LOUISVILLE GAS AND ELECTRIC COMPANY

Response to First Request for Information of the
United States Department of Defense and All Other Federal Executive Agencies
Dated January 8, 2021

Case No. 2020-00350

Question No. 15

Responding Witness: Christopher M. Garrett / John J. Spanos

Q-1-15. Please provide any and all meeting notes taken that relate to any meetings conducted between LG&E and Gannett Fleming regarding the depreciation study.

A-1-15. There were no formal minutes taken by the Company during meetings and phone calls. Informal notes taken by Company representatives are the work product of counsel and are not produced.

Additionally, meeting notes and field trip notes taken by Mr. Spanos are attached.

Kentucky Utilities Co. / Louisville Gas and Electric Co.

Generator Ratings (MW)

2-Dec-2019

Plant Name	Owner	In-Service Date	Age (yr)	Ownership Percentage KU	Ownership Percentage LGE	Generator Nameplate Ratings
Brown 3	KU	7/19/1971	48.4			464.0
Total Brown Coal						**464.0**
Brown 5	Joint	6/9/2001	18.5	47%	53%	123.3
Brown 6	Joint	8/11/1999	20.3	62%	38%	177.0
Brown 7	Joint	8/8/1999	20.3	62%	38%	177.0
Brown 8	KU	2/23/1995	24.8			126.0
Brown 9	KU	1/24/1995	24.9			126.0
Brown 10	KU	12/22/1995	24.0			126.0
Brown 11	KU	5/8/1996	23.6			126.0
Total Brown CT						**981.3**
Brown Solar	Joint	6/9/2016	3.5	61%	39%	10.0
Total Brown Solar						**10.0**
Archdiocese of Louisville Business Solar	LG&E	5/25/2018	1.5	0%	100%	0.03
Total Business Solar						**0.03**
Cane Run 7	Joint	6/19/2015	4.5	78%	22%	808.0
Total Cane Run						**808.0**
Dix Dam 1	KU	11/24/1925	94.1			11.2
Dix Dam 2	KU	11/24/1925	94.1			11.2
Dix Dam 3	KU	11/24/1925	94.1			11.2
Total Dix Dam						**33.6**
Ghent 1	KU	2/19/1974	45.8			556.9
Ghent 2	KU	4/20/1977	42.6			556.4
Ghent 3	KU	5/31/1981	38.5			556.6
Ghent 4	KU	8/18/1984	35.3			556.2
Total Ghent						**2,226.1**
Haefling 1	KU	10/7/1970	49.2			20.7
Haefling 2	KU	10/21/1970	49.1			20.7
Total Haefling						**41.4**
Mill Creek 1	LGE	7/11/1972	47.4			355.5
Mill Creek 2	LGE	6/11/1974	45.5			355.5
Mill Creek 3	LGE	6/28/1978	41.5			462.6
Mill Creek 4	LGE	7/15/1982	37.4			543.6
Total Mill Creek						**1,717.2**
Ohio Falls 1	LGE	1/1/1928	92.0			12.6
Ohio Falls 2	LGE	1/1/1928	92.0			12.6
Ohio Falls 3	LGE	1/1/1928	92.0			12.6
Ohio Falls 4	LGE	1/1/1928	92.0			12.6
Ohio Falls 5	LGE	1/1/1928	92.0			12.6
Ohio Falls 6	LGE	1/1/1928	92.0			12.6
Ohio Falls 7	LGE	1/1/1928	92.0			12.6
Ohio Falls 8	LGE	1/1/1928	92.0			12.6
Total Ohio Falls Hydro						**100.6**
Paddy's Run 13	Joint	6/27/2001	18.4	47%	53%	178.2
Total Paddys Run CT						**178.2**

This Allocation Is Correct Per Eric Riggs Phone Call on 1-17-2020 (?)

= Differs From Earlier Ownership Doc. Which one Is Correct?

Kentucky Utilities Co. / Louisville Gas and Electric Co.

Generator Ratings (MW)

2-Dec-2019

Plant Name	Owner	In-Service Date	Age (yr)	Ownership Percentage KU	Ownership Percentage LGE	Generator Nameplate Ratings
Simpsonville Solar 1	Joint	7/27/2019	0.4	56%	44%	0.4
Total Simpsonville Solar 1						**0.4**
Trimble County 1	LGE	12/23/1990	29.0			424.6
Trimble County 2	Joint	1/22/2011	8.9	81%	19%	628.5
Total Trimble County						**1,053.1**
Trimble County 5	Joint	5/14/2002	17.6	71%	29%	198.9
Trimble County 6	Joint	5/14/2002	17.6	71%	29%	198.9
Trimble County 7	Joint	6/1/2004	15.5	63%	37%	198.9
Trimble County 8	Joint	6/1/2004	15.5	63%	37%	198.9
Trimble County 9	Joint	7/1/2004	15.4	63%	37%	198.9
Trimble County 10	Joint	7/1/2004	15.4	63%	37%	198.9
Total Trimble CT						**1,193.4**
Paddy's Run 11	LGE	6/10/1968	51.5			16.0
Paddy's Run 12	LGE	7/16/1968	51.4			32.6
Zorn 1	LGE	5/23/1969	50.6			18.0
Total LG&E CT's						**66.6**

ITINERARY FOR
JOHN J. SPANOS

NOVEMBER 4 – 5, 2019

Monday, November 4

United Airlines – Confirmation Check-in PW8T3T

Leave	Harrisburg, PA	UA #4981	2:45 pm
Arrive	Washington, DC	Seat 3C	3:39 pm
Leave	Washington, DC	UA #4821	5:15 pm
Arrive	Louisville, KY	Seat 5B	7:15 pm

HOTEL: Louisville Marriott Downtown **CONFIRMATION: 90801481**
280 West Jefferson
Louisville, KY 40202
1-502-627-5045

Tuesday, November 5

8:30 am Meet at office

PURPOSE: LG&E / KU Management Meetings
220 West Main Street
Louisville, KY 40202

CONTACTS:

Sara Wiseman	502-627-3189
Eric Riggs	502-627-2822

United Airlines – Confirmation Check-in PW8T3T

Leave	Louisville, KY	UA #4752	6:00 pm
Arrive	Chicago, IL	Seat 10C	6:36 pm
Leave	Chicago, IL	UA #1082	7:35 pm
Arrive	Harrisburg, PA	Seat 12C	10:21 pm

AMS DISCUSSION 1:00 JONATHAN WHITEHOUSE, STUART HOUGH, DAVE HOUGH, ADAM [illegible]

AMI METHODOLOGY HAS BEEN DONE
CURRENT PLAN IS REPLACE WHEN FAIL
20 OPERATING LIFE VS 15 AVG DEPRECIABLE LIFE
ELECTROMECHANICAL ADDED UP TO 2008
2009 AND ON ELECTRONIC METERS ONLY

SOFTWARE 2:00 DAN [illegible], LESLEY PIENAAR, JOHN FOLEY

3 YR UPGRADE COMMON
DO NOT [illegible] EXISTING PACKAGE

Transmission and Distribution Discussion 9:00 Robert Trimble, Kyle Burns, Adam Smith, Susanne
Rotating Oil Breakers Jeremy Board, Tiffany Vollmer, Chris, Eric, Sara

Distr. Poles
- Primarily Wood
  - Few Steel in Late 1990s
- Pole Inspection + Treatment Program
  - Testing Program of All Types Poles
- Higher Replacement Levels Due to Program
- 3rd Party Attachments Requiring Larger Poles

Conductor
- Not much conversion of Conductor
  - A lot of copper left, Being Replaced by ACSR (Aluminum)
- Small wire (copper) Actively Replace
  - Most copper put in prior to mid 1960s

U/G Conductor
- Moving to U/G more often
  - New customers going U/G
- Not much conversion
- Should see lower life for LG&E
- 1980s installation were not good creating high rets for LG&E
  - KU did not have much at that time

Line Transformer
- More Pole Mounted

Services
- More U/G Services Going Forward
- Different U/G Service Policies Between Companies
  - Causes of Rets
    - Dig-ins and failures cause rets

Street Lighting
- Growth in 2014 + 2015

Substations
- Oil Breakers being Replaced by 2023
- Electromechanical Replacement Heavy in Next Few Years
- Vacuum Breakers being Installed
- Moving 4KV ⇒ 12KV

Some Control House But Mostly Cabinet Controls

LED Lighting not Heavy Installations Yet

Transmission

Not Many Lines for Cane Run 7

Only within Station

2015 A Lot of Transmission Assets

2016 - 9M Kenslg Road Wall and Substation

Transmission System Improvement Plan Starting in 2017

- Reliability Issue to End 2021

Poles

2013 - Wood Pole Inspection Program Started

30,000 Wood Poles Going to Steel

Steel will have Longer Life

Tubular Poles Late 1970 to 1980s

May Put in Wood in Some Instances

O/H Cond

Little Copper Left

ACSR Going in

Don't Expect ACSR to have Similar Life

GENERATION 10:00 MIKE DRAKE, SUSAN NEAL, STUART WILSON, LAURA MATTS, STEVE, ERIC, CHRIS

TRIMBLE COUNTY

PHYSICAL LIFE FOR UNIT 2 TO 2066 REASONABLE

COAL HANDLING AT TRIMBLE MAJOR CONCERNS

BROWN 3 - LOW CAPACITY FACTOR

COST OF GAS SWITCH

MILL CREEK AND GHENT - LIMITED PLACES

REMOVE UNITS ONE AT A TIME

CURRENT SCRUBBERS ARE ABLE TO BE UTILIZED

REGULATION/ENVIRONMENTAL ISSUES ALWAYS LIKELY

CTs

A LOT BEING LOOKED AT FOR REPLACEMENT

CANE RUN TO BE RETIRED 11/19

CANE 7 - 40 YR LIFE

PADDY RUN 13 - STAY RUN

ZORN - 2020 RET - SOLVENT WATER COMPANY

HAEFLING - SOON TO RET

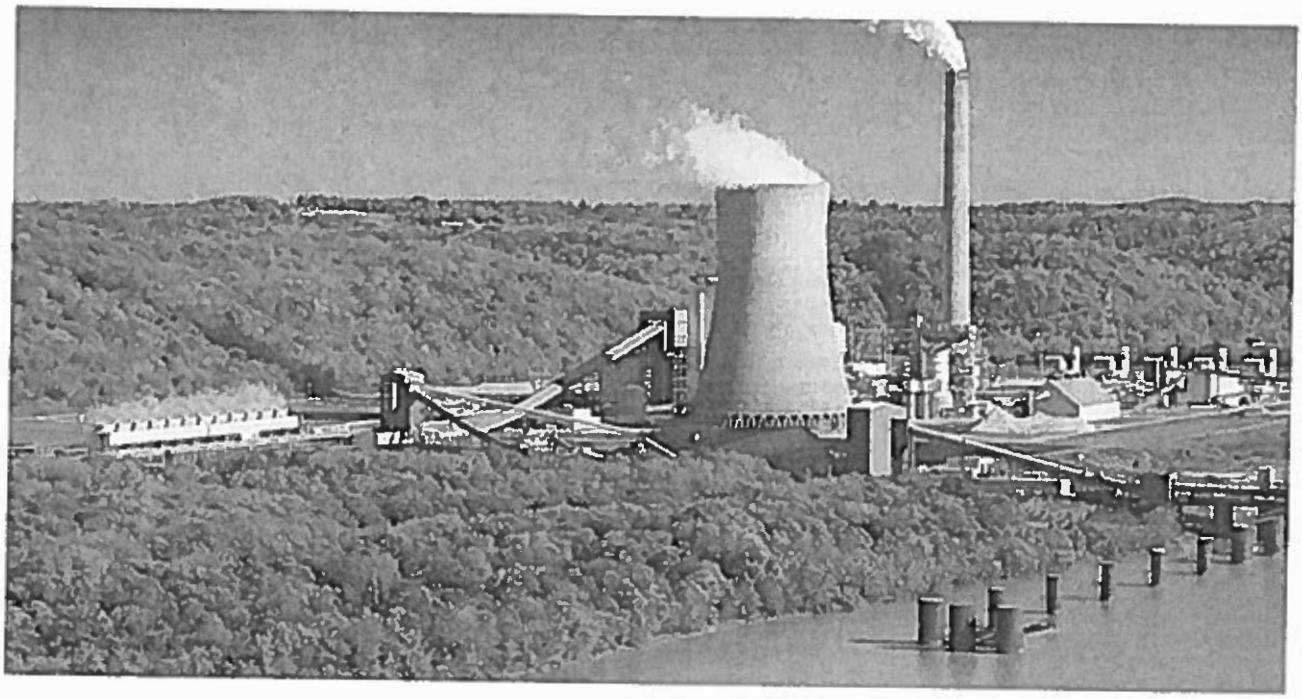
PADDY'S 11 - STILL BENEFICIAL BUT WILL CHANGE

ZORN HAS BEEN RESPONSIBLE FOR CONTRACTOR REQUIREMENT

ANNUAL REQUIREMENTS FOR STAFF SHOULD SLOW DOWN FOR NEXT 10 YRS

SHOULD NOT EXPECT CHANGE TO LIFE SPANS

Trimble County Generating Station



Trimble County Station

Trimble County Generating Station is situated on more than 2,200 acres in a rural setting along t Bedford, Ky. — 50 miles northeast of Louisville.

The plant's generating assets currently consist of TC1, a pulverized-coal-fired unit with a net rate pulverized-coal-fired unit with a net rated capacity of 760 megawatts; and TC5 through TC10, wl

combustion turbines — each with a nominal rating of 160 megawatts.

TC1, LG&E and KU's lowest cost coal-fired generating unit, went into commercial operation in D predominantly in a base-load mode. TC2 began commercial operation in January 2011 and is a turbine units TC5 and TC6 went into commercial operation in May 2002; TC7 through TC10 bega

The combustion turbines are predominantly operated during times of peak demand because it i because the CTs can be started and ramped-up quickly to meet demand spikes and take advant

The same plant operating and maintenance personnel support both the coal-fired and combust other generating assets, which are wholly owned by LG&E and KU, TC1 and TC2 are owned in pa Electric Agency and the Indiana Municipal Power Agency. IMEA and IMPA share a 25-percent ov in the assets supporting the operation of the coal-fired plant.

Environmentally-responsible power generation

Trimble County Station is one of the most environmentally and technologically advanced coal-fi which burns high-sulfur bituminous coal, is equipped with low-NOx (nitrogen oxide) burners an equipment, which reduce NOx emissions by more than 90 percent. A dry electrostatic precipitat by more than 98 percent.

A hydrated lime injection system reduces sulfur trioxide (S03) emissions to less than five parts p desulfurization (FGD) unit reduces sulfur dioxide (S02) emissions by more than 98 percent. In ad equipment installed on TC1, TC2 has been equipped with a carbon injection/baghouse system t electrostatic precipitator (WESP) for small particulate and acid mist emission reduction. TC2 was bituminous coal and low-sulfur sub-bituminous Powder River Basin coal.

Trimble County Station is a near-zero-discharge plant site, meaning there are only two discharg monitored and controlled. Aside from surface water runoff (rainfall) and cooling tower blow-do permitted discharges to the Ohio River — all combustion process constituents and by-products off-site for beneficial re-use.

Fly ash is used as concrete filler and in the manufacturing of ceramic tile. Synthetic gypsum is ar wallboard; and bottom ash is used to produce blasting grit and in manufacturing roofing shingl

The plant site also has its own wildlife preserve. The company permanently dedicated 114 acres and forest areas. Many forms of wildlife inhabit the plant site. In addition to nesting pairs of Am other animals — such as fox, deer and wild turkeys — have grown accustomed to the plant's pr site.

Materials delivery

There is no rail delivery service to Trimble County Station. The plant's two barge unloading syste and coal to the plant via separate conveyor systems.

Coal and limestone are received in 1,500-ton barges and carried nearly a half-mile from the Ohi million tons of coal and 180,000 tons of limestone are consumed by TC1 annually. A six-mile-lor than two billion cubic feet of natural gas that is consumed by the six combustion turbines annu equipment are brought in by truck.

New technology; new construction

TC2 was built adjacent to TC1. The $1.2 billion unit features modern, thermally efficient and adv the cleanest, most efficient coal-fired unit in Kentucky and one of the cleanest, most efficient in $125 million tax credit from the U.S. Department of Energy for its use of advanced clean coal te credit was passed to customers by reducing the cost of construction of TC2.

Additionally, more than $50 million was invested in new coal-blending, limestone- and coal-han to the existing station boiler water treatment systems and a new auxiliary boiler to replace the t

In your community

An important part of the company's mission is to positively impact the communities in which it community outreach, environmental stewardship and the arts. Trimble County Station employee tradition of volunteer service, community involvement and support of local charities. These and being and success of the communities in which we work and live, and reinforce LG&E and KU's choice and a good corporate citizen.

Some of the local organizations and charitable causes Trimble County employees are proud to s

- Teen Leadership of Trimble County
- Jerry Stark Memorial Golf Scramble
- TC Emergency Search Unit
- TCMS Football
- KY Special Olympics
- Bedford Bash

- TCMS and TCHS Cross Country Teams
- Milton Fire & Rescue
- Trimble County Public Library
- TCMS Beta Club
- Parent Project Muscular Dystrophy
- ALS Foundation
- Trimble County Relay for Life
- Trimble County 4H Council
- TCHS Project Prom
- Boy Scouts of America
- 3rd and 5th Grade AAU Basketball
- Trimble County Community Based Instruction Program
- KY State Police Professional Association
- Milton Elementary PTO
- Milton Elementary Playground Project
- TCHS Football
- Trimble County Senior Citizens
- Trimble County Fair Board
- Trimble County Youth Baseball League
- TCHS Girls Golf
- Child Abuse Prevention Community Event
- Trimble County Youth Softball League
- Trimble County Christmas Wish Families
- Trimble County Park Football and Baseball Equipment

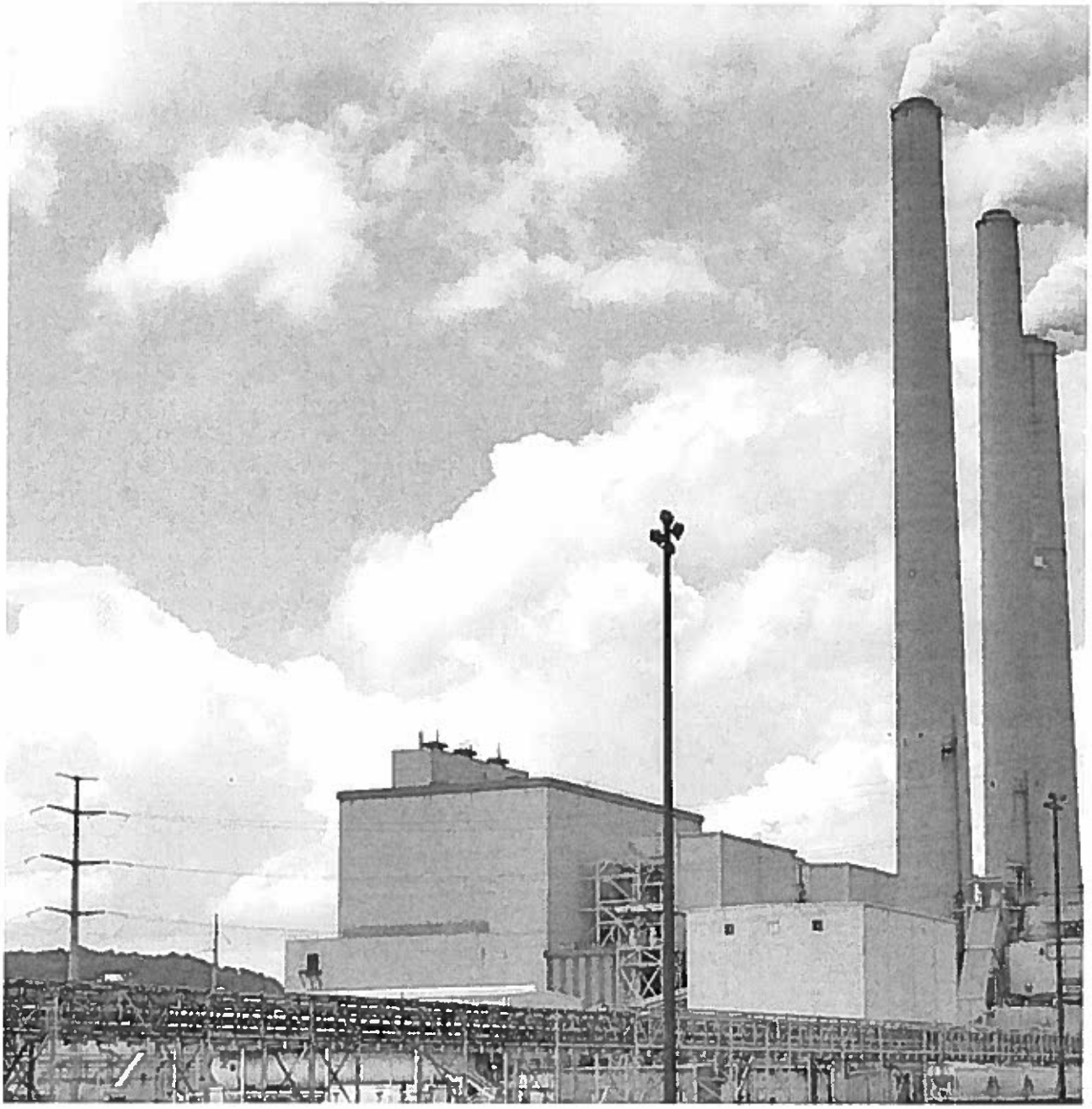
Trimble County Generating Station quick facts

- **Unit 1**
  - *Net generating capacity*: 514 megawatts

- *Original startup date*: 1990
- *Fuel*: Coal
- *Annual fuel consumption*: Approximately 1.7 million tons
- *Emission controls*: Low NOx, FGD, DESP, SCR

- **Unit 2**
  - *Net generating capacity*: 760 megawatts
  - *Original startup date*: 2011
  - *Fuel*: Coal
  - *Annual fuel consumption*: Approximately 2.5 million tons
  - *Emission controls*: Low NOx, FGD, DESP, WESP, SCR, Baghouse
- **Combustion Turbines**
  - *Net generating capacity*: 960 megawatts
  - *Original startup date*: 2002-2004
  - *Fuel*: Natural Gas
  - *Number of units in service*: 6

Mill Creek Generating Station



Mill Creek Station

The Mill Creek Generation Station is LG&E's largest coal-fired power plant, with a generating ca on 544 acres in southwest Jefferson County, Ky.

