6.4.2).

Approved: Director – Gas Management, Planning, and Supply	Approved: Manager, Gas Supply	Approved: Gas Supply Specialist (Reviewer)	Approved: Manager, Gas Supply (Owner)
Jeffrey Murley	Pamela Jaynes	Gregory A. [illegible]	Laura Thielen Pamela Jaynes

PROCEDURE NAME Executing a Base Agreement for Natural Gas Sales and Purchases		**SECTION NO.** 2.7
VERSION NO. 13	**DATE ISSUED** January 1, 2020	**PAGE** 1 of 6

PURPOSE

The purpose of this procedure is to outline the method used to execute a Base Agreement for Natural Gas Sales and Purchases or a NAESB Base Contract for Sale and Purchase of Natural Gas. Similar agreements, executed prior to July, 2016, were called the Natural Gas Sales and Purchase Agreement. For the purpose of this procedure, all base purchase agreements shall be referred to as a "Base Agreement For Natural Gas Sales and Purchases". LG&E buys and sells natural gas under these agreements regardless of the term of the transaction.

The Base Agreement for Natural Gas Sales and Purchases is a base-form of agreement and does not define a specific transaction. Specific transactions entered into under the Base Agreement for Natural Gas Sales and Purchases are defined in a Nomination Schedule or Transaction Confirmation, which is executed by LG&E in accordance with the ALM as described in the Preface of Section 2.

Inasmuch as the Base Agreement for Natural Gas Sales and Purchases has no specific dollar value or term, such documents may be executed by the Director, Gas Supply.

NOTE: A Base Agreement for Natural Gas Sales and Purchases should not be entered into with Morgan Stanley, or any other bank (or subsidiary thereof) without approval from LG&E's Credit Manager. Entering into an agreement with a bank (or subsidiary thereof) could negatively impact other types of agreements (i.e. interest rate swaps) that LG&E has with that bank.

PROCEDURE NAME Executing a Base Agreement for Natural Gas Sales and Purchases		**SECTION NO.** 2.7
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RESPONSIBILITY	**ACTION**
Supplier	1. Potential supplier requests a Base Agreement for Natural Gas Sales and Purchases. 2. Supplies any data requested by Gas Supply Department including: a) Financial Statements b) Supply Access Capabilities c) Trade References
Gas Supply Department	3. Assesses supplier's data and determines whether or not supplier is qualified to be a potential supplier. Analysis of requested data includes the following: a) Creditworthiness, as determined by the Credit Department at Gas Supply Department's request in accordance with Section 2.15, b) Compatibility of supply access, and c) Acceptable trade references at the discretion of the Gas Supply Department. 4. If the Credit Department or the Gas Supply Department determines the supplier is unacceptable, for any reason, the Gas Supply Department notifies supplier of unacceptable findings. If the Credit Department and the Gas Supply Department determine the supplier is acceptable, the Gas Supply Department begins the contract negotiation process by forwarding a draft copy of the Base Agreement for Natural Gas Sales and Purchases (Appendix 2-H) to the supplier.

PROCEDURE NAME Executing a Base Agreement for Natural Gas Sales and Purchases		**SECTION NO.** 2.7
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RESPONSIBILITY	**ACTION**
Gas Supply Department (cont.)	**NOTE:** Historically, LG&E preferred to use the "Base Agreement for Natural Gas Sales and Purchases" developed in-house. However, negotiations with suppliers indicate that suppliers prefer the NAESB agreement.
	5. Negotiates agreement with supplier and makes acceptable revisions, if any, after consulting with appropriate counsel.
	6. Emails negotiated Base Agreement for Natural Gas Sales and Purchases to supplier for execution. Sends appropriate Sales Tax Exemption Form to supplier (Appendix 2-I), a Labor and Business Classification Form for completion, and requests a copy of the supplier's W-9 Form.
Supplier	7. Executes Agreement and returns to the Gas Supply Department along with the appropriate Sales Tax Exemption Form, Labor and Business Classification Form, W-9 Form, and adequate assurance (if required) as described in Section 2.16. **NOTE:** Supplier's failure to provide the Labor and Business Classification Form does not prevent LG&E from entering into transactions with supplier.

PROCEDURE NAME Executing a Base Agreement for Natural Gas Sales and Purchases		**SECTION NO.** 2.7
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RESPONSIBILITY	**ACTION**
Gas Supply Department	8. **SARBANES-OXLEY KEY CONTROL (22.04.01) -** When supplier has provided adequate assurance pursuant to Section 2.16, the agreement is reviewed and initialed by a Gas Supply Specialist and the Manager, Gas Supply prior to execution by appropriate LG&E personnel in accordance with the ALM as described in the Preface of Section 2, and returns fully executed Agreement to supplier for its records.
	9. Prepares a .pdf of the executed Agreement, saves file in the "gassupply/ GSUPPLY/Suppliers/" folder, and maintains original Agreement and related documents, by supplier, in an organized and secure fashion.
	10. Adds supplier to list of Base Natural Gas Sales and Purchase Agreements which must be signed by the preparer, reviewed by a Gas Supply Specialist, and approved by the Director – Gas Supply. (Appendix 2-J.)
	11. Adds supplier to Approved Transaction List and Credit Evaluation List (See Section 2.15).
	12. Sends original Sales Tax Exemption Form to Billing Integrity, forwards a copy of Labor and Business Classification Form to Manager, Supplier Diversity and retains a copy of each in the supplier's contract binder.

PROCEDURE NAME Executing a Base Agreement for Natural Gas Sales and Purchases		**SECTION NO.** 2.7
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RESPONSIBILITY	**ACTION**
Gas Supply Department (cont.)	13. Completes pages 1 through 4 of "Request for the Addition of a Purchase Order Vendor to the Vendor Master Record" (Appendix 2-Z) and forwards, via e-mail, to Supply Chain (Report 6.3.21).
	14. If applicable, immediately adds supplier to Counterparty Credit Exposure Report (Report 6.4.3), which is included as a tab in the Gas Supply Purchase Record.
	15. Immediately completes "FAS161 and Related MD&A Data Collection Form" (FASFORM) and sends to Financial Reporting (Appendix 2-V).
	16. Adds contract to next "Quarterly Credit Assurance Report" sent to Manager Credit and Contract Administration (Report 6.2.11).
	17. Reports new contract to VP – Gas Operations in next monthly "Report of Key Performance Indicators" (Report 6.4.2).
	18. Reports new contract on quarterly contract list sent to the Company's external auditor for auditing purposes (Report 6.2.8).

PROCEDURE NAME Executing a Base Agreement for Natural Gas Sales and Purchases		**SECTION NO.** 2.7
VERSION NO. 13	**DATE ISSUED** January 1, 2020	**PAGE** 6 of 6

RESPONSIBILITY	**ACTION**
Gas Supply Department (cont.)	19. Manager, Gas Supply reviews contract to ensure potential and actual purchases are in compliance with the "Normal Purchase Normal Sales" exemption for derivatives and reports outcome of review in quarterly report sent to Financial Reporting (Report 6.2.8).

Approved: Director – Gas Management, Planning, and Supply	Approved: Manager, Gas Supply	Approved: Gas Supply Specialist (Reviewer)	Approved: Gas Supply Specialist (Owner) Laura Thielen

PROCEDURE NAME Purchase of Natural Gas Supplies Under a Base Agreement for Natural Gas Sales and Purchases		**SECTION NO.** 2.8
VERSION NO. 14	**DATE ISSUED** January 1, 2020	**PAGE** 1 of 8

PURPOSE

The purpose of this procedure is to outline the RFP process used for the purchase of natural gas supplies under a Base Agreement for Natural Gas Sales and Purchases subject to appropriate management approval.

Transactions entered into as a result of the annual Bid Invitation Letter described in Section 2.4 are not covered in this procedure.

The Gas Supply Department purchases natural gas through the solicitation and acceptance of bids. The Gas Supply Department may solicit and accept supply offers through either an oral or written bid process.

For supply packages with a term of one month or longer, a written "Request for Proposal" letter and "RFP Response Form" are prepared, reviewed, and approved by appropriate department personnel, and sent, via e-mail, to all qualifying suppliers on the Approved Transaction List ("Written Bid Process").

In the instance of supply packages with a term of less than one month, generally next-day gas supplies, the Gas Supply Department contacts qualifying suppliers on the Approved Transaction List, via telephone, manually records each supplier's response (if any), and awards the bid to the supplier which offers the lowest price, consistent with reliability and creditworthiness ("Oral Bid Process").

Under the oral bid process, LG&E may contract for gas supplies at a "market price", represented by a published index or at a "fixed price". When contracting for gas supplies at a "market price", the Gas Supply Department contacts suppliers, via telephone, and continues making calls until a supplier is willing to provide supplies at the "market price" or below. Once a supplier is found agreeable to transacting at the index price specified by LG&E, no additional counterparties are contacted. When contracting for gas supplies at a "fixed price", two or more responses are required in order to determine the lowest fixed price. Generally, fixed-price transactions are limited to next-day supplies and are never longer than one month.

All responses, to written or oral bid invitations, are documented, noting the method of such bid invitation in the "Summary of Responses to Natural Gas Bid Invitations", which also acts as the "Sole Source" form, in accordance with the ALM as described in the Preface of Section 2.

LG&E's ALM defines "Sole Source" solicitation for fuel purchases as any procurement process outside the formal bid process as outlined in the Purchasing Policy.

PROCEDURE NAME Purchase of Natural Gas Supplies Under a Base Agreement for Natural Gas Sales and Purchases		SECTION NO. 2.8
VERSION NO. 14	DATE ISSUED January 1, 2020	PAGE 2 of 8

RESPONSIBILITY	ACTION
Gas Supply Department	1. Determines bid requirements (volume) for specific term (e.g., seasonal, monthly, weekly, daily), and applicable pipeline (Texas Gas or Tennessee), based upon forecasted system requirements and price considerations.
	2. For the Written Bid Process, generally for purchases of one month or more, formulates a Request for Proposal Letter and RFP Response Form and circulates to department personnel for review and approval. (Appendix 2-K). The Request for Proposal Letter is reviewed and initialed by the preparer and the Manager, Gas Supply or Director – Gas Supply.
	NOTE: The Request for Proposal Letter shall be labelled as "Confidential".
	3. Prepares, and initials, a supplier e-mail distribution list of qualified suppliers to which the Request for Proposal Letter will be sent. The distribution list is reviewed, and initialed, by another Gas Supply Specialist. The distribution list is based upon the Approved Transaction List which sets forth suppliers qualified by LG&E to bid on the transaction, based on the supplier's credit.

PROCEDURE NAME Purchase of Natural Gas Supplies Under a Base Agreement for Natural Gas Sales and Purchases		**SECTION NO.** 2.8
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RESPONSIBILITY	**ACTION**
Gas Supply Department (cont.)	4. Distributes Request for Proposal. a) For the Written Bid Process, sends RFP Letter and Response Form to qualified suppliers on the prepared supplier e-mail distribution list, and as identified on Approved Transaction List (See example in Appendix 2-P) via e-mail. b) For the Oral Bid Process, where time is of the essence, or for purchases of less than one month, generally next-day gas supplies, the Gas Supply Specialist contacts suppliers via telephone rather than preparing a formal written request for proposal. In such situations, suppliers may provide verbal responses. If a supplier does not respond, continues to contact other potential suppliers. All verbal responses are manually recorded in a bid analysis document as outlined in Action 6 below.

PROCEDURE NAME Purchase of Natural Gas Supplies Under a Base Agreement for Natural Gas Sales and Purchases		**SECTION NO.** 2.8
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RESPONSIBILITY	**ACTION**
Supplier	5. Responds to LG&E's Request For Proposal. a) For the Written Bid Process, responds by date and time provided on the Request for Proposal Letter with appropriate supply related information by faxing or e-mailing completed RFP Response Form. b) For the Oral Bid Process, willing suppliers provide a verbal offer via telephone.
Gas Supply Department	6. For all Requests for Proposal, whether under the Written Bid Process or the Oral Bid Process, the Gas Supply Specialist prepares a "Summary of Responses to Natural Gas Bid Invitation" indicating the name of all suppliers contacted, volumes offered and purchased, date(s) of flow, receipt/delivery point, price, and bid acceptance/rejection comments. The "Summary of Responses to Natural Gas Bid Invitation" (See Report 6.1.1) includes the bid analysis.

PROCEDURE NAME Purchase of Natural Gas Supplies Under a Base Agreement for Natural Gas Sales and Purchases		**SECTION NO.** 2.8
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RESPONSIBILITY	**ACTION**
Gas Supply Department (cont.)	7. Evaluates offers based on price, volume, receipt/delivery point compatibility, flexibility, supplier reliability, and supplier diversity. In the event of a tie between suppliers, past performance, reliability, creditworthiness, or other factors may be used as a tiebreaker. 8. The "Summary of Responses to Natural Gas Bid Invitation" is initialed by the preparing Gas Supply Specialist and submitted to the Manager, Gas Supply or the Director – Gas Supply for review and approval. Each summary is incorporated in the "Monthly Supply Purchase Summary" report in accordance with Report 6.2.1. 9. For the Written Bid Process, in order to determine ALM Compliance, a Gas Supply Specialist prepares the "Term and Tenor Calculations" form, which is completed using current natural gas NYMEX prices adjusted for any basis, discount, commodity premium/discount, or other factors applied to the volumes for the term of the transaction. For the Oral Bid Process associated with next-day supply purchases, this step is excluded as it is impossible to exceed authority limits specified in the ALM.

PROCEDURE NAME Purchase of Natural Gas Supplies Under a Base Agreement for Natural Gas Sales and Purchases		**SECTION NO.** 2.8
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RESPONSIBILITY	**ACTION**
Gas Supply Department (cont.)	a) The "Term and Tenor Calculations" form ensures compliance with the ALM by estimating transaction value and reviewing term and tenor as specified in the ALM. b) The "Term and Tenor Calculations" form is prepared and initialed by a Gas Supply Specialist and is submitted to a second Gas Supply Specialist who reviews and initials the document. c) The "Term and Tenor Calculations" form is then submitted to the Manager, Gas Supply or the Director – Gas Supply for review and approval, and to ensure any additional required approvals are obtained in order to award the transaction and execute the Nomination Schedule in accordance with the ALM as described in the Preface of Section 2. 10. Contacts successful bidder to award supply transaction. 11. Records purchase transaction details in the Gas Supply Purchase Record and the Daily Supply Plan (Supply) spreadsheet.

