VERIFICATION

COMMONWEALTH OF KENTUCKY)
)
COUNTY OF JEFFERSON)

The undersigned, **Daniel K. Arbough**, being duly sworn, deposes and says that he is Treasurer for Kentucky Utilities Company and Louisville Gas and Electric 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.

Daniel K. Arbough

Daniel K. Arbough

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 15th day of February 2019.

Judy Schooler

Notary Public

My Commission Expires:

Judy Schooler
Notary Public, ID No. 603967
State at Large, Kentucky
Commission Expires 7/11/2022

LOUISVILLE GAS AND ELECTRIC COMPANY

February 15, 2019 Supplemental Response to First Request for Information of the U. S. Department of Defense Dated November 13, 2018

Case No. 2018-00295

Question No. 21

Responding Witness: Daniel K. Arbough / Adrien M. McKenzie

Q-21. Please provide copies of all publications and credit reports referenced in or considered by witnesses Mr. McKenzie and Mr. Arbough. This is an ongoing request for all subsequent testimonies filed by these witnesses.

A-21. **Original Response:**

See Exhibit DKA-3 of Mr. Arbough's Direct Testimony (Moody's Rating Methodology, Regulated Electric and Gas Utilities, dated June 23, 2017).

See Exhibit DKA-4 of Mr. Arbough's Direct Testimony (S&P Corporate Methodology and Key Credit Factors for the Regulated Utilities Industry, dated November 19, 2013).

See Exhibit DKA-5 of Mr. Arbough's Direct Testimony (Moody's Outlook on Utility Industry, dated June 18, 2018).

With the exception of court and regulatory decision and publications of federal agencies, which are publicly available from the respective sources, copies of all publications and source documents cited in Mr. McKenzie's testimony are attached.

February 6, 2019 Supplemental Response:

Attached is a recent rating action report issued by Moody's Investors Service and is supplemental information being provided by Mr. Arbough.

February 15, 2019 Supplemental Response:

Attachment 1 and Attachment 2 are recent rating action reports issued by Standard & Poor's Financial Services and are supplemental information being provided by Mr. Arbough.

S&P Global
Ratings

RatingsDirect®

Louisville Gas & Electric Co.

Primary Credit Analyst:
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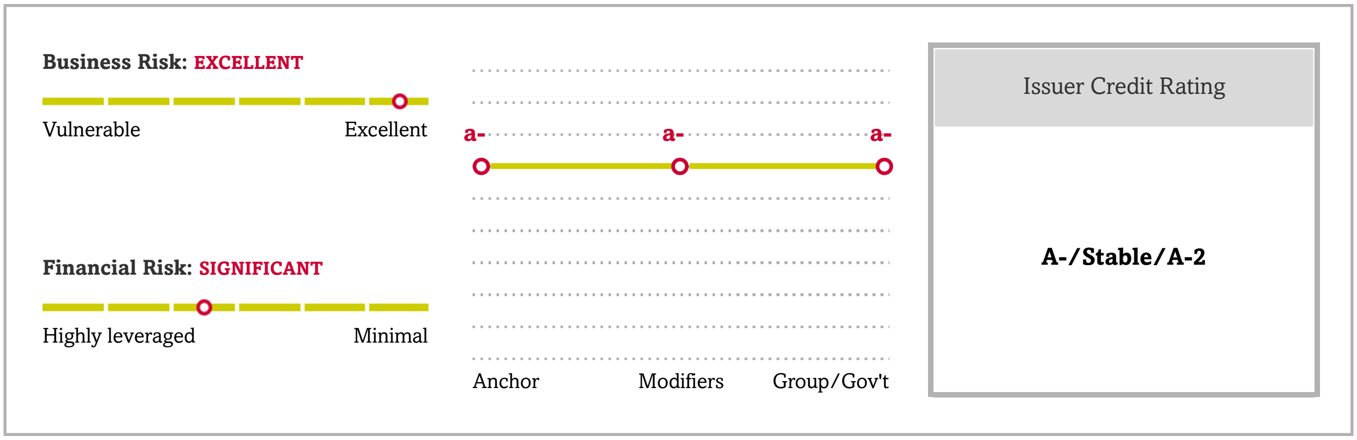
Louisville Gas & Electric Co.