The late 1960s and early 1970s saw an unprecedented increase in the construction of new indus facilities in the Louisville area.

As customers' demand for energy increased, LG&E needed additional generating capability to g Mill Creek began commercial operation in 1972 to meet this growing demand.

Innovative and cost-effective power generation

LG&E began construction on Mill Creek in 1968; Unit 1 went into service by 1972, and Unit 2 by 1978, and Unit 4 in 1982.

The construction of Mill Creek allowed the company to implement ideas that were innovative ar industry standard today.

Identical generating systems were installed for Units 1 and 2 so that they could have the same c such as a single stack.

The controls for all four generating units were computerized and located in a centralized area. A installed that stockpiles coal as it is received, reclaims it from storage, reduces dust emissions, a different locations.

With public concerns about aquatic life in the Ohio River, the company built Mill Creek's first co currently utilizes three large cooling towers.

LG&E pioneered the use of both electrostatic precipitators and scrubbers. All of the generating precipitators to remove fly ash, and a flue gas desulfurization (FGD) system to remove sulfur dio

Today, the company has the most extensive scrubber program of any utility in the country.

Every megawatt generated at Mill Creek station is scrubbed. LG&E has received local, national a removal efforts.

In 2000, LG&E installed its own facility for grinding limestone used in the scrubbing process.

Project Updates: Modernizing Our Emission Controls

Construction is nearing completion on modernizing emission controls at Mill Creek Generating requirements.

The new equipment will further increase the company's ability to control SO2 emissions from cu

percent removal rate. In addition, mercury and particulate emissions will be further reduced in h

Specific controls being retrofitted and enhanced include: new scrubbers for Mill Creek Units 1, 2 Unit 3.

Fabric filters or baghouses are being added to all four units to reduce particulate, mercury, sulfu air pollutants.

For some of these pollutants, the company was already controlling up to 90 percent.

In your community

An important part of the company's mission is to positively impact the communities in which it community outreach, environmental stewardship and the arts. Employees and contracted emplc of volunteer service, community involvement and support of local charities.

These and similar efforts contribute to the well-being and success of the communities in which and KU's commitment to be both an employer of choice and a good corporate citizen.

Some of the local organizations and charitable causes Mill Creek employees are proud to suppc

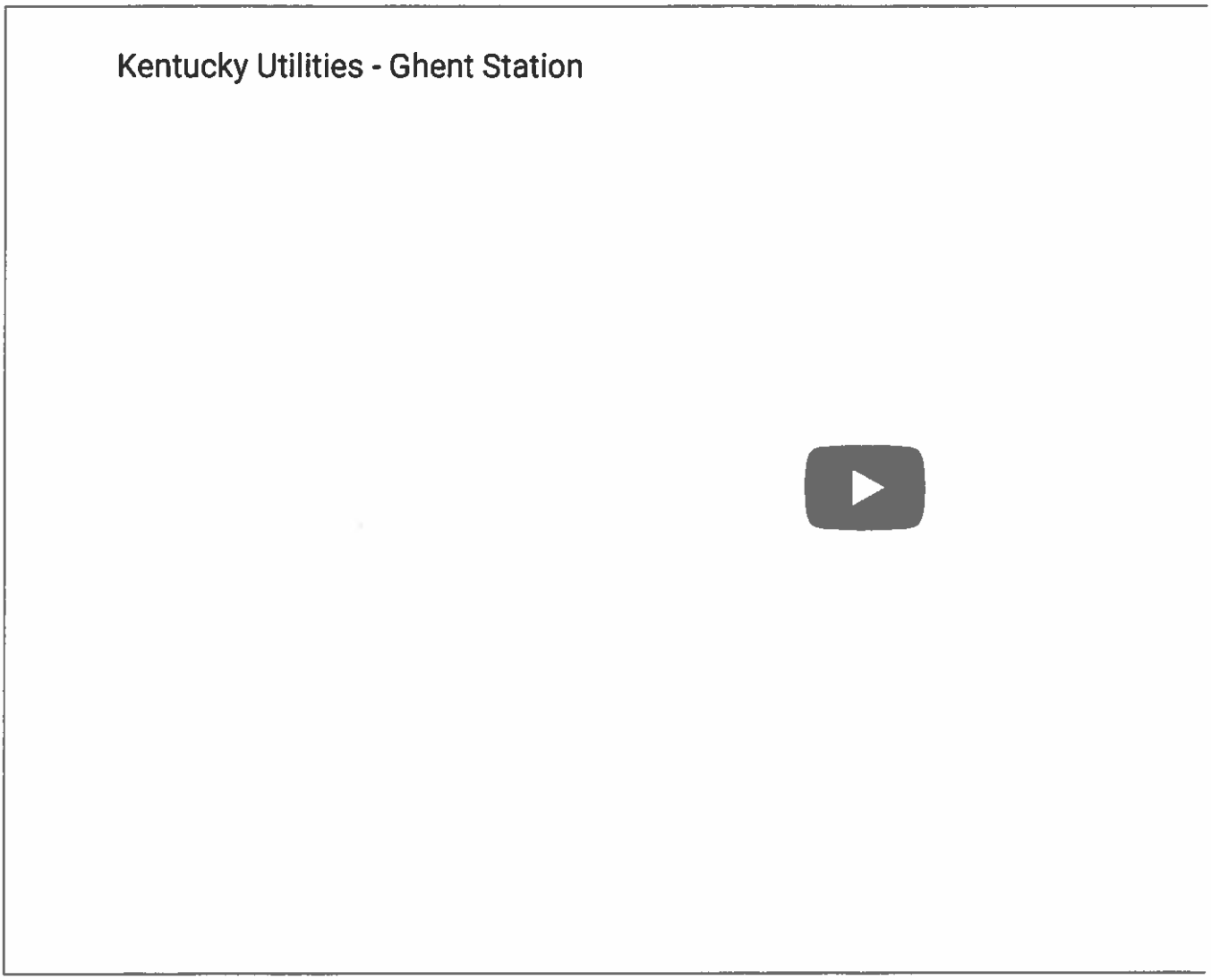
- Volunteering for LG&E and KU's Annual Day of Caring
  - Each year, hundreds of volunteers assist nonprofit agencies and public parks across ou painting, mulching, cleaning up debris, building walkways and even building and remo
- Providing games for Metro Parks' Sun Valley Summer Day Camp
- Sponsoring Scholastic Book Fair reading programs at Watson Lane Elementary School
- Providing back-to-school supplies for Southwest Ministries, Meade County Board of Educat Ministries
- Sponsoring the Annual Southwest Community Festival
- Sponsor visiting author program at Valley High School
- Sponsor luncheons at Watson Lane Elementary and Valley High School during Teacher Appı
- Sponsor Annual Mayor's Derby Brunch at Riverside – The Farnsley Moremen Landing
- Hold bi-monthly Red Cross Blood Drives
- Mill Creek Engineers donate time to judge the Valley High School Annual Science Fair
- Sponsor Valley Woman's Club Annual Scholarship Program with 4 scholarships
- Sponsor JA Clays for Kids luncheon

- Support various programs in Valley Village neighborhood (Annual Picnic, Thanksgiving Dinr

Mill Creek Generating Station quick facts

- *Net generating capacity*: 1,465 megawatts → Au LOE
- *Original startup date*: 1972
- *Fuel*: Coal
- *Annual fuel consumption*: Approximately 4.8 million tons
- *Number of units in service*: 4
- *Emission controls*: units 1, 2: Low NOx, FGD, ESP; Units 3,4: Low NOx, FGD, ESP, SCR

Ghent Generating Station



Located on the Ohio River northeast of Carrollton, Ky., the Ghent Generating Station is Kentucky power plant.

The plant consists of four coal-fired generating units constructed on a compact site bounded by Ohio River to the north.

All of Ghent's generating units comply with local, state and federal air, water, and waste regulati further enhance environmental performance.

The largest coal-fired power plant in the LG&E and KU system, Ghent Generating Station began units have a net generating capacity of 1,919 megawatts.

Ghent is one of the most environmentally sound and technologically advanced coal-fired gener units can produce enough electricity to light nearly 5 million 100-watt light bulbs while complyi state air, water and waste regulations. The station consumes an average of 5.5 million tons of cc

Each of the generating units is equipped with electrostatic precipitators designed to remove du burning coal. A network of monitoring systems on the three chimneys measures air quality to e protection standards.

The Ghent Generating Station is looked upon as an international leader among utilities.

Recognized as a low-cost electricity producer, Ghent plays host to a number of utility professior Representatives from China, Russia, South Africa and other countries have visited the plant to le production.

These visitors find that efficient management can run the station with about 200 employees, act minimal waste.

Modern emission controls

We are committed to protecting the environment and preserving the Earth's resources. We cont with sound environmental policy, and educate our customers about responsible energy use.

A $600 million FGD installation at Ghent Station has resulted in all four units being equipped wi

Now, Units 1, 3 and 4 are equipped with a single-module FGD. Unit 3's FGD equipment went int equipment went into service in June 2008, and Unit 1 was switched over to its new FGD in Febru

Unit 2 was then connected to the original Unit 1 FGD, to make all units on FGDs in May 2009. N for Units 1 and 4 in conjunction with the FGD projects.

A new limestone system was also installed in 2008. It includes new barge-unloading, storage an grinding mills. The existing grinding system that was installed in 1994 for Unit 1 was removed, r

Brown Generating Station for use on its FGD.

In your community

An important part of the company's mission is to positively impact the communities in which it c community outreach, environmental stewardship and the arts. Employees and contracted emplc volunteer service, community involvement and support of local charities. These and similar effor success of the communities in which we work and live, and reinforce LG&E and KU's commitmer a good corporate citizen.

Some of the local organizations and charitable causes our Ghent employees are proud to suppc

- Adopt-A-Highway
- Riversweep
- Day of Caring
- Repair Affair
- Local Boat Ramp Cleanup
- Ohio Valley United Charities
- Back-to-School Supply Drive Program
- School Tours
- Career Day

Ghent Generating Station quick facts

- *Net generating capacity*: 1,919 megawatts
- *Original startup date*: 1973
- *Fuel*: Coal
- *Annual fuel consumption*: Approximately 5.5 million tons
- *Number of units in Service*: 4
- *Emission controls*: Units 1, 3 and 4: Low NOx, FGD, SCR, ESP; Unit 2: Low NOx, FGD, ESP

E.W. Brown Generating Station

E.W. Brown Station

Situated on the banks of Lake Herrington near Harrodsburg, Ky., the E.W. Brown Plant is unique electricity-producing facilities — a hydroelectric plant, a coal-fired generating unit, natural-gas f solar facility.

Dix Dam and hydroelectric plant

Historical and important aspects of E.W. Brown's operations are Herrington Lake, Dix Dam and t capable of producing 33 megawatts of clean, low-cost energy. Herrington Lake was formed in t and the three-unit hydro plant were constructed to help meet Kentucky Utilities' growing energ water into Herrington Lake, and then is released so the plant can produce electricity. Upon com an engineering marvel, Kentucky's first hydroelectric dam, the world's largest rock-filled dam an Mountains.

Coal-fired unit

Of three original coal-fired units, only a 412-megawatt Unit 3, which went online in 1971, opera environmental improvements that coincide with other enhancements underway at the plant site pond to a dry storage facility, a system to treat water from the plant that comes in contact with a pond with a synthetic liner where the water will be discharged.

In February 2019, Brown retired decades-old coal-fired Units 1 and 2, which generated electricit periods of dynamic industrial expansion. In their day, both units were integral to economic grow territory and the entire Commonwealth of Kentucky.

Combustion turbines

Seven combustion-turbine units are located at E.W. Brown, some of which are jointly owned by units deliver 110 megawatts of power each; two have a capacity rating of 164 megawatts each; a but one are fueled by either natural gas or fuel oil.

During periods of high demand, the combustion turbines can be started and come to full load i compared to the 10 hours needed to start a coal-burning unit. The combustion turbine units us generator. Air is compressed and forced into a chamber where combustion takes place, produci Fahrenheit. These gases are forced to a turbine, which uses the energy to propel the generator a

Universal solar facility

The newest addition to the E.W. Brown Plant is an 8-megawatt universal solar facility that stretc property. It uses more than 44,000 solar panels on fixed-tilt rack systems that are positioned to producing energy. Commercial operation began in spring 2016. The facility typically produces 1 annually (depending on the weather), enough to provide energy for 1,500 homes based on a us

The universal solar facility is part of LG&E and KU's continuous efforts to meet customers' energ energy options. The facility enables the utilities to learn more about this technology, including h

impacted by factors, such as cloud cover, and how it integrates with the existing generating unit

In your community

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Some local organizations and charitable causes our E.W. Brown employees are proud to suppor

- The Herrington Lake Conservation League, which is dedicated to the preservation of the na surrounding water shed.
- The E.W. Brown CARE Club, which was formed in 1988 to raise funds and provide support fc
- Periodic meetings to update fence-line neighbors aware of plant activities.
- Local civic groups and school system advisory boards.
- The local United Way as "Leadership Givers."
- The local back-to-school supply drive program, which supports disadvantaged students in t

E.W. Brown Generating Station Quick Facts

Coal-fired unit

- *Net generating capacity*: 412 megawatts
- *Original startup date*: 1957
- *Fuel:* Coal
- *Annual fuel consumption*: Approximately 1.0 million tons
- *Emission controls*: FGD, Low NOx, ESP

Hydroelectric plant

- *Three generating units*
- *Net generating capacity*: 31.5 megawatts

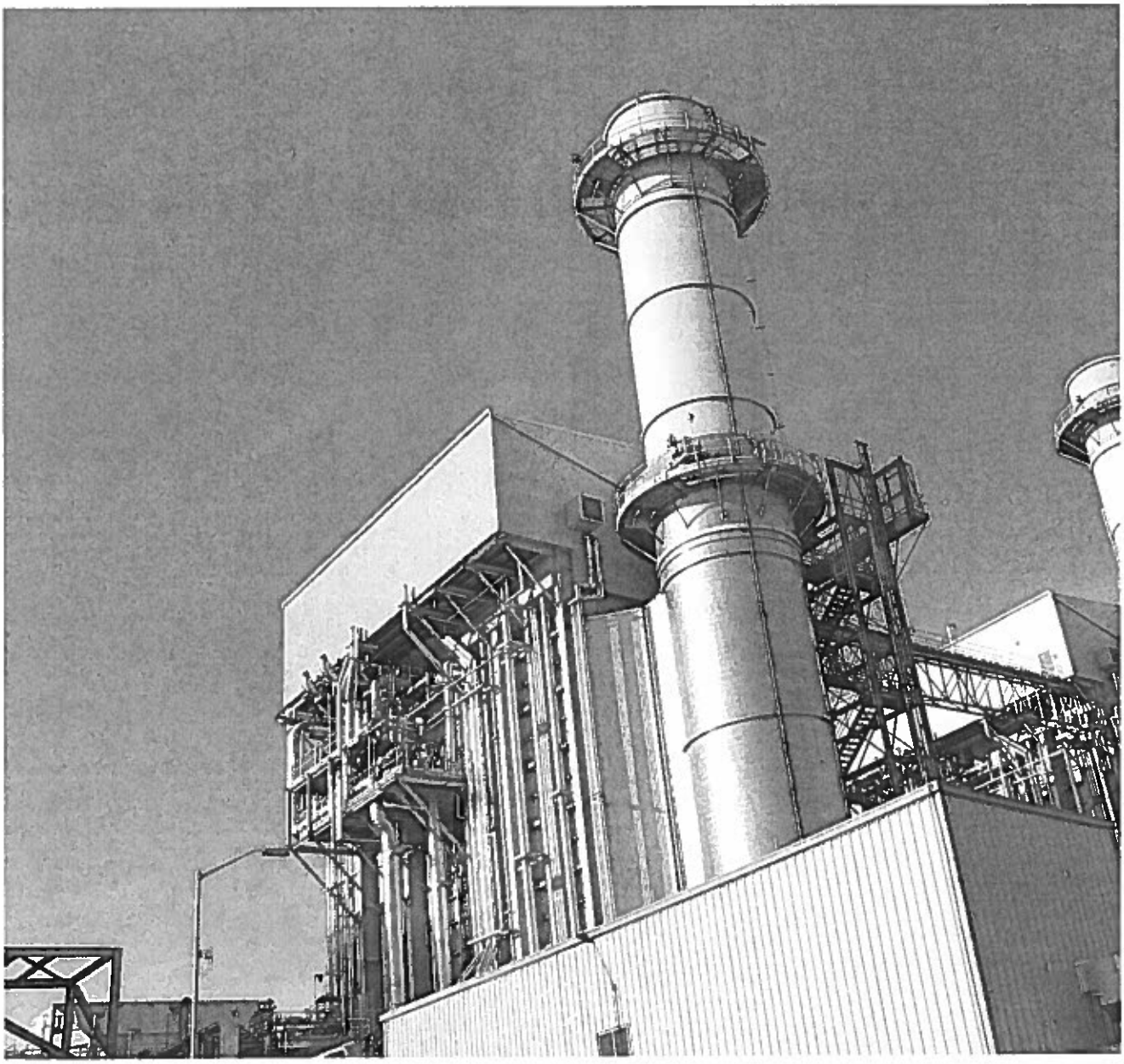
Solar facility

- *44,000 solar panels*
- *8 megawatts*
- *Net generating capacity:* 19,000 megawatt hours

Natural gas combustion turbines

- *Seven units*
- *Net generating capacity:* 906 megawatts

Cane Run Generating Station



Cane Run Station's natural gas combined-cycle unit – Cane Run 7 – began commer

Cane Run Generating Station quick facts

- Net generating capacity: 640 Megawatts
- Original startup date: 2015
- Fuel: Natural gas
- Number of units in service: 1

Want to know more?

See the history of the Cane Run Generating Station.

ITINERARY FOR
JOHN J. SPANOS & FREDERICK B. JOHNSTON, JR.

OCTOBER 14 – 16, 2019

Monday, October 14

United Airlines – Confirmation Check-in OJLNQD (JJS); OJP965 (FBJ)

Leave	Harrisburg, PA	UA #4880	6:25 am
Arrive	Washington, DC	Seat 5C, 8C	7:25 am
Leave	Washington, DC	UA #3620	8:21 am
Arrive	Louisville, KY	Seat 9B, 23B	10:10 am

10:30 am Sara Wiseman and Earl Riggs Pick-up at Airport. CALL SARA'S CELL PHONE
2019 JEEP CHEROKEE - GREY

PURPOSE: LG&E / KU Site Visits
220 West Main Street
Louisville, KY 40202

CONTACTS: Sara Wiseman 502-627-3189(w) 502-338-0886(c)
Eric Riggs 502-627-2822

HOTEL: Louisville Marriott Downtown **CONFIRMATION: 77229791 (JJS)**
280 West Jefferson **77243598 (FBJ)**
Louisville, KY 40202
1-502-627-5045

Tuesday, October 15

8:00 am Meet at office

Wednesday, October 16

8:00 am Meet at office

American Airlines – Confirmation Check-in USUXYD (JJS); ZCXLNI (FBJ)

Leave	Louisville, KY	AA #5277	6:10 pm
Arrive	Charlotte, NC	Seat 10D, 17C	7:53 pm
Leave	Charlotte, NC	AA #4896	10:09 pm
Arrive	Harrisburg, PA	Seat 4B, 13A	11:46 pm

Sara Wiseman - Cell Phone - 502-338-0880
Eric Riggs - Cell Phone - 502-551-1258
John Spanos - Cell Phone - 717-448-9365

Day 1 - October 14th - Monday

	Travel and Site Visit Times	
Arrival at Airport - Travel from LGE Bldg to Airport	20 min	10:10 AM
Paul Stratman - 364-8724 cell 643-2854		
Travel to Auburndale Service Center - 6900 Enterprise Drive	20 min	11:00 AM
Site Visit	1 hour	12:00 PM
Lunch	1 hour	1:00 PM
Mark Payne - 449-8842 cell 502-599-0725		
Travel to Cane Run Unit 7 CCGT - 5252 Cane Run Road	30 min	1:30 PM
Site Visit	1.5 hours	3:00 PM
Bob Barnett - 627-4421 cell 939-5791		
Riverport - 7301 Distribution Drive	1 hour	4:00 PM
Travel to Marriot Hotel and LG&E Garage	45 min	4:45 PM

Day 2 - October 15th - Tuesday

	Travel and Site Visit Times	
Pickup John and Fred at Marriot or LG&E Bldg		8:00 AM
Travel to E.W.Brown - 815 Dix Dam Road, Harrodsburg, KY	1.5 hours	9:30 AM
Brian Sumner - 1-859-748-4410 cell 1-859-265-3696		
Site Visit - Steam and CTs	2 hours	11:30 AM
Lunch		12:30 PM
Travel to Simpsonville	1 hour	1:30 PM
Travis Roberts - 722-6795 cell 859-556-9502		
Simpsonville Data Center - 55 Kingbrook Pkwy, Simpsonville KY	1 hour	2:30 PM
Return to Louisville	.5 hours	3:00 PM

Day 3 - October 16th - Wednesday

Mike Collins - cell 773-3563	Travel and Site Visit Times	
Pickup John and Fred at 8:00 AM - Travel to Cannons Lane		
Regulating Station - 552 Cannons Lane, Louisville KY	20 min	8:20 AM
Site Visit	30 min	8:50 AM
Travel to Elder Park City Gate Station - 3306 Elder Park Road	30 min	9:20 AM
Site Visit	30 min	9:50 AM
Travel to LaGrange City Gate Station - 3002 Hwy 146, LaGrange	20 min	10:10 AM
Site Visit	30 min	10:40 AM
Travel to Bedford City Gate Station - Hwy 3175 and US 42	20 min	11:00 AM
Site Visit	30 min	11:30 AM
Lunch - Hometown Buffet	1 hour	12:30 PM
Mike Buckner - cell 502-338-0165		
Travel to TC Plant - 487 Corn Creek Road, Bedford KY	20 min	12:50 PM
Site Visit	2 hours +	3:00 PM
Return from TC to Airport	1 hour	4:00 PM