<table>
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Purchase of Natural Gas Supplies Under a Base Agreement for Natural Gas Sales and Purchases</td><td>SECTION NO.
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RESPONSIBILITY	**ACTION**
Gas Supply Department (cont.)	12. For the Written Bid Process, the Gas Supply Specialist prepares a "Supply Proposal Checklist" of all items included in the Written Bid Process. Items on the list will include the supplier e-mail distribution list, the approved Request for Proposal Letter, all supplier responses and Response Forms, approved "Summary of Reponses to Natural Gas Bid Invitation", approved "Term and Tenor Calculations" form, and other purchase documentation, if any. For the Oral Bid Process associated with next-day supply purchases, this step is excluded as the "Summary of Responses to Natural Gas Bid Invitation" serves as the only documentation and is filed in the Bid Invitations binder.
	13. The Gas Supply Specialist completes and initials the "Supply Proposal Checklist". All documentation associated with the Written Bid Process is reviewed by another Gas Supply Specialist, who also initials the "Supply Proposal Checklist" prior to placing the documents in the Bid Invitations binder.
	14. **SARBANES-OXLEY KEY CONTROL (22.04.01)** – A Gas Supply Specialist Prepares a Nomination Schedule in accordance with Section 2.5.

PROCEDURE NAME Purchase of Natural Gas Supplies Under a Base Agreement for Natural Gas Sales and Purchases		**SECTION NO.** 2.8
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RESPONSIBILITY	**ACTION**
Gas Supply Department (cont.)	15. **SARBANES-OXLEY KEY CONTROL (22.04.01)** - If the supplier sends either a binding or non-binding confirmation of the transaction, the confirmation is reviewed by the appropriate Gas Supply Specialists. If correct, it is initialed by those Gas Supply Specialists on a timely basis and then filed in the supplier's contract binder. If incorrect, discrepancies are reported to the supplier.
	16. Reports seasonal transactions, of one month or more, to VP – Gas Operations in next monthly "Report of Key Performance Indicators" (Report 6.4.2).
	17. Notifies Manager, Supplier Diversity via email quarterly, of actual value of any supply transactions entered into with suppliers identifying themselves as a Minority Business Enterprise ("MBE"), Women-Owned Business ("WBE"), or Small Business ("SBA") entity. Such notification is sent on the first day of each calendar quarter pursuant to Report 6.1.4. Copy Director- Gas Supply and Manager, Gas Supply on e-mail transmission.

Approved: Director – Gas Management, Planning, and Supply	Approved: Manager, Gas Supply	Approved: Gas Supply Specialist (Reviewer)	Approved: Gas Supply Specialist (Owner)
			Laura Shielen

PROCEDURE NAME		SECTION NO.
Supplier Credit Assessment and Daily Net Exposure		2.15
VERSION NO.	**DATE ISSUED**	**PAGE**
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PURPOSE:

The LG&E and KU Energy, LLC Power Supply Credit Policy requires that a credit risk limit must be established for all counterparties with whom LG&E does business (See Exhibit 2-W).

The purpose of this procedure is to outline the methodology used to monitor, on an on-going basis, the creditworthiness of LG&E's natural gas suppliers. While the credit evaluation function is primarily the responsibility of LG&E's Credit Department, it is important for the Gas Supply Department to maintain current credit information within the Gas Supply Department for use in evaluating purchases from, or sales to, suppliers. The Gas Supply Department uses the Effective Credit Limit and Maximum Credit Limit to determine the type of natural gas transaction(s) that each supplier is qualified to enter into with LG&E. This determination is made by the Gas Supply Department using the methodology described in this procedure. As a result, Requests For Proposals ("RFPs") are sent only to suppliers that have the level of creditworthiness required to support the transaction described in the RFP.

LG&E monitors creditworthiness for two reasons. Firstly, LG&E must ensure that suppliers with which it transacts have the financial strength to stand behind transactions and pay damages to LG&E in the event of non-performance for reasons other than force majeure as defined in LG&E's gas supply agreements. Secondly, when LG&E does make a sale of natural gas in the off-system market, LG&E must ensure that the natural gas supplier (as a buyer) will be able to pay LG&E for the gas sold. By monitoring its purchase and sales transactions with suppliers, LG&E's exposure is further limited.

As a purchaser of natural gas, LG&E's exposure to the financial creditworthiness of a given supplier is limited because it is the supplier that extends credit to LG&E. Additionally, LG&E's exposure is limited since LG&E's purchases are made "at market". In instances where LG&E is a seller of gas, LG&E's credit exposure may be higher to the extent that such sales are not netted against purchases from the same supplier.

PROCEDURE NAME		SECTION NO.
Supplier Credit Assessment and Daily Net Exposure		2.15
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RESPONSIBILITY	ACTION
Gas Supply Department	1. Requests a credit evaluation of suppliers from the Credit Department. The Gas Supply Department may provide to the Credit Department any information (financial or otherwise) to which it has access in order to assist the Credit Department in its evaluation of suppliers.
Credit Department	2. Determines supplier's creditworthiness and establishes a Maximum Credit Limit. The Maximum Credit Limit considers, among other factors, Tangible Net Worth, the supplier's (or its guarantor's) credit rating, and the maximum amount of adequate assurance that a supplier could potentially provide to LG&E in the form of a Guaranty.
	3. Determines and provides the Gas Supply Department with the rating agency's credit rating, effective date of such rating, and Maximum Credit Limit for each supplier.

PROCEDURE NAME Supplier Credit Assessment and Daily Net Exposure		SECTION NO. 2.15
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RESPONSIBILITY	ACTION
Credit Department (cont.)	4. In the absence of verifiable financial information which could otherwise be used to establish a credit limit, the supplier is required to provide adequate assurance. The Credit Department provides conditions and guidelines for the Gas Supply Department to use in obtaining adequate assurance from the potential supplier (e.g., parent guaranty, letter of credit, or other financial assurance, typically with a minimum amount of $500,000 and preferably for a term of at least six months).
Gas Supply Department	5. If applicable, requests financial assurance from supplier satisfactory to LG&E.
Supplier	6. Provides adequate assurance. If adequate assurance is not provided, the Gas Supply Department notifies the supplier and no RFP's are sent to supplier until adequate assurance is provided. If negotiating with a potential supplier, then LG&E may cease contract negotiation.

PROCEDURE NAME Supplier Credit Assessment and Daily Net Exposure		**SECTION NO.** 2.15
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RESPONSIBILITY	**ACTION**
Gas Supply Department	7. Determines supplier's Effective Credit Limit which shall be equal to the lower of the supplier's Maximum Credit Limit or Adequate Assurance.
	NOTE: The Effective Credit Limit is to be shared across all LKE entities and may not apply solely to LG&E or to transactions by the Gas Supply Department. File Location: G:/GSUPPLY/Shared/ Credit Information/Year.xlsx (Approved Transaction List tab).
	8. After a Base Agreement for Natural Gas Sales and Purchases is executed (see Section No. 2.7), adds supplier to Approved Transaction List and Credit Evaluation List including credit information provided by Credit Department (See Report 6.4.4 and example in Appendix 2-P). Supplier qualifies to receive RFPs for various purchase or off-system sales transactions based upon supplier's Effective Credit Limit. The following guidelines apply to the Approved Transaction List:
	(a) If supplier has no Effective Credit Limit, then supplier qualifies for no RFPs, purchases, or off-system sales transactions.

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RESPONSIBILITY	**ACTION**
Gas Supply Department (cont.)	(b) If supplier's Effective Credit Limit is at least \$500,000 but less than \$2,000,000, then supplier qualifies for purchase transactions of one month or less, but no off-system sales transactions.
	(c) If supplier's Effective Credit Limit is at least \$2,000,000, then supplier qualifies for purchase transactions up to seven months and the winter-season Bid Invitation Letter (RFP), but no off-system sales transactions unless supplier meets credit limit described in (d), or unless off-system sales transactions with the supplier can be fully netted against purchases from the same supplier.
	NOTE: In order to be awarded a winter-season purchase transaction, supplier must agree to provide additional adequate assurance if necessary to achieve the Effective Credit Limit required for the transaction.

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RESPONSIBILITY	**ACTION**
Gas Supply Department (cont.)	(d) If supplier's Effective Credit Limit is at least $5,000,000, then supplier qualifies for all purchase transactions as well as off-system sales transactions (assuming the contract with supplier provides for sales to supplier). **NOTE:** The supplier does not qualify for off-system sales transactions if the Credit Department relied upon the counter-party's Tangible Net Worth in establishing the Maximum Credit Limit. 9. Monitors credit of all suppliers with which LG&E has gas supply agreements. Maintains current credit information on Credit Evaluation List which is an exhibit to the Approved Transaction List (See example included in Appendix 2-P) including supplier's S&P and Moody's ratings, Effective Credit Limit, Maximum Credit Limit, and, if applicable, type and amount of adequate assurance. Updates the Approved Transaction List (See Action 8 above) as required. File Location: G:/GSUPPLY/Shared/ Credit Information/Year.xlsx.

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RESPONSIBILITY	**ACTION**
Gas Supply Department (cont.)	10. Calculates, on a daily basis, LG&E's net exposure for suppliers to prevent transactions from exceeding the supplier's Effective Credit Limit. LG&E's net exposure is equal to the net dollar amount of natural gas purchases from and sales to a supplier under the agreement which LG&E and the supplier have agreed to net. The net exposure amount for each supplier is compared to the supplier's Effective Credit Limit to ensure that the supplier's Effective Credit Limit is not exceeded. This calculation, included in the Gas Supply Purchase Record, is made available to other members of the Gas Supply Department and is reviewed prior to making off-system sales in accordance with Report 6.4.3.
Credit Department	11. If net exposure of all transactions under the agreements which LG&E and the supplier have agreed to net is positive (LG&E purchases > LG&E sales), then no action is required.
	12. If net exposure of all transactions under the agreements which LG&E and the supplier have agreed to net is negative (LG&E sales > LG&E purchases) and such net exposure exceeds the Effective Credit Limit, the Credit Department is contacted to determine if the supplier's Effective Credit Limit can be increased.

PROCEDURE NAME Supplier Credit Assessment and Daily Net Exposure		SECTION NO. 2.15
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RESPONSIBILITY	ACTION
Credit Department (cont.)	13. Evaluates supplier's credit and notifies the Gas Supply Department of any change impacting the determination of the Effective Credit Limit, if any.
Gas Supply Department	14. If Effective Credit Limit can be increased to an amount that results in positive net exposure, then sales can be made to the counterparty; if Effective Credit Limit is maintained at or lowered to an amount that results in negative net exposure, the Gas Supply Department makes no sales to the counterparty.
	15. Reviews trade publications for any references indicating supplier performance issues or credit rating changes and provides notification of such to the Credit Department.
	16. Requests quarterly review and update of credit information from the Credit Department for all suppliers.
Credit Department	17. Provides credit information on a quarterly basis (or as requested by the Gas Supply Department) including any changes to S&P and Moody's ratings or to the Maximum Credit Limit of natural gas suppliers.

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RESPONSIBILITY	**ACTION**
Gas Supply Department	18. Updates Credit Evaluation List and Approved Transaction List (See Appendix 2-P) based on information provided by the Credit Department.
	19. If the Maximum Credit Limit established by the Credit Department indicates that the natural gas supplier, or its guarantor, is no longer creditworthy (e.g., downgrade of financial ratings), the Gas Supply Department does not enter into natural gas sales and purchases unless adequate assurance is provided by the supplier (See Actions 4, 5, and 6).

Approved: Director – Gas Management, Planning, and Supply	Approved: Manager, Gas Supply	Approved: Gas Supply Specialist (Reviewer)	Approved: Gas Supply Specialist (Owner)
Shelly Murphy	Pam Jaynes	Gregory O [illegible]	Laura Shiclen

The entire attachment is confidential and provided separately under seal.

PREFACE – PROCEDURES MANUAL

Introduction

This Procedures Manual deals with the policies and procedures regarding the purchase, sale, and control activities related to the management of natural gas supplies for LG&E's system supply and its end-use customers.

The Kentucky Public Service Commission ("KYPSC") has directed local distribution companies ("LDCs") in Kentucky to purchase gas supplies at market-clearing levels in keeping with directives stated by the KYPSC in Administrative Case No. 297. The KYPSC provided further gas commodity purchasing direction in its July 17, 2001, Order in Administrative Case No. 384. In that Order, the KYPSC encouraged LDCs to consider methods for reducing price volatility, such as the use of storage or financial hedging. All of the gas supply costs (including commodity purchases, pipeline transportation services, and the cost of gas injected into and withdrawn from storage) are recovered through LG&E's Gas Supply Clause as set forth in its tariff and approved by the KYPSC quarterly. Additionally, the purchased gas supply costs of LG&E's LDC are benchmarked subject to the Performance-Based Ratemaking ("PBR") Mechanism as set forth in LG&E's tariff and approved by the KYPSC annually.

Major Functions

The major functions of the Gas Supply Department include the following:

- Purchase required supplies of natural gas for system supply, which involves managing the bidding process, evaluating, contracting for, and transporting natural gas supplies;
- Advocate the position of LG&E and its customers by providing guidance and participation in regulatory activity affecting the services of LG&E's interstate pipeline suppliers, which are regulated by the Federal Energy Regulatory Commission ("FERC"); and
- Provide information to end-use transportation customers and facilitate the transportation of customer-owned gas supplies to and through the gas distribution system of LG&E and support related economic development efforts.