Credit Highlights

Overview

Key strengths	Key risks
Vertically integrated electric and natural gas distribution utility.	Geographic concentration in Louisville, Ky. and modest customer base has limited scale.
Credit-supportive and constructive regulatory environment in Kentucky.	Negative discretionary cash flow after capital spending and dividends.
Balanced capital structure supports overall credit quality.	Generation subject to environmental compliance rules.
	Tax reform temporarily weakens operating cash flow.

Kentucky's regulation supports credit quality. Louisville Gas & Electric Co. (LG&E) benefits from other mechanisms such as a gas line tracker and a pass-through fuel cost mechanism that help stabilize operating cash flow.

Debt leverage remains modest for regulated utilities overall. Debt leverage, as reflected in debt to EBITDA, is expected to remain modest for utilities in the mid- to high-3x range over the next few years, in part from timely cost recovery through rates.

Capital spending has been high as a result of environmental compliance. The company has had higher capital spending to comply with the Environmental Protection Agency's (EPA's) Clean Air Act rules for coal combustion waste and byproducts created through coal-fired generation. LG&E is entitled to cost recovery through an environmental cost recovery mechanism.

Outlook: Stable

The stable rating outlook on LG&E reflects that of parent PPL Corp. (PPL). The stable outlook over the next 24 months is based on PPL's excellent business risk profile, which we view to be at the upper end of the range, and significant financial risk profile, which is at the lower end of the range. Under our base-case scenario, we expect that adjusted funds from operations (FFO) to debt will range from 13%-14%, while adjusted debt to EBITDA will remain elevated at over 5x.

Downside scenario

We could lower the ratings over the next 24 months on PPL and its subsidiaries if core credit ratios weakened enough that adjusted FFO to debt fell below 13% on a consistent basis while still at the current level of business risk.

Upside scenario

Given our assessment of business risk and our base-case scenario for financial performance, we do not anticipate higher rating during the outlook period. However, higher ratings would largely depend on PPL consistently achieving adjusted FFO to debt of more than 18% while maintaining the current level of business risk.

Our Base-Case Scenario

Assumptions

- In 2018, gross margin is affected by tax reform-related customer bill credits.
- Beginning in 2019, gross margin improves due to timely recovery of costs and from rate cases.
- Higher capital expenditures in 2019 of around $590 million, reflecting upgrades to distribution equipment and improvements to generation assets to comply with environmental regulations.
- Annual dividends of $165 million.
- All debt maturities refinanced.

Key Metrics

	2019E	2020E	2021E
Adjusted FFO to debt (%)	19-21	19-21	-
Adjusted FFO cash interest coverage (x)	6.5-7.1	6.6-7.2	-
Adjusted debt to EBITDA (x)	3.6-4	3.4-3.8	-

E--Estimate. FFO--Funds from operations.

Base-case projections

- After dividends and elevated capital spending, discretionary cash flow is expected to be negative and partly funded with debt.
- Adjusted FFO to debt declines to around 20% after the impact of U.S. tax reform.

- Debt leverage as reflected by debt to EBITDA remains in the 3.5x-4x range.

Company Description

LG&E, operating in and around Louisville, Ky., is a vertically integrated electric utility serving 400,000 customers and a natural gas distribution utility serving around 320,000 customers.

Business Risk: Excellent

We assess LG&E's business risk profile based primarily on the company's regulated utilities, which comprise vertically integrated electric and natural gas distribution operations, as well as Kentucky's generally constructive regulatory framework.

With its customer base of about 400,000 electric and about 320,000 natural gas customers, LG&E has some scale. Its largely residential and commercial customer base insulates the company from fluctuations in demand and stabilizes its cash flows. Our assessment also accounts for the company's moderate operating diversity due to its electric and natural gas operations.

The company has about 3,000 megawatts of generation capacity, which has higher operating risk than transmission and distribution operations. The company has been upgrading its coal-fired generation plants to comply with environmental regulations. While the capital costs of these upgrades are significant, spending can be recovered through an environmental cost recovery mechanism, which limits regulatory lag and supports the credit profile. Under Kentucky Public Service Commission regulation, the company benefits from other mechanisms such as a gas line tracker and a pass-through fuel cost mechanism, which help stabilize of the company's returns. Moreover, the company's low-cost, coal-fired generation and efficient operations contribute to overall competitive rates for customers.