AUBURNDALE SERVICE CENTER 10:45 PAUL STRATMAN

ELECTRIC AND GAS CREWS

NEW MODULAR OFFICE

ACQUIRED IN EARLY 1990S

BUILT WAREHOUSE AFTER ACQUISITION

ELECTRIC VEHICLE STATION

PLAN TO ADD PERSONNEL IN BACK

2 - GAS/ELEC CONSOLES

ELEVATOR ADDED

TELECOM GROUP IN WAREHOUSE/SHOP

WELD SHOP

- FABRICATE M+L STATION

AUBURNDALE AND EASTERN - BOTH GAS/ELECTRIC

SECTION OF BUILDING WAS LEASED OUT, BUT WILL NOW BE USED

NEW ELEVATOR ADDED - 2 STORIES

PIPE YARD

METER SHOP - SATELLITE PROGRAM

PARKING LOT UPGRADES IN RECENT YEARS

CANE RUN GENERATING STATION 1:15 MARK PAYNE

6 COAL UNITS RETIRED

570 ACRE SITE

6 UNITS BUILT 1954-1969

UNIT 7 - 2015 COMBINED CYCLE - 640 MW

UNITS 1-3 RETIRED IN 2020 DUE TO NO SCRUBBERS

UNITS 4-6 RETIRED 2025

2 v 1

CAN BYPASS STEAM TURBINE, BUT NOT EFFICIENT

CAN RUN 1 v 1 - ONLY 50% LOAD

UP TO FULL LOAD IN 2 HRS FROM COLD START

RUN AT BASE LOAD

SIEMENS COMBUSTION AND STEAM TURBINES

VOGT HRSG

NEW 138KV SUBSTATION

20 MILE 8" PIPELINE TO PLANT

16,600 HRS FOR COMBUSTION TURBINES

2020 FIRST HOT GAS PATH & STEAM TURBINE MAINTENANCE

EXPECT 40 YR LIFESPAN

4 DIESEL GENERATORS / BLACK - 2018 BLACK START

2019 ADDING TRAINING FACILITY

PUMP / MOTOR FOR COOLING TOWERS UPGRADED - WARRANTY ISSUES

BYPASS VALVES - TO BE REPLACED PERIODICALLY

BLENDING VALVES - HAVE BEEN REPLACED

LTSA ON COMBUSTION TURBINES ONLY

LO BEARINGS REPLACED - 2017

BOILER FEED PUMPS OVERHAULED

WATER TREATMENT - ADDED 3 TRAIN FOR REVERSE OSMOSIS

GAS COMPRESSOR SKIDDED MOUNTED

BACKUP UPS SYSTEM ADDED - 2017

CONTROL SYSTEM - EMERSON / OVATION

10 CELL COOLING TOWER

CHEMICAL FEED BLDG

2 FILTER PRESSES FOR WATER TREATMENT

2 GAS COMPRESSORS

2 STAGE BOILER FEED PUMP - PER UNIT

SCRUBBER HOUSE - LOCATED WHERE UNITS 1+2 STEAM WERE LOCATED

CANE RUN GT 11 - INSTALLED 2015

TRAINING BLDG + WAREHOUSE - 2015

EMERGENCY GENERATOR

STEAM TURBINE - LP + HP

3 CONDENSATE PUMPS FOR CONDENSOR

ONLY NEED 2 AT A TIME

AUXILIARY BOILER

3 MW DIESEL GENERATORS (4) - BLACK START CAPABLE

RIVERPORT SERVICE / TURBINE BLDG BOB BARNETT 3:00

COMMERCIAL OPERATIONS

CENTRAL SERVICE SHOP

WORK ON TURBINE OUTAGES

UPGRADED INTERIOR IN 2017 / 2018

Brown Generating Station 9:30 Brian Sumner

7 CTs

3 Coal Units

1 Hydro

1 Solar Farm

Coal Units 1 + 2 Retired - Feb 2019

Unit 1 - 1957 110MW

Unit 2 - 1963 180MW

Unit 3 - 1971 463MW

WFGD (Scrubber) ~~Added~~ 2010

Added SCR

Removed Precipitator and Added Baghouse - 2015

Ammonia Storage - Added 2015

Pulse Jet Fabric Filter (Baghouse) - Removes Mercury

Reduced Capacity Since Trimble County 2 and Cane Run 7

- 30 to 40% Capacity - Run on Reserve Mode

New Pond Being Closed ⇒ Using Dry Fly Ash in Pond

Units 1-4 CTs 1970s Units 8-11 10MW

Units 5-7 CTs Early 2000s Units 6 + 7 - 170MW each, Unit 5 - 125MW

6 of 7 Units are Dual Fuel

Ice Plant - Assists Units 5, 8 thru 11

Built in 2000

Dix Dam - Originally Largest Rock Filled Dam

No FERC License

Major Upgrades to Generators and Runners - 24MW ⇒ 33MW

Expect to Get Many Years

Improved Dam Reliability - Due to Leakage

Herrington Lake

Hydro - 3 units - 1924 11 MW each

Gas Pipeline Reconfiguration to Avoid Dam - 2019

Solar Facility - 10 MW

2016 Construction

Replace 40 Panels - Most likely due to lightning

10 Inverters - Have had issues

Dix Transmission Control Center - Backup to Simpsonville

Brown Unit 3 - 7 yr Turbine overhaul

Boiler outages 18 months

Unit 3 turbine currently in overhaul state

CT Unit 5 - Gas Turbine overhaul - Hot gas path

CT Unit 11 - overhaul 2018

Reviewing Water Discharge System - water qualification changing

5 Coal Feeders for Unit 3

Unit 3 Control Room - handles CTs and Dam

Cooling Towers (2) for Unit 3 - 10 cells

Dix Dam Hydro Plant 11:15

Walkway/Bridge to Powerhouse Upgraded

Powerhouse upgraded

69kV Substation

1 - Penstock with 3 - tunnels to units

3 Units

Governors upgraded - 2013 w/ units

SIMPSONVILLE DATA CENTER 2:15 HARRY COOPER

2 BUILDINGS

WEST - 2008

EAST - 2018

CONFERENCE ROOM

KITCHEN

CONTROL CENTER

- DISTRIBUTION BLDG - CALL CENTER (NEW)

TRAINING ROOM - SIMULATION

CANOPY ADDED - 2018

2008 BUILDING

TRANSMISSION CONTROL CENTER

DATA CENTER

- SEPARATE SERVER FOR KU AND LG&E

CHILLERS - TCC BUILDING

2 EMERGENCY GENERATORS

CANNONS LANE REGULATING STATION 8:15 MIKE COLLINS

- 3000 TO BE REPLACED
- PRIMARY LOCATION FOR EAST SIDE OF CITY
- 2 - PNEUMATIC VALVES - 2012 UPGRADED 2018
- 200 lbs ⇒ 90 lbs
- 90 lbs BACK UP PRESSURE BEFORE GOING TO DIST. PRESSURE
- ALREADY 6 DOMED
- RTU ADDED TO ALL STATIONS
- FIBER ADDED 2017
- 3 BACK STRUCTURES
  - STORAGE BUILDING - 3RD BACK STRUCTURE
- PLACE NEW STATION ON LOT NEXT TO IT

ELDER PARK CITY GATE STATION 9:00

- WATER BATH HEATER - ADDED / UPGRADED
- EMERGENCY GENERATOR
- ADDED ACTUATOR, MOVED PILOT ABOVE GROUND
- 1960 CONSTRUCTION ORIGINALLY
- RTU BUILDING - NEW
- 600 lbs ⇒ 1271 lbs TEXAS EASTERN SUPPLIER
  - TYPICAL 750 lbs ⇒ 250 lbs
- MEASUREMENT BUILDING - 2 RUNS
  - COULD ADD ANOTHER RUN
- 4" ODORANT EQUIPMENT
- UPGRADED REGULATOR / MONITOR SYSTEM
- PIG LAUNCHING ADDED
- SCRUBBER AT ENTRY POINT OF LINE

LA GRANGE CITY GATE STATION 9:30

ONLY MONITORED STATION

RUNS TO THE ELBA PARK TO THIS STATION

4" ODORANT EQUIPMENT

LOCATION NEEDS TO CHANGE - DECREASED LOAD AND TRAFFIC

640 lbs ⇒ 90 lbs

SMALL HEATER - 1997

NO REMOTE CONTROLS - MUST MANUALLY ON SITE

3 RUNS W/ REGULATOR/MONITOR

BEDFORD CITY GATE STATION 10:10

UPGRADED CONTROLS CONTINUALLY

ADDED PNEUMATIC AND ELECTRONIC CONTROLS

4" ODORANT EQUIPMENT - 2 PUMPS

SMALL CONDITION

TEXAS EASTERN SUPPLIER

SMALL HEATER - 2001

2 RUNS W/ ONE BYPASS

TRIMBLE COUNTY REGULATOR STATION 10:30

2018 CONSTRUCTION

NEW TECHNOLOGY HEATER - COLD WEATHER

- 5 BURNERS

4" ODORANT

HIGH PRESSURE STATION

640 lbs ⇒ 150 lbs

TRIMBLE COUNTY MEASUREMENT STATION 10:40

3 RUNS - UNIT 1 + 2 AND AUXILIARY BOILER

ALERT 3+2 ASSETS

2018 CONSTRUCTION

RTU EQUIPMENT

MEASUREMENT EQUIPMENT

REGULATOR RUN

TRIMBLE COUNTY GENERATION STATION 12:45

UNIT 1 - 530 MW 1990

UNIT 2 - 810 MW / 760W 2011

UNIT 2 TOWER ORIGINALLY BUILT FOR UNIT 1

SIZING REQUIRED TO CHANGE AND NEW UNIT 1 TOWER

TRAINING CENTER BUILT 2017

BOILER TUBES

FUEL OIL TO NATURAL GAS CONVERSION

BASE LOAD

UNIT 1 OUTAGE - 24 MONTH OUTAGE CYCLE

TURBINE ON 8 YR CYCLE

UNIT 2 - SEPARATION ON 2-3 YR CYCLE DUE TO SIZE

MAJOR BOILER COMPONENTS NEED OR HAVE BEEN REPLACED

5 PULVERIZERS / UNIT - UNIT 1
6 PULVERIZERS / UNIT - UNIT 2
} EFFICIENCY UPGRADES HAVE ALLOWED FULL LOAD W/OUT 1 PULVERIZER

2015 - AERATION TANK UPGRADE

2017 - LINING REPLACEMENTS

Scrubber - 30 yrs old - considering replacement or upgrades
A-side piling - 2020, B-side piling - 2021
Expect 25% of investment of new scrubber
Landfill - overall life hopefully 30-35 yrs 2030
Unit 2 running at high temperatures/pressures than most
Trimble County has SCRs
- very cost effective
Coal coming in on barges
45 days of coal supply - general level
Coal barge unloader, controls
Turbines - Units 1 & 2 have had overhauls
2015 - Unit 1 DCS upgrade
Hope to do water treatment upgrades
Cooling tower upgrades in next few years

CTs
2 - 2002 160 MW
4 - 2004 160 MW
Peakers w/ 15 minute start time
Some used as spinning reserve - Unit 8 & 10
Overhauls done by start based
900 starts / overhaul cycle
2016 Unit 9 generator rewind
40 yr life expected due to rotor life can only handle so many overhauls

Pond closures - Gypsum and ash ponds w/ 5 yrs

ALL PROJECT W/IN SMS BIG INVESTMENT FOR STEAM

138 KV U/G LINES COULD BE MOVED TO OVERHEADS

2015 - BOILER ROOF - UNIT 2 REPLACED

2 - STEAM BOILER FEED PUMPS / UNIT

1 - MOTOR DRIVEN BFP / UNIT

6 COAL FEEDERS ON EACH UNIT

15 BURNERS / SIDE - UNIT 2

BOTTOM ASH - STILL TUBE STORMS

SFC ADDED - 2017 FOR UNIT 1 - CONSIDERING NEXT TO DRY

UNIT 2 ALREADY MOD

BAGHOUSE UNIT 1 - 2016

LIMESTONE / SLURRY AND NEW POND

CONCRETE ASH SILO - 2015

BRIDGE TO LANDFILL

GYPSUM STORAGE BLDG
NEW PROCESS WATER SYSTEM
} 2017

10 CEM CONTINUOUS TOUCH - UNIT 1

AUBERNDALE SERVICE CENTER 10-14-19

10:40 A.M.

PAUL STRATTMAN

DRONE PIC ① VEHICLE CANOPY
② SERVICE CENTER OFFICE
③ ELECTRIC VEHICLE CHARGING STN.
- E+G ASSETS @ THIS FACILITY
- ≅ 1991 to 1993 PURCHASED BY LGE/KU
- W/H HOUSING
- LGE/KU IS NOW ONLY BUSINESS ON PROPERTY
- OFFICES, STORAGE, ASSEMBLY AREAS, CARPORTS ON PROPERTY
④ CARPORT AREA AND TELECOM SHOP
⑤ MAINTENANCE GARAGE AREA
- WELD SHOP (i.e. POLE STNS PRE-FABRICATED AND TRANSPORTED)
- AUBERNDALE + EAST ARE GAS AND ELECTRIC
- USING TRAILERS FOR TEMP OFFICE SPACE. PLAN IS TO REMODEL STORAGE AREA FOR OFFICES (N TRAILERS)
⑥ WAREHOUSE
⑦ VEHICLE/TRUCK BAYS CANOPY
⑧ WAREHOUSE (INTERIOR) → SHARED FACILITY
- WAREHOUSE ALSO CONTAINS METER SHOP
- PARKING LOT IMPROVEMENTS @ END OF VEHICLE CANOPIES
DRONE PIC ⑨ SPACE TO BE ADDED
- LARGE POLE YARD AND ELECTRIC "LAY-DOWN" AREA

CANE RUN 7 (CCGT) 1:20 P.M

MARK PAYNE

(10) COOLING TOWERS
- 500+ ACRES
- UNIT 7 (~2015) → 642 MW (2 GTs, 1 STEAM TURB.)
- UNITS 1, 2 + 3 RET. IN 1980s
- " 4, 5 + 6 " " 2015
- CAN RUN GTs W/O RUNNING THE STEAM TURBINE
- CAN OPERATED 1 ON 1
- CAN GO TO FULL LOAD IN JUST OVER 2 HRS
- RUNNING AS BASE-LOAD (INEXPENSIVE GAS)
- NOW USING HEPA FILTERS
- GTs 1 + 2 ARE IDENTICLE (
- PRIME MOVERS ARE ALL SIEMANS (HRSG IS VOGT)
- NEW SWITCHYARD (138 KV)
- 8 MILES OF 20" PIPELINE FEEDS GAS FOR GTs
- EQUIVALENT OPERATING CYCLE
  16,600 CI (≈ EVERY OTHER YEAR)

↓

- SPRING OF 2020 IS FIRST HOT-GAS PATH
- STILL FEEL 40 YRS IS REASONABLE LIFE EST.
- 2018 AND PRIOR INVESTMENT
  (1) 4 DIESEL GENERATORS (BLACK START) (NOT IN SERVICE YE
  (2) ADMIN BLDG
  (3) EQUIP "
  (4) STORAGE BLDG (UNDER CONSTRUCTION NOW)
  (5) TRAINING CENTER (" " ")

- Acct 345 →
  - (2) $8.3M Inv. In 2017 (Likely Black Start Asset)

- Have Had To Replaces Pumps And Motors Related To Cooling Towers
  - a.) 3 Motor Bearings
  - b.) Pumps (Done Under Warranty)
- Upcoming Work
  - (1) Valve Replacements (Spring 2020)
  - (2)
- LTSA On Combustion Turbines Only (For Now)
- L-O Bearings Replaced ≡ 2 Yrs Ago
- Both Boiler Feed Pumps Have Been Overhauled
- Water Treatment
  - (1) Added 3rd Train For RO
  - (2) Added Strainer/Filter
- Supplier Is Texas Gas
- Backup UPS System Installed ≡ 2017/2018

(11) Control Room
(12) Cooling Tower Motors
(13) HRSG #1
(14) Steam Turbine Structure
(15) ETDI Wtr Treat Eq
(16) RO " " "
(17) H_2O Tanks + Pump House
(18) H_2O Treat Plant

(19) Gas Compressor (1 of 2)
(20) Boiler Feed Pump (1 Per Unit)
(21) Gas Turbines + Gas Heater (Unit #1)
(22) " " Interior / Burners
- CT #11 (Motherbelled)
  ↳ Local Controls or Paddy's Run
(23) Air Intake Str #1
(24) Nuclear Eq Storage Bldg.
(25) ~~Steam~~ Generator
(26) Steam Turbine
(27) Lube Oil System
(28) Heat Exchangers
(29) H_2O Pumps
(30) Black Start Units Str
(31) Aux. Boiler
(32) Black Start Diesel Units (4, Same, 3 MW ea)

Riverport Dist Ctr 3:05 p.m.
(33) Service Center Bldg. Bots Barnett
- 2nd Floor Was Remodeled (≈ ~~2017~~ 2017/2018)
- Work on And Dev. Parts For Turbines
- 1st Floor Testing When Bldg. Purchased
(34) Manufacturing Shop
(35) Precision Eq Shop

344 / 2016 / 5648 / 13.1M

345 / 2016 / 5648 / 450K > Solar Array

10-15-19

E.W. Brown Stn / Dix Dam

Brian Scumner

- 3 Steam Units (#1 & #2 → 1960s, #3 → 1971) } Very Clean
  - #1: 1957, 110 MW; #2: 1963, 180 MW
  - 463 MW
  - SO_2 and NO_x
  - ↳ Scrubber Installed in 2010
  - ↳ SCR
  - ↳ Baghouse added in 2015
- 7 CTs Turbines (↳ Ret In Feb. 2019)
- 1 Solar Field – 10 MW
- Ammonia Storage In 2015
- "Baghouse" = Pulse Jet Fabric Filter
- Unit #3 Is Considered "Load Following"
  - ↳ Spends Much Time @ "Min" or "Medium" Load ("Spinning")
- Added Landfill ≅ 2015

GTs

- 4 @ 115 MWs (#8 - #11) } Peaking Units
- 2 @ 172 MWs (#6 - #7)
- 1 @ 125 MWs (#5)
- 6 of 7 Are Dual-Fuel

Thermal Energy Storage Plant (Ice Plant)

↳ Can Increase 100 MWs Of Generation

Dix Dam (No FERC License) → 33 MWs

- Rock Filled Dam
- Inspected Every 5 Years

- Replaced Runners
- Generators Restacked / Rewound
- New Controls

} Investment Last Couple Of Years

- Life Extension Work
- Formerly Harrington Lake
- 3 Units (From 24 MWs to 33 MWs) (11 MWs each)
- ✓ 1924

Solar Facility

- ✓ 2016 / 2017
- 10 MWs
- Replaced ≅ 40 Panels Due To Lightening Event
- 10 Inverters
- Fixed Panels (45K) 315 Watts Each

Dix Transmission Control Center

- Backup Transmission Control Center / Bldg Is On This Site

- Unit #3 → On Yrs Based Overhauled Schedules
- " " Boiler on 18 Mo Schedules (Is Reviewed @ 12 Mos)

Recent Investment

- 2012 Was # 3 Overhaul, # 3 Is Gett Oh Now (2019)

- CTs
  a.) #5 IN 2017 ($3.5M) → "C" INSP. (GAS TURBINE OH)
  b.) #11 IN 2018 ($7.5M) → OVERHAUL (GAS TURBINE)

FUTURE CAPITAL PLANS
① DISCHARGE WATER QUALITY IMPROVEMENT (MORE TREATMENT)

PLANT TOUR
(36) #3 REEL
(37) #3 TURBINE OH
(38) COOLING TOWERS [redacted] (UNIT #3)
(39) SCRUBBER
(40) BAGHOUSE
(41) LANDFILL
[redacted]

DIX DAM
(42) POWERHOUSE
(43) POWERHOUSE
(44) NEW BRIDGE TO POWERHOUSE
(45) 3 UNITS
- [redacted] POWER TUNNEL TO 3 PENSTOCKS
(46) CONTROLS
(47) GOVERNOR SYSTEMS
(48) PENSTOCK
(49) 69 KV SWITCHYARD (TRANSMISSION ASSET)

(50) Units 5-7
(51) " 5-7
(52) Units 8-11
(53) Fuel Storage

Simpsonville Data Center 2:15 p.m.
Harry Cooper

- 2 Bldgs
(54) North (and) Bldg (Dist. Control Bldg) ≅ v 2017/2018
(55) West + East " (Mechanical Bldg) ≅ v 2008
- Office/Mtg Space
- ~~Transmission~~ Control Room (LGE And KU)
Distribution
- Training Room
- Exercise Facility
- East + West Bldg
East Bldg (end) = Transmission Control
West Bldg (end) = Data Center

- Transmission Control Room
- ~~Other~~ Transmission + IT Engineering Office Space

~~West end of Bldg (v 2008 version)~~

10-16-19
8:40 AM
Mike Collins

Cannons Lane Regulating Station

- Stn To Be Rebuilt In 2020/2021
- 3 Brick Bldgs
(56) Reg. Structures
(57) Pneumatic Valve
- 2 Rebuilt Pneumatic Valves
- 250 # / 90 # Out (90 # is "Beltline" Pressure)
(58) Control Equip. (RTU Eq.)
- 3rd Bldg is For Storage Only

Elder Park City Gate Stn

9:00 AM

(59) Gas Heater
- Stn Rebuilt Over 5 Yrs Ago
- ≅ V196 Us (Orig. Install)
- Control Bldg (RTU Bldg)
- In @ ≅ 650 #, Out @ 125 # to 250 #
(Guaranteed Delivery of 500 #)
(60) RTU Str
(61) M+R Str
(62) M+R Eq.
(63) Regulating + Monitoring Eq.
(64) YZ Odorant Sys
(65) Scrubber/Filter

(10)

LaGrange City Gate Stn — 9:20 a.m.

(66) Heater (v 1997)
- Just Monitor Heats
(67) Monitoring/Reg Eq.
(68) YZ Odorant Sys.
Delete Pic (Not Owned) (69) Control Bldg
- In @ ~~250~~ 250#, Out @ 90#
- Stn Has Not Been Upgraded Like Elder Parr
- Regs are Pneumatically Controlled

Bedford City Gate Stn — 10:00 a.m.

(70) Heater
- Station Addn Upgraded
(71) M&R Eq.
(72) YZ Odorant Sys
- RTU Is Outside
- Redundant Pumps On Odorant Sys.

Trimble County Generating Stn. — 10:30 a.m.
Gas Supply Assets — Mike Collins

- v 2018
(73) Cold Water Technology Heater 378
(74) YZ Odorant Sys
(75) RTU Controls for Gas
(76) Reg. + Monitoring Eq (200# → 150#)

Acct 342

(11)

(77) ~~TA~~ TC GTs
Acct 342 (78) Piping + Measuring Eq (v 2018)
(79) Regulating Eq.