In order to carry out these functions, the Gas Supply Department regularly interacts with the Legal, Gas Control, Rates and Regulatory Affairs, Billing Integrity, Sales Analysis and Forecasting, Economic Development, Major Accounts, and Revenue Accounting and Analysis Departments.

Risks and Risk Mitigation Strategies

Key risks related to purchasing and delivering natural gas on behalf of LG&E's LDC include the following:

- The supply of natural gas to LG&E's LDC customers may not be reliable;
- Transactions are not performed subject to Authority Limit Matrix ("ALM");
- Bidding and bid evaluation processes are not appropriately documented and managed;

- Sole source processes and transactions are not appropriately documented and managed;
- Transactions are fraudulent, improperly recorded, or made outside of approved processes and limits;
- Gas supply costs are imprudent;
- Credit contingencies, embedded and other derivatives, and other accounting features are not properly entered into or reported; and
- Legal or regulatory guidelines are violated.

In order to mitigate key risks and ensure adequate controls exist over key processes, the Gas Supply Department has developed purchasing strategies and processes which are further defined in its supply plans and supported by policies and procedures strictly followed by all departmental personnel.

The purchasing strategies of the Gas Supply Department include the following:

- Evaluate all practicable gas supply and pipeline transportation alternatives;
- Evaluate the ability of on-system storage to deliver firm sales obligations;
- Match firm purchases of natural gas and transportation services with firm sales obligations;
- Establish a portfolio of reliable natural gas supplies and creditworthy suppliers;
- Achieve the required supply and pipeline service flexibility to provide reliable service;
- Establish the maximum supply area access and diversity practicable;
- Price natural gas purchases in a manner consistent with KYPSC regulatory guidelines;
- Advocate the positions of LG&E and its customers at FERC;
- Assist end-use customers in the delivery of customer-owned gas; and
- Maximize savings under LG&E's gas supply cost PBR mechanism.

Additionally, the Gas Supply Department:

- Advises, and acts upon as required, regulatory initiatives at the KYPSC regarding tariff and other regulatory changes for both sales and end-use transportation activities regarding LG&E's natural gas customers; and
- Ensures that all transactions are in compliance with FERC regulations, including, but not limited to, capacity release rules, shipper-must-have-title, market manipulation, Form 549-D, and Form 552 reporting.

This Procedures Manual also sets forth standard policies related to the purchase and sale of natural gas in the wholesale market. The specific authority limits applicable to contracts and transactions entered into by the Gas Supply Department are based on job title as set forth in the LG&E and KU ALM.

Scope

This policy applies to all personnel within the Gas Supply Department.

Gas Management, Planning, and Supply

The Gas Supply Department reports directly to the Vice President – Gas Distribution and is responsible for procurement of natural gas and interstate pipeline transportation services. The primary responsibilities of the Gas Supply Department are to:

- Ensure that the natural gas portfolio conforms with the regulatory guidelines established by the KYPSC;
- Ensure that natural gas and interstate pipeline transactions conform with the regulatory guidelines established by FERC;
- Coordinate activities with Gas Control and Storage to maintain on-going system reliability, including maintenance of adequate storage inventory levels (injections and withdrawals) as established by Gas Control and Storage;
- Establish contracting and portfolio criteria using underlying gas sendout forecast provided by Sales Analysis and Forecasting;
- Negotiate and manage short- and long-term contracts for natural gas and interstate pipeline transportation to serve the needs of the sales customers of LG&E's LDC;
- Perform overall management of the natural gas portfolio, including transaction execution;
- Ensure that all transactions are performed according to departmental procedures;
- Ensure that all transactions are Sarbanes-Oxley compliant;
- Ensure that all transactions are within authority limits established in ALM;
- Identify potential market opportunities and optimize LG&E's performance under the gas supply cost PBR mechanism;
- Inform senior management of market issues and significant market developments as soon as reasonably possible;
- Ensure all transactions, including purchases, sales, and transportation are correctly entered into the financial records of Company each month;
- Ensure all transactions, including purchases, sales, and transportation are reported correctly and on a timely basis to Revenue Accounting and Analysis for monthly entry into the company financial system;
- Retain written evidence of all transactions, accurately record all transactions, and accurately report all transactions to Revenue Accounting for booking;
- Facilitate and manage the re-delivery of customer-owned natural gas to the facilities of end-use transportation customers;
- Facilitate, and manage, the re-delivery of locally produced natural gas to a Pool Manager or interstate pipeline; and
- Participate in business recovery readiness and contingency plans in conjunction with Gas Control and Storage and other affected departments.

Organizational Structure

The Gas Supply Department is responsible for ensuring that:

- gas supply activities and associated risk of LG&E with respect to its LDC operations are controlled and maintained within the specified parameters;
- gas supply activities of LG&E with respect to its LDC are in compliance with all appropriate external laws and regulations and internal policies and procedures; and
- departmental practices conform to approved risk mitigation measures.

Oversight

The Director – Gas Supply and the Vice President – Gas Distribution shall meet as necessary, along with others, as appropriate. These oversight functions may also be carried out through the Enterprise Risk Management Committee or as otherwise required.

The responsibilities of Senior Management are to:

- Review and approve risk mitigation measures, models and assumptions;
- Measure and monitor credit, market, and other risks;
- Ensure that risks are duly reported to Internal Audit via the "Enterprise Risk Management Risk Report Inventory";
- Oversee business recovery readiness and contingency plans in conjunction with the following departments: Gas Control, Gas Storage, Economic Development and Major Accounts, Gas Engineering, Legal, Rates, Corporate Communications, Information Technology, Telecommunications, Facilities, and Human Resources; and
- Ensure that the Company is in compliance with all appropriate external laws and regulations and internal policies and procedures pertaining to natural gas procurement and related activity.

Director – Gas Supply

The Director – Gas Supply reports directly to the Vice President – Gas Distribution, is responsible for oversight of all strategic plans and transactional activity for the Gas Supply Department, and is responsible for oversight of all natural gas supply activities for LG&E's LDC, including, but not limited to, the purchase and sale of natural gas in the wholesale market, and the procurement and management of interstate pipeline transportation services.

The primary responsibilities of the Director – Gas Supply include:

- Ensure compliance with risk mitigation strategies by controlling and maintaining activities within the Gas Supply Department within the parameters specified by Senior Management;

- Work with legal and other counterparts in the Company to determine and support the interests of LG&E and its customers with respect to state and federal regulatory matters and initiatives;
- Monitor risks and mitigate same;
- Manage gas supply activities to maximize results under LG&E's gas supply cost PBR mechanism;
- Adhere to and monitor transaction authority limits within the ALM;
- Approve and manage reputable counterparties;
- Approve shorter-term and longer-term gas supply plans;
- Oversee the day-to-day activities of the Gas Supply Department;
- Perform overall management of gas supply activities, including transaction execution;
- Review and approve recording of all gas supply transactional activities and related reporting;
- Establish and approve policies and procedures related to competitive and non-competitively bid transactions;
- Establish and approve policies and procedures as necessary to carry out the functioning of the Gas Supply Department within the guidelines described herein;
- Establish and approve Gas Supply Department Business Continuity Plan;
- Review all natural gas supply transactions, including pricing, prior to the issuance of an award;
- Review and approve all transactions entered into within Gas Supply Department;
- Advise and consult with the Manager, Gas Supply and Gas Supply Specialists on appropriate gas supply strategies;
- Ensure that departmental personnel adhere to all limits and that procedures are properly followed;
- Ensure compliance with Sarbanes-Oxley requirements;
- Ensure that all contracts undergo required financial analysis for embedded derivatives and that results are duly reported to Financial Analysis for their further review and confirmation;
- Ensure that all reporting and booking activity associated with LG&E's gas supply cost PBR mechanism is performed and provided to the Rates and Regulatory Affairs or Revenue Accounting and Analysis Departments as required;
- Ensure that all reporting and booking activity associated with LG&E's off-system gas sales is provided to the Rates and Regulatory Affairs or Revenue Accounting and Analysis Departments as required;
- Ensure that credit risks and activities affecting those credit risks and limits are duly reported to the Credit Department; and
- Review, initiate, and approve processes and procedures to ensure that the gas procurement risks of LG&E's LDC are controlled and maintained within parameters specified by the ALM.

Additionally, the Director – Gas Supply provides the Vice President – Gas Distribution with a monthly written report of key performance indicators and other updates.

Manager, Gas Supply

The Manager, Gas Supply reports directly to the Director – Gas Supply. The primary responsibilities of the Manager, Gas Supply include:

- Oversee the development of longer-term forecasting of natural gas and pipeline transportation requirements;
- Oversee the development and documentation of longer-term supply plan;
- Direct the activities of the Gas Supply Specialist (Supply Analysis and Trends) and the Gas Supply Specialist (End-User Contracting and Administration);
- Implement longer-term bid process, perform and document bid evaluations;
- Negotiate terms and conditions of base form of agreement with suppliers subject to legal review and establish that adequate credit assurance is in place with all counterparties prior to transacting;
- Secure approvals through execution of award form or corresponding "sole source" award form;
- Engage in transactional activity within the limits of the ALM;
- Review contracts for embedded derivatives and ensure all contracts are reported to Financial Analysis;
- Approve quarterly commitments report with respect to commodity purchases;
- Identify potential market opportunities;
- Ensure that all data for reporting and invoicing activity associated with LG&E's off-system gas sales is performed and provided to Billing Integrity on a timely basis;
- Ensure that personnel adhere to all authority limits and that procedures are properly followed by overseeing the day-to-day activities of departmental personnel;
- Prepare gas emergency and business recovery plan; and
- Perform analyses and develop strategies with respect to state and federal regulatory matters and initiatives.

The Manager, Gas Supply has an obligation to inform Director – Gas Supply of market issues and significant market developments as soon as reasonably possible.

Gas Supply Specialist (Supply Analysis and Trends) reports directly to the Manager, Gas Supply. Responsibilities of this Gas Supply Specialist are to:

- Use and support the gas supply planning model to generate reports, interpret results, and make supply and interstate pipeline contract recommendations;
- Use and support the gas supply planning model to ensure compliance with natural gas contract purchase requirements and levels;
- Use the gas supply planning model to determine least-cost purchases for long-term bid analysis, pipeline transportation contracts, and storage inventory management;
- Perform, support, and document bid analyses associated with annual gas supply plan;
- Prepare monthly forecast variance report and analyze results;

- Participate in annual forecast review to analyze proposed sendout formulas and discuss findings with Gas Control and Sales Analysis and Forecasting;
- Perform LG&E's annual hedge analysis and perform customer behavioral analysis in support thereof; and
- Assess, organize, and summarize market and industry trends related to regulatory and industry developments for use in potential regulatory proceedings and gas supply strategy development.

The Gas Supply Specialist (Supply Analysis and Trends) has an obligation to inform the Manager, Gas Supply of market issues and significant market developments as soon as reasonably possible.

Gas Supply Specialist (System Supply and End-User Scheduling) reports directly to the Director – Gas Supply. Responsibilities of this Gas Supply Specialist are to:

- Determine short-term purchase requirements and prepare shorter-term supply plan;
- Economically dispatch gas supplies and pipeline transportation services;
- Prepare short-term bid evaluations and award form or corresponding "sole source" award form;
- Prepare short-term off-system sales evaluation and award form or corresponding "sole source" award form;
- Prepare capacity release evaluation and award form or corresponding "sole source" award form;
- Engage in short-term transactional activity subject to approval and guidance of the Director-Gas Supply or Manager, Gas Supply;
- Act as primary point of contact between the Gas Supply Department and the Gas Control Department, counterparties or pipelines regarding short-term supply requirements and transactions;
- Ensure that all transactions are complete and accurately entered into the financial records of Company including, but not limited to, the Purchase Gas Record;
- Schedule and verify all transactions on the Internet Web-Site of the transporting natural gas pipeline;
- Comply with operational aspects of gas supply contracts and pipeline tariffs; and
- Ensure daily that volumes nominated by end-use customers match the volumes scheduled by customers on the pipeline's Internet Web-Site.

The Gas Supply Specialist (System Supply and End-User Scheduling) has an obligation to inform the Director – Gas Supply of market issues and significant market developments as soon as reasonably possible.

Gas Supply Specialist (System Supply Accounting) reports directly to the Director – Gas Supply. Responsibilities of this Gas Supply Specialist are to:

- Calculate all purchased gas costs in accordance with terms of the transaction;
- Prepare financial contract reports for review and approval by Manager, Gas Supply;
- Prepare credit contingent features analysis and report;
- Prepare reports related to recording of gas supply expense estimates;
- Prepare reports related to recording of off-system sales activities;
- Prepare reports related to purchase commitments;
- Prepare "Approved Transaction List" by counterparty based upon credit assessment and transactional limits report based on information provided quarterly by Credit Department;
- Ensure contract compliance;
- Ensure compliance with credit and transactional limits;
- Issue transaction confirmations and resolve all confirmation discrepancies;
- Ensure executed transaction confirmation is returned by counterparty prior to payment;
- Prepare various FERC reporting data (e.g., Form 552);
- Identify and update all relevant counterparty repository information in the Company records; and
- Prepare Gas Commodity and Pipeline Disbursement Requests.

The Gas Supply Specialist (Accounting) has an obligation to inform Director – Gas Supply of market issues and significant market developments as soon as reasonably possible.

Gas Supply Specialist (End-User Contracting and Administration) reports directly to the Manager, Gas Supply. Responsibilities of this Gas Supply Specialist are to:

- Act as primary point of contact between end-use customers and their agents or pool managers regarding end-use transportation activities;
- Ensure that LG&E's gas transportation tariffs are applied and enforced uniformly;
- Ensure that all agreements and documentation is in place prior to commencing transportation for a customer;
- Ensure that all agreements and documents are maintained and current, including any applicable credit requirements as provided for in LG&E's tariffs;
- Prepare reports related to end-use transportation activities;
- Prepare reconciliation of customer-owned gas;
- Prepare curtailment data;
- Ensure operation of, and required enhancements to, Gas Transport Website within specified guidelines;
- Ensure operation of, and required enhancements to, Gas Nominations and Reporting System within specified guidelines.