Peer comparison

LG&E is in line with regulated electricity generation and natural gas distribution peers such as Southern Indiana Gas & Electric Co. (SIGECO) as well as Wisconsin Public Service Corp. (WPS). LG&E has greater customer scale than the smaller SIGECO, which has only 150,000 electricity and 110,000 gas customers in Indiana. Similar to LG&E in Kentucky, SIGECO does benefit from a generally supportive regulatory environment in Indiana as well as various recovery mechanisms like fuel and purchased gas surcharges. In 2019, we expect LG&E to have weaker cash flow measures than SIGECO. We view WPS as a similarly sized peer to LG&E because it has 450,000 electric and 325,000 natural gas customers. WPS' timely recovery of costs through regulatory mechanisms and stable operating cash flow contribute to FFO to debt of about 21%, about in line with LG&E.

Table 1

Peer Comparison

Industry sector: combo

	Louisville Gas & Electric Co.	Southern Indiana Gas & Electric Co.	Wisconsin Public Service Corp.
Rating as of Jan. 15, 2019	A-/Stable/A-2	A-/Watch Neg/--	A-/Stable/A-2
	--Fiscal year ended Dec. 31, 2017--		
(Mil. $)			
Revenues	1,453.0	662.0	1,485.4
EBITDA	650.4	252.3	444.0
FFO	551.9	181.6	349.8
Net income from continuing operations	213.0	79.9	154.9
Cash flow from operations	537.2	151.8	529.5
Capital expenditures	459.2	150.0	356.0
Free operating cash flow	78.0	1.8	173.5
Discretionary cash flow	(114.0)	(53.1)	(21.5)
Cash and short-term investments	15.0	2.3	7.9
Debt	2,154.8	740.6	1,569.0
Equity	2,527.0	873.0	1,617.3
Adjusted ratios			
EBITDA margin (%)	44.8	38.1	29.9
Return on capital (%)	7.6	8.4	7.5
EBITDA interest coverage (x)	7.2	6.8	6.9
FFO cash interest coverage (X)	9.9	6.2	7.3
Debt/EBITDA (x)	3.3	2.9	3.5
FFO/debt (%)	25.6	24.5	22.3
Cash flow from operations/debt (%)	24.9	20.5	33.7
Free operating cash flow/debt (%)	3.6	0.2	11.1
Discretionary cash flow/debt (%)	(5.3)	(7.2)	(1.4)

FFO--Funds from operations.

Table 2

Peer Metrics

	Louisville Gas & Electric	Southern Indiana Gas & Electric Co.	Wisconsin Public Service Corp.
Long-term (foreign currency)	A-/Stable	BBB+/Stable	A-/Stable
Short-term (foreign currency)	A-2		A-2
Business risk profile	Excellent	Excellent	Excellent
Financial risk profile	Significant	Significant	Significant
Anchor	a-	a-	a-
Capital structure	Neutral	Neutral	Neutral
Liquidity	Adequate	Adequate	Adequate
Financial policy	Neutral	Neutral	Neutral
Management/governance	Satisfactory	Satisfactory	Satisfactory

Table 2

Peer Metrics (cont.)			
	Louisville Gas & Electric	**Southern Indiana Gas & Electric Co.**	**Wisconsin Public Service Corp.**
Comparable rating analysis	Neutral	Positive	Neutral
Stand-alone credit profile	a-	a	a-
GRM adjustment	0	-2	0
Issuer credit rating	A-	BBB+	A-

GRM--Group rating methodology.

Financial Risk: Significant

Under our base-case scenario, we expect that LG&E's adjusted FFO to debt will be in the 19%-21% range in 2019 as customer bill credits from the tax reform are only modestly offset by other revenue increases. In addition, ongoing discretionary cash flow deficits due to heightened capital expenditures are expected to be at least partly funded externally with debt. We anticipate that debt leverage, as indicated by debt to EBITDA, will remain around 3.5x.

In 2020 and 2021, we anticipate that cost recovery and potential rate cases will lift credit measures modestly. We base our risk assessment on our medial table benchmarks, which are more moderate than those used for a typical corporate issuer. This reflects the company's steady cash flow and rate-regulated utility operations and effective regulatory risk management.