Trimble County Generating Stn

12:45 a.m.

Mike Bucknler
Charles Ransing
Mora
Mike Poston

- #1 - 530 MW (v 1990)
- #2 - 798 MW (v 2011)
- Both Units Baseload

- Hyperbolic Tower → Moved From #1 To #2 Due To Sizing
- Smaller Tower Stack Built ~~From~~ For #1
- 25% Owned By Other Parties

Recent Investment

a.) Acct 311 → v 2017 → Training Center
- #2 is shared KU/LGE

b.) Acct 312 → v 2014 - v 2018 →
Boiler Tubes
Natural Gas Switch-Over (2016/2017)
- #1 on 24 Mo. Outage Schedules
- #1 Turning Off in 2018
- #2 is On A Similar Schedule (Must Be Done In Stages Due To Size) (2016/2019)

Pulverizers
Hitting Major Inv. Point of Life On #1 (30 yrs)

- #1 → Upgrades Allow 100% on 4/5 Pulverizers
- #2 → " " " " 5/6 "

2015 Scrubber Work Done

- Burns + Mac → Studied Scrubber In 2017. Determined Major Inv. In 2021/2022 Would Extend Life (Inv ≅ 25% to 30% of Cost For New Scrubber)

* → Should Extend Life 25-30 Yrs

- New Landfill ≅ 25 Yr Life (In Service ≅ 2021)
- #2 Running @ Higher Temps/Pressures
- #2 Loss In Future Chasing Inv.
  i) Aging of Eq.
- 45 Days Supply of Coal On Pile (≅ 30 to 45 Days)
  ii) Economies of Costs In Future
- All Coal Delivered On Barge
- Coal Handling Eq. Inv (Recent)
  → Unloader
  → Moving Eq.
  → Conveyors/Structures
- 2015 DCS Upgrades And Turning Counters (#1)
- Water Front (Future Spending On The Horizon)

- GTs (6) → 170 MW to 180 MW → Blades
  4 In 2002
  2 In 2004

- 8 + 10 Less Run Times
- Couple GTs Sit In "Spinning" Reserves
- OHs Also Start Based
  → Once On, Usually Run ≅ 8 Hrs Per Start

- Now Gas/Fuel For Steam Helps Start Time And Burn Efficiency @ Start
- ~~#2 Generator Rad~~
- 2016 → #9 GT Was Rewound (Generator)
- Future Inv.
  a.) Pond Closures
  b.) 138 KV Lines Coming Into Plant

Plant Tour — Hailey Turner

(80) Unit #1
(81) Unit 2
(82) Boiler Feed Pumps
(83) Coal Chutes (1 of 6 For Unit #1)
(84) Coal Feeder (1 of 6 " " #2)
(85) Bottom Ash Conveyor Sys. (Unit #2)
(86) Pulverizers (U2)
(87) Dry Ash Sys. (U1)
(88) GTs (6)
(89) Baghouses
(90) Slurry Vats For Scrubber / Ammonia Storage
(91) Gypsum Storage Str

(14)

(92) SCRUBBER
(93) CONTROL ROOM

LOUISVILLE GAS AND ELECTRIC COMPANY

Response to First Request for Information of the
United States Department of Defense and All Other Federal Executive Agencies
Dated January 8, 2021

Case No. 2020-00350

Question No. 16

Responding Witness: John J. Spanos

Q-1-16. Please provide Exhibit JJS-LG&E-2 in Microsoft Excel format with all formulas and links intact.

A-1-16. See attachments being provided in Excel format.

The attachments are being provided in separate files in Excel format.

LOUISVILLE GAS AND ELECTRIC COMPANY

Response to First Request for Information of the
United States Department of Defense and All Other Federal Executive Agencies
Dated January 8, 2021

Case No. 2020-00350

Question No. 17

Responding Witness: John J. Spanos

Q-1-17. Please provide a detailed narrative explaining how the plant and book reserve balances were estimated as of June 30, 2021 as shown in Exhibit JJS-LG&E-2. Please provide all workpapers that support this response.

A-1-17. Plant additions and retirements were projected in 6-month intervals by FERC Account and generating location when applicable starting with the June 30, 2020 plant balances based on anticipated future projects. The activity was rolled forward from the plant balances developed at the end of the previous 6-month interval by FERC Account and generating station location to the date of June 30, 2021.

The book reserve was developed using the same 6-month interval process. Accruals were calculated for each period utilizing the proposed annual accrual rate as of June 30, 2020. The retirements reflected in each 6-month reserve interval were consistent with the plant retirements utilized in the development of the plant balance for the same interval. The net salvage amounts were calculated based on the associated retirement amount utilizing the proposed net salvage rate as June 30, 2020 where applicable. This developed reserve activity was then brought forward to the June 30, 2021 calculation date.

LOUISVILLE GAS AND ELECTRIC COMPANY

Response to First Request for Information of the
United States Department of Defense and All Other Federal Executive Agencies
Dated January 8, 2021

Case No. 2020-00350

Question No. 18

Responding Witness: John J. Spanos

Q-1-18. Please provide all workpapers that show the calculations performed to estimate future additions, retirements, plant balances, and reserve balances to support the depreciation rates presented in Exhibit JJS-LG&E-2.

A-1-18. See attached schedules that support the developed plant and reserve balances as of June 30, 2021. "TAB 1 – PLANT" of each attachment provides the development of the June 30, 2021 plant balance by FERC Account and location. "TAB 2- RESERVE" of each attachment provides the development of the June 30, 2021 reserve balance by FERC Account and location.

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ROLLFORWARD OF ELECTRIC PLANT AS OF JUNE 30, 2020 TO JUNE 30, 2021

	ACCOUNT (1)	ORIGINAL COST AS OF JUNE 30, 2020 (2)	ADDITIONS (3)	RETIREMENTS (4)	ORIGINAL COST AS OF DECEMBER 31, 2020 (5)=(2)+(3)+(4)	ADDITIONS (6)	RETIREMENTS (7)	ORIGINAL COST AS OF JUNE 30, 2021 (8)=(5)+(6)+(7)
	DEPRECIABLE PLANT							
	STEAM PRODUCTION PLANT							
311.00	STRUCTURES AND IMPROVEMENTS							
	RIVERPORT DISTRIBUTION CENTER	5,354,917.29	1,294,731.23	0.00	6,649,648.52	0.00	0.00	6,649,648.52
	MILL CREEK UNIT 1	18,754,074.14	845,225.79	0.00	19,599,299.93	0.00	0.00	19,599,299.93
	MILL CREEK UNIT 2	19,795,539.68	806,479.21	(3,493.45)	20,598,525.44	0.00	0.00	20,598,525.44
	MILL CREEK UNIT 2 SCRUBBER	465.17	0.00	0.00	465.17	0.00	0.00	465.17
	MILL CREEK UNIT 3	27,065,032.87	230,442.03	0.00	27,295,474.90	0.00	0.00	27,295,474.90
	MILL CREEK UNIT 3 SCRUBBER	135,376.33	0.00	0.00	135,376.33	0.00	0.00	135,376.33
	MILL CREEK UNIT 4	72,486,969.51	1,567,876.67	0.00	74,054,846.18	0.00	0.00	74,054,846.18
	MILL CREEK UNIT 4 SCRUBBER	2,476,547.45	0.00	0.00	2,476,547.45	0.00	0.00	2,476,547.45
	TRIMBLE COUNTY UNIT 1	107,923,782.41	307,135.95	0.00	108,230,918.36	59,992.67	0.00	108,290,911.03
	TRIMBLE COUNTY UNIT 1 SCRUBBER	889,015.22	0.00	0.00	889,015.22	0.00	0.00	889,015.22
	TRIMBLE COUNTY UNIT 2	18,610,042.76	819,778.26	0.00	19,429,821.02	0.00	0.00	19,429,821.02
	TRIMBLE COUNTY UNIT 2 SCRUBBER	252,621.17	0.00	0.00	252,621.17	0.00	0.00	252,621.17
	TRIMBLE COUNTY TRAINING CENTER	745,718.89	1,907.11	0.00	747,626.00	0.00	0.00	747,626.00
	TOTAL ACCOUNT 311 - STRUCTURES AND IMPROVEMENTS	274,490,102.89	5,873,576.25	(3,493.45)	280,360,185.69	59,992.67	0.00	280,420,178.36
311.20	STRUCTURES AND IMPROVEMENTS - RETIRED PLANT							
	CANE RUN UNIT 1	65,888.59	0.00	0.00	65,888.59	0.00	0.00	65,888.59
	CANE RUN UNIT 2	373.59	0.00	0.00	373.59	0.00	0.00	373.59
	CANE RUN UNIT 3	249.15	0.00	0.00	249.15	0.00	0.00	249.15
	CANE RUN UNIT 4	491.62	0.00	0.00	491.62	0.00	0.00	491.62
	CANE RUN UNIT 4 SCRUBBER	17,565.79	0.00	0.00	17,565.79	0.00	0.00	17,565.79
	CANE RUN UNIT 5 AND UNIT 5 SCRUBBER	204,433.27	0.00	0.00	204,433.27	0.00	0.00	204,433.27
	CANE RUN UNIT 6 AND UNIT 6 SCRUBBER	7,993,797.66	0.00	0.00	7,993,797.66	0.00	0.00	7,993,797.66
	TOTAL ACCOUNT 311.2 - STRUCTURES AND IMPROVEMENTS - RETIRED PLAI	8,282,799.67	0.00	0.00	8,282,799.67	0.00	0.00	8,282,799.67
312.00	BOILER PLANT EQUIPMENT							
	MILL CREEK UNIT 1	184,942,673.71	339,604.59	(790.35)	185,281,487.95	3,251,083.29	0.00	188,532,571.24
	MILL CREEK UNIT 1 SCRUBBER	16,811,976.82	83,324.07	0.00	16,895,300.89	0.00	0.00	16,895,300.89
	MILL CREEK UNIT 2	212,884,170.98	1,241,714.70	(221,959.31)	213,903,926.37	4,945,300.71	(680,645.33)	218,168,581.75
	MILL CREEK UNIT 2 SCRUBBER	113,357,088.47	797,415.55	0.00	114,154,504.02	0.00	0.00	114,154,504.02
	MILL CREEK UNIT 3	315,305,719.18	821,563.91	(1,076,644.75)	315,050,638.34	394,686.78	(1,473,339.20)	313,971,985.92
	MILL CREEK UNIT 3 SCRUBBER	149,926,264.34	0.00	0.00	149,926,264.34	0.00	0.00	149,926,264.34
	MILL CREEK UNIT 4	750,135,462.96	25,506,435.73	(989,409.32)	774,652,489.37	21,712,877.03	(2,171,106.67)	794,194,259.73
	MILL CREEK UNIT 4 SCRUBBER	195,689,043.08	70,993.20	(280,233.58)	195,479,802.70	0.00	(873,644.77)	194,606,157.93
	TRIMBLE COUNTY UNIT 1	325,309,086.38	1,753,332.51	(370,746.52)	326,691,672.37	1,059,067.00	(1,287,000.96)	326,463,738.41
	TRIMBLE COUNTY UNIT 1 SCRUBBER	68,153,675.06	256,460.39	0.00	68,410,135.45	0.00	0.00	68,410,135.45
	TRIMBLE COUNTY UNIT 2	286,919,491.14	11,148,078.34	0.00	298,067,569.48	1,175,365.76	0.00	299,242,935.24
	TRIMBLE COUNTY UNIT 2 SCRUBBER	15,352,427.57	0.00	0.00	15,352,427.57	0.00	0.00	15,352,427.57
	TOTAL ACCOUNT 312 - BOILER PLANT EQUIPMENT	2,634,787,079.69	42,018,922.99	(2,939,783.83)	2,673,866,218.85	32,538,380.57	(6,485,736.93)	2,699,918,862.49
312.10	BOILER PLANT EQUIPMENT - ASH PONDS							
	MILL CREEK UNIT 1	411,750.29	0.00	0.00	411,750.29	0.00	0.00	411,750.29
	TRIMBLE COUNTY UNIT 1	4,846,362.74	0.00	0.00	4,846,362.74	0.00	0.00	4,846,362.74
	TRIMBLE COUNTY UNIT 2	5,057,242.50	0.00	0.00	5,057,242.50	0.00	0.00	5,057,242.50
	TOTAL ACCOUNT 312.1 - BOILER PLANT EQUIPMENT - ASH PONDS	10,315,355.53	0.00	0.00	10,315,355.53	0.00	0.00	10,315,355.53
314.00	TURBOGENERATOR UNITS							
	MILL CREEK UNIT 1	27,258,907.36	0.00	0.00	27,258,907.36	0.00	0.00	27,258,907.36
	MILL CREEK UNIT 2	31,310,218.00	632,079.33	0.00	31,942,297.33	4,650,000.00	0.00	36,592,297.33
	MILL CREEK UNIT 3	40,689,104.19	86,648.10	(261,161.43)	40,514,590.86	0.00	0.00	40,514,590.86
	MILL CREEK UNIT 4	57,615,791.65	513,404.73	0.00	58,129,196.38	280,618.53	0.00	58,409,814.91
	TRIMBLE COUNTY UNIT 1	59,116,130.80	355,032.82	0.00	59,471,163.62	0.00	0.00	59,471,163.62
	TRIMBLE COUNTY UNIT 2	22,692,470.51	62,220.42	0.00	22,754,690.93	802,482.90	0.00	23,557,173.83
	TOTAL ACCOUNT 314 - TURBOGENERATOR UNITS	238,682,622.51	1,649,385.40	(261,161.43)	240,070,846.48	5,733,101.43	0.00	245,803,947.91

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ROLLFORWARD OF ELECTRIC PLANT AS OF JUNE 30, 2020 TO JUNE 30, 2021

	ACCOUNT (1)	ORIGINAL COST AS OF JUNE 30, 2020 (2)	ADDITIONS (3)	RETIREMENTS (4)	ORIGINAL COST AS OF DECEMBER 31, 2020 (5)=(2)+(3)+(4)	ADDITIONS (6)	RETIREMENTS (7)	ORIGINAL COST AS OF JUNE 30, 2021 (8)=(5)+(6)+(7)
315.00	ACCESSORY ELECTRIC EQUIPMENT							
	MILL CREEK UNIT 1	18,109,188.73	48,034.14	0.00	18,157,222.87	0.00	0.00	18,157,222.87
	MILL CREEK UNIT 1 SCRUBBER	202,167.22	0.00	0.00	202,167.22	0.00	0.00	202,167.22
	MILL CREEK UNIT 2	13,365,293.98	0.00	0.00	13,365,293.98	170,767.95	0.00	13,536,061.93
	MILL CREEK UNIT 2 SCRUBBER	5,652,402.38	0.00	0.00	5,652,402.38	0.00	0.00	5,652,402.38
	MILL CREEK UNIT 3	26,922,251.16	0.00	(98,368.94)	26,823,882.22	0.00	0.00	26,823,882.22
	MILL CREEK UNIT 3 SCRUBBER	1,088,905.01	0.00	0.00	1,088,905.01	0.00	0.00	1,088,905.01
	MILL CREEK UNIT 4	33,383,302.28	190,322.58	(29,539.61)	33,544,085.25	51,182.60	0.00	33,595,267.85
	MILL CREEK UNIT 4 SCRUBBER	8,052,008.04	0.00	0.00	8,052,008.04	0.00	0.00	8,052,008.04
	TRIMBLE COUNTY UNIT 1	65,490,511.95	22,721.83	0.00	65,513,233.78	0.00	0.00	65,513,233.78
	TRIMBLE COUNTY UNIT 1 SCRUBBER	2,736,920.21	0.00	0.00	2,736,920.21	0.00	0.00	2,736,920.21
	TRIMBLE COUNTY UNIT 2	11,108,163.38	0.00	0.00	11,108,163.38	0.00	0.00	11,108,163.38
	TRIMBLE COUNTY UNIT 2 SCRUBBER	0.00	160,189.96	0.00	160,189.96	153,726.30	0.00	313,916.26
	TOTAL ACCOUNT 315 - ACCESSORY ELECTRIC EQUIPMENT	186,111,114.34	421,268.51	(127,908.55)	186,404,474.30	375,676.85	0.00	186,780,151.15
316.00	MISCELLANEOUS POWER PLANT EQUIPMENT							
	RIVERPORT DISTRIBUTION CENTER	1,930,485.14	0.00	0.00	1,930,485.14	0.00	0.00	1,930,485.14
	MILL CREEK UNIT 1	719,267.87	124,106.99	0.00	843,374.86	99,008.21	0.00	942,383.07
	MILL CREEK UNIT 2	74,667.78	0.00	0.00	74,667.78	0.00	0.00	74,667.78
	MILL CREEK UNIT 3	770,586.25	0.00	(33,921.67)	736,664.58	0.00	0.00	736,664.58
	MILL CREEK UNIT 4	11,951,532.18	2,322,341.40	(41,684.34)	14,232,189.24	421,934.06	0.00	14,654,123.30
	MILL CREEK UNIT 4 SCRUBBER	43,211.57	0.00	0.00	43,211.57	0.00	0.00	43,211.57
	TRIMBLE COUNTY UNIT 1	3,201,189.18	552,454.45	(10,516.74)	3,743,126.89	2,906,431.03	0.00	6,649,557.92
	TRIMBLE COUNTY UNIT 2	4,082,818.23	119,938.04	0.00	4,202,756.27	454,687.25	0.00	4,657,443.52
	TOTAL ACCOUNT 316 - MISCELLANEOUS PLANT EQUIPMENT	22,773,758.20	3,118,840.88	(86,122.75)	25,806,476.33	3,882,060.55	0.00	29,688,536.88
	TOTAL STEAM PRODUCTION PLANT	**3,375,442,832.83**	**53,081,994.03**	**(3,418,470.01)**	**3,425,106,356.85**	**42,589,212.07**	**(6,485,736.93)**	**3,461,209,831.99**
	HYDROELECTRIC PRODUCTION PLANT							
331.00	STRUCTURES AND IMPROVEMENTS							
	OHIO FALLS - NON-PROJECT	28,698.29	509,219.99	0.00	537,918.28	207,333.12	0.00	745,251.40
	OHIO FALLS - PROJECT 289	5,637,542.61	1,302,899.00	0.00	6,940,441.61	0.00	0.00	6,940,441.61
	TOTAL ACCOUNT 331 - STRUCTURES AND IMPROVEMENTS	5,666,240.90	1,812,118.99	0.00	7,478,359.89	207,333.12	0.00	7,685,693.01
332.00	RESERVOIRS, DAMS AND WATERWAYS							
	OHIO FALLS - PROJECT 289	19,384,087.20	0.00	0.00	19,384,087.20	0.00	0.00	19,384,087.20
	TOTAL ACCOUNT 332 - RESERVOIRS, DAMS AND WATERWAYS	19,384,087.20	0.00	0.00	19,384,087.20	0.00	0.00	19,384,087.20
333.00	WATER WHEELS, TURBINES AND GENERATORS							
	OHIO FALLS - PROJECT 289	114,581,032.99	0.00	0.00	114,581,032.99	2,454,098.05	0.00	117,035,131.04
	TOTAL ACCOUNT 333 - WATER WHEELS, TURBINES AND GENERATORS	114,581,032.99	0.00	0.00	114,581,032.99	2,454,098.05	0.00	117,035,131.04
334.00	ACCESSORY ELECTRIC EQUIPMENT							
	OHIO FALLS - PROJECT 289	6,568,796.25	0.00	0.00	6,568,796.25	0.00	0.00	6,568,796.25
	TOTAL ACCOUNT 334 - ACCESSORY ELECTRIC EQUIPMENT	6,568,796.25	0.00	0.00	6,568,796.25	0.00	0.00	6,568,796.25
335.00	MISCELLANEOUS POWER PLANT EQUIPMENT							
	OHIO FALLS - NON-PROJECT	3,782.01	16,164.76	0.00	19,946.77	0.00	0.00	19,946.77
	OHIO FALLS - PROJECT 289	179,682.14	0.00	0.00	179,682.14	0.00	0.00	179,682.14
	TOTAL ACCOUNT 335 - MISCELLANEOUS POWER PLANT EQUIPMENT	183,464.15	16,164.76	0.00	199,628.91	0.00	0.00	199,628.91
336.00	ROADS, RAILROADS AND BRIDGES							
	OHIO FALLS - NON-PROJECT	0.00	1,524,326.19	0.00	1,524,326.19	0.00	0.00	1,524,326.19
	OHIO FALLS - PROJECT 289	12,119.47	0.00	0.00	12,119.47	0.00	0.00	12,119.47
	TOTAL ACCOUNT 336 - ROADS, RAILROADS AND BRIDGES	12,119.47	1,524,326.19	0.00	1,536,445.66	0.00	0.00	1,536,445.66
	TOTAL HYDROELECTRIC PRODUCTION PLANT	**146,395,740.96**	**3,352,609.94**	**0.00**	**149,748,350.90**	**2,661,431.17**	**0.00**	**152,409,782.07**