The Gas Supply Specialist (End-User Contracting and Administration) has an obligation to inform the Manager, Gas Supply of market issues and significant market developments as soon as reasonably possible.

Functions may be reassigned or rotated among employees from time to time as workload and training requirements are permitted or required.

Credit Department

The Credit Department is responsible for the daily functions necessary to support the Company's trading activities. With respect to the Gas Supply Department, the Credit Department's primary responsibilities are to:

- Monitor and enforce compliance with the Credit Policy. The policy applies to all applicable transactions;
- Ensure that establishment of credit limits and terms are in accordance with the Company's Credit Policy;
- Establish counterparty limits prior to Gas Supply Department entering into transactions;
- Ensure that changes in counterparty credit limits are reported to the Gas Supply Department on a timely basis;
- Negotiate guaranties, letters of credit, and other security with counterparties where appropriate;
- Research and analyze a variety of financial information, market conditions, and economic trends to determine creditworthiness of counterparties at least quarterly; and
- Identify and systematically manage counterparty risks.

Supply Risk Management and Mitigation

All employees involved in the Gas Supply Department have the obligation to manage risks, while senior management has the obligation to understand all risks as part of its oversight responsibilities. Unmitigated market risks, credit risks, and other risks will be quantified to the extent possible and brought to the attention of senior management.

In an effort to mitigate the risks associated with serving its sales customers, LG&E may purchase and transport gas from suppliers on Texas Gas's system using Rate Schedules NNS, FT, STF, or IT and on Tennessee's system using Rate Schedules FT-A or IT. LG&E may also contract with the supplier to have such gas supplies delivered directly to LG&E's city-gate. No-Notice Service ("NNS") is a pipeline service which combines pipeline capacity and storage. NNS incorporates features allowing LG&E to receive a portion of its natural gas supplies on demand without prior nomination notice to the pipeline providing flexibility to meet variable supply requirements. Interruptible Transportation ("IT") service is interruptible in character and is available provided the transporting pipeline has sufficient capacity. Firm Transportation ("FT") service is considered firm at both the Receipt and Delivery Point(s), but requires the nomination of both the receipts and deliveries. Short-Term Firm ("STF") service has the same characteristics as service under FT, except that the daily pipeline contract demand may be different by month or season. LG&E utilizes FT, FT-A and NNS services regularly and STF, IT service, and other forms of released capacity when deemed necessary and appropriate. Contracts with pipelines are negotiated and executed as required and with the assistance of appropriate counsel. LG&E's supply risks are further mitigated by and through its access to its on-system gas storage capabilities.

In an effort to mitigate market and supply risks, the Gas Supply Department shall establish a portfolio of natural gas supplies and suppliers, and will not enter into contracts to purchase all gas supplies from a single source. Therefore, absent a significant economic benefit, or regulatory issues that dictate otherwise, the Gas Supply Department will generally purchase its gas supply from multiple suppliers.

The Gas Supply Department shall maintain an appropriate mix of shorter-term and longer-term purchases as governed by market conditions, forecasts, and regulatory guidance. The term "shorter-term" gas supply refers to natural gas purchased with a term of less than one year. The term "longer-term" gas supply refers to natural gas purchased with a term of one year or more. The Gas Supply Department only enters into physical gas supply arrangements as provided in the "LG&E Base Agreement for Natural Gas Sales and Purchases" or the "NAESB Base Contract for Sale and Purchase of Natural Gas". The Gas Supply Department shall secure gas supply at competitive prices through the use of competitive bidding, negotiation, and other appropriate supply contracting practices. The bid evaluation methodology for longer-term supplies shall be formulated and revised each year based on current industry standards, marketplace activity, and regulatory developments. This bid evaluation methodology shall include an analysis of price, flexibility, and reliability factors associated with supply. LG&E has generally ensured that its gas supplies are at market responsive prices by indexing the commodity portion of its gas purchases to published and industry-recognized indices reflecting monthly or daily market prices. Fixed-price transactions for a period longer than one (1) month, or transactions relying upon a price index that extends for a period longer than one (1) month (and that price index does not reset monthly, e.g., a strip price), are not currently permitted. The security and reliability of the supply is also evaluated through a close examination of the potential supplier's creditworthiness and performance. The flexibility of the supply is another evaluated factor and includes minimum take requirements, mid-month nomination changes, and seasonal contract levels. Trade references from other LDCs are also taken into consideration when LG&E has limited experience with a supplier. An appropriate contract will be in place prior to the purchase of any natural gas supplies. All contract terms with suppliers will be reviewed by counsel and diligently enforced to ensure compliance with departmental and LG&E policies.

LG&E plans to continue to use its on-system storage as a physical hedge against price volatility. LG&E has filed various hedge plans for KYPSC approval in Case Nos. 2001-00253, 2002-00136, 2003-00149 and 2004-00198. LG&E's analyses have shown that storage remains a viable and economic means of mitigating the price volatility to which customers would otherwise be exposed. In its Order dated August 6, 2004, in Case No. 2004-00198, the KYPSC indicated that LG&E could continue to rely on storage as a hedge and is not required to make further annual hedge-plan filings unless LG&E chooses to request KYPSC approval to use financial hedging instruments to supplement its storage as a hedge.

Financial Instruments and Commodities

The Gas Supply Department is only authorized to enter into transactions for the physical delivery of natural gas. The Gas Supply Department shall not enter into natural gas futures transactions, exchange options, Over-the-Counter ("OTC") forward contracts, OTC swaps, OTC options, or Exchange For Physicals ("EFPs") or the like.

The ALM explicitly authorizes transactions for physical delivery at either fixed or indexed (market) prices within terms specified in the ALM.

The Gas Supply Department does not use electronic trading platforms for natural gas transactions. Department personnel may, however, use such sites to monitor market activity.

Single Transactions Authority Limits

The Single Transaction Authority Limits are those set forth in the ALM.

Personal Account Trading

Employees shall not trade in financial or other instruments for their own account. Personal account trading is subject to disciplinary action in accordance with Company policies.

Concealment of Trades

All personnel must accurately reflect all gas supply transactions in the financial records of Company. The willful misrepresentation of or concealment of any transaction or any information regarding any transaction is subject to disciplinary action in accordance with Company policies.

Ethics and Conduct

All personnel must adhere to the business and integrity guidelines of the Company and conduct themselves with the utmost integrity and discretion when dealing with potential and current counterparties. All personnel must adhere to company guidelines with respect to market manipulation. Failure to do so is subject to disciplinary action in accordance with Company policies.

LG&E recognizes the importance of the following "Standards of Integrity" (formerly the "Code of Business Conduct") to guide the conduct of the Gas Supply Department in the performance of their duties and responsibilities:

- The Gas Supply Department shall endeavor to serve the best interests of LG&E's customers, LG&E, and its stockholders in the performance of their duties and responsibilities;
- The Gas Supply Department shall adhere to the ethical standards and policies of LG&E;

- The Gas Supply Department shall strive to maintain and/or improve their skills, knowledge, abilities and competence in all areas required for effective discharge of their duties;
- Each employee involved with the procurement of natural gas will be required to comply with such internal code of conduct and other requirements specified by LG&E; and
- It is LG&E's policy to adhere to and comply with all applicable federal, state, and local laws and regulations.

Execution of Transactions

No transaction may be entered into prior to the execution of a contract with the counterparty. All transactions must be reduced to writing by Gas Supply and countersigned by the counterparty in accordance with Gas Supply Department procedures.

Transactions Conducted Outside of the Gas Supply Department

Transactions conducted outside of the Gas Supply Department must be solely for the purpose of maintaining system reliability and integrity, for example, in response to unexpected changes in weather patterns, storage availability, natural disasters, or terrorist incidents.

Transactions conducted outside the Gas Supply Department must be reduced to writing and executed by both LG&E and the counterparty.

Transactional Confidentiality

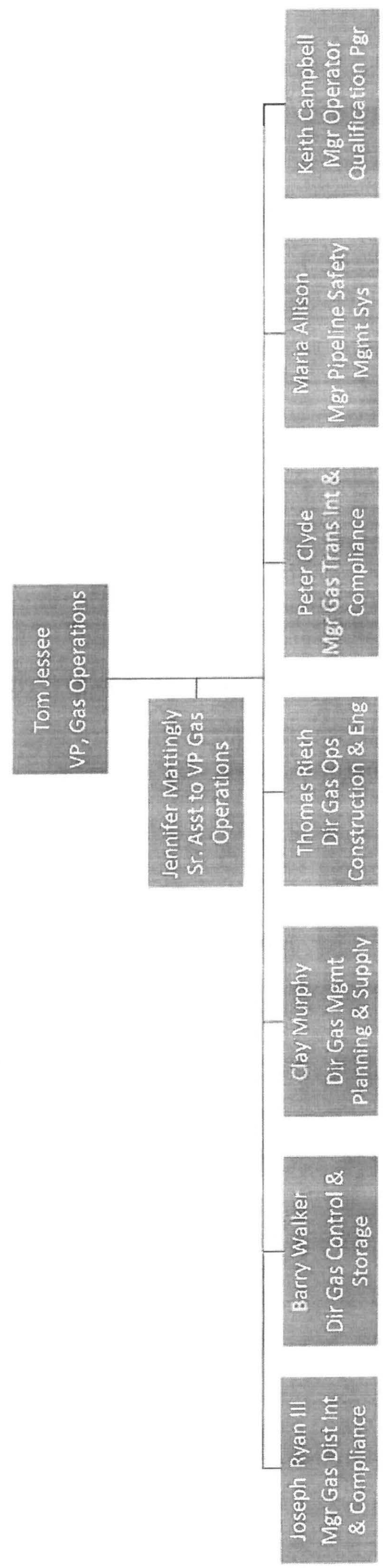
LG&E maintains confidential treatment of its gas supply contract information regarding suppliers, terms of agreements and prices. Any document that leaves the Gas Supply Department that is determined to contain confidential information is so labeled.

Pursuant to KYPSC Order dated January 20, 1986, and in Case No. 8924-I, LG&E was required to submit copies of all natural gas supply agreements to the KYPSC. The KYPSC allowed information from certain agreements that was deemed to be of a confidential nature to be submitted subject to a filing for confidentiality. In an Order dated August 4, 2003, in Case No. 2002-00221, LG&E was relieved of the requirement to file natural gas purchase contracts and related documents with the KYPSC. The KYPSC reasoned that no other Kentucky LDC is required to make such filings and that the requirement creates an administrative burden on both the KYPSC and LG&E. Pursuant to the Order, LG&E is required to retain its natural gas purchase contracts and related documents and make them available, upon request, to the KYPSC.

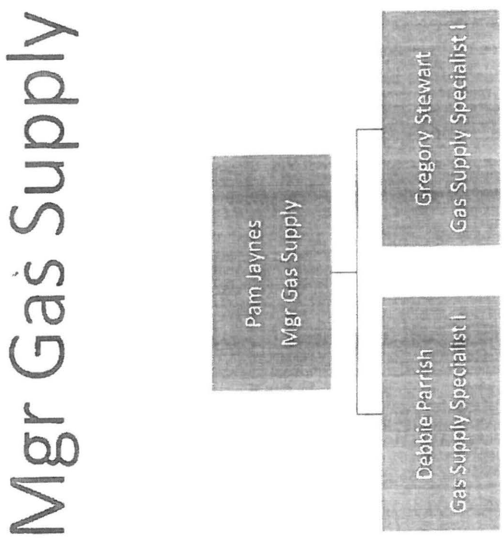
Approved: Vice President – Gas Distribution	Approved: Director – Gas Supply	Approved: Manager, Gas Supply (Reviewer)	Approved: Gas Supply Specialist (Owner)
Date: 18 Feb 2019	Date: 2/15/19	Date: 2/15/19	Date: 2/14/19

The entire attachment is confidential and provided separately under seal.

VP Gas Operations



Dir Gas Mgmt Plang & Supply


Mgr Gas Supply
Pam Jaynes
Mgr Gas Supply
Gregory Stewart
Gas Supply Specialist I
Debbie Parrish
Gas Supply Specialist I

PPL companies

Completed by Compensation Department

Job Code:	**E7550**
FLSA Classification	
EEO Category	
Approved By	Caroline Smith
Effective Date	
Revision Date	January 2020
Mkt Pricing Date	

Job Title: Gas Supply Specialist I
Department: Gas Supply
Reports to Title: Director, Gas Management, Planning, And Supply
Direct Report Title(s): N/A

Purpose

This position is responsible for activities associated with developing LG&E's strategic gas supply and transportation position and policies; managing gas supply and transportation contracts; and managing the transportation of natural gas to qualifying industrial/commercial customers.

Core Responsibilities

Strategy

With direction, conducts and analyzes various industry and competitive studies and provides strategic recommendations as to natural gas purchase, transportation, contract trends, inventory levels, alternate gas supply strategies, regulatory issues, and other matters.

With direction, develops strategic position; understands and explains relative competitive positions; recommends actions based on positions, strategies, and initiatives.

With direction, prepares guidelines for evaluation of supply and transportation service options, strategies and negotiations; develops contractual negotiation parameters; analyzes pricing methods and pricing tools; determines natural gas and transportation availability; develops and negotiates contractual language; oversees analysis and evaluation of contract proposals and bids; anticipates potential impact of future market conditions, trends, and regulations; makes associated recommendations and implements them when required so to do.

With direction, analyzes regulations, filings and testimony related to gas supply matters at the Federal Energy Regulatory Commission and the Kentucky Public Service Commission; oversees routine regulatory issues; makes associated recommendations and acts upon them when required so to do.

With direction, coordinates strategies with internal groups to ensure support of long-term strategic plans and initiatives; interacts with Gas Control, Corporate Law, State Regulation and Rates, and Forecasting.

Procurement

With direction, manages gas supply and transportation contracts to ensure full compliance, performance, and maximum cost efficiencies resulting in lower costs and reliable quantities of natural gas supplies; contracts are monitored for performance and deviations; makes recommendations as appropriate; interacts with Gas Control as necessary.