Table 3

Financial Summary					
Industry sector: combo					
	--Fiscal year ended Dec. 31--				
	2017	**2016**	**2015**	**2014**	**2013**
Rating history	A-/Stable/A-2	A-/Stable/A-2	A-/Stable/A-2	BBB/Watch Pos/A-2	BBB/Stable/A-2
(Mil. $)					
Revenues	1,453.0	1,430.0	1,444.0	1,533.0	1,410.0
EBITDA	650.4	621.8	564.1	495.0	463.2
FFO	551.9	536.1	498.5	454.5	342.6
Net income from continuing operations	213.0	203.0	185.0	169.0	163.0
Cash flow from operations	537.2	523.3	570.6	374.5	370.7
Capital expenditures	459.2	440.2	689.9	656.0	577.0
Free operating cash flow	78.0	83.1	(119.3)	(281.5)	(206.3)
Dividends paid	192.0	128.0	119.0	112.0	99.0
Discretionary cash flow	(114.0)	(44.9)	(238.3)	(393.5)	(305.3)
Debt	2,154.8	2,105.7	2,120.5	1,785.1	1,574.9
Preferred stock	0.0	0.0	0.0	0.0	0.0
Equity	2,527.0	2,476.0	2,330.0	2,174.0	1,960.0
Debt and equity	4,681.8	4,581.7	4,450.5	3,959.1	3,534.9

Table 3

Financial Summary (cont.)					
Industry sector: combo					
	--Fiscal year ended Dec. 31--				
	2017	**2016**	**2015**	**2014**	**2013**
Adjusted ratios					
EBITDA margin (%)	44.8	43.5	39.1	32.3	32.8
EBITDA interest coverage (x)	7.2	6.8	7.5	8.8	9.9
FFO cash interest coverage (x)	9.9	9.7	11.9	11.1	10.8
Debt/EBITDA (x)	3.3	3.4	3.8	3.6	3.4
FFO/debt (%)	25.6	25.5	23.5	25.5	21.8
Cash flow from operations/debt (%)	24.9	24.9	26.9	21.0	23.5
Free operating cash flow/debt (%)	3.6	3.9	(5.6)	(15.8)	(13.1)
Discretionary cash flow/debt (%)	(5.3)	(2.1)	(11.2)	(22.0)	(19.4)
Net cash flow/capex (%)	78.4	92.7	55.0	52.2	42.2
Return on capital (%)	7.6	7.7	7.5	7.4	7.8
Return on common equity (%)	8.5	8.4	8.2	8.2	8.6
Common dividend payout ratio (unadjusted) (%)	90.1	63.1	64.3	66.3	60.7

FFO--Funds from operations.

Liquidity: Adequate

We assess LG&E's stand-alone liquidity as adequate because we believe its liquidity sources are likely to cover uses by more than 1.1x over the next 12 months and meet cash outflows even if EBITDA declines 10%. We believe LG&E has sound banking relationships, the ability to absorb high-impact low probability events without the need for refinancing, and a satisfactory standing in the credit markets.

Principal Liquidity Sources	Principal Liquidity Uses
• Estimated cash FFO of about $550 million; and • Revolving credit facility availability of $500 million.	• Debt maturities of about $375 million; • Capital spending of about $350 million; and • Dividends of about $165 million.

Debt maturities

- 2019: $334 million
- 2020: $0
- 2021: $0
- 2022: $0

Covenant Analysis

Compliance expectations

As of Sept. 30, 2018, LG&E was in compliance with the financial covenants in its credit facilities and had sufficient cushion. Under our base-case scenario, we expect LG&E will remain in compliance with these covenants. We expect that even if forecast EBITDA declines 10%, the company will remain in compliance with the covenants.

Requirements

- Total debt-to-capitalization ratio of 70% or less.
- The covenant thresholds remain unchanged through the expiration of the credit facility in 2023.

Environmental, Social, And Governance

Environmental factors are material in our rating analysis, while social and governance factors are not.

Most of the total generation capacity--about 3,000 megawatts--is from coal, which represents an environmental risk factor. By 2050, PPL intends to reduce its carbon footprint by 70%. In Kentucky, the company is seeking a green energy tariff that would help grow renewable energy. The company expects to replace much of its coal-based generation with a combination of natural gas and renewables.

Social factors are neutral to our ESG assessment and are consistent with what we see across the industry for other publicly traded utilities. By pursuing greater renewable generation, the company is meeting customer demand for greener energy. Governance factors are also neutral to our ESG assessment, and the company's governance practices are consistent with what we see across the industry for other publicly traded utilities.