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ROLLFORWARD OF ELECTRIC PLANT AS OF JUNE 30, 2020 TO JUNE 30, 2021

	ACCOUNT (1)	ORIGINAL COST AS OF JUNE 30, 2020 (2)	ADDITIONS (3)	RETIREMENTS (4)	ORIGINAL COST AS OF DECEMBER 31, 2020 (5)=(2)+(3)+(4)	ADDITIONS (6)	RETIREMENTS (7)	ORIGINAL COST AS OF JUNE 30, 2021 (8)=(5)+(6)+(7)
	OTHER PRODUCTION PLANT							
341.00	STRUCTURES AND IMPROVEMENTS							
	CANE RUN CC 7	17,709,450.89	42,899.88	0.00	17,752,350.77	0.00	0.00	17,752,350.77
	ZORN AND RIVER ROAD GAS TURBINE	8,241.14	0.00	0.00	8,241.14	0.00	0.00	8,241.14
	PADDY'S RUN GENERATOR 12	64,113.35	0.00	0.00	64,113.35	0.00	0.00	64,113.35
	PADDY'S RUN GENERATOR 13	2,484,085.38	0.00	0.00	2,484,085.38	0.00	0.00	2,484,085.38
	BROWN CT 5	1,171,970.07	0.00	0.00	1,171,970.07	0.00	0.00	1,171,970.07
	BROWN CT 6	122,849.05	0.00	0.00	122,849.05	0.00	0.00	122,849.05
	BROWN CT 7	144,356.29	0.00	(2,523.50)	141,832.79	0.00	0.00	141,832.79
	BROWN SOLAR	923,945.85	0.00	0.00	923,945.85	0.00	0.00	923,945.85
	TRIMBLE COUNTY CT 5	1,555,655.08	0.00	0.00	1,555,655.08	0.00	0.00	1,555,655.08
	TRIMBLE COUNTY CT 6	1,467,923.89	0.00	0.00	1,467,923.89	0.00	0.00	1,467,923.89
	TRIMBLE COUNTY CT 7	2,083,698.13	0.00	0.00	2,083,698.13	0.00	0.00	2,083,698.13
	TRIMBLE COUNTY CT 8	2,075,526.50	0.00	0.00	2,075,526.50	0.00	0.00	2,075,526.50
	TRIMBLE COUNTY CT 9	2,137,402.33	0.00	0.00	2,137,402.33	0.00	0.00	2,137,402.33
	TRIMBLE COUNTY CT 10	2,525,013.22	0.00	0.00	2,525,013.22	0.00	0.00	2,525,013.22
	SIMPSONVILLE SOLAR	629,097.75	10,091.80	0.00	639,189.55	0.00	0.00	639,189.55
	TOTAL ACCOUNT 341 - STRUCTURES AND IMPROVEMENTS	35,103,328.92	52,991.68	(2,523.50)	35,153,797.10	0.00	0.00	35,153,797.10
341.20	STRUCTURES AND IMPROVEMENTS - RETIRED PLANT							
	CANE RUN GT 11	320,737.94	0.00	0.00	320,737.94	0.00	0.00	320,737.94
	TOTAL ACCOUNT 341.2 - STRUCTURES AND IMPROVEMENTS	320,737.94	0.00	0.00	320,737.94	0.00	0.00	320,737.94
342.00	FUEL HOLDERS, PRODUCERS AND ACCESSORIES							
	CANE RUN CC 7	1,839,349.29	0.00	0.00	1,839,349.29	0.00	0.00	1,839,349.29
	CANE RUN PIPELINE	6,602,221.07	0.00	0.00	6,602,221.07	0.00	0.00	6,602,221.07
	ZORN AND RIVER ROAD GAS TURBINE	22,229.02	0.00	0.00	22,229.02	0.00	0.00	22,229.02
	PADDY'S RUN GENERATOR 11	9,237.57	0.00	0.00	9,237.57	0.00	0.00	9,237.57
	PADDY'S RUN GENERATOR 12	21,667.08	0.00	0.00	21,667.08	0.00	0.00	21,667.08
	PADDY'S RUN GENERATOR 13	2,235,100.61	0.00	0.00	2,235,100.61	0.00	0.00	2,235,100.61
	PADDY'S RUN CT PIPELINE	7,693,302.29	0.00	0.00	7,693,302.29	0.00	0.00	7,693,302.29
	BROWN CT 5	846,906.63	0.00	0.00	846,906.63	0.00	0.00	846,906.63
	BROWN CT 6	766,004.64	0.00	0.00	766,004.64	0.00	0.00	766,004.64
	BROWN CT 7	483,544.93	0.00	0.00	483,544.93	0.00	0.00	483,544.93
	TRIMBLE COUNTY CT 5	97,996.90	0.00	0.00	97,996.90	0.00	0.00	97,996.90
	TRIMBLE COUNTY CT 6	97,861.58	0.00	0.00	97,861.58	0.00	0.00	97,861.58
	TRIMBLE COUNTY CT PIPELINE	2,320,474.20	0.00	0.00	2,320,474.20	0.00	0.00	2,320,474.20
	TRIMBLE COUNTY CT 7	338,423.07	0.00	0.00	338,423.07	0.00	0.00	338,423.07
	TRIMBLE COUNTY CT 8	337,096.18	0.00	0.00	337,096.18	0.00	0.00	337,096.18
	TRIMBLE COUNTY CT 9	347,146.53	0.00	0.00	347,146.53	0.00	0.00	347,146.53
	TRIMBLE COUNTY CT 10	446,520.02	0.00	0.00	446,520.02	0.00	0.00	446,520.02
	TOTAL ACCOUNT 342 - FUEL HOLDERS, PRODUCERS AND ACCESSORIES	24,505,081.61	0.00	0.00	24,505,081.61	0.00	0.00	24,505,081.61
343.00	PRIME MOVERS							
	CANE RUN CC 7	75,865,135.10	1,152,869.40	0.00	77,018,004.50	211,474.36	0.00	77,229,478.86
	PADDY'S RUN GENERATOR 13	22,150,177.60	0.00	(3,696.81)	22,146,480.79	0.00	0.00	22,146,480.79
	BROWN CT 5	18,490,042.40	0.00	0.00	18,490,042.40	0.00	0.00	18,490,042.40
	BROWN CT 6	24,101,915.33	493,957.61	0.00	24,595,872.94	0.00	0.00	24,595,872.94
	BROWN CT 7	18,614,501.31	143,397.89	0.00	18,757,899.20	0.00	0.00	18,757,899.20
	TRIMBLE COUNTY CT 5	15,882,516.99	150,188.19	0.00	16,032,705.18	3,044,246.61	0.00	19,076,951.79
	TRIMBLE COUNTY CT 6	14,426,572.85	0.00	0.00	14,426,572.85	161,369.95	0.00	14,587,942.80
	TRIMBLE COUNTY CT 7	15,680,731.51	69,261.75	0.00	15,749,993.26	0.00	0.00	15,749,993.26
	TRIMBLE COUNTY CT 8	14,878,576.37	0.00	0.00	14,878,576.37	0.00	0.00	14,878,576.37
	TRIMBLE COUNTY CT 9	14,832,484.85	31,877.82	(30,093.25)	14,834,269.42	0.00	0.00	14,834,269.42
	TRIMBLE COUNTY CT 10	15,145,494.70	(17,137.43)	(62,234.10)	15,066,123.17	253,247.65	0.00	15,319,370.82
	TOTAL ACCOUNT 343 - PRIME MOVERS	250,068,149.01	2,024,415.23	(96,024.16)	251,996,540.08	3,670,338.57	0.00	255,666,878.65
344.00	GENERATORS							
	CANE RUN CC 7	17,526,759.72	0.00	0.00	17,526,759.72	0.00	0.00	17,526,759.72
	ZORN AND RIVER ROAD GAS TURBINE	1,919,304.70	0.00	0.00	1,919,304.70	0.00	0.00	1,919,304.70
	PADDY'S RUN GENERATOR 11	1,539,958.99	0.00	0.00	1,539,958.99	0.00	0.00	1,539,958.99
	PADDY'S RUN GENERATOR 12	3,334,813.58	0.00	0.00	3,334,813.58	0.00	0.00	3,334,813.58
	PADDY'S RUN GENERATOR 13	6,035,684.56	0.00	0.00	6,035,684.56	0.00	0.00	6,035,684.56

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ROLLFORWARD OF ELECTRIC PLANT AS OF JUNE 30, 2020 TO JUNE 30, 2021

	ACCOUNT	ORIGINAL COST AS OF JUNE 30, 2020	ADDITIONS	RETIREMENTS	ORIGINAL COST AS OF DECEMBER 31, 2020	ADDITIONS	RETIREMENTS	ORIGINAL COST AS OF JUNE 30, 2021
	(1)	(2)	(3)	(4)	(5)=(2)+(3)+(4)	(6)	(7)	(8)=(5)+(6)+(7)
	BROWN CT 5	3,448,727.25	0.00	0.00	3,448,727.25	0.00	0.00	3,448,727.25
	BROWN CT 6	2,449,473.22	0.00	0.00	2,449,473.22	0.00	0.00	2,449,473.22
	BROWN CT 7	2,508,210.18	0.00	0.00	2,508,210.18	0.00	0.00	2,508,210.18
	BROWN SOLAR	8,363,103.36	0.00	0.00	8,363,103.36	0.00	0.00	8,363,103.36
	TRIMBLE COUNTY CT 5	1,635,904.01	0.00	0.00	1,635,904.01	0.00	0.00	1,635,904.01
	TRIMBLE COUNTY CT 6	1,595,963.67	0.00	0.00	1,595,963.67	0.00	0.00	1,595,963.67
	TRIMBLE COUNTY CT 7	1,793,484.14	0.00	0.00	1,793,484.14	0.00	0.00	1,793,484.14
	TRIMBLE COUNTY CT 8	1,783,864.62	0.00	0.00	1,783,864.62	0.00	0.00	1,783,864.62
	TRIMBLE COUNTY CT 9	1,996,602.87	0.00	0.00	1,996,602.87	0.00	0.00	1,996,602.87
	TRIMBLE COUNTY CT 10	1,911,732.95	109,321.33	(46,447.97)	1,974,606.31	0.00	0.00	1,974,606.31
	SIMPSONVILLE SOLAR	485,487.42	77,465.39	0.00	562,952.81	0.00	0.00	562,952.81
	OTHER SOLAR	57,651.55	0.00	0.00	57,651.55	0.00	0.00	57,651.55
	TOTAL ACCOUNT 344 - GENERATORS	58,386,726.79	186,786.72	(46,447.97)	58,527,065.54	0.00	0.00	58,527,065.54
345.00	ACCESSORY ELECTRIC EQUIPMENT							
	CANE RUN CC 7	6,857,165.05	0.00	0.00	6,857,165.05	0.00	0.00	6,857,165.05
	ZORN AND RIVER ROAD GAS TURBINE	94,656.49	0.00	0.00	94,656.49	0.00	0.00	94,656.49
	PADDY'S RUN GENERATOR 11	605,144.42	731.43	0.00	605,875.85	0.00	0.00	605,875.85
	PADDY'S RUN GENERATOR 12	901,218.54	0.00	0.00	901,218.54	0.00	0.00	901,218.54
	PADDY'S RUN GENERATOR 13	2,860,913.24	17,439.56	0.00	2,878,352.80	0.00	0.00	2,878,352.80
	BROWN CT 5	2,602,373.29	0.00	0.00	2,602,373.29	0.00	0.00	2,602,373.29
	BROWN CT 6	1,042,364.45	73,361.25	0.00	1,115,725.70	0.00	0.00	1,115,725.70
	BROWN CT 7	1,130,650.06	22,104.96	0.00	1,152,755.02	0.00	0.00	1,152,755.02
	BROWN SOLAR	285,072.02	0.00	0.00	285,072.02	0.00	0.00	285,072.02
	TRIMBLE COUNTY CT 5	782,798.71	0.00	0.00	782,798.71	0.00	0.00	782,798.71
	TRIMBLE COUNTY CT 6	1,709,376.03	0.00	0.00	1,709,376.03	0.00	0.00	1,709,376.03
	TRIMBLE COUNTY CT 7	2,168,768.83	0.00	0.00	2,168,768.83	0.00	0.00	2,168,768.83
	TRIMBLE COUNTY CT 8	1,943,746.28	0.00	0.00	1,943,746.28	0.00	0.00	1,943,746.28
	TRIMBLE COUNTY CT 9	1,898,268.01	0.00	0.00	1,898,268.01	0.00	0.00	1,898,268.01
	TRIMBLE COUNTY CT 10	6,214,267.18	0.00	0.00	6,214,267.18	0.00	0.00	6,214,267.18
	SIMPSONVILLE SOLAR	259,439.84	0.00	0.00	259,439.84	0.00	0.00	259,439.84
	OTHER SOLAR	27,319.98	0.00	0.00	27,319.98	0.00	0.00	27,319.98
	TOTAL ACCOUNT 345 - ACCESSORY ELECTRIC EQUIPMENT	31,383,542.42	113,637.20	0.00	31,497,179.62	0.00	0.00	31,497,179.62
346.00	MISCELLANEOUS POWER PLANT EQUIPMENT							
	CANE RUN CC 7	965,500.34	110,423.18	0.00	1,075,923.52	0.00	0.00	1,075,923.52
	ZORN AND RIVER ROAD GAS TURBINE	9,488.39	0.00	0.00	9,488.39	0.00	0.00	9,488.39
	PADDY'S RUN GENERATOR 11	9,494.38	0.00	0.00	9,494.38	59,553.64	0.00	69,048.02
	PADDY'S RUN GENERATOR 12	0.00	0.00	0.00	0.00	59,553.64	0.00	59,553.64
	PADDY'S RUN GENERATOR 13	1,299,351.17	0.00	0.00	1,299,351.17	63,126.84	0.00	1,362,478.01
	BROWN CT 5	2,399,250.01	30,821.95	0.00	2,430,071.96	0.00	0.00	2,430,071.96
	BROWN CT 6	32,755.71	0.00	0.00	32,755.71	0.00	0.00	32,755.71
	BROWN CT 7	23,047.78	0.00	0.00	23,047.78	0.00	0.00	23,047.78
	BROWN SOLAR	271,849.13	0.00	0.00	271,849.13	0.00	0.00	271,849.13
	TRIMBLE COUNTY CT 5	14,528.92	0.00	0.00	14,528.92	0.00	0.00	14,528.92
	TRIMBLE COUNTY CT 7	5,204.51	0.00	0.00	5,204.51	0.00	0.00	5,204.51
	TRIMBLE COUNTY CT 8	5,182.59	0.00	0.00	5,182.59	0.00	0.00	5,182.59
	TRIMBLE COUNTY CT 9	5,328.44	0.00	0.00	5,328.44	0.00	0.00	5,328.44
	TRIMBLE COUNTY CT 10	25,332.91	0.00	0.00	25,332.91	0.00	0.00	25,332.91
	SIMPSONVILLE SOLAR	23,884.71	0.00	0.00	23,884.71	0.00	0.00	23,884.71
	TOTAL ACCOUNT 346 - MISCELLANEOUS POWER PLANT EQUIPMENT	5,090,198.99	141,245.13	0.00	5,231,444.12	182,234.12	0.00	5,413,678.24
	TOTAL OTHER PRODUCTION PLANT	**404,857,765.68**	**2,519,075.96**	**(144,995.63)**	**407,231,846.01**	**3,852,572.69**	**0.00**	**411,084,418.70**
	TRANSMISSION PLANT							
350.10	LAND RIGHTS	8,587,652.59	0.00	0.00	8,587,652.59	0.00	0.00	8,587,652.59
352.10	STRUCTURES AND IMPROVEMENTS	17,711,716.57	0.00	0.00	17,711,716.57	0.00	0.00	17,711,716.57
353.10	STATION EQUIPMENT	241,021,510.79	7,232,374.46	(937,125.44)	247,316,759.81	21,596,161.09	(1,184,398.77)	267,728,522.13
354.00	TOWERS AND FIXTURES	46,357,266.29	0.00	0.00	46,357,266.29	0.00	0.00	46,357,266.29
355.00	POLES AND FIXTURES	110,324,935.37	9,885,703.99	0.00	120,210,639.36	7,000,624.40	0.00	127,211,263.76
356.00	OVERHEAD CONDUCTORS AND DEVICES	66,339,615.71	2,278,464.18	0.00	68,618,079.89	0.00	0.00	68,618,079.89
357.00	UNDERGROUND CONDUIT	1,941,041.52	0.00	0.00	1,941,041.52	0.00	0.00	1,941,041.52
358.00	UNDERGROUND CONDUCTORS AND DEVICES	8,498,390.55	0.00	0.00	8,498,390.55	0.00	0.00	8,498,390.55
	TOTAL TRANSMISSION PLANT	**500,782,129.39**	**19,396,542.63**	**(937,125.44)**	**519,241,546.58**	**28,596,785.49**	**(1,184,398.77)**	**546,653,933.30**

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ROLLFORWARD OF ELECTRIC PLANT AS OF JUNE 30, 2020 TO JUNE 30, 2021

	ACCOUNT (1)	ORIGINAL COST AS OF JUNE 30, 2020 (2)	ADDITIONS (3)	RETIREMENTS (4)	ORIGINAL COST AS OF DECEMBER 31, 2020 (5)=(2)+(3)+(4)	ADDITIONS (6)	RETIREMENTS (7)	ORIGINAL COST AS OF JUNE 30, 2021 (8)=(5)+(6)+(7)
	DISTRIBUTION PLANT							
361.00	STRUCTURES AND IMPROVEMENTS	13,041,368.08	4,265,228.62	0.00	17,306,596.70	9,996,999.01	0.00	27,303,595.71
362.00	STATION EQUIPMENT	173,230,369.53	11,775,936.13	(173,494.46)	184,832,811.20	4,203,499.52	0.00	189,036,310.72
364.00	POLES, TOWERS AND FIXTURES	228,410,066.57	18,108,746.58	(1,166,174.55)	245,352,638.60	5,959,548.14	(912,481.53)	250,399,705.21
365.00	OVERHEAD CONDUCTORS AND DEVICES	386,329,715.56	24,226,492.81	(1,217,240.28)	409,338,968.09	15,948,573.66	(949,456.06)	424,338,085.69
366.00	UNDERGROUND CONDUIT	87,504,927.78	11,397,449.00	(154,193.62)	98,748,183.16	0.00	0.00	98,748,183.16
367.00	UNDERGROUND CONDUCTORS AND DEVICES	333,589,705.55	17,602,140.60	(531,655.70)	350,660,190.45	11,710,928.86	(430,620.80)	361,940,498.51
368.00	LINE TRANSFORMERS	176,505,726.13	2,262,543.89	(610,653.76)	178,157,616.26	2,889,330.14	(504,389.45)	180,542,556.95
369.10	SERVICES - UNDERGROUND	14,185,196.77	36,548.81	0.00	14,221,745.58	0.00	0.00	14,221,745.58
369.20	SERVICES - OVERHEAD	25,472,004.34	1,886,438.06	0.00	27,358,442.40	0.00	0.00	27,358,442.40
370.00	METERS	35,023,647.23	1,247,739.47	(442,415.82)	35,828,970.88	425,291.80	(9,608.47)	36,244,654.21
370.01	METERS - AMS	3,015,016.72	375.45	0.00	3,015,392.17	0.00	0.00	3,015,392.17
370.11	METERS - AMI	74,083.26	0.00	0.00	74,083.26	0.00	0.00	74,083.26
370.20	METERS - CT AND PT	5,927,405.09	0.00	0.00	5,927,405.09	0.00	0.00	5,927,405.09
371.01	INSTALLATIONS ON CUSTOMERS' PREMISES - EV CHARGING STATIONS	176,161.49	7,226.09	0.00	183,387.58	0.00	0.00	183,387.58
373.10	STREET LIGHTING AND SIGNAL SYSTEMS - OVERHEAD	62,567,712.69	4,546,233.69	(1,094.34)	67,112,852.04	3,399,646.52	0.00	70,512,498.56
373.20	STREET LIGHTING AND SIGNAL SYSTEMS - UNDERGROUND	65,410,717.45	436,819.21	0.00	65,847,536.66	0.00	0.00	65,847,536.66
	TOTAL DISTRIBUTION PLANT	**1,610,463,824.24**	**97,799,918.41**	**(4,296,922.53)**	**1,703,966,820.12**	**54,533,817.65**	**(2,806,556.31)**	**1,755,694,081.46**
	GENERAL PLANT							
	TRANSPORTATION EQUIPMENT							
392.00	CARS AND LIGHT TRUCKS	1,277,271.74	0.00	(64,232.99)	1,213,038.75	0.00	0.00	1,213,038.75
392.10	HEAVY TRUCKS AND OTHER	6,998,415.75	0.00	(61,093.79)	6,937,321.96	0.00	0.00	6,937,321.96
392.20	TRAILERS	390,801.16	0.00	0.00	390,801.16	0.00	0.00	390,801.16
	TOTAL TRANSPORTATION EQUIPMENT	8,666,488.65	0.00	(125,326.78)	8,541,161.87	0.00	0.00	8,541,161.87
394.00	TOOLS, SHOP AND GARAGE EQUIPMENT	7,159,842.53	1,769,817.31	0.00	8,929,659.84	493,078.38	0.00	9,422,738.22
	POWER OPERATED EQUIPMENT							
396.10	LARGE MACHINERY	2,322,061.60	57,919.68	(92,181.09)	2,287,800.19	0.00	0.00	2,287,800.19
396.20	OTHER	196,248.24	0.00	0.00	196,248.24	0.00	0.00	196,248.24
	TOTAL POWER OPERATED EQUIPMENT	2,518,309.84	57,919.68	(92,181.09)	2,484,048.43	0.00	0.00	2,484,048.43
397.20	COMMUNICATION EQUIPMENT - DSM	6,804,139.35	43,797.91	0.00	6,847,937.26	31,749.98	0.00	6,879,687.24
	TOTAL GENERAL PLANT	**25,148,780.37**	**1,871,534.90**	**(217,507.87)**	**26,802,807.40**	**524,828.36**	**0.00**	**27,327,635.76**
	TOTAL DEPRECIABLE PLANT	**6,063,091,073.47**	**178,021,675.87**	**(9,015,021.48)**	**6,232,097,727.86**	**132,758,647.43**	**(10,476,692.01)**	**6,354,379,683.28**
	NONDEPRECIABLE PLANT							
301.00	ORGANIZATION	2,240.29	0.00	0.00	2,240.29	0.00	0.00	2,240.29
310.20	LAND	10,220,199.63	0.00	0.00	10,220,199.63	0.00	0.00	10,220,199.63
310.26	LAND - ECR 2011	360,851.26	0.00	0.00	360,851.26	0.00	0.00	360,851.26
317.07	ARO STEAM PRODUCTION (EQUIPMENT)	11,122,918.63	0.00	(12,043.19)	11,110,875.44	0.00	0.00	11,110,875.44
317.08	ARO STEAM PRODUCTION (CCR)	49,105,299.46	0.00	0.00	49,105,299.46	0.00	0.00	49,105,299.46
330.20	LAND	6.50	0.00	0.00	6.50	0.00	0.00	6.50
337.07	ARO HYDRAULIC PRODUCTION	289,910.63	0.00	0.00	289,910.63	0.00	0.00	289,910.63
340.20	LAND	406,526.20	0.00	0.00	406,526.20	0.00	0.00	406,526.20
347.05	ARO OTHER PRODUCTION (L/B)	15,555.48	0.00	0.00	15,555.48	0.00	0.00	15,555.48
347.07	ARO OTHER PRODUCTION (EQUIPMENT)	96,428.56	0.00	0.00	96,428.56	0.00	0.00	96,428.56
350.20	LAND	2,556,362.69	(15,564.47)	0.00	2,540,798.22	0.00	0.00	2,540,798.22
359.15	ARO TRANSMISSION (L/B)	76,221.28	0.00	0.00	76,221.28	0.00	0.00	76,221.28
359.17	ARO TRANSMISSION (EQUIPMENT)	122,340.23	0.00	0.00	122,340.23	0.00	0.00	122,340.23
360.20	LAND	4,117,062.41	0.00	0.00	4,117,062.41	0.00	0.00	4,117,062.41
374.05	ARO DISTRIBUTION (L/B)	129,242.11	0.00	0.00	129,242.11	0.00	0.00	129,242.11
374.07	ARO DISTRIBUTION (EQUIPMENT)	47,995.12	0.00	0.00	47,995.12	0.00	0.00	47,995.12
	TOTAL NONDEPRECIABLE PLANT	**78,669,160.48**	**(15,564.47)**	**(12,043.19)**	**78,641,552.82**	**0.00**	**0.00**	**78,641,552.82**
	TOTAL ELECTRIC PLANT	**6,141,760,233.95**	**178,006,111.40**	**(9,027,064.67)**	**6,310,739,280.68**	**132,758,647.43**	**(10,476,692.01)**	**6,433,021,236.10**