With direction, performs accounting functions and analyses associated with the purchase of natural gas; reviews gas supply and transportation invoices for accuracy and recommends approval; interacts with Internal and External Auditing and Revenue Accounting as necessary.

With direction, performs various complex statistical, cost and rate analyses within established guidelines related to supply/transportation solicitations.

With direction, negotiates contracts and contractual amendments for natural gas supplies; interacts with Corporate Law as necessary.

End-User Transportation

With direction, manages all gas activities, including the coordination of end-use customer volumes, associated with the functioning and operation of natural gas transportation by qualifying commercial and industrial customers in order to ensure the highest levels of customer service; interacts with large gas customers, Gas Control and other operating areas as necessary.

With direction, ensures full contract and tariff compliance by LG&E and end-user; all contract negotiations, communications and transactions are fully documented; interacts with Corporate Law as necessary.

With direction, works with IT to ensure applications that track end-user gas transportation activities are operating as required. Proposes, supports and tests modifications to applications as required.

With direction, closely works with other groups within LG&E to ensure adequate and timely gas quantities are delivered, measured, and billed; interacts with Gas Control, Billing Integrity, Major Accounts and Corporate Law as necessary.

Education/Experience/Qualifications

Bachelor's degree in business, mathematics, engineering, or science is required.

Must have valid driver's license.

Preferred Qualifications

Good analytical skills. Possess sound knowledge of Word and Excel applications. Ability to master a variety of IT applications. Very good oral and written communication skills as well as interpersonal relations skills. Ability to coordinate complex projects and issues. Gas industry experience is preferred.

Attendance

Regular attendance is essential for satisfactory performance.

Work Conditions

Normal office environment. May occasionally visit off-site locations such as customer facilities and gas storage fields.

Physical Effort

Primarily sitting. Some standing, walking, stooping.

Job Hazards

Low degree of danger or hazard in office setting and in field.

PPL companies

Completed by Compensation Department

Job Code:	**E7540**
FLSA Classification	
EEO Category	
Approved By	Caroline Smith
Effective Date	
Revision Date	January 2020
Mkt Pricing Date	

Job Title: Gas Supply Specialist II
Department: Gas Supply
Reports to Title: Director, Gas Management, Planning, And Supply
Direct Report Title(s): N/A

Purpose

This position is responsible for activities associated with developing LG&E's strategic gas supply and transportation position and policies; managing gas supply and transportation contracts; and managing the transportation of natural gas to qualifying industrial/commercial customers.

Core Responsibilities

Strategy

Conducts and analyzes various industry and competitive studies and provides strategic recommendations as to natural gas purchase, transportation, contract trends, inventory levels, alternate gas supply strategies, regulatory issues, and other matters.

Develops strategic position; understands and explains relative competitive positions; recommends actions based on positions, strategies, and initiatives.

Prepares guidelines for evaluation of supply and transportation service options, strategies and negotiations; develops contractual negotiation parameters; analyzes pricing methods and pricing tools; determines natural gas and transportation availability; develops and negotiates contractual language; oversees analysis and evaluation of contract proposals and bids; anticipates potential impact of future market conditions, trends, and regulations; makes associated recommendations and implements them when required so to do.

Analyzes regulations, filings and testimony related to gas supply matters at the Federal Energy Regulatory Commission and the Kentucky Public Service Commission; oversees routine regulatory issues; makes associated recommendations and acts upon them when required so to do.

Coordinates strategies with internal groups to ensure support of long-term strategic plans and initiatives; interacts with Gas Control, Corporate Law, State Regulation and Rates, and Forecasting.

Procurement

Manages gas supply and transportation contracts to ensure full compliance, performance, and maximum cost efficiencies resulting in lower costs and reliable quantities of natural gas supplies; contracts are monitored for performance and deviations; makes recommendations as appropriate; interacts with Gas Control as necessary.

Performs accounting functions and analyses associated with the purchase of natural gas; reviews gas supply and transportation invoices for accuracy and recommends approval; interacts with Internal and External Auditing and Revenue Accounting as necessary.

Performs various complex statistical, cost and rate analyses within established guidelines related to supply/transportation solicitations. Performs scenario analysis using supply planning and optimization model.

Negotiates contracts and contractual amendments for natural gas supplies; interacts with Corporate Law as necessary.

End-User Transportation

Manages all gas activities, including the coordination of end-use customer volumes, associated with the functioning and operation of natural gas transportation by qualifying commercial and industrial customers in order to ensure the highest levels of customer service; interacts with large gas customers, Gas Control and other operating areas as necessary.

Ensures full contract and tariff compliance by LG&E and end-user; all contract negotiations, communications and transactions are fully documented; interacts with Marketing and Corporate Law as necessary.

Works with IT to ensure applications that track end-user gas transportation activities are operating as required. Proposes, supports, and tests modifications to applications as required.

Closely works with other groups within LG&E to ensure adequate and timely gas quantities are delivered, measured, and billed; interacts with Gas Control, Billing Integrity, Major Accounts, and Corporate Law as necessary.

Education/Experience/Qualifications

Bachelor's degree in business, mathematics, engineering, or science and a minimum of three years' gas industry experience is required.

Must have valid driver's license.

Preferred Qualifications

Good analytical skills. Possess sound knowledge of Word and Excel applications. Ability to master a variety of IT applications. Excellent oral and written communication skills as well as interpersonal relations skills. Ability to coordinate complex projects and issues.

Attendance

Regular attendance is essential for satisfactory performance.

Work Conditions

Normal office environment. May occasionally visit off-site locations such as customer facilities and gas storage fields.

Physical Effort

Primarily sitting. Some standing, walking, stooping.

Job Hazards

Low degree of danger or hazard in office setting and in field.

LG&E KU
PPL companies

Completed by Compensation Department

Job Code:	**E7545**
FLSA Classification	
EEO Category	
Approved By	Caroline Smith
Effective Date	
Revision Date	January 2020
Mkt Pricing Date	

Job Title: Gas Supply Specialist III
Department: Gas Supply
Reports to Title: Director, Gas Management, Planning, And Supply
Direct Report Title(s): N/A

Purpose

This position is responsible for activities associated with developing LG&E's strategic gas supply and transportation position and policies; managing gas supply and transportation contracts; and managing the transportation of natural gas to qualifying industrial/commercial customers.

Core Responsibilities

Strategy

Conducts and analyzes various industry and competitive studies and provides strategic recommendations as to natural gas purchase, transportation, contract trends, inventory levels, alternate gas supply strategies, regulatory issues, and other matters.

Develops strategic position; understands and explains relative competitive positions; recommends actions based on positions, strategies, and initiatives.

Prepares guidelines for evaluation of supply and transportation service options, strategies and negotiations; develops contractual negotiation parameters; analyzes pricing methods and pricing tools; determines natural gas and transportation availability; develops and negotiates contractual language; oversees analysis and evaluation of contract proposals and bids; anticipates potential impact of future market conditions, trends, and regulations; makes associated recommendations and implements them when required so to do.

Analyzes regulations, filings and testimony related to gas supply matters at the Federal Energy Regulatory Commission and the Kentucky Public Service Commission; oversees routine regulatory issues; makes associated recommendations and acts upon them when required so to do.

Coordinates strategies with internal groups to ensure support of long-term strategic plans and initiatives; interacts with Gas Control, Corporate Law, State Regulation and Rates, and Forecasting.

Procurement

Manages gas supply and transportation contracts to ensure full compliance, performance, and maximum cost efficiencies resulting in lower costs and reliable quantities of natural gas supplies; contracts are monitored for performance and deviations; makes recommendations as appropriate; interacts with Gas Control as necessary.

Performs accounting functions and analyses associated with the purchase of natural gas; reviews gas supply and transportation invoices for accuracy and recommends approval; interacts with Internal and External Auditing and Revenue Accounting as necessary.

Performs various complex statistical, cost and rate analyses within established guidelines related to supply/transportation solicitations. Performs scenario analysis using supply planning and optimization model.

Negotiates contracts and contractual amendments for natural gas supplies; interacts with Corporate Law as necessary.

End-User Transportation

Manages all gas activities, including the coordination of end-use customer volumes, associated with the functioning and operation of natural gas transportation by qualifying commercial and industrial customers in order to ensure the highest levels of customer service; interacts with large gas customers, Gas Control and other operating areas as necessary.

Ensures full contract and tariff compliance by LG&E and end-user; all contract negotiations, communications and transactions are fully documented; interacts with Marketing and Corporate Law as necessary.

Works with IT to ensure applications that track end-user gas transportation activities are operating as required. Proposes, supports, and tests modifications to applications as required.

Closely works with other groups within LG&E to ensure adequate and timely gas quantities are delivered, measured, and billed; interacts with Gas Control, Billing Integrity, Major Accounts, and Corporate Law as necessary.

Education/Experience/Qualifications

Bachelor's degree in business, mathematics, engineering, or science and a minimum of five years gas industry experience required.

Must have valid driver's license.

Preferred Qualifications

Excellent analytical skills. Possess sound knowledge of Word and Excel spreadsheet applications, and optimization models. Ability to master a variety of IT applications. Excellent oral and written communication skills as well as interpersonal relations skills. Ability to coordinate complex projects and issues.

Attendance

Regular attendance is essential for satisfactory performance.

Work Conditions

Normal office environment. May occasionally visit off-site locations such as customer facilities and gas storage fields.

Physical Effort

Primarily sitting. Some standing, walking, stooping.

Job Hazards

Low degree of danger or hazard in office setting and in field.

Gas Distribution
LG&E and KU Utilities
2020 Operating Plan

September 30, 2019

Table of Contents

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- Major Assumptions
- Financial Performance
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  - 2017-2024 Annual O&M Expenses
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    - Mechanism O&M
- Plan Risks
- Key Performance Indicators

Plan Highlights

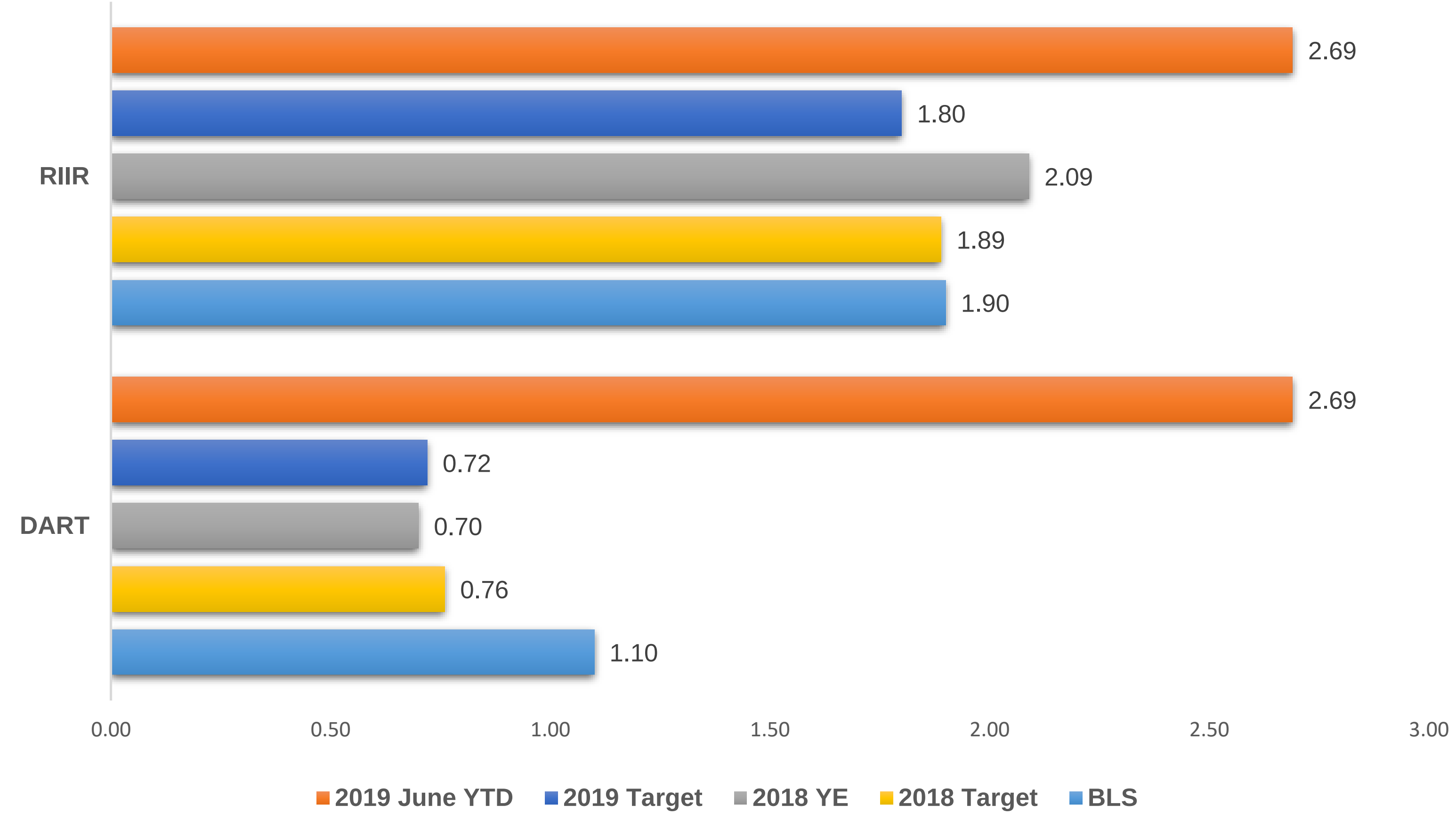
Safety and customer satisfaction are core values at LG&E and KU. Gas Distribution Operations mission is to provide safe, reliable, and low cost service that enhances our customer's quality of life.