Group Influence

Under our group rating methodology we consider LG&E a core subsidiary of parent PPL Corp., reflecting our view that LG&E is highly unlikely to be sold, is integral to the group's overall strategy, possesses a strong long-term commitment from senior management, and is closely linked to the parent's name and reputation. As a result, the issuer credit rating on LG&E is 'A-', in line with the group credit profile of 'a-'.

Issue Ratings - Subordination Analysis

The short-term rating on LG&E is 'A-2', based on our issuer credit rating.

Issue Ratings - Recovery Analysis

Key analytical factors

LG&E's first-mortgage bonds benefit from a first-priority lien on substantially all of the utility's real property owned or subsequently acquired. Collateral coverage of over 1.5x supports a recovery rating of '1+' and an issue rating one notch above the issuer credit rating

Reconciliation

Table 4

Reconciliation Of Louisville Gas & Electric Co. Reported Amounts With S&P Global Ratings' Adjusted Amounts (Mil. $)

	--Rolling 12 months ended Sept. 30, 2018--									
Louisville Gas & Electric Co. reported amounts.										
	Debt	**Shareholders' equity**	**Revenues**	**EBITDA**	**Operating income**	**Interest expense**	**EBITDA**	**Cash flow from operations**	**Dividends paid**	**Capital expenditures**
	1,984	2,645	1,491	599	406	75	599	504	155	585
S&P Global Ratings' adjustments										
Interest expense (reported)	--	--	--	--	--	--	(75)	--	--	--
Interest income (reported)	--	--	--	--	--	--	--	--	--	--
Current tax expense (reported)	--	--	--	--	--	--	(7)	--	--	--
Operating leases	33	--	--	15	3	3	12	12	--	--
Postretirement benefit obligations/deferred compensation	1	--	--	5	5	0	5	(1)	--	--
Surplus cash	(11)	--	--	--	--	--	--	--	--	--
Power purchase agreements	74	--	--	6	5	5	1	1	--	1
Asset retirement obligations	85	--	--	7	7	7	(3)	13	--	--
Nonoperating income (expense)	--	--	--	--	(11)	--	--	--	--	--
Debt - accrued interest not included in reported debt	24	--	--	--	--	--	--	--	--	--
Debt - issuance cost	11	--	--	--	--	--	--	--	--	--
EBITDA - other income/(expense)	--	--	--	13	13	--	13	--	--	--
EBITDA - other	--	--	--	(4)	(4)	--	(4)	--	--	--
D&A - other	--	--	--	--	(13)	--	--	--	--	--
Interest expense - other	--	--	--	--	--	5	(5)	--	--	--
Total adjustments	216	0	0	42	5	19	(62)	25	0	1

Table 4

Reconciliation Of Louisville Gas & Electric Co. Reported Amounts With S&P Global Ratings' Adjusted Amounts (Mil. $) (cont.)

S&P Global Ratings' adjusted amounts

	Debt	Equity	Revenues	EBITDA	EBIT	Interest expense	Funds from Operations	Cash flow from operations	Dividends paid	Capital expenditures
	2,200	2,645	1,491	641	411	94	537	529	155	586

D&A--Depreciation and amortization.

Ratings Score Snapshot

Issuer Credit Rating

A-/Stable/A-2

Business risk: Excellent

- **Country risk:** Very low
- **Industry risk:** Very low
- **Competitive position:** Excellent

Financial risk: Significant

- **Cash flow/Leverage:** Significant

Anchor: a-

Modifiers

- **Diversification/Portfolio effect:** Neutral (no impact)
- **Capital structure:** Neutral (no impact)
- **Financial policy:** Neutral (no impact)
- **Liquidity:** Adequate (no impact)
- **Management and governance:** Satisfactory (no impact)
- **Comparable rating analysis:** Neutral (no impact)

Stand-alone credit profile : a-

- **Group credit profile:** a-
- **Entity status within group:** Core (no impact)

Related Criteria

- Criteria - Corporates - General: Reflecting Subordination Risk In Corporate Issue Ratings, March 28, 2018
- General Criteria: Methodology For Linking Long-Term And Short-Term Ratings, April 7, 2017
- Criteria - Corporates - General: Methodology And Assumptions: Liquidity Descriptors For Global Corporate Issuers,