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

BRINGFORWARD OF ELECTRIC RESERVE AS OF JUNE 30, 2020 TO JUNE 30, 2021

			JULY TO DECEMBER 2020				JANUARY TO JUNE 2021			
	ACCOUNT	BOOK RESERVE JUNE 30, 2020	ACCRUAL	RETIREMENTS	NET SALVAGE	BOOK RESERVE DECEMBER 31, 2020	ACCRUAL	RETIREMENTS	NET SALVAGE	BOOK RESERVE JUNE 30, 2021
	(1)	(2)	(3)	(4)	(5)	(6)=(2)+(3)+(4)+(5)	(7)	(8)	(9)	(10)=(6)+(7)+(8)+(9)
	DEPRECIABLE PLANT									
	STEAM PRODUCTION PLANT									
311.00	STRUCTURES AND IMPROVEMENTS									
311.00 0190	RIVERPORT DISTRIBUTION CENTER	493,155	87,033	0	0	580,188	96,420	0	0	676,608
311.00 0211	MILL CREEK UNIT 1	17,220,582	326,004	0	0	17,546,586	333,188	0	0	17,879,774
311.00 0221	MILL CREEK UNIT 2	10,207,821	705,300	(3,493)	(245)	10,909,383	719,321	0	0	11,628,704
311.00 0222	MILL CREEK UNIT 2 SCRUBBER	498	0	0	0	498	0	0	0	498
311.00 0231	MILL CREEK UNIT 3	20,500,404	228,314	0	0	20,728,718	229,282	0	0	20,958,000
311.00 0232	MILL CREEK UNIT 3 SCRUBBER	144,853	0	0	0	144,853	0	0	0	144,853
311.00 0241	MILL CREEK UNIT 4	42,437,364	952,522	0	0	43,389,886	962,713	0	0	44,352,599
311.00 0242	MILL CREEK UNIT 4 SCRUBBER	2,295,887	9,535	0	0	2,305,422	9,535	0	0	2,314,957
311.00 0311	TRIMBLE COUNTY UNIT 1	66,792,233	1,096,985	0	0	67,889,218	1,098,848	0	0	68,988,066
311.00 0312	TRIMBLE COUNTY UNIT 1 SCRUBBER	157,715	16,847	0	0	174,562	16,847	0	0	191,409
311.00 0321	TRIMBLE COUNTY UNIT 2	3,207,677	201,611	0	0	3,409,288	205,956	0	0	3,615,244
311.00 0322	TRIMBLE COUNTY UNIT 2 SCRUBBER	18,405	2,943	0	0	21,348	2,943	0	0	24,291
311.00 0330	TRIMBLE COUNTY TRAINING CENTER	21,047	8,549	0	0	29,596	8,560	0	0	38,156
	TOTAL ACCOUNT 311 - STRUCTURES AND IMPROVEMENTS	163,497,641	3,635,643	(3,493)	(245)	167,129,546	3,683,613	0	0	170,813,159
311.20	STRUCTURES AND IMPROVEMENTS - RETIRED PLANT									
311.20 0112	CANE RUN UNIT 1	72,477	0	0	0	72,477	0	0	0	72,477
311.20 0121	CANE RUN UNIT 2	411	0	0	0	411	0	0	0	411
311.20 0131	CANE RUN UNIT 3	274	0	0	0	274	0	0	0	274
311.20 0141	CANE RUN UNIT 4	541	0	0	0	541	0	0	0	541
311.20 0142	CANE RUN UNIT 4 SCRUBBER	19,322	0	0	0	19,322	0	0	0	19,322
311.20 0151	CANE RUN UNIT 5 AND UNIT 5 SCRUBBER	224,877	0	0	0	224,877	0	0	0	224,877
311.20 0161	CANE RUN UNIT 6 AND UNIT 6 SCRUBBER	8,793,177	0	0	0	8,793,177	0	0	0	8,793,177
	TOTAL ACCOUNT 311.2 - STRUCTURES AND IMPROVEMENTS - RETIRED PLAN	9,111,079	0	0	0	9,111,079	0	0	0	9,111,079
312.00	BOILER PLANT EQUIPMENT									
312.00 0211	MILL CREEK UNIT 1	58,284,730	15,753,038	(790)	(55)	74,036,923	15,905,788	0	0	89,942,711
312.00 0212	MILL CREEK UNIT 1 SCRUBBER	9,504,810	962,343	0	0	10,467,153	964,722	0	0	11,431,875
312.00 0221	MILL CREEK UNIT 2	44,545,536	11,788,004	(221,959)	(15,537)	56,096,044	11,933,961	(680,645)	(47,645)	67,301,714
312.00 0222	MILL CREEK UNIT 2 SCRUBBER	12,857,330	6,957,615	0	0	19,814,945	6,982,001	0	0	26,796,946
312.00 0231	MILL CREEK UNIT 3	81,467,868	7,217,580	(1,076,645)	(75,365)	87,533,438	7,202,309	(1,473,339)	(103,134)	93,159,274
312.00 0232	MILL CREEK UNIT 3 SCRUBBER	13,435,495	4,092,987	0	0	17,528,482	4,092,987	0	0	21,621,469
312.00 0241	MILL CREEK UNIT 4	153,552,408	18,526,174	(989,409)	(69,259)	171,019,914	19,061,488	(2,171,107)	(151,977)	187,758,318
312.00 0242	MILL CREEK UNIT 4 SCRUBBER	25,457,009	5,163,429	(280,234)	(19,616)	30,320,588	5,149,135	(873,645)	(61,155)	34,534,924
312.00 0311	TRIMBLE COUNTY UNIT 1	92,670,973	6,014,707	(370,747)	(40,782)	98,274,151	6,025,359	(1,287,001)	(141,570)	102,870,940
312.00 0312	TRIMBLE COUNTY UNIT 1 SCRUBBER	30,812,888	1,031,057	0	0	31,843,945	1,032,993	0	0	32,876,938
312.00 0321	TRIMBLE COUNTY UNIT 2	28,314,449	3,831,665	0	0	32,146,114	3,912,384	0	0	36,058,498
312.00 0322	TRIMBLE COUNTY UNIT 2 SCRUBBER	3,948,518	173,482	0	0	4,122,000	173,482	0	0	4,295,482
	TOTAL ACCOUNT 312 - BOILER PLANT EQUIPMENT	554,852,014	81,512,081	(2,939,784)	(220,614)	633,203,697	82,436,609	(6,485,737)	(505,481)	708,649,088
312.10	BOILER PLANT EQUIPMENT - ASH PONDS									
312.10 0711	MILL CREEK UNIT 1	399,686	6,032	0	0	405,718	6,032	0	0	411,750
312.10 0811	TRIMBLE COUNTY UNIT 1	4,469,130	45,556	0	0	4,514,686	45,556	0	0	4,560,242
312.10 0821	TRIMBLE COUNTY UNIT 2	4,767,144	45,263	0	0	4,812,407	45,263	0	0	4,857,670
	TOTAL ACCOUNT 312.1 - BOILER PLANT EQUIPMENT - ASH PONDS	9,635,960	96,851	0	0	9,732,811	96,851	0	0	9,829,662

LOUISVILLE GAS AND ELECTRIC COMPANY
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BRINGFORWARD OF ELECTRIC RESERVE AS OF JUNE 30, 2020 TO JUNE 30, 2021

	ACCOUNT	BOOK RESERVE JUNE 30, 2020	JULY TO DECEMBER 2020 ACCRUAL	RETIREMENTS	NET SALVAGE	BOOK RESERVE DECEMBER 31, 2020	JANUARY TO JUNE 2021 ACCRUAL	RETIREMENTS	NET SALVAGE	BOOK RESERVE JUNE 30, 2021
	(1)	(2)	(3)	(4)	(5)	(6)=(2)+(3)+(4)+(5)	(7)	(8)	(9)	(10)=(6)+(7)+(8)+(9)
314.00	TURBOGENERATOR UNITS									
314.00 0211	MILL CREEK UNIT 1	12,185,078	1,913,575	0	0	14,098,653	1,913,575	0	0	16,012,228
314.00 0221	MILL CREEK UNIT 2	12,895,686	1,330,614	0	0	14,226,300	1,441,731	0	0	15,668,031
314.00 0231	MILL CREEK UNIT 3	19,513,757	663,840	(261,161)	(18,281)	19,898,155	662,414	0	0	20,560,569
314.00 0241	MILL CREEK UNIT 4	25,907,523	1,001,194	0	0	26,908,717	1,008,062	0	0	27,916,779
314.00 0311	TRIMBLE COUNTY UNIT 1	30,913,793	764,888	0	0	31,678,681	767,178	0	0	32,445,859
314.00 0321	TRIMBLE COUNTY UNIT 2	5,292,482	252,232	0	0	5,544,714	257,031	0	0	5,801,745
	TOTAL ACCOUNT 314 - TURBOGENERATOR UNITS	106,708,319	5,926,343	(261,161)	(18,281)	112,355,220	6,049,991	0	0	118,405,211
315.00	ACCESSORY ELECTRIC EQUIPMENT									
315.00 0211	MILL CREEK UNIT 1	12,367,099	786,074	0	0	13,153,173	787,116	0	0	13,940,289
315.00 0212	MILL CREEK UNIT 1 SCRUBBER	36,884	20,207	0	0	57,091	20,207	0	0	77,298
315.00 0221	MILL CREEK UNIT 2	5,912,668	529,870	0	0	6,442,538	533,255	0	0	6,975,793
315.00 0222	MILL CREEK UNIT 2 SCRUBBER	872,534	324,282	0	0	1,196,816	324,282	0	0	1,521,098
315.00 0231	MILL CREEK UNIT 3	14,642,746	380,254	(98,369)	(6,886)	14,917,745	379,558	0	0	15,297,303
315.00 0232	MILL CREEK UNIT 3 SCRUBBER	1,136,341	817	0	0	1,137,158	817	0	0	1,137,975
315.00 0241	MILL CREEK UNIT 4	18,964,792	458,453	(29,540)	(2,068)	19,391,637	459,905	0	0	19,851,542
315.00 0242	MILL CREEK UNIT 4 SCRUBBER	586,418	212,976	0	0	799,394	212,976	0	0	1,012,370
315.00 0311	TRIMBLE COUNTY UNIT 1	32,377,733	844,974	0	0	33,222,707	845,121	0	0	34,067,828
315.00 0312	TRIMBLE COUNTY UNIT 1 SCRUBBER	2,460,753	12,453	0	0	2,473,206	12,453	0	0	2,485,659
315.00 0321	TRIMBLE COUNTY UNIT 2	2,103,255	117,747	0	0	2,221,002	117,747	0	0	2,338,749
315.00 0322	TRIMBLE COUNTY UNIT 2 SCRUBBER		364	0	0	364	1,079	0	0	1,443
	TOTAL ACCOUNT 315 - ACCESSORY ELECTRIC EQUIPMENT	91,461,223	3,688,471	(127,909)	(8,954)	95,012,831	3,694,516	0	0	98,707,347
316.00	MISCELLANEOUS POWER PLANT EQUIPMENT									
316.00 0190	RIVERPORT DISTRIBUTION CENTER	128,442	26,255	0	0	154,697	26,255	0	0	180,952
316.00 0211	MILL CREEK UNIT 1	511,529	33,167	0	0	544,696	37,903	0	0	582,599
316.00 0221	MILL CREEK UNIT 2	25,237	3,467	0	0	28,704	3,467	0	0	32,171
316.00 0231	MILL CREEK UNIT 3	318,387	13,452	(33,922)	(2,375)	295,542	13,149	0	0	308,691
316.00 0241	MILL CREEK UNIT 4	4,161,773	270,347	(41,684)	(2,918)	4,387,518	298,251	0	0	4,685,769
316.00 0242	MILL CREEK UNIT 4 SCRUBBER	44,422	50	0	0	44,472	50	0	0	44,522
316.00 0311	TRIMBLE COUNTY UNIT 1	1,799,746	49,652	(10,517)	(1,157)	1,837,724	74,308	0	0	1,912,032
316.00 0321	TRIMBLE COUNTY UNIT 2	421,769	59,035	0	0	480,804	63,129	0	0	543,933
	TOTAL ACCOUNT 316 - MISCELLANEOUS PLANT EQUIPMENT	7,411,305	455,425	(86,123)	(6,450)	7,774,157	516,512	0	0	8,290,669
	TOTAL STEAM PRODUCTION PLANT	942,677,541	**95,314,814**	**(3,418,470)**	**(254,544)**	**1,034,319,341**	**96,478,092**	**(6,485,737)**	**(505,481)**	**1,123,806,215**
	HYDROELECTRIC PRODUCTION PLANT									
331.00	STRUCTURES AND IMPROVEMENTS									
331.00 0450	OHIO FALLS - NON-PROJECT	5,271	5,723	0	0	10,994	12,960	0	0	23,954
331.00 0451	OHIO FALLS - PROJECT 289	2,687,314	73,896	0	0	2,761,210	81,550	0	0	2,842,760
	TOTAL ACCOUNT 331 - STRUCTURES AND IMPROVEMENTS	2,692,585	79,619	0	0	2,772,204	94,510	0	0	2,866,714
332.00	RESERVOIRS, DAMS AND WATERWAYS									
332.00 0451	OHIO FALLS - PROJECT 289	1,432,823	368,298	0	0	1,801,121	368,298	0	0	2,169,419
	TOTAL ACCOUNT 332 - RESERVOIRS, DAMS AND WATERWAYS	1,432,823	368,298	0	0	1,801,121	368,298	0	0	2,169,419
333.00	WATER WHEELS, TURBINES AND GENERATORS									
333.00 0451	OHIO FALLS - PROJECT 289	9,371,591	2,142,665	0	0	11,514,256	2,165,611	0	0	13,679,867
	TOTAL ACCOUNT 333 - WATER WHEELS, TURBINES AND GENERATORS	9,371,591	2,142,665	0	0	11,514,256	2,165,611	0	0	13,679,867
334.00	ACCESSORY ELECTRIC EQUIPMENT									
334.00 0451	OHIO FALLS - PROJECT 289	804,598	117,910	0	0	922,508	117,910	0	0	1,040,418
	TOTAL ACCOUNT 334 - ACCESSORY ELECTRIC EQUIPMENT	804,598	117,910	0	0	922,508	117,910	0	0	1,040,418

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			JULY TO DECEMBER 2020				JANUARY TO JUNE 2021			
	ACCOUNT	BOOK RESERVE JUNE 30, 2020	ACCRUAL	RETIREMENTS	NET SALVAGE	BOOK RESERVE DECEMBER 31, 2020	ACCRUAL	RETIREMENTS	NET SALVAGE	BOOK RESERVE JUNE 30, 2021
	(1)	(2)	(3)	(4)	(5)	(6)=(2)+(3)+(4)+(5)	(7)	(8)	(9)	(10)=(6)+(7)+(8)+(9)
335.00	MISCELLANEOUS POWER PLANT EQUIPMENT									
335.00 0450	OHIO FALLS - NON-PROJECT	3,858	0	0	0	3,858	0	0	0	3,858
335.00 0451	OHIO FALLS - PROJECT 289	112,362	1,419	0	0	113,781	1,419	0	0	115,200
	TOTAL ACCOUNT 335 - MISCELLANEOUS POWER PLANT EQUIPMENT	116,220	1,419	0	0	117,639	1,419	0	0	119,058
336.00	ROADS, RAILROADS AND BRIDGES									
336.00 0450	OHIO FALLS - NON-PROJECT	0	27,019	0	0	27,019	54,037	0	0	81,056
336.00 0451	OHIO FALLS - PROJECT 289	3,131	430	0	0	3,561	430	0	0	3,991
	TOTAL ACCOUNT 336 - ROADS, RAILROADS AND BRIDGES	3,131	27,449	0	0	30,580	54,467	0	0	85,047
	TOTAL HYDROELECTRIC PRODUCTION PLANT	14,420,948	**2,737,360**	**0**	**0**	**17,158,308**	**2,802,215**	**0**	**0**	**19,960,523**
	OTHER PRODUCTION PLANT									
341.00	STRUCTURES AND IMPROVEMENTS									
341.00 0172	CANE RUN CC 7	5,687,392	212,771	0	0	5,900,163	213,028	0	0	6,113,191
341.00 0410	ZORN AND RIVER ROAD GAS TURBINE	8,983	0	0	0	8,983	0	0	0	8,983
341.00 0431	PADDY'S RUN GENERATOR 12	67,960	0	0	0	67,960	0	0	0	67,960
341.00 0432	PADDY'S RUN GENERATOR 13	1,498,866	27,449	0	0	1,526,315	27,449	0	0	1,553,764
341.00 0459	BROWN CT 5	519,967	17,697	0	0	537,664	17,697	0	0	555,361
341.00 0460	BROWN CT 6	58,473	1,935	0	0	60,408	1,935	0	0	62,343
341.00 0461	BROWN CT 7	98,102	1,495	(2,524)	(177)	96,897	1,482	0	0	98,379
341.00 5648	BROWN SOLAR	135,806	19,634	0	0	155,440	19,634	0	0	175,074
341.00 0470	TRIMBLE COUNTY CT 5	959,769	17,112	0	0	976,881	17,112	0	0	993,993
341.00 0471	TRIMBLE COUNTY CT 6	908,073	16,074	0	0	924,147	16,074	0	0	940,221
341.00 0474	TRIMBLE COUNTY CT 7	1,159,483	23,650	0	0	1,183,133	23,650	0	0	1,206,783
341.00 0475	TRIMBLE COUNTY CT 8	1,154,935	23,557	0	0	1,178,492	23,557	0	0	1,202,049
341.00 0476	TRIMBLE COUNTY CT 9	1,185,502	24,366	0	0	1,209,868	24,366	0	0	1,234,234
341.00 0477	TRIMBLE COUNTY CT 10	1,217,180	32,446	0	0	1,249,626	32,446	0	0	1,282,072
341.00 6001	SIMPSONVILLE SOLAR	22,187	13,000	0	0	35,187	13,103	0	0	48,290
	TOTAL ACCOUNT 341 - STRUCTURES AND IMPROVEMENTS	14,682,678	431,186	(2,524)	(177)	15,111,164	431,533	0	0	15,542,697
341.20	STRUCTURES AND IMPROVEMENTS - RETIRED PLANT									
341.20 0171	CANE RUN GT 11	702,722	0	0	0	702,722	0	0	0	702,722
	TOTAL ACCOUNT 341.2 - STRUCTURES AND IMPROVEMENTS	702,722	0	0	0	702,722	0	0	0	702,722
342.00	FUEL HOLDERS, PRODUCERS AND ACCESSORIES									
342.00 0172	CANE RUN CC 7	1,124,474	13,979	0	0	1,138,453	13,979	0	0	1,152,432
342.00 0173	CANE RUN PIPELINE	932,146	97,713	0	0	1,029,859	97,713	0	0	1,127,572
342.00 0410	ZORN AND RIVER ROAD GAS TURBINE	18,985	2,622	0	0	21,607	2,622	0	0	24,229
342.00 0430	PADDY'S RUN GENERATOR 11	9,792	0	0	0	9,792	0	0	0	9,792
342.00 0431	PADDY'S RUN GENERATOR 12	22,967	0	0	0	22,967	0	0	0	22,967
342.00 0432	PADDY'S RUN GENERATOR 13	1,438,239	23,692	0	0	1,461,931	23,692	0	0	1,485,623
342.00 0433	PADDY'S RUN CT PIPELINE	805,132	179,254	0	0	984,386	179,254	0	0	1,163,640
342.00 0459	BROWN CT 5	523,513	9,697	0	0	533,210	9,697	0	0	542,907
342.00 0460	BROWN CT 6	359,963	12,524	0	0	372,487	12,524	0	0	385,011
342.00 0461	BROWN CT 7	191,869	8,801	0	0	200,670	8,801	0	0	209,471
342.00 0470	TRIMBLE COUNTY CT 5	61,423	1,102	0	0	62,525	1,102	0	0	63,627
342.00 0471	TRIMBLE COUNTY CT 6	61,343	1,101	0	0	62,444	1,101	0	0	63,545
342.00 0473	TRIMBLE COUNTY CT PIPELINE	1,248,052	28,542	0	0	1,276,594	28,542	0	0	1,305,136
342.00 0474	TRIMBLE COUNTY CT 7	191,069	3,976	0	0	195,045	3,976	0	0	199,021
342.00 0475	TRIMBLE COUNTY CT 8	190,320	3,961	0	0	194,281	3,961	0	0	198,242
342.00 0476	TRIMBLE COUNTY CT 9	195,419	4,079	0	0	199,498	4,079	0	0	203,577
342.00 0477	TRIMBLE COUNTY CT 10	210,439	6,095	0	0	216,534	6,095	0	0	222,629
	TOTAL ACCOUNT 342 - FUEL HOLDERS, PRODUCERS AND ACCESSORIES	7,585,145	397,138	0	0	7,982,283	397,138	0	0	8,379,421
343.00	PRIME MOVERS									
343.00 0172	CANE RUN CC 7	6,219,820	1,437,102	0	0	7,656,922	1,449,926	0	0	9,106,848