Funding levels within the proposed plan were established with the following priorities in mind:

- Employee, contractor and public safety
- Regulatory compliance
- Supporting customer service
- Gas system reliability
- Asset replacement to ensure reliable and safe service
- System enhancements to meet customer needs
- Technology to increase efficiencies and enhance customer experience
- Capital investments for transmission modernization, customer service line replacement and service line ownership

Plan Highlights

Safety Performance - Gas



2017 BLS - most recent data

Plan Highlights

- Safety and Wellness
  - Continuously strive to improve employee safety performance
  - Improve gas system safety thru effective Distribution Integrity, Transmission Integrity, Public Awareness, Damage Prevention, Storage Integrity and Gas Control Room Management programs and start implementation of a Pipeline Safety Management System
  - Maintain strong safety partnerships with business partners
  - Enhanced public safety through customer communications and asset replacement
  - Continuation of motor vehicle safety initiatives
  - Identify, share, and capitalize on industry best practices
  - Mock drills, leak detection training, and emergency response improvements
  - Effective liaison with emergency response agencies
  - Promote wellness initiatives as an aspect of safety

Plan Highlights

- Customer Experience
  - Meet customer expectations for new service requests
  - Promptly address customer service issues
  - Identify customer service improvement opportunities
  - Invest in aging infrastructure to ensure reliable and safe service
  - Promote professional and positive corporate image to customers
  - Restore customer service outages quickly and efficiently
  - Meet customer capacity needs
  - Implement technology to support customer service
  - Proactively communicate with customers

Plan Highlights

- Reliability, Infrastructure and Regulatory Compliance
  - Investments in infrastructure to meet customer needs
  - Investment in aging infrastructure to improve safety, reliability and performance
  - Effectively manage gas distribution integrity, transmission integrity, storage integrity and control room management regulatory programs
  - Provide reliable gas supplies through investments in:
    - Gas regulation/measurement facilities
    - Gas transmission system
    - Gas compressor stations
    - Gas storage fields
    - Distribution infrastructure upgrades

Plan Highlights

- Workforce Development
  - Headcount plan that addresses retirements
  - Identification of pre-hires for critical job positions
  - Knowledge transfer to new employees
  - Support of employee continuing education initiatives
  - Support onboarding and enhanced training/operator qualification to promote consistent work practices across operational groups
  - Internal and external training opportunities
  - Mobile computing technologies supporting training
  - Skilled craft-worker intern program in participation with local technical colleges
  - Support emergency response improvement

Major Assumptions

- Customer expectations regarding levels of service and information availability will continue to increase.
- Incremental headcount is needed to meet increased regulatory, work scope and compliance demands, contractor offsets and transfer critical knowledge in preparation for retirements.
  - Incremental resources for the Gas Trouble department to improve Emergency Response Time are in the planning period.
- New Business generally assumes low to moderate customer growth and inflationary increases through the planning period with new commercial and industrial loads requiring gas main extensions and system reinforcements.
  - Major New Business project of $7.2 million is assumed in the plan to serve Nucor Steel at Buttermilk Falls site in Brandenburg.
- Continuation of the Gas Line Tracker (GLT) mechanism through the planning period, with new Transmission Modernization Program projects and multi-diameter tool development costs moving to the mechanism in April 2020 and in-line inspections moving to the mechanism in May 2021.
- Gas Supply Clause remains fundamentally unchanged.
- Available technology and operating conditions will support successful enhanced in-line inspections.
- Pipeline Safety Act reauthorization by year end 2019.

Major Assumptions

- Continued focus on reliability initiatives and system reinforcement.

- New gas safety regulatory requirements will:
  - Require operators to validate MAOPs of gas transmission pipelines (49 CFR 192.624 MAOP Verification).
  - Expand pipeline integrity requirements beyond high consequence areas (49 CFR 192.710 Pipeline Assessments).
  - Expand operator qualification requirements to construction activities (49 CFR 192.801 Qualification of Pipeline personnel, Scope).
  - Require continuous improvement for distribution system integrity (49 CFR 192.1007 Gas Distribution Pipeline Integrity Management).
  - Require continued implementation of storage integrity compliance program (49 CFR 192.12 Underground Natural Gas Storage).

- Based upon the 2020 BP:
  - Forecasted Design Day for 2020 is expected to increase to 686,000 Mcf/day from 679,000 Mcf/day estimated in the prior BP. Through the current 5-year planning period, the forecasted Design Day is expected to gradually decrease to 674,000 Mcf/day.
  - The Transmission Modernization and Steel Customer Service line programs will continue infrastructure upgrades supporting compliance and reliability.
  - Replacement of amine gas processing systems with H2S scavenging systems will increase storage reliability, reduce environmental risks, and reduce headcount to operate compressor stations.

2017-2024 Capital Expenditures ($000)

Item	2017 Actual	2018 Actual	2019 Forecast	2020 Plan	2021 Plan	2022 Plan	2023 Plan	2024 Plan
Gas Line Tracker	$ 45,540	$ 28,237	$ 68,549	$ 69,437	$ 44,094	$ 28,422	$ 30,785	$ 21,376
Non-Tracker								
New Business	4,558	5,438	4,774	6,499	9,522	4,912	4,774	4,892
Enhance the Network	6,864	19,142	23,045	39,092	39,871	5,683	5,799	6,099
Maintain the Network	19,172	23,125	29,022	32,207	31,517	22,919	16,150	17,847
Repair the Network	381	1,524	624	707	730	750	772	793
Miscellaneous	1,283	1,277	821	761	1,139	563	421	428
Subtotal Non-Tracker	32,258	50,506	58,286	79,267	82,779	34,828	27,916	30,059
Total Capital	**$ 77,798**	**$ 78,743**	**$ 126,835**	**$ 148,704**	**$ 126,873**	**$ 63,250**	**$ 58,701**	**$ 51,435**
2019 Plan			**$ 146,999**	**$ 104,006**	**$ 124,597**	**$ 77,914**	**$ 76,085**	
Change			**$ 20,164**	**$ (44,698)**	**$ (2,276)**	**$ 14,664**	**$ 17,384**	

2017-2024 Annual O&M Expenses ($000)

Item	2017 Actual	2018 Actual	2019 Forecast	2020 Plan	2021 Plan	2022 Plan	2023 Plan	2024 Plan
Labor	$ 18,092	$20,569	$21,915	$22,675	$ 23,817	$ 24,923	$ 26,023	$ 27,135
Non Labor:								
Inline Inspections[1]	658	3,024	9,972	1,255	3	-	-	-
Line Locating	3,450	7,707	11,523	10,741	11,608	10,844	9,914	9,622
Compressor Stations	3,778	3,492	3,939	4,337	4,399	4,380	4,466	4,491
Gas Control	1,149	1,243	1,561	1,564	1,521	1,491	1,637	1,555
Gas Operations, Construction & Engineerin	2,899	3,964	3,456	3,031	3,131	3,192	3,256	3,368
Storage Integrity (Geologist)	419	327	1,075	36	1,309	1,356	990	604
Distribution Integrity and Compliance	2,196	3,085	3,093	3,560	3,792	3,872	3,827	3,863
Transmission Integrity and Compliance	1,659	1,751	2,266	2,438	2,594	2,406	2,472	2,435
Other	629	944	837	1,035	1,032	1,023	1,022	1,012
Base Rate Recovery	**$ 34,929**	**$46,106**	**$59,637**	**$50,672**	**$ 53,206**	**$ 53,487**	**$ 53,607**	**$ 54,085**
GLT Mechanism O&M[1]	554	681	1,043	4,320	8,750	8,306	4,681	9,534
GSC Mechanism O&M	2,889	1,676	1,726	1,725	1,670	1,652	1,652	1,653
Total O&M - GAAP View	**$ 38,372**	**$48,463**	**$62,406**	**$56,717**	**$ 63,626**	**$ 63,445**	**$ 59,940**	**$ 65,272**
Supplemental Contractors (included above)	$ 7,175	$12,910	$16,768	$15,805	$ 16,633	$ 15,831	$ 14,823	$ 14,369

[1] Multi-diameter tool development is assumed to move to GLT mechanism in 2020. Inline Inspections assumed to move to GLT effective May 2021.

2017-2024 Labor & Supplemental Contractor Expense Totals ($000)

	Year-End							
	2017 Actual	2018 Actual	2019 Forecast	2020 Plan	2021 Plan	2022 Plan	2023 Plan	2024 Plan
Employees From Page 15	$ 18,092	$ 20,569	$ 21,915	$ 22,675	$ 23,817	$ 24,923	$ 26,023	$ 27,135
Prior Plan			$ 21,267	$ 22,039	$ 22,930	$ 23,141	$ 23,875	
Change From Prior Plan			$ (648)	$ (636)	$ (887)	$ (1,782)	$ (2,148)	
Supplemental Contractors Page 17	$ 7,175	$ 12,910	$ 16,768	$ 15,805	$ 16,633	$ 15,831	$ 14,823	$ 14,369
Prior Plan			$ 12,913	$ 13,118	$ 13,503	$ 13,974	$ 14,402	
Change from Prior Plan			$ (3,855)	$ (2,687)	$ (3,130)	$ (1,857)	$ (421)	
Total Workforce (Employees Plus Supplemental Contractors)								
Current Plan	$ 25,267	$ 33,479	$ 38,683	$ 38,480	$ 40,450	$ 40,754	$ 40,846	$ 41,504
Prior Plan			$ 34,180	$ 35,157	$ 36,433	$ 37,115	$ 38,277	
Change from Prior Plan			$ (4,503)	$ (3,323)	$ (4,017)	$ (3,639)	$ (2,569)	

2017-2024 Labor & Supplemental Contractor Headcount Totals

	Year-End							
	2017 Actual	2018 Actual	2019 Forecast	2020 Plan	2021 Plan	2022 Plan	2023 Plan	2024 Plan
Employees From Page 16	264	290	307	316	324	329	335	340
Prior Plan			309	306	299	298	298	
Change From Prior Plan			2	-10	-25	-31	-37	
Supplemental Contractors Page 18	276	355	381	386	385	380	375	370
Prior Plan			309	309	299	296	296	
Change from Prior Plan			-72	-77	-86	-84	-79	
Total Workforce (Employees Plus Supplemental Contractors)								
Current Plan	540	645	688	702	709	709	710	710
Prior Plan			618	615	598	594	594	
Change from Prior Plan			-70	-87	-111	-115	-116	

LG&E KU PPL companies

Labor Expense
($000)

Departments	2017 Actual	2018 Actual	2019 Forecast	2020 Plan	2021 Plan	2022 Plan	2023 Plan	2024 Plan
VP Gas Distribution Operations	$ 303	$ 313	$ 364	$ 373	$ 385	$ 395	$ 407	$ 429
Gas Transmission Integrity & Compliance	1,896	2,558	2,639	2,358	2,380	2,409	2,471	2,540
Gas Distribution Integrity & Compliance	1,085	1,314	1,830	1,863	1,967	2,470	3,070	3,485
Pipeline Safety Management Systems	-	215	376	457	578	726	763	783
Operator Qualifications Program	-	139	391	426	437	450	463	477
Compliance/Environmental Coordinator	-	75	92	107	108	111	114	117
Gas Management & Supply	800	832	849	849	874	897	911	903
Gas Operations, Construction, & Engineering	5,303	6,279	6,597	6,439	7,355	7,624	7,854	8,094
Gas Control & Storage	8,705	8,844	8,777	9,803	9,733	9,841	9,970	10,307
Total O&M Labor	**$ 18,092**	**$ 20,569**	**$ 21,915**	**$ 22,675**	**$ 23,817**	**$ 24,923**	**$ 26,023**	**$ 27,135**
GLT Mechanism Labor	374	231	318	323	443	521	470	516
Total Labor	**$ 18,466**	**$ 20,800**	**$ 22,233**	**$ 22,998**	**$ 24,260**	**$ 25,444**	**$ 26,493**	**$ 27,651**

Note: Annual expense amounts are on an income statement basis and exclude balance sheet accounts.

Employee Headcount by Department

Department	Actual 12/31/17	Actual 12/31/18	Forecasted 12/31/19	Plan 12/31/20	Plan 12/31/21	Plan 12/31/22	Plan 12/31/23	Plan 12/31/24
VP Gas Distribution Operations	2	2	2	2	2	2	2	2
Gas Transmission Integrity & Compliance	33	23	24	23	23	23	23	23
Gas Distribution Integrity & Compliance	-	20	22	21	24	30	36	41
Pipeline Safety Management Systems	-	3	4	5	6	7	7	7
Operator Qualifications Program	-	3	4	4	4	4	4	4
Compliance/Environmental Coordinator	-	1	1	1	1	1	1	1
Gas Management & Supply	6	6	6	6	6	6	6	6
Gas Operations, Construction, & Engineering	120	122	130	132	141	140	140	140
Gas Control & Storage	102	105	104	109	104	103	103	103
Interns	1	5	10	13	13	13	13	13
Total	**264**	**290**	**307**	**316**	**324**	**329**	**335**	**340**

Supplemental Contractor Expense ($000)

Departments	2017 Actual	2018 Actual	2019 Forecast	2020 Plan	2021 Plan	2022 Plan	2023 Plan	2024 Plan
Gas Transmission Integrity & Compliance	$ 1,046	$ 1,170	$ 1,502	$ 1,374	$ 1,268	$ 1,179	$ 1,197	$ 1,067
Gas Distribution Integrity & Compliance								
LGE Electric & Gas Line Locating	3,433	7,677	11,488	10,697	11,563	10,727	9,729	9,375
Stop Box Inspections	1,224	1,741	1,405	1,540	1,600	1,632	1,592	1,610
Leak Survey	579	811	944	1,005	1,005	1,035	1,035	1,035
Other Dist. Integrity & Compliance	122	212	311	137	162	252	252	252
Total Dist. Integrity & Comp	5,358	10,441	14,148	13,379	14,330	13,646	12,608	12,272
Gas Operations, Construction, & Engineering	626	1,134	888	1,007	990	961	973	985
Gas Control & Storage	145	165	230	45	45	45	45	45
Total O&M	**$ 7,175**	**$ 12,910**	**$ 16,768**	**$ 15,805**	**$ 16,633**	**$ 15,831**	**$ 14,823**	**$ 14,369**
GLT Mechanism [1]	343	620	856	760	1,462	1,477	1,198	1,707
Total Supplemental Contractors	**$ 7,518**	**$ 13,530**	**$ 17,624**	**$ 16,565**	**$ 18,095**	**$ 17,308**	**$ 16,021**	**$ 16,076**

[1] Multi-diameter tool development is assumed to move to GLT mechanism in 2020. Inline Inspections assumed to move to GLT effective May 2021.