Dec. 16, 2014

- Criteria - Corporates - General: Corporate Methodology: Ratios And Adjustments, Nov. 19, 2013
- Criteria - Corporates - General: Corporate Methodology, Nov. 19, 2013
- Criteria - Corporates - Utilities: Key Credit Factors For The Regulated Utilities Industry, Nov. 19, 2013
- General Criteria: Methodology: Industry Risk, Nov. 19, 2013
- General Criteria: Group Rating Methodology, Nov. 19, 2013
- General Criteria: Country Risk Assessment Methodology And Assumptions, Nov. 19, 2013
- Criteria - Corporates - Utilities: Collateral Coverage And Issue Notching Rules For '1+' And '1' Recovery Ratings On Senior Bonds Secured By Utility Real Property, Feb. 14, 2013
- General Criteria: Methodology: Management And Governance Credit Factors For Corporate Entities And Insurers, Nov. 13, 2012
- General Criteria: Use Of CreditWatch And Outlooks, Sept. 14, 2009
- Criteria - Insurance - General: Hybrid Capital Handbook: September 2008 Edition, Sept. 15, 2008

Business And Financial Risk Matrix

	Financial Risk Profile					
Business Risk Profile	Minimal	Modest	Intermediate	**Significant**	Aggressive	Highly leveraged
Excellent	aaa/aa+	aa	a+/a	**a-**	bbb	bbb-/bb+
Strong	aa/aa-	a+/a	a-/bbb+	bbb	bb+	bb
Satisfactory	a/a-	bbb+	bbb/bbb-	bbb-/bb+	bb	b+
Fair	bbb/bbb-	bbb-	bb+	bb	bb-	b
Weak	bb+	bb+	bb	bb-	b+	b/b-
Vulnerable	bb-	bb-	bb-/b+	b+	b	b-

Ratings Detail (As Of February 7, 2019)

Louisville Gas & Electric Co.		
Issuer Credit Rating		A-/Stable/A-2
Commercial Paper		
Local Currency		A-2
Senior Secured		A
Issuer Credit Ratings History		
01-Jun-2015	*Foreign Currency*	A-/Stable/A-2
10-Jun-2014		BBB/Watch Pos/A-2
15-Apr-2011		BBB/Stable/A-2
01-Jun-2015	*Local Currency*	A-/Stable/A-2
10-Jun-2014		BBB/Watch Pos/A-2
15-Apr-2011		BBB/Stable/A-2

Ratings Detail (As Of February 7, 2019) (cont.)	
Related Entities	
Kentucky Utilities Co.	
Issuer Credit Rating	A-/Stable/A-2
Commercial Paper	
Local Currency	A-2
Senior Secured	A
LG&E and KU Energy LLC	
Issuer Credit Rating	A-/Stable/--
Senior Unsecured	BBB+
PPL Capital Funding Inc.	
Issuer Credit Rating	A-/Stable/A-2
PPL Corp.	
Issuer Credit Rating	A-/Stable/A-2
PPL Electric Utilities Corp.	
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Commercial Paper	
Local Currency	A-2
Senior Secured	A
Western Power Distribution (East Midlands) PLC	
Issuer Credit Rating	A-/Stable/A-2
Senior Unsecured	A-
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Senior Unsecured	BBB+
Western Power Distribution (South Wales) PLC	
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Senior Unsecured	A-
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Senior Unsecured	A-

*Unless otherwise noted, all ratings in this report are global scale ratings. S&P Global Ratings' credit ratings on the global scale are comparable across countries. S&P Global Ratings' credit ratings on a national scale are relative to obligors or obligations within that specific country. Issue and debt ratings could include debt guaranteed by another entity, and rated debt that an entity guarantees.

S&P Global Ratings

RatingsDirect®

Summary:
Louisville Gas & Electric Co.