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			JULY TO DECEMBER 2020				JANUARY TO JUNE 2021			
	ACCOUNT	BOOK RESERVE JUNE 30, 2020	ACCRUAL	RETIREMENTS	NET SALVAGE	BOOK RESERVE DECEMBER 31, 2020	ACCRUAL	RETIREMENTS	NET SALVAGE	BOOK RESERVE JUNE 30, 2021
	(1)	(2)	(3)	(4)	(5)	(6)=(2)+(3)+(4)+(5)	(7)	(8)	(9)	(10)=(6)+(7)+(8)+(9)
343.00 0432	PADDY'S RUN GENERATOR 13	11,598,914	349,944	(3,697)	(222)	11,944,939	349,914	0	0	12,294,853
343.00 0459	BROWN CT 5	8,931,424	311,557	0	0	9,242,981	311,557	0	0	9,554,538
343.00 0460	BROWN CT 6	9,086,454	514,979	0	0	9,601,433	520,203	0	0	10,121,636
343.00 0461	BROWN CT 7	12,553,507	239,183	0	0	12,792,690	240,101	0	0	13,032,791
343.00 0470	TRIMBLE COUNTY CT 5	8,183,620	256,120	0	0	8,439,740	281,755	0	0	8,721,495
343.00 0471	TRIMBLE COUNTY CT 6	7,920,117	222,169	0	0	8,142,286	223,412	0	0	8,365,698
343.00 0474	TRIMBLE COUNTY CT 7	7,430,542	251,446	0	0	7,681,988	252,000	0	0	7,933,988
343.00 0475	TRIMBLE COUNTY CT 8	7,583,469	227,642	0	0	7,811,111	227,642	0	0	8,038,753
343.00 0476	TRIMBLE COUNTY CT 9	7,676,771	223,984	(30,093)	(2,708)	7,867,954	223,997	0	0	8,091,951
343.00 0477	TRIMBLE COUNTY CT 10	7,723,823	229,608	(62,234)	(5,601)	7,885,596	230,930	0	0	8,116,526
	TOTAL ACCOUNT 343 - PRIME MOVERS	94,908,461	4,263,734	(96,024)	(8,531)	99,067,640	4,311,437	0	0	103,379,077
344.00	GENERATORS									
344.00 0172	CANE RUN CC 7	2,929,662	239,240	0	0	3,168,902	239,240	0	0	3,408,142
344.00 0410	ZORN AND RIVER ROAD GAS TURBINE	2,007,414	42,321	0	0	2,049,735	42,307	0	0	2,092,042
344.00 0430	PADDY'S RUN GENERATOR 11	1,632,357	0	0	0	1,632,357	0	0	0	1,632,357
344.00 0431	PADDY'S RUN GENERATOR 12	3,487,041	4,835	0	0	3,491,876	4,835	0	0	3,496,711
344.00 0432	PADDY'S RUN GENERATOR 13	3,201,708	77,860	0	0	3,279,568	77,860	0	0	3,357,428
344.00 0459	BROWN CT 5	1,987,837	41,385	0	0	2,029,222	41,385	0	0	2,070,607
344.00 0460	BROWN CT 6	1,697,832	24,862	0	0	1,722,694	24,862	0	0	1,747,556
344.00 0461	BROWN CT 7	1,535,095	30,851	0	0	1,565,946	30,851	0	0	1,596,797
344.00 5648	BROWN SOLAR	1,570,182	193,606	0	0	1,763,788	193,606	0	0	1,957,394
344.00 0470	TRIMBLE COUNTY CT 5	957,504	19,222	0	0	976,726	19,222	0	0	995,948
344.00 0471	TRIMBLE COUNTY CT 6	919,277	19,072	0	0	938,349	19,072	0	0	957,421
344.00 0474	TRIMBLE COUNTY CT 7	931,124	21,791	0	0	952,915	21,791	0	0	974,706
344.00 0475	TRIMBLE COUNTY CT 8	925,864	21,674	0	0	947,538	21,674	0	0	969,212
344.00 0476	TRIMBLE COUNTY CT 9	632,149	32,644	0	0	664,793	32,644	0	0	697,437
344.00 0477	TRIMBLE COUNTY CT 10	964,992	24,192	(46,448)	(4,180)	938,556	24,584	0	0	963,140
344.00 6001	SIMPSONVILLE SOLAR	18,738	11,900	0	0	30,638	12,779	0	0	43,417
344.00 6100	OTHER SOLAR	4,983	1,271	0	0	6,254	1,271	0	0	7,525
	TOTAL ACCOUNT 344 - GENERATORS	25,403,759	806,726	(46,448)	(4,180)	26,159,857	807,983	0	0	26,967,840
345.00	ACCESSORY ELECTRIC EQUIPMENT									
345.00 0172	CANE RUN CC 7	940,092	100,457	0	0	1,040,549	100,457	0	0	1,141,006
345.00 0410	ZORN AND RIVER ROAD GAS TURBINE	94,074	4,553	0	0	98,627	4,549	0	0	103,176
345.00 0430	PADDY'S RUN GENERATOR 11	641,453	0	0	0	641,453	0	0	0	641,453
345.00 0431	PADDY'S RUN GENERATOR 12	955,292	0	0	0	955,292	0	0	0	955,292
345.00 0432	PADDY'S RUN GENERATOR 13	2,145,789	22,957	0	0	2,168,746	23,027	0	0	2,191,773
345.00 0459	BROWN CT 5	1,731,621	27,195	0	0	1,758,816	27,195	0	0	1,786,011
345.00 0460	BROWN CT 6	557,100	16,186	0	0	573,286	16,736	0	0	590,022
345.00 0461	BROWN CT 7	676,711	14,956	0	0	691,667	15,101	0	0	706,768
345.00 5648	BROWN SOLAR	60,416	5,758	0	0	66,174	5,758	0	0	71,932
345.00 0470	TRIMBLE COUNTY CT 5	429,925	10,255	0	0	440,180	10,255	0	0	450,435
345.00 0471	TRIMBLE COUNTY CT 6	957,679	22,136	0	0	979,815	22,136	0	0	1,001,951
345.00 0474	TRIMBLE COUNTY CT 7	1,104,022	27,977	0	0	1,131,999	27,977	0	0	1,159,976
345.00 0475	TRIMBLE COUNTY CT 8	1,057,509	23,811	0	0	1,081,320	23,811	0	0	1,105,131
345.00 0476	TRIMBLE COUNTY CT 9	1,083,562	22,210	0	0	1,105,772	22,210	0	0	1,127,982
345.00 0477	TRIMBLE COUNTY CT 10	2,578,739	91,971	0	0	2,670,710	91,971	0	0	2,762,681
345.00 6001	SIMPSONVILLE SOLAR	471	5,656	0	0	6,127	5,656	0	0	11,783
345.00 6100	OTHER SOLAR	2,233	306	0	0	2,539	306	0	0	2,845
	TOTAL ACCOUNT 345 - ACCESSORY ELECTRIC EQUIPMENT	15,016,688	396,384	0	0	15,413,072	397,145	0	0	15,810,217
346.00	MISCELLANEOUS POWER PLANT EQUIPMENT									
346.00 0172	CANE RUN CC 7	98,682	15,004	0	0	113,686	15,816	0	0	129,502
346.00 0410	ZORN AND RIVER ROAD GAS TURBINE	10,342	0	0	0	10,342	0	0	0	10,342
346.00 0430	PADDY'S RUN GENERATOR 11	10,064	0	0	0	10,064	0	0	0	10,064
346.00 0431	PADDY'S RUN GENERATOR 12		0	0	0	0	304	0	0	304
346.00 0432	PADDY'S RUN GENERATOR 13	837,181	13,253	0	0	850,434	13,575	0	0	864,009
346.00 0459	BROWN CT 5	1,527,533	25,716	0	0	1,553,249	25,880	0	0	1,579,129
346.00 0460	BROWN CT 6	15,853	511	0	0	16,364	511	0	0	16,875
346.00 0461	BROWN CT 7	15,902	236	0	0	16,138	236	0	0	16,374

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

BRINGFORWARD OF ELECTRIC RESERVE AS OF JUNE 30, 2020 TO JUNE 30, 2021

			JULY TO DECEMBER 2020				JANUARY TO JUNE 2021			
	ACCOUNT	BOOK RESERVE JUNE 30, 2020	ACCRUAL	RETIREMENTS	NET SALVAGE	BOOK RESERVE DECEMBER 31, 2020	ACCRUAL	RETIREMENTS	NET SALVAGE	BOOK RESERVE JUNE 30, 2021
	(1)	(2)	(3)	(4)	(5)	(6)=(2)+(3)+(4)+(5)	(7)	(8)	(9)	(10)=(6)+(7)+(8)+(9)
346.00 5648	BROWN SOLAR	41,447	5,953	0	0	47,400	5,953	0	0	53,353

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

BRINGFORWARD OF ELECTRIC RESERVE AS OF JUNE 30, 2020 TO JUNE 30, 2021

			JULY TO DECEMBER 2020				JANUARY TO JUNE 2021			
	ACCOUNT	BOOK RESERVE JUNE 30, 2020	ACCRUAL	RETIREMENTS	NET SALVAGE	BOOK RESERVE DECEMBER 31, 2020	ACCRUAL	RETIREMENTS	NET SALVAGE	BOOK RESERVE JUNE 30, 2021
	(1)	(2)	(3)	(4)	(5)	(6)=(2)+(3)+(4)+(5)	(7)	(8)	(9)	(10)=(6)+(7)+(8)+(9)
346.00 0470	TRIMBLE COUNTY CT 5	8,552	169	0	0	8,721	169	0	0	8,890
346.00 0474	TRIMBLE COUNTY CT 7	2,856	60	0	0	2,916	60	0	0	2,976
346.00 0475	TRIMBLE COUNTY CT 8	2,846	60	0	0	2,906	60	0	0	2,966
346.00 0476	TRIMBLE COUNTY CT 9	2,914	62	0	0	2,976	62	0	0	3,038
346.00 0477	TRIMBLE COUNTY CT 10	11,293	345	0	0	11,638	345	0	0	11,983
346.00 6001	SIMPSONVILLE SOLAR	42	525	0	0	567	525	0	0	1,092
	TOTAL ACCOUNT 346 - MISCELLANEOUS POWER PLANT EQUIPMENT	2,585,507	61,894	0	0	2,647,401	63,496	0	0	2,710,897
	TOTAL OTHER PRODUCTION PLANT	160,884,960	**6,357,062**	**(144,996)**	**(12,888)**	**167,084,138**	**6,408,732**	**0**	**0**	**173,492,870**
	TRANSMISSION PLANT									
350.10	LAND RIGHTS	3,451,956	44,226	0	0	3,496,182	44,226	0	0	3,540,408
352.10	STRUCTURES AND IMPROVEMENTS	3,123,122	142,579	0	0	3,265,701	142,579	0	0	3,408,280
353.10	STATION EQUIPMENT	69,305,796	2,319,607	(937,125)	(187,425)	70,500,853	2,446,465	(1,184,399)	(236,880)	71,526,039
354.00	TOWERS AND FIXTURES	26,836,169	400,990	0	0	27,237,159	400,990	0	0	27,638,149
355.00	POLES AND FIXTURES	32,689,831	1,740,544	0	0	34,430,375	1,868,035	0	0	36,298,410
356.00	OVERHEAD CONDUCTORS AND DEVICES	33,160,077	1,018,931	0	0	34,179,008	1,036,133	0	0	35,215,141
357.00	UNDERGROUND CONDUIT	816,786	17,761	0	0	834,547	17,761	0	0	852,308
358.00	UNDERGROUND CONDUCTORS AND DEVICES	3,863,114	94,332	0	0	3,957,446	94,332	0	0	4,051,778
	TOTAL TRANSMISSION PLANT	173,246,851	**5,778,970**	**(937,125)**	**(187,425)**	**177,901,271**	**6,050,521**	**(1,184,399)**	**(236,880)**	**182,530,513**
	DISTRIBUTION PLANT									
361.00	STRUCTURES AND IMPROVEMENTS	2,769,464	155,533	0	0	2,924,997	228,627	0	0	3,153,624
362.00	STATION EQUIPMENT	51,099,222	1,924,590	(173,494)	(34,699)	52,815,619	2,009,547	0	0	54,825,166
364.00	POLES, TOWERS AND FIXTURES	83,029,849	3,849,322	(1,166,175)	(932,940)	84,780,056	4,027,988	(912,482)	(729,985)	87,165,578
365.00	OVERHEAD CONDUCTORS AND DEVICES	128,288,230	6,962,101	(1,217,240)	(912,930)	133,120,161	7,294,674	(949,456)	(712,092)	138,753,287
366.00	UNDERGROUND CONDUIT	34,647,325	852,108	(154,194)	(61,677)	35,283,562	903,546	0	0	36,187,108
367.00	UNDERGROUND CONDUCTORS AND DEVICES	70,592,216	4,670,006	(531,656)	(265,828)	74,464,738	4,863,500	(430,621)	(215,310)	78,682,308
368.00	LINE TRANSFORMERS	84,947,418	1,684,651	(610,654)	(61,065)	85,960,350	1,703,826	(504,389)	(50,439)	87,109,348
369.10	SERVICES - UNDERGROUND	2,344,063	272,707	0	0	2,616,770	273,058	0	0	2,889,828
369.20	SERVICES - OVERHEAD	25,298,766	316,983	0	0	25,615,749	328,301	0	0	25,944,050
370.00	METERS	20,786,098	850,231	(442,416)	0	21,193,913	864,884	(9,608)	0	22,049,189
370.01	METERS - AMS	532,466	114,729	0	0	647,195	114,736	0	0	761,931
370.11	METERS - AMI	4,193	2,511	0	0	6,704	2,511	0	0	9,215
370.20	METERS - CT AND PT	4,157,619	358,015	0	0	4,515,634	358,015	0	0	4,873,649
371.01	INSTALLATIONS ON CUSTOMERS' PREMISES - EV CHARGING STATIONS	16,836	9,034	0	0	25,870	9,215	0	0	35,085
373.10	STREET LIGHTING AND SIGNAL SYSTEMS - OVERHEAD	16,677,013	1,410,276	(1,094)	(438)	18,085,757	1,496,676	0	0	19,582,433
373.20	STREET LIGHTING AND SIGNAL SYSTEMS - UNDERGROUND	32,499,115	1,296,175	0	0	33,795,290	1,300,489	0	0	35,095,779
	TOTAL DISTRIBUTION PLANT	557,689,893	**24,728,972**	**(4,296,923)**	**(2,269,577)**	**575,852,365**	**25,779,593**	**(2,806,556)**	**(1,707,826)**	**597,117,576**
	GENERAL PLANT									
	TRANSPORTATION EQUIPMENT									
392.00	CARS AND LIGHT TRUCKS	654,214	32,374	(64,233)	0	622,355	31,539	0	0	653,894
392.10	HEAVY TRUCKS AND OTHER	2,571,639	229,243	(61,094)	0	2,739,788	228,238	0	0	2,968,026
392.20	TRAILERS	3,038	12,760	0	0	15,798	12,760	0	0	28,558
	TOTAL TRANSPORTATION EQUIPMENT	3,228,891	274,377	(125,327)	0	3,377,941	272,537	0	0	3,650,478
394.00	TOOLS, SHOP AND GARAGE EQUIPMENT	3,029,764	157,275	0	0	3,187,039	179,395	0	0	3,366,434
	POWER OPERATED EQUIPMENT									
396.10	LARGE MACHINERY	1,278,425	27,544	(92,181)	0	1,213,788	27,339	0	0	1,241,127
396.20	OTHER	123,493	2,384	0	0	125,877	2,384	0	0	128,261

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

BRINGFORWARD OF ELECTRIC RESERVE AS OF JUNE 30, 2020 TO JUNE 30, 2021

			JULY TO DECEMBER 2020				JANUARY TO JUNE 2021			
	ACCOUNT	BOOK RESERVE JUNE 30, 2020	ACCRUAL	RETIREMENTS	NET SALVAGE	BOOK RESERVE DECEMBER 31, 2020	ACCRUAL	RETIREMENTS	NET SALVAGE	BOOK RESERVE JUNE 30, 2021
	(1)	(2)	(3)	(4)	(5)	(6)=(2)+(3)+(4)+(5)	(7)	(8)	(9)	(10)=(6)+(7)+(8)+(9)
	TOTAL POWER OPERATED EQUIPMENT	1,401,918	29,928	(92,181)	0	1,339,665	29,723	0	0	1,369,388
397.20	COMMUNICATION EQUIPMENT - DSM	4,603,782	551,885	0	0	5,155,667	554,939	0	0	5,710,606
	TOTAL GENERAL PLANT	12,264,355	**1,013,465**	**(217,508)**	**0**	**13,060,312**	**1,036,594**	**0**	**0**	**14,096,906**
	TOTAL DEPRECIABLE PLANT	1,861,184,548	**135,930,643**	**(9,015,021)**	**(2,724,434)**	**1,985,375,736**	**138,555,747**	**(10,476,692)**	**(2,450,187)**	**2,111,004,604**
	NONDEPRECIABLE PLANT									
301.00	ORGANIZATION		0	0	0	0	0	0	0	0
310.20	LAND		0	0	0	0	0	0	0	0
310.26	LAND - ECR 2011		0	0	0	0	0	0	0	0
317.07	ARO STEAM PRODUCTION (EQUIPMENT)	3,037,955	0	(12,043)	0	3,025,912	0	0	0	3,025,912
317.08	ARO STEAM PRODUCTION (CCR)	38,876,592	0	0	0	38,876,592	0	0	0	38,876,592
330.20	LAND		0	0	0	0	0	0	0	0
337.07	ARO HYDRAULIC PRODUCTION	32,209	0	0	0	32,209	0	0	0	32,209
340.20	LAND		0	0	0	0	0	0	0	0
347.05	ARO OTHER PRODUCTION (L/B)	7,683	0	0	0	7,683	0	0	0	7,683
347.07	ARO OTHER PRODUCTION (EQUIPMENT)	20,029	0	0	0	20,029	0	0	0	20,029
350.20	LAND		0	0	0	0	0	0	0	0
359.15	ARO TRANSMISSION (L/B)	2,549	0	0	0	2,549	0	0	0	2,549
359.17	ARO TRANSMISSION (EQUIPMENT)	47,993	0	0	0	47,993	0	0	0	47,993
360.20	LAND		0	0	0	0	0	0	0	0
374.05	ARO DISTRIBUTION (L/B)	48,370	0	0	0	48,370	0	0	0	48,370
374.07	ARO DISTRIBUTION (EQUIPMENT)	13,272	0	0	0	13,272	0	0	0	13,272
	TOTAL NONDEPRECIABLE PLANT	42,086,652	**0**	**(12,043)**	**0**	**42,074,609**	**0**	**0**	**0**	**42,074,609**
	TOTAL ELECTRIC PLANT	1,903,271,200	**135,930,643**	**(9,027,065)**	**(2,724,434)**	**2,027,450,344**	**138,555,747**	**(10,476,692)**	**(2,450,187)**	**2,153,079,212**

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ROLLFORWARD OF GAS PLANT AS OF JUNE 30, 2020 TO JUNE 30, 2021

	ACCOUNT	ORIGINAL COST AS OF JUNE 30, 2020	ADDITIONS	RETIREMENTS	ORIGINAL COST AS OF DECEMBER 31, 2020	ADDITIONS	RETIREMENTS	ORIGINAL COST AS OF JUNE 30, 2021
	(1)	(2)	(3)	(4)	(5)=(2)+(3)+(4)	(6)	(7)	(8)=(5)+(6)+(7)
	DEPRECIABLE PLANT							
	INTANGIBLE PLANT							
302.00	FRANCHISES AND CONSENTS	387.49	0.00	0.00	387.49	0.00	0.00	387.49
	TOTAL INTANGIBLE PLANT	387.49	0.00	0.00	387.49	0.00	0.00	387.49
	PRODUCTION PLANT							
350.20	RIGHTS OF WAY	101,212.49	0.00	0.00	101,212.49	0.00	0.00	101,212.49
351.20	COMPRESSOR STATION STRUCTURES	10,661,701.18	54,122.76	(1,408.30)	10,714,415.64	0.00	0.00	10,714,415.64
351.30	MEASURING AND REGULATING STATION STRUCTURES	33,043.05	0.00	0.00	33,043.05	0.00	0.00	33,043.05
351.40	OTHER STRUCTURES	7,456,402.54	796,912.22	0.00	8,253,314.76	84,987.61	0.00	8,338,302.37
352.10	STORAGE LEASEHOLDS AND RIGHTS	548,241.14	61,286.08	0.00	609,527.22	0.00	0.00	609,527.22
352.20	RESERVOIRS	400,511.40	0.00	0.00	400,511.40	0.00	0.00	400,511.40
352.30	NONRECOVERABLE NATURAL GAS	9,648,855.00	0.00	0.00	9,648,855.00	0.00	0.00	9,648,855.00
352.40	WELL DRILLING	5,843,091.23	1,577,461.06	(100,676.08)	7,319,876.21	0.00	0.00	7,319,876.21
352.50	WELL EQUIPMENT	16,339,761.29	1,501,837.67	(399,964.63)	17,441,634.33	346,529.00	0.00	17,788,163.33
353.00	LINES	28,179,530.21	2,861,525.33	0.00	31,041,055.54	0.00	0.00	31,041,055.54
354.00	COMPRESSOR STATION EQUIPMENT	67,101,600.61	2,361,793.60	0.00	69,463,394.21	510,230.87	0.00	69,973,625.08
355.00	MEASURING AND REGULATING EQUIPMENT	2,738,629.03	(253,676.04)	0.00	2,484,952.99	0.00	0.00	2,484,952.99
356.00	PURIFICATION EQUIPMENT	27,989,048.00	6,163,916.21	0.00	34,152,964.21	0.00	0.00	34,152,964.21
357.00	OTHER EQUIPMENT	4,967,137.16	2,909,413.55	0.00	7,876,550.71	639,027.64	0.00	8,515,578.35
	TOTAL PRODUCTION PLANT	182,008,764.33	18,034,592.44	(502,049.01)	199,541,307.76	1,580,775.12	0.00	201,122,082.88
	TRANSMISSION PLANT							
365.20	RIGHTS OF WAY	220,659.05	0.00	0.00	220,659.05	0.00	0.00	220,659.05
367.00	MAINS	60,204,782.68	91,493,442.87	(1,294,843.89)	150,403,381.66	41,286,294.87	(256,580.89)	191,433,095.64
367.10	MAINS - GLT	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	TOTAL TRANSMISSION PLANT	60,425,441.73	91,493,442.87	(1,294,843.89)	150,624,040.71	41,286,294.87	(256,580.89)	191,653,754.69
	DISTRIBUTION PLANT							
374.22	OTHER DISTRIBUTION LAND RIGHTS	74,018.23	0.00	0.00	74,018.23	0.00	0.00	74,018.23
375.10	STRUCTURES AND IMPROVEMENTS - CITY GATE STATION	519,543.44	0.00	0.00	519,543.44	0.00	0.00	519,543.44
375.20	STRUCTURES AND IMPROVEMENTS - OTHER DISTRIBUTION	765,267.96	0.00	0.00	765,267.96	0.00	0.00	765,267.96
376.00	MAINS	443,944,388.29	30,776,334.33	(144,007.88)	474,576,714.74	5,220,559.98	(79,513.92)	479,717,760.80
378.00	MEASURING AND REGULATING STATION EQUIPMENT - GENERAL	30,245,523.95	6,775,395.53	(8,933.52)	37,011,985.96	380,303.22	0.00	37,392,289.18
379.00	MEASURING AND REGULATING STATION EQUIPMENT - CITY GATE	13,757,154.12	601,871.14	(10,873.62)	14,348,151.64	1,463,620.88	0.00	15,811,772.52
380.00	SERVICES	449,459,091.83	16,562,598.16	(1,206,987.69)	464,814,702.30	6,413,644.75	(1,143,032.08)	470,085,314.97
381.00	METERS	64,031,905.62	3,777,528.32	(518,796.45)	67,290,637.49	1,613,321.04	(428,516.92)	68,475,441.61
383.00	HOUSE REGULATORS	27,563,936.65	53,421.00	0.00	27,617,357.65	0.00	0.00	27,617,357.65
385.00	INDUSTRIAL MEASURING AND REGULATING STATION EQUIPMENT	1,181,462.74	413,282.85	0.00	1,594,745.59	236,448.40	0.00	1,831,193.99
387.00	OTHER EQUIPMENT	51,112.34	1,004,597.57	0.00	1,055,709.91	770,188.31	0.00	1,825,898.22
	TOTAL DISTRIBUTION PLANT	1,031,593,405.17	59,965,028.90	(1,889,599.16)	1,089,668,834.91	16,098,086.58	(1,651,062.92)	1,104,115,858.57