Note: Annual expense amounts are on an income statement basis and exclude balance sheet accounts.

Supplemental Contractor Headcount by Department

Department	Actual 12/31/17	Actual 12/31/18	Forecasted 12/31/19	Plan 12/31/20	Plan 12/31/21	Plan 12/31/22	Plan 12/31/23	Plan 12/31/24
Gas Transmission Integrity & Compliance	11	16	19	19	19	19	19	19
Gas Distribution Integrity & Compliance	72	136	158	164	164	159	154	149
Gas Operations, Construction, & Engineering	185	194	192	191	190	190	190	190
Gas Control & Storage	8	9	12	12	12	12	12	12
Total	**276**	**355**	**381**	**386**	**385**	**380**	**375**	**370**

2017-2024 Non Labor Expense Category ($000)

Item	2017 Actual	2018 Actual	2019 Forecast	2020 Plan	2021 Plan	2022 Plan	2023 Plan	2024 Plan
Inline Inspections: [1]								
Ballardsville ILI	$ 440	$ 2	$ -	$ -	$ -	$ -	$ -	$ -
Calvary ILI	156	311	300	-	-	-	-	-
Center 20" ILI	-	1,058	1,336	-	-	-	-	-
Lees to Cane Run ILI	-	184	132	-	-	-	-	-
Magnolia 16" Line ILI	-	4	2,895	-	-	-	-	-
Mill Creek 12" ILI	-	105	93	-	-	-	-	-
Muldraugh-Piccadilly ILI	-	1,125	918	-	-	-	-	-
Penile to Paddy's 16" & 20" Lin	-	-	1,006	-	-	-	-	-
Western Kentucky A Line ILI	-	-	1,970	-	-	-	-	-
Western Kentucky B Line ILI	-	-	-	1,255	-	-	-	-
Blanton to Paddy's Pipeline ILI	-	-	-	-	3	-	-	-
Tool Development	-	-	1,328	-	-	-	-	-
Repairs / Validation Digs	62	235	(6)	-	-	-	-	-
Total Inline Inspections	**$ 658**	**$ 3,024**	**$ 9,972**	**$ 1,255**	**$ 3**	**$ -**	**$ -**	**$ -**
Line Locating:								
Electric Line Locating	$ 930	$ 3,364	$ 5,216	$ 5,241	$ 5,326	$ 4,957	$ 4,489	$ 4,352
Unlocatables	281	254	272	263	263	271	277	284
Total Electric Line Locating	1,211	3,618	5,488	5,504	5,589	5,228	4,766	4,636
Gas Line Locating	1,473	3,230	5,175	4,337	4,419	4,016	3,548	3,386
Unlocatables	766	859	860	900	1,600	1,600	1,600	1,600
Total Gas Line Locating	2,239	4,089	6,035	5,237	6,019	5,616	5,148	4,986
Total Line Locating	**$ 3,450**	**$ 7,707**	**$ 11,523**	**$ 10,741**	**$ 11,608**	**$ 10,844**	**$ 9,914**	**$ 9,622**

[1] Multi-diameter tool development is assumed to move to GLT mechanism in 2020. Inline Inspections assumed to move to GLT effective May 2021.

2017-2024 Non Labor Expense Category ($000)

Item	2017 Actual	2018 Actual	2019 Forecast	2020 Plan	2021 Plan	2022 Plan	2023 Plan	2024 Plan
Compressor Stations:								
Supplemental Contractors	$ 59	$ 80	$ 61	$ 23	$ 23	$ 23	$ 23	$ 23
Outside Services - Other	629	667	929	1,087	1,013	1,052	1,050	1,049
Materials	1,748	1,401	1,459	1,738	1,937	1,843	1,912	1,921
Transportation & Equipment	822	725	811	817	824	840	862	879
DOT Natural Gas Storage Fee	62	167	167	167	117	117	117	117
Other	458	452	512	505	485	505	502	502
Total Compressor Stations	**$ 3,778**	**$ 3,492**	**$ 3,939**	**$ 4,337**	**$ 4,399**	**$ 4,380**	**$ 4,466**	**$ 4,491**
Gas Control:								
Supplemental Contractors	$ 1	$ 12	$ 149	$ 22	$ 22	$ 22	$ 22	$ 22
Outside Services - Other	213	207	251	633	571	520	606	574
Materials	414	423	577	364	370	383	438	367
Transportation & Equipment	347	327	379	379	392	398	404	425
Other	174	274	205	166	166	168	167	167
Total Gas Control	**$ 1,149**	**$ 1,243**	**$ 1,561**	**$ 1,564**	**$ 1,521**	**$ 1,491**	**$ 1,637**	**$ 1,555**
Gas Operations, Construction & Engineering:								
Gas Construction	$ 181	$ 289	$ 287	$ 316	$ 327	$ 328	$ 331	$ 333
Gas Operations								
Trouble	458	581	532	547	648	713	736	819
Customer Initiated	358	680	622	532	522	533	543	552
Leak Repair	439	543	464	493	490	496	506	514
GLT/COS Adjustment	259	246	315	-	-	-	-	-
Patrolling & Related Repair Costs	43	127	39	136	134	135	139	142
Administrative	889	1,135	1,005	728	734	746	752	750
Other	198	153	79	134	132	94	100	105
Total Gas Operations	2,644	3,465	3,056	2,570	2,660	2,717	2,776	2,882
Gas Engineering	64	98	88	104	104	107	110	112
Director	10	112	25	41	40	40	39	41
Total Gas Operations, Construction & Engineering	**$ 2,899**	**$ 3,964**	**$ 3,456**	**$ 3,031**	**$ 3,131**	**$ 3,192**	**$ 3,256**	**$ 3,368**

2017-2024 Non Labor Expense Category ($000)

Item	2017 Actual	2018 Actual	2019 Forecast	2020 Plan	2021 Plan	2022 Plan	2023 Plan	2024 Plan
Storage Integrity (Geologist):								
Supplemental Contractors	$ 85	$ 73	$ 20	$ -	$ -	$ -	$ -	$ -
Outside Services - Other	318	219	950	-	1,275	1,320	955	567
Materials	1	13	20	2	2	2	2	2
Transportation & Equipment	7	7	11	12	12	13	13	13
Other	8	15	74	22	20	21	20	22
Total Storage Integrity	**$ 419**	**$ 327**	**$ 1,075**	**$ 36**	**$ 1,309**	**$ 1,356**	**$ 990**	**$ 604**
Distribution Integrity & Compliance:								
Leak Survey	$ 583	$ 859	$ 957	$ 1,029	$ 1,029	$ 1,059	$ 1,056	$ 1,056
Public Awareness	44	78	147	422	428	428	426	429
Stop Box Inspections	1,243	1,758	1,426	1,569	1,630	1,662	1,619	1,640
Priority Valves	75	75	90	104	110	114	108	109
Farm Tap Inspections	39	96	144	50	50	140	140	140
Administrative	212	174	215	246	289	274	282	293
Other	-	45	114	140	256	195	196	196
Total Distribution Integrity & Compliance	**$ 2,196**	**$ 3,085**	**$ 3,093**	**$ 3,560**	**$ 3,792**	**$ 3,872**	**$ 3,827**	**$ 3,863**
Transmission Integrity & Compliance:								
Corrosion Control	$ 1,362	$ 1,438	$ 1,539	$ 1,919	$ 1,940	$ 1,954	$ 1,974	$ 1,847
Records Review	34	-	129	162	164	157	162	170
Close Interval Survey	-	-	290	84	116	20	60	140
Administrative	130	52	84	85	185	85	85	85
Other	133	261	224	188	189	190	191	193
Total Trans Integrity & Compliance	**$ 1,659**	**$ 1,751**	**$ 2,266**	**$ 2,438**	**$ 2,594**	**$ 2,406**	**$ 2,472**	**$ 2,435**
Other:								
Compliance & Environmental Coord.	$ -	$ 10	$ 20	$ 23	$ 23	$ 22	$ 22	$ 23
Operator Qualification	-	17	84	120	121	119	120	122
Pipeline Safety Management Systems	-	5	56	119	116	112	112	121
Gas Supply	165	158	169	196	193	189	181	160
Liability Claims	10	333	66	127	127	127	127	127
Dept. of Transportation Assessment Fee	125	129	130	136	140	145	149	153
American Gas Association Dues	163	205	211	211	211	211	211	211
Other	166	87	101	103	101	98	100	95
Total Other	**$ 629**	**$ 944**	**$ 837**	**$ 1,035**	**$ 1,032**	**$ 1,023**	**$ 1,022**	**$ 1,012**

2017-2024 Mechanism O&M Expense ($000)

Item	2017 Actual	2018 Actual	2019 Forecast	2020 Plan	2021 Plan	2022 Plan	2023 Plan	2024 Plan
GLT Mechanism:								
CSO Meter Conditions	385	223	460	479	491	503	515	528
Repair Leaks	245	433	545	412	420	430	438	447
Customer Unlocatables	181	264	349	332	338	345	352	359
Inline Inspections [1]	-	-	-	3,098	7,500	7,029	3,376	8,200
Other GLT	(257)	(240)	(311)	0	1	(1)	1	-
Total GLT Mechanism	**554**	**681**	**1,043**	**4,320**	**8,750**	**8,306**	**4,681**	**9,534**
GSC Mechanism:								
Gas Losses - Muldraugh [2]	2,679	1,476	1,517	1,515	1,466	1,450	1,450	1,450
Gas Losses - Magnolia [3]	210	200	209	210	204	202	202	203
Total GSC Mechanism	**2,889**	**1,676**	**1,726**	**1,725**	**1,670**	**1,652**	**1,652**	**1,653**
Total Mechanism Expense	**3,443**	**2,357**	**2,769**	**6,045**	**10,420**	**9,958**	**6,333**	**11,187**

[1] Multi-diameter tool development is assumed to move to GLT mechanism in 2020. Inline Inspections assumed to move to GLT effective May 2021.

[2] Muldraugh: 2020 gas losses based on 420 MMcf at $3.61/MMcf for a total of $1.5M, 2021 is 420 MMcf at $3.49/MMcF for a total of $1.5M per year, and 2022-2024 is 420 MMcf at $3.45/MMcf for a total of $1.5M per year.

[3] Magnolia: 2020 gas losses based on 59 MMcf at $3.58/MMcf for a total of $.2M, 2021 is 59 MMcf at $3.47/MMcf for a total of $.2M, and 2022-2024 is 59 MMcf at $3.45/MMcf for a total of $.2M

O&M Annual Expense Reconciliation ($000)

	2020 Plan	2021 Plan	2022 Plan	2023 Plan	2024 Plan
2020 Plan - GAAP view	$ 56,717	$ 63,626	$ 63,445	$ 59,940	$ 65,272
2019 Plan - GAAP view [1]	51,745	54,222	59,811	57,028	58,263
Change	**$ (4,972)**	**$ (9,404)**	**$ (3,634)**	**$ (2,912)**	**$ (7,009)**
Base Rate Drivers:					
Line Locating	(2,398)	(2,973)	(2,394)	(1,722)	(1,779)
WFP Impacts	(18)	(801)	(970)	(814)	(608)
Overtime Reduction	(553)	-	-	-	-
Well Logging	795	(481)	(524)	(157)	244
Inline Inspections [2]	419	2,681	7,390	3,376	3,410
Other	(12)	(311)	(102)	(205)	(69)
Subtotal Base Rate Drivers	**(1,767)**	**(1,885)**	**3,400**	**478**	**1,198**
Mechanism Drivers:					
Inline Inspections [2]	(3,098)	(7,500)	(7,029)	(3,376)	(8,200)
Other GLT & GSC	(107)	(19)	(5)	(14)	(7)
Subtotal Mechanism Drivers	**(3,205)**	**(7,519)**	**(7,034)**	**(3,390)**	**(8,207)**
Total Drivers	**$ (4,972)**	**$ (9,404)**	**$ (3,634)**	**$ (2,912)**	**$ (7,009)**

[1] 2019 Plan numbers include target transfer from Customer Services.

[2] Multi-diameter tool development is assumed to move to GLT mechanism in 2020. Inline Inspections assumed to move to GLT effective May 2021.

Plan Risks

- Finalization of new transmission pipeline regulations and associated mitigation costs
  - Success of in-line inspection tools
- Finalization of Storage Integrity Management Program regulations and associated mitigation costs
- Regulatory compliance continues to impact capital and O&M costs
- Construction Risks
  - Industrial and commercial economic development pace
  - Material, equipment, and construction resource cost escalation and availability
  - Permitting and Right-of-Way acquisition for pipeline projects
- Impact of workforce turnover from retirements
- Ballardsville high pressure gas transmission pipeline ongoing assessments could drive capital or O&M incremental to the plan.
- Higher volumes of line locating requests driving increases in line locating costs
- Higher costs to expedite implementation of a Pipeline Safety Management System
- Costs mitigating risk associated with abandoned/orphaned wells – Center Storage Field

Plan Risks

Pipeline Safety Act Reauthorization

The federal Pipeline Safety Act (PSA or the Act) mandates minimum safety standards for pipelines and certain associated storage and facilities (including LNG and other terminals).

Operational Information

- Make available operational information (maps, operating characteristics, IM programs, and O&M manuals to emergency response commissions and emergency planning committees)
- Operators will be required to begin submitting **annual reports on pipeline segments**, including maps, emergency response liaison information, periodic testing methods and frequency, results of periodic testing, incident history, inspection/enforcement history, IM program activities (page 12). These reports will be made available to the public (page 14).