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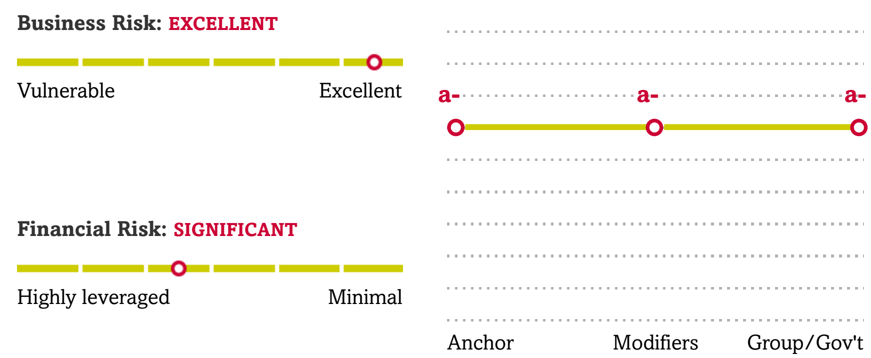

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Business Risk: Excellent

We assess LG&E's business risk profile based primarily on the company's regulated utilities, which comprise vertically integrated electric and natural gas distribution operations, as well as Kentucky's generally constructive regulatory framework.

With its customer base of about 400,000 electric and about 320,000 natural gas customers, LG&E has some scale. Its largely residential and commercial customer base insulates the company from fluctuations in demand and stabilizes its cash flows. Our assessment also accounts for the company's moderate operating diversity due to its electric and natural gas operations.

The company has about 3,000 megawatts of generation capacity, which has higher operating risk than transmission and distribution operations. The company has been upgrading its coal-fired generation plants to comply with environmental regulations. While the capital costs of these upgrades are significant, spending can be recovered through an environmental cost recovery mechanism, which limits regulatory lag and supports the credit profile. Under Kentucky Public Service Commission regulation, the company benefits from other mechanisms such as a gas line tracker and a pass-through fuel cost mechanism, which help stabilize of the company's returns. Moreover, the company's low-cost, coal-fired generation and efficient operations contribute to overall competitive rates for customers.

Peer comparison

LG&E is in line with regulated electricity generation and natural gas distribution peers such as Southern Indiana Gas & Electric Co. (SIGECO) as well as Wisconsin Public Service Corp. (WPS). LG&E has greater customer scale than the smaller SIGECO, which has only 150,000 electricity and 110,000 gas customers in Indiana. Similar to LG&E in Kentucky, SIGECO does benefit from a generally supportive regulatory environment in Indiana as well as various recovery mechanisms like fuel and purchased gas surcharges. In 2019, we expect LG&E to have weaker cash flow measures than SIGECO. We view WPS as a similarly sized peer to LG&E because it has 450,000 electric and 325,000 natural gas customers. WPS' timely recovery of costs through regulatory mechanisms and stable operating cash flow contribute to FFO to debt of about 21%, about in line with LG&E.

Financial Risk: Significant

Under our base-case scenario, we expect that LG&E's adjusted FFO to debt will be in the 19%-21% range in 2019 as customer bill credits from the tax reform are only modestly offset by other revenue increases. In addition, ongoing discretionary cash flow deficits due to heightened capital expenditures are expected to be at least partly funded externally with debt. We anticipate that debt leverage, as indicated by debt to EBITDA, will remain around 3.5x.

In 2020 and 2021, we anticipate that cost recovery and potential rate cases will lift credit measures modestly. We base our risk assessment on our medial table benchmarks, which are more moderate than those used for a typical corporate issuer. This reflects the company's steady cash flow and rate-regulated utility operations and effective regulatory risk management.

Liquidity: Adequate

We assess LG&E's stand-alone liquidity as adequate because we believe its liquidity sources are likely to cover uses by more than 1.1x over the next 12 months and meet cash outflows even if EBITDA declines 10%. We believe LG&E has sound banking relationships, the ability to absorb high-impact low probability events without the need for refinancing, and a satisfactory standing in the credit markets.

Principal Liquidity Sources	Principal Liquidity Uses
• Estimated cash FFO of about $550 million; and • Revolving credit facility availability of $500 million.	• Debt maturities of about $375 million; • Capital spending of about $350 million; and • Dividends of about $165 million.

Debt maturities

- 2019: $334 million
- 2020: $0
- 2021: $0
- 2022: $0

Covenant Analysis

Compliance expectations

As of Sept. 30, 2018, LG&E was in compliance with the financial covenants in its credit facilities and had sufficient cushion. Under our base-case scenario, we expect LG&E will remain in compliance with these covenants. We expect that even if forecast EBITDA declines 10%, the company will remain in compliance with the covenants.

Requirements

- Total debt-to-capitalization ratio of 70% or less.
- The covenant thresholds remain unchanged through the expiration of the credit facility in 2023.

Environmental, Social, And Governance

Environmental factors are material in our rating analysis, while social and governance factors are not.

Most of the total generation capacity--about 3,000 megawatts--is from coal, which represents an environmental risk factor. By 2050, PPL intends to reduce its carbon footprint by 70%. In Kentucky, the company is seeking a green energy tariff that would help grow renewable energy. The company expects to replace much of its coal-based generation with a combination of natural gas and renewables.

Social factors are neutral to our ESG assessment and are consistent with what we see across the industry for other publicly traded utilities. By pursuing greater renewable generation, the company is meeting customer demand for greener energy. Governance factors are also neutral to our ESG assessment, and the company's governance practices are consistent with what we see across the industry for other publicly traded utilities.

Group Influence

Under our group rating methodology we consider LG&E a core subsidiary of parent PPL Corp., reflecting our view that LG&E is highly unlikely to be sold, is integral to the group's overall strategy, possesses a strong long-term commitment from senior management, and is closely linked to the parent's name and reputation. As a result, the issuer credit rating on LG&E is 'A-', in line with the group credit profile of 'a-'.

Issue Ratings - Subordination Analysis

The short-term rating on LG&E is 'A-2', based on our issuer credit rating.

Issue Ratings - Recovery Analysis

Key analytical factors

LG&E's first-mortgage bonds benefit from a first-priority lien on substantially all of the utility's real property owned or subsequently acquired. Collateral coverage of over 1.5x supports a recovery rating of '1+' and an issue rating one notch above the issuer credit rating

Ratings Score Snapshot

Issuer Credit Rating

A-/Stable/A-2

Business risk: Excellent

- **Country risk:** Very low
- **Industry risk:** Very low
- **Competitive position:** Excellent

Financial risk: Significant

- **Cash flow/Leverage:** Significant

Anchor: a-

Modifiers

- **Diversification/Portfolio effect:** Neutral (no impact)
- **Capital structure:** Neutral (no impact)
- **Financial policy:** Neutral (no impact)
- **Liquidity:** Adequate (no impact)
- **Management and governance:** Satisfactory (no impact)
- **Comparable rating analysis:** Neutral (no impact)

Stand-alone credit profile : a-

- **Group credit profile:** a-
- **Entity status within group:** Core (no impact)

Related Criteria

- Criteria - Corporates - General: Reflecting Subordination Risk In Corporate Issue Ratings, March 28, 2018
- General Criteria: Methodology For Linking Long-Term And Short-Term Ratings, April 7, 2017
- Criteria - Corporates - General: Methodology And Assumptions: Liquidity Descriptors For Global Corporate Issuers, Dec. 16, 2014
- Criteria - Corporates - General: Corporate Methodology: Ratios And Adjustments, Nov. 19, 2013
- Criteria - Corporates - General: Corporate Methodology, Nov. 19, 2013
- Criteria - Corporates - Utilities: Key Credit Factors For The Regulated Utilities Industry, Nov. 19, 2013
- General Criteria: Methodology: Industry Risk, Nov. 19, 2013
- General Criteria: Group Rating Methodology, Nov. 19, 2013
- General Criteria: Country Risk Assessment Methodology And Assumptions, Nov. 19, 2013
- Criteria - Corporates - Utilities: Collateral Coverage And Issue Notching Rules For '1+' And '1' Recovery Ratings On Senior Bonds Secured By Utility Real Property, Feb. 14, 2013
- General Criteria: Methodology: Management And Governance Credit Factors For Corporate Entities And Insurers, Nov. 13, 2012
- General Criteria: Use Of CreditWatch And Outlooks, Sept. 14, 2009

- Criteria - Insurance - General: Hybrid Capital Handbook: September 2008 Edition, Sept. 15, 2008

Business And Financial Risk Matrix

	Financial Risk Profile					
Business Risk Profile	Minimal	Modest	Intermediate	**Significant**	Aggressive	Highly leveraged
Excellent	aaa/aa+	aa	a+/a	**a-**	bbb	bbb-/bb+
Strong	aa/aa-	a+/a	a-/bbb+	bbb	bb+	bb
Satisfactory	a/a-	bbb+	bbb/bbb-	bbb-/bb+	bb	b+
Fair	bbb/bbb-	bbb-	bb+	bb	bb-	b
Weak	bb+	bb+	bb	bb-	b+	b/b-
Vulnerable	bb-	bb-	bb-/b+	b+	b	b-