Distribution Pipelines

- Aging infrastructure / Pipeline Replacement
- Overpressure Protection
- Increased Reporting

Construction Issues

- Mandates relating to work plans, directional drills, oversight of contractors, management of change procedures, etc.

Emergency Shutdown Valves, Communications, and Overprotection

- Required installation and automation to respond to rupture identification and coordination of response

MAOP

- Required hydrostatic pressure test which incorporates a spike test.

State Oversight/Involvement

- Expansion of governance duties and federal accountability oversight

Cybersecurity

- Uncertain SCADA cyber protection requirements

Civil and Criminal Penalties

- Removes $2m cap for line-locating, excavation/tunneling/construction, integrity management, and recordkeeping
- Criminal penalties for willful and/or reckless behavior
- Whistleblower protection increased

Operational Performance

Key Performance Indicators

KPI	2017 Actual	2018 Actual	2019 Forecast	2020 Plan	2021 Plan	2022 Plan	2023 Plan	2024 Plan
Safety - Employee Incident Rate [1]	2.55	2.09	2.69	1.73	1.66	1.55	1.47	1.38
Safety - Contractors Incident Rate [1]	1.58	0.88	0.55	1.73	1.66	1.55	1.47	1.38
DART - Employees [1]	1.09	0.70	2.69	0.67	0.63	0.63	0.59	0.53
Gas Response Priority 1 Calls (minutes)	37.1	32.9	35.0	34.5	34.0	33.5	33.0	31.0
New Business Cycle Time (Calendar Days) [2]	6.00	7.60	9.00	9.00	9.00	9.00	9.00	9.00

1) 2019 Forecast numbers are YTD June 2019 actuals and not forecasted.
2) Measures from the time a service request is approved by a locator from the Design department to the time the service is installed.

LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Commission Staff's First Request for Information
Dated February 6, 2020

Case No. 2019-00437

Question No. 17

Witness: J. Clay Murphy / Pamela L. Jaynes

Q-17. Provide the administrative costs and any additional costs associated with the PBR mechanism that is incurred by LG&E on a yearly basis.

A-17. As discussed in the response to Question No. 20, LG&E does not separately track costs associated with its PBR-related activities as distinct from other gas procurement activities.

LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Commission Staff's First Request for Information
Dated February 6, 2020

Case No. 2019-00437

Question No. 18

Witness: J. Clay Murphy / Pamela L. Jaynes

Q-18. Provide a detailed list of any other states that have approved natural gas procurement PBR mechanisms. Further, explain how LG&E's PBR mechanism compares to active mechanisms in the other states. For any discontinued mechanisms, provide all available details regarding their discontinuance.

A-18. LG&E has not performed an exhaustive search of every LDC's tariff in the U.S. to determine all gas PBR mechanisms that may be in existence. Based on information provided by Columbia Gas of Kentucky, Inc. to the Commission in Case No. 2017-00453, In addition to Kentucky, LG&E is aware of PBR mechanisms in the states of California, Indiana, Maryland, Massachusetts, Missouri, Pennsylvania, Tennessee, and Virginia. Attached is a comparison of LG&E's gas supply cost PBR mechanism to known active gas cost incentive mechanisms in those states. LG&E does not have knowledge concerning any discontinued mechanisms.

LG&E's PBR mechanism can only be compared to gas cost incentive mechanisms in other states at a high level because the design of each mechanism varies greatly. For example, each LDC's benchmarks are tailored to each LDC's unique gas supply alternatives. As acknowledged by the Commission in Administrative Case No. 384, "[t]he Commission recognizes that LDCs face different circumstances and that differences in operating characteristics among LDCs mean that there is not one PBR approach that is right for all of them." (See Order dated July 17, 2001, at p. 7)

Like LG&E's PBR mechanism, some LDCs' gas cost incentive mechanisms encourage improved performance related to gas commodity costs, pipeline transportation costs, off-system sales, and capacity release. However, the mechanisms of some LDCs only incent a subset of these gas procurement activities. For example, the mechanisms of Columbia Gas of Massachusetts and Columbia Gas of Pennsylvania only incentivize off-system sales and capacity release activities. LG&E believes that a well-constructed PBR mechanism should include well-constructed benchmarks for all natural gas procurement activities.

Some LDC's have a sharing mechanism that limits the amount that can be shared between the LDC and its customers. The configuration of these sharing mechanisms acts as a disincentive for the LDC to create savings above the stated limit. Put simply, a capped sharing mechanism is short-sighted because it not only caps the potential reward for the LDC, but it also caps the potential reward for customers. Others may include a dead band within which no sharing occurs and which can therefore also act as a disincentive. To the contrary, LG&E's sharing mechanism contains neither of these limiting features, and therefore acts as an incentive for LG&E to create as much savings as possible under the mechanism given the risks and rewards embodied in the mechanism.

Louisville Gas and Electric Company
Comparison of LG&E's PBR Mechanism to active gas cost incentive mechanisms in other states

	Kentucky	California			
Local Gas Distribution Company	LG&E	Pacific Gas and Electric	San Diego Gas and Electric	Southern California Gas	Southwest Gas Corporation
Name of Plan	Experimental Performance Based Rate Mechanism	Core Procurement Incentive Mechanism	Gas Procurement PBR	Gas Cost Incentive Mechanism	Gas Cost Incentive Mechanism
Purpose of Plan	Improve gas procurement performance	Replaces prudence review, improve gas procurement performance	Replaces prudence review, improve gas procurement performance	Replaces prudence review, improve gas procurement performance	Replaces prudence review, improve gas procurement performance
Does the mechanism include the following elements:					
1. Incentive to lower gas commodity costs?	Yes	Yes	Yes	Yes	Yes
2. Incentive to lower interstate pipeline transportation costs?	Yes	Yes	Yes	Yes	Yes
3. Incentive to release pipeline capacity?	Yes	Yes	Yes	Yes	Yes
4. Incentive to make off-system sales?	Yes	Yes	Yes	Yes	Yes
5. Sharing of hedging gains/losses?	Yes	Yes	Yes	Yes	Yes
6. Symmetrical incentive to maximize savings for each element?	Yes, two tier sharing mechanism for savings and expenses; results up to 3% of total annual gas costs sharing is 75% customer/25% Company; over 3% of total annual gas costs sharing is 50-50.	Yes, there is no risk or sharing within a tolerance band of the benchmark; costs above the tolerance band shared 50/50; savings below the tolerance band shared 80% customers/20% Company	Yes, costs shared 50/50; savings up to 1% of benchmark 100% customers; savings from 1% to 5% of benchmark shared 75% customers/25% Company	Yes, costs shared 50/50; savings up to 1% of benchmark go 100% to customers; savings from 1% to 5% of benchmark shared 75% customers/25% Company, and savings above 5% of benchmark shared 90% Customer/10% Company	Yes, there is no risk or sharing within a tolerance band of the benchmark; costs above the tolerance band shared 50/50; savings below the tolerance band shared 75% customers/25% Company
7. Disincentive to perform above a certain savings level?	No	Yes, Company's share of costs or savings cannot exceed 1.5% of actual annual commodity costs	Yes, Company's share of costs or savings cannot exceed 1.5% of actual annual commodity costs	Yes, Company's share of costs or savings cannot exceed 1.5% of actual annual commodity costs	Yes, Company's share of costs or savings cannot exceed 1.5% of actual annual commodity costs
8. Periodic regulatory review of Plan?	Yes	Yes	Yes	Yes	Yes

Louisville Gas and Electric Company
Comparison of LG&E's PBR Mechanism to active gas cost incentive mechanisms in other states

	Indiana	Maryland	Massachusetts	Missouri
Local Gas Distribution Company	NIPSCO Gas	Columbia Gas of MD	Columbia Gas of MA	Spire
Name of Plan	Gas Cost Incentive Mechanism; Capacity Release Sharing Mechanism	Gas Procurement Incentive Program; Sharing Mechanism For Off System Sales And Capacity Release	Interruptible Sales, Off-System Sales and Capacity Release Revenues	Gas Supply Incentive Plan; Sharing of Off-System Sales and Capacity Release
Purpose of Plan	Improve gas procurement performance	Improve spot gas procurement perfromance; encourage capacity release and off-system sales	Encourages off-system sales and capacity release	Reducing the impact of upward commodity price volatility; off-system sales and capacity release
Does the mechanism include the following elements:				
1. Incentive to lower gas commodity costs?	Yes	Yes	No	Yes
2. Incentive to lower interstate pipeline transportation costs?	No	No	No	No
3. Incentive to release pipeline capacity?	Yes	Yes	Yes	Yes
4. Incentive to make off-system sales?	No	Yes	Yes	Yes
5. Sharing of hedging gains/losses?	No	No	No	Yes
6. Symmetrical incentive to maximize savings for each element?	No, gas cost savings or expenses shared 50/50. Capacity release revenues up to $1M are shared 85% customers/15% Company	Yes, gas savings or expenses are shared 50/50; capacity release revenue up to $100,000 is shared 90% customer/10% Company; revenues above $100,000 are shared 80% customer/20% Company; off-system sales revenue shared 80% Customer/20% Company.	Yes, revenues are shared 90% customer/10% Company	No, actual average gas price (commodity-only) must be below benchmark price and fall within certain price tiers for savings to be created; Losses 100% customers; off-system sales and capacity release revenues shared 75% customer/25% company
7. Disincentive to perform above a certain savings level?	Yes, cap of $1.0 M	No	No	Yes, $3.0 M annual cap
8. Periodic regulatory review of Plan?	Yes	Yes	Yes	Yes

Louisville Gas and Electric Company
Comparison of LG&E's PBR Mechanism to active gas cost incentive mechanisms in other states

	Pennsylvania		Tennessee	Virginia
Local Gas Distribution Company	Columbia Gas of PA	UGI Utilities	Piedmont Natural Gas	Columbia Gas of VA
Name of Plan	Gas Procurement Incentive Program; Sharing Mechanism For Off System Sales And Capacity Release	Revenue Sharing Incentive Mechanism	Performance Incentive Plan	Off-System Sales And Capacity Release Incentive Mechanism
Purpose of Plan	Improve spot gas procurement perfromance; encourage capacity release and off-system sales	Encourages off-system sales, exchanges, capacity release, storage asset management	Replaces prudence review, improve gas procurement performance	Encourage off-system sales and capacity release
Does the mechanism include the following elements:				
1. Incentive to lower gas commodity costs?	Yes; Summer Spot-only	No	Yes	No
2. Incentive to lower interstate pipeline transportation costs?	No	No	Yes	No
3. Incentive to release pipeline capacity?	Yes	Yes	Yes	Yes
4. Incentive to make off-system sales?	Yes	Yes	Yes	Yes
5. Sharing of hedging gains/losses?	No	No	Yes	No
6. Symmetrical incentive to maximize savings for each element?	No, gas savings or expenses in excess of 1% are shared 50/50; off-system sales and capacity release are shared 75% customer/25% Company	Yes, revenue (savings) shared 75% customers/25% Company	Yes, savings or costs shared 75% customers/ 25% Company	A tolerance range is set yearly; savings below the range not shared, savings above the range shared 75% Customers/25% Company.
7. Disincentive to perform above a certain savings level?	No	No	Yes, $1.6 M annual cap	Yes
8. Periodic regulatory review of Plan?	Yes	Yes	Yes	Yes

LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Commission Staff's First Request for Information
Dated February 6, 2020

Case No. 2019-00437

Question No. 19

Witness: J. Clay Murphy / Pamela L. Jaynes

Q-19. Provide a cost-benefit analysis of the costs associated with LG&E's negotiation of the discounted rate and the savings created from the PBR mechanism for ratepayers.

A-19. For the four years to date of the PBR mechanism approved by the Commission in Case No. 2014-00476, savings from discounted gas transportation capacity totaled $8,869,443. This amount represents about 9% of the total annual actual gas transportation costs of $98,007,349 incurred by LG&E during that same period.

PBR Year	Savings from Pipeline Discounts	Total Annual Actual Gas Transportation Costs	Percentage
19	$2,586,483	$24,440,703	10.58%
20	$1,913,184	$24,546,688	7.79%
21	$1,913,184	$24,937,832	7.67%
22	$2,456,592	$24,082,126	10.20%
Total	$8,869,443	$98,007,349	9.05%

As further described in the response to Question No. 12(b), the above amounts reflect only savings from pipeline discounts and do not include any amounts resulting from capacity release activity.

LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Commission Staff's First Request for Information
Dated February 6, 2020

Case No. 2019-00437

Question No. 20

Witness: J. Clay Murphy / Pamela L. Jaynes

Q-20. Provide the costs incurred to achieve savings under LG&E's PBR, and explain how those costs are recovered (i.e., through the GCA, netted against savings in the PBR, etc.).

A-20. Gas commodity and transportation costs are recovered through LG&E's Gas Supply Clause.

Labor-related and operating and maintenance expenses incurred to perform LG&E's gas procurement activities are recovered through LG&E's base rates.

LG&E does not separately track costs associated with its PBR-related activities as distinct from other gas procurement activities. It is not possible to segregate those costs because LG&E makes all of its gas purchasing decisions in the context of its gas supply cost PBR mechanism.

Absent LG&E's PBR mechanism, no reduction in administrative expenses (labor-related and operating and maintenance expenses) are anticipated because all of LG&E's gas procurement activities would still need to be performed.

See also the response to Question No. 17.

LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Commission Staff's First Request for Information
Dated February 6, 2020

Case No. 2019-00437

Question No. 21

Witness: J. Clay Murphy / Pamela L. Jaynes

Q-21. Explain what costs LG&E provides to the Energy Information Administration (EIA), and at what intervals LG&E provides information to EIA.

A-21. LG&E submits the following reports regarding natural gas to the Energy Information Administration:

- EIA-176 Annual Report of Natural and Supplemental Gas Supply & Disposition
- EIA-191M Monthly Underground Gas Storage Report
- EIA-857 Monthly Report of Natural Gas Purchases and Deliveries to Consumers
- EIA-912 Weekly Underground Natural Gas Storage Report