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ROLLFORWARD OF GAS PLANT AS OF JUNE 30, 2020 TO JUNE 30, 2021

	ACCOUNT	ORIGINAL COST AS OF JUNE 30, 2020	ADDITIONS	RETIREMENTS	ORIGINAL COST AS OF DECEMBER 31, 2020	ADDITIONS	RETIREMENTS	ORIGINAL COST AS OF JUNE 30, 2021
	(1)	(2)	(3)	(4)	(5)=(2)+(3)+(4)	(6)	(7)	(8)=(5)+(6)+(7)
	GENERAL PLANT							
	TRANSPORTATION EQUIPMENT							
392.00	CARS AND LIGHT TRUCKS	87,402.64	0.00	0.00	87,402.64	0.00	0.00	87,402.64
392.10	HEAVY TRUCKS AND OTHER	1,286,045.28	0.00	0.00	1,286,045.28	0.00	0.00	1,286,045.28
392.20	TRAILERS	719,020.36	0.00	(16,857.28)	702,163.08	0.00	0.00	702,163.08
	TOTAL TRANSPORTATION EQUIPMENT	2,092,468.28	0.00	(16,857.28)	2,075,611.00	0.00	0.00	2,075,611.00
394.00	TOOLS, SHOP AND GARAGE EQUIPMENT	8,021,468.81	297,986.37	0.00	8,319,455.18	311,474.29	(404,964.95)	8,225,964.52
	POWER OPERATED EQUIPMENT							
396.10	LARGE MACHINERY	4,474,881.12	0.00	0.00	4,474,881.12	0.00	0.00	4,474,881.12
396.20	OTHER	426,114.76	619,444.76	0.00	1,045,559.52	117,025.26	0.00	1,162,584.78
	TOTAL POWER OPERATED EQUIPMENT	4,900,995.88	619,444.76	0.00	5,520,440.64	117,025.26	0.00	5,637,465.90
	TOTAL GENERAL PLANT	15,014,932.97	917,431.13	(16,857.28)	15,915,506.82	428,499.55	(404,964.95)	15,939,041.42
	TOTAL DEPRECIABLE PLANT	1,289,042,931.69	170,410,495.34	(3,703,349.34)	1,455,750,077.69	59,393,656.12	(2,312,608.76)	1,512,831,125.05
	NONDEPRECIABLE PLANT							
350.10	LAND	250,794.93	0.00	0.00	250,794.93	0.00	0.00	250,794.93
358.05	ARO COST GAS UNDERGROUND STORAGE (L/B)	27,867.81	0.00	0.00	27,867.81	0.00	0.00	27,867.81
358.07	ARO COST GAS UNDERGROUND STORAGE (EQUIPMENT)	6,321,102.16	0.00	(819,567.19)	5,501,534.97	0.00	0.00	5,501,534.97
372.07	ARO COST GAS TRANSMISSION (EQUIPMENT)	2,650,692.06	0.00	0.00	2,650,692.06	0.00	0.00	2,650,692.06
374.12	LAND	60,478.68	443,539.91	0.00	504,018.59	0.00	0.00	504,018.59
374.13	LAND	584,511.54	0.00	0.00	584,511.54	0.00	0.00	584,511.54
388.07	ARO COST GAS DISTRIBUTION (EQUIPMENT)	16,218,933.27	0.00	(1,641,491.19)	14,577,442.08	0.00	0.00	14,577,442.08
	TOTAL NONDEPRECIABLE PLANT	26,114,380.45	443,539.91	(2,461,058.38)	24,096,861.98	0.00	0.00	24,096,861.98
	TOTAL GAS PLANT	1,315,157,312.14	170,854,035.25	(6,164,407.72)	1,479,846,939.67	59,393,656.12	(2,312,608.76)	1,536,927,987.03

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

BRINGFORWARD OF GAS RESERVE AS OF JUNE 30, 2020 TO JUNE 30, 2021

			JULY TO DECEMBER 2020				JANUARY TO JUNE 2021			
	ACCOUNT	BOOK RESERVE JUNE 30, 2020	ACCRUAL	RETIREMENTS	NET SALVAGE	BOOK RESERVE DECEMBER 31, 2020	ACCRUAL	RETIREMENTS	NET SALVAGE	BOOK RESERVE JUNE 30, 2021
	(1)	(2)	(3)	(4)	(5)	(6)=(2)+(3)+(4)+(5)	(7)	(8)	(9)	(10)=(6)+(7)+(8)+(9)
	DEPRECIABLE PLANT									
	INTANGIBLE PLANT									
302.00	FRANCHISES AND CONSENTS	329	23	0	0	352	23	0	0	375
	TOTAL INTANGIBLE PLANT	**329**	**23**	**0**	**0**	**352**	**23**	**0**	**0**	**375**
	PRODUCTION PLANT									
350.20	RIGHTS OF WAY	71,823	278	0	0	72,101	278	0	0	72,379
351.20	COMPRESSOR STATION STRUCTURES	1,998,541	105,812	(1,408)	(282)	2,102,663	106,073	0	0	2,208,736
351.30	MEASURING AND REGULATING STATION STRUCTURES	17,428	155	0	0	17,583	155	0	0	17,738
351.40	OTHER STRUCTURES	1,269,470	71,086	0	0	1,340,556	75,077	0	0	1,415,633
352.10	STORAGE LEASEHOLDS AND RIGHTS	548,241	0	0	0	548,241	0	0	0	548,241
352.20	RESERVOIRS	400,511	0	0	0	400,511	0	0	0	400,511
352.30	NONRECOVERABLE NATURAL GAS	8,531,757	36,666	0	0	8,568,423	36,666	0	0	8,605,089
352.40	WELL DRILLING	1,625,458	91,812	(100,676)	(50,338)	1,566,256	102,112	0	0	1,668,368
352.50	WELL EQUIPMENT	1,585,810	330,213	(399,965)	(199,982)	1,316,076	344,371	0	0	1,660,447
353.00	LINES	10,055,203	318,311	0	0	10,373,514	333,691	0	0	10,707,205
354.00	COMPRESSOR STATION EQUIPMENT	11,327,315	867,188	0	0	12,194,503	885,425	0	0	13,079,928
355.00	MEASURING AND REGULATING EQUIPMENT	441,124	34,737	0	0	475,861	33,050	0	0	508,911
356.00	PURIFICATION EQUIPMENT	7,380,361	397,709	0	0	7,778,070	437,158	0	0	8,215,228
357.00	OTHER EQUIPMENT	823,728	75,457	0	0	899,185	96,304	0	0	995,489
	TOTAL PRODUCTION PLANT	**46,076,770**	**2,329,424**	**(502,049)**	**(250,602)**	**47,653,543**	**2,450,360**	**0**	**0**	**50,103,903**
	TRANSMISSION PLANT									
365.20	RIGHTS OF WAY	211,882	121	0	0	212,003	121	0	0	212,124
367.00	MAINS	14,420,032	1,163,610	(1,294,844)	(517,938)	13,770,860	1,888,647	(256,581)	(102,632)	15,300,294
367.10	MAINS - GLT	0	0	0	0	0	0	0	0	0
	TOTAL TRANSMISSION PLANT	**14,631,914**	**1,163,731**	**(1,294,844)**	**(517,938)**	**13,982,863**	**1,888,768**	**(256,581)**	**(102,632)**	**15,512,418**
	DISTRIBUTION PLANT									
374.22	OTHER DISTRIBUTION LAND RIGHTS	74,018	0	0	0	74,018	0	0	0	74,018
375.10	STRUCTURES AND IMPROVEMENTS - CITY GATE STATION	113,048	7,222	0	0	120,270	7,222	0	0	127,492
375.20	STRUCTURES AND IMPROVEMENTS - OTHER DISTRIBUTION	352,566	9,451	0	0	362,017	9,451	0	0	371,468
376.00	MAINS	150,266,657	4,753,347	(144,008)	(57,603)	154,818,393	4,938,474	(79,514)	(31,806)	159,645,547
378.00	MEASURING AND REGULATING STATION EQUIPMENT - GENERAL	2,928,855	517,883	(8,934)	(1,787)	3,436,017	572,913	0	0	4,008,930
379.00	MEASURING AND REGULATING STATION EQUIPMENT - CITY GATE	1,546,565	303,537	(10,874)	(4,349)	1,834,879	325,727	0	0	2,160,606
380.00	SERVICES	141,009,250	7,245,620	(1,206,988)	(663,843)	146,384,039	7,409,083	(1,143,032)	(628,668)	152,021,422
381.00	METERS	14,714,042	1,726,891	(518,796)	(51,880)	15,870,257	1,785,324	(428,517)	(42,852)	17,184,212
383.00	HOUSE REGULATORS	7,992,049	520,084	0	0	8,512,133	520,587	0	0	9,032,720
385.00	INDUSTRIAL MEASURING AND REGULATING STATION EQUIPMENT	228,237	16,518	0	0	244,755	20,384	0	0	265,139
387.00	OTHER EQUIPMENT	31,137	4,538	0	0	35,675	11,815	0	0	47,490
	TOTAL DISTRIBUTION PLANT	**319,256,424**	**15,105,091**	**(1,889,599)**	**(779,462)**	**331,692,454**	**15,600,980**	**(1,651,063)**	**(703,326)**	**344,939,045**
	GENERAL PLANT									
	TRANSPORTATION EQUIPMENT									
392.00	CARS AND LIGHT TRUCKS	24,371	5,196	0	0	29,567	5,196	0	0	34,763
392.10	HEAVY TRUCKS AND OTHER	669,643	55,943	0	0	725,586	55,943	0	0	781,529
392.20	TRAILERS	238,794	22,881	(16,857)	0	244,818	22,610	0	0	267,428
	TOTAL TRANSPORTATION EQUIPMENT	932,808	84,020	(16,857)	0	999,971	83,749	0	0	1,083,720

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

BRINGFORWARD OF GAS RESERVE AS OF JUNE 30, 2020 TO JUNE 30, 2021

			JULY TO DECEMBER 2020				JANUARY TO JUNE 2021			
	ACCOUNT	BOOK RESERVE JUNE 30, 2020	ACCRUAL	RETIREMENTS	NET SALVAGE	BOOK RESERVE DECEMBER 31, 2020	ACCRUAL	RETIREMENTS	NET SALVAGE	BOOK RESERVE JUNE 30, 2021
	(1)	(2)	(3)	(4)	(5)	(6)=(2)+(3)+(4)+(5)	(7)	(8)	(9)	(10)=(6)+(7)+(8)+(9)
394.00	TOOLS, SHOP AND GARAGE EQUIPMENT	3,033,641	148,294	0	0	3,181,935	150,150	(404,965)	0	2,927,120
	POWER OPERATED EQUIPMENT									
396.10	LARGE MACHINERY	1,839,143	115,452	0	0	1,954,595	115,452	0	0	2,070,047
396.20	OTHER	146,077	11,810	0	0	157,887	17,720	0	0	175,607
	TOTAL POWER OPERATED EQUIPMENT	1,985,220	127,262	0	0	2,112,482	133,172	0	0	2,245,654
	TOTAL GENERAL PLANT	**5,951,669**	**359,576**	**(16,857)**	**0**	**6,294,388**	**367,071**	**(404,965)**	**0**	**6,256,494**
	TOTAL DEPRECIABLE PLANT	**385,917,106**	**18,957,845**	**(3,703,349)**	**(1,548,002)**	**399,623,600**	**20,307,202**	**(2,312,609)**	**(805,958)**	**416,812,235**
	NONDEPRECIABLE PLANT									
350.10	LAND		0	0	0	0	0	0	0	0
358.05	ARO COST GAS UNDERGROUND STORAGE (L/B)	2,619	0	0	0	2,619	0	0	0	2,619
358.07	ARO COST GAS UNDERGROUND STORAGE (EQUIPMENT)	1,148,494	0	(819,567)	0	328,927	0	0	0	328,927
372.07	ARO COST GAS TRANSMISSION (EQUIPMENT)	466,639	0	0	0	466,639	0	0	0	466,639
374.12	LAND		0	0	0	0	0	0	0	0
374.13	LAND		0	0	0	0	0	0	0	0
388.07	ARO COST GAS DISTRIBUTION (EQUIPMENT)	2,045,124	0	(1,641,491)	0	403,633	0	0	0	403,633
	TOTAL NONDEPRECIABLE PLANT	**3,662,876**	**0**	**(2,461,058)**	**0**	**1,201,818**	**0**	**0**	**0**	**1,201,818**
	TOTAL GAS PLANT	**389,579,982**	**18,957,845**	**(6,164,408)**	**(1,548,002)**	**400,825,417**	**20,307,202**	**(2,312,609)**	**(805,958)**	**418,014,053**

LOUISVILLE GAS AND ELECTRIC COMPANY
COMMON PLANT

ROLLFORWARD OF COMMON PLANT AS OF JUNE 30, 2020 TO JUNE 30, 2021

	ACCOUNT	ORIGINAL COST AS OF JUNE 30, 2020	ADDITIONS	RETIREMENTS	ORIGINAL COST AS OF DECEMBER 31, 2020	ADDITIONS	RETIREMENTS	ORIGINAL COST AS OF JUNE 30, 2021
	(1)	(2)	(3)	(4)	(5)=(2)+(3)+(4)	(6)	(7)	(8)=(5)+(6)+(7)
	DEPRECIABLE PLANT							
	INTANGIBLE PLANT							
303.00	COMPUTER SOFTWARE	65,355,681.53	17,045,966.53	(5,834,884.75)	76,566,763.31	22,981,124.60	(4,202,675.17)	95,345,212.74
303.10	CCS SOFTWARE	15,767,717.37	70,367.35	(12,015.40)	15,826,069.32	213,750.03	(2,714,410.51)	13,325,408.84
303.30	CLOUD SOFTWARE	0.00	1,714,180.28	0.00	1,714,180.28	0.00	0.00	1,714,180.28
	TOTAL INTANGIBLE PLANT	**81,123,398.90**	**18,830,514.16**	**(5,846,900.15)**	**94,107,012.91**	**23,194,874.63**	**(6,917,085.68)**	**110,384,801.86**
	GENERAL PLANT							
	STRUCTURES AND IMPROVEMENTS							
390.10	GENERAL OFFICE	75,272,749.38	25,478,011.26	(5,866.75)	100,744,893.89	1,509,353.56	0.00	102,254,247.45
390.20	TRANSPORTATION	399,608.09	0.00	0.00	399,608.09	0.00	0.00	399,608.09
390.30	STORES	10,389,763.80	119,193.47	0.00	10,508,957.27	0.00	0.00	10,508,957.27
390.40	SHOPS	1,036,727.70	0.00	0.00	1,036,727.70	0.00	0.00	1,036,727.70
390.60	MICROWAVE	1,099,708.47	0.00	0.00	1,099,708.47	0.00	0.00	1,099,708.47
	TOTAL STRUCTURES AND IMPROVEMENTS	88,198,557.44	25,597,204.73	(5,866.75)	113,789,895.42	1,509,353.56	0.00	115,299,248.98
	OFFICE FURNITURE AND EQUIPMENT							
391.10	FURNITURE	8,066,164.67	455,161.11	(325,614.49)	8,195,711.29	0.00	(148,913.45)	8,046,797.84
391.20	EQUIPMENT	1,455,574.38	(218,607.55)	0.00	1,236,966.83	48,022.00	0.00	1,284,988.83
391.30	COMPUTER EQUIPMENT	24,862,973.13	4,327,889.77	(2,995,793.15)	26,195,069.75	662,499.99	(1,001,412.17)	25,856,157.57
391.31	PERSONAL COMPUTER	7,467,372.23	1,173,366.20	(1,179,998.47)	7,460,739.96	78,834.00	(13,224.12)	7,526,349.84
391.40	SECURITY EQUIPMENT	910,248.45	373,560.30	0.00	1,283,808.75	0.00	0.00	1,283,808.75
	TOTAL OFFICE FURNITURE AND EQUIPMENT	42,762,332.86	6,111,369.83	(4,501,406.11)	44,372,296.58	789,355.99	(1,163,549.74)	43,998,102.83
	TRANSPORTATION EQUIPMENT							
392.00	CARS AND LIGHT TRUCKS	166,011.37	4,703.76	0.00	170,715.13	0.00	0.00	170,715.13
392.10	HEAVY TRUCKS AND OTHER	259,518.33	0.00	0.00	259,518.33	0.00	0.00	259,518.33
392.20	TRAILERS	71,447.10	0.00	0.00	71,447.10	0.00	0.00	71,447.10
	TOTAL TRANSPORATION EQUIPMENT	496,976.80	4,703.76	0.00	501,680.56	0.00	0.00	501,680.56
393.00	STORES EQUIPMENT	656,822.21	1,237,061.42	0.00	1,893,883.63	0.00	0.00	1,893,883.63
394.00	TOOLS, SHOP AND GARAGE EQUIPMENT	3,935,838.16	115,151.75	0.00	4,050,989.91	21,383.73	(26,178.38)	4,046,195.26
	POWER OPERATED EQUIPMENT							
396.10	LARGE MACHINERY	648,434.25	72,638.49	(30,196.78)	690,875.96	0.00	0.00	690,875.96
396.20	OTHER	29,397.49	23,000.00	0.00	52,397.49	0.00	0.00	52,397.49
	TOTAL POWER OPERATED EQUIPMENT	677,831.74	95,638.49	(30,196.78)	743,273.45	0.00	0.00	743,273.45

LOUISVILLE GAS AND ELECTRIC COMPANY
COMMON PLANT

ROLLFORWARD OF COMMON PLANT AS OF JUNE 30, 2020 TO JUNE 30, 2021

	ACCOUNT	ORIGINAL COST AS OF JUNE 30, 2020	ADDITIONS	RETIREMENTS	ORIGINAL COST AS OF DECEMBER 31, 2020	ADDITIONS	RETIREMENTS	ORIGINAL COST AS OF JUNE 30, 2021
	(1)	(2)	(3)	(4)	(5)=(2)+(3)+(4)	(6)	(7)	(8)=(5)+(6)+(7)
	COMMUNICATION EQUIPMENT							
397.00	MICROWAVE, FIBER AND OTHER	20,884,926.69	507,374.01	0.00	21,392,300.70	0.00	0.00	21,392,300.70
397.10	RADIO AND TELEPHONE	18,408,799.69	2,156,567.72	0.00	20,565,367.41	4,433,685.57	0.00	24,999,052.98
	TOTAL COMMUNICATION EQUIPMENT	39,293,726.38	2,663,941.73	0.00	41,957,668.11	4,433,685.57	0.00	46,391,353.68
	TOTAL GENERAL PLANT	**176,022,085.59**	**35,825,071.71**	**(4,537,469.64)**	**207,309,687.66**	**6,753,778.85**	**(1,189,728.12)**	**212,873,738.39**
	TOTAL DEPRECIABLE PLANT	**257,145,484.49**	**54,655,585.87**	**(10,384,369.79)**	**301,416,700.57**	**29,948,653.48**	**(8,106,813.80)**	**323,258,540.25**
	NONDEPRECIABLE PLANT							
301.00	ORGANIZATION	83,782.29	0.00	0.00	83,782.29	0.00	0.00	83,782.29
389.10	LAND	1,564,394.37	0.00	0.00	1,564,394.37	0.00	0.00	1,564,394.37
	TOTAL NONDEPRECIABLE PLANT	**1,648,176.66**	**0.00**	**0.00**	**1,648,176.66**	**0.00**	**0.00**	**1,648,176.66**
	TOTAL COMMON PLANT	**258,793,661.15**	**54,655,585.87**	**(10,384,369.79)**	**303,064,877.23**	**29,948,653.48**	**(8,106,813.80)**	**324,906,716.91**

LOUISVILLE GAS AND ELECTRIC COMPANY
COMMON PLANT

BRINGFORWARD OF COMMON RESERVE AS OF JUNE 30, 2020 TO JUNE 30, 2021

	ACCOUNT	BOOK RESERVE JUNE 30, 2020	JULY TO DECEMBER 2020 ACCRUAL	JULY TO DECEMBER 2020 RETIREMENTS	JULY TO DECEMBER 2020 NET SALVAGE	BOOK RESERVE DECEMBER 31, 2020	JANUARY TO JUNE 2021 ACCRUAL	JANUARY TO JUNE 2021 RETIREMENTS	JANUARY TO JUNE 2021 NET SALVAGE	BOOK RESERVE JUNE 30, 2021
	(1)	(2)	(3)	(4)	(5)	(6)=(2)+(3)+(4)+(5)	(7)	(8)	(9)	(10)=(6)+(7)+(8)+(9)
	DEPRECIABLE PLANT									
	INTANGIBLE PLANT									
303.00	COMPUTER SOFTWARE	31,589,816	6,500,048	(5,834,885)	0	32,254,979	7,873,569	(4,202,675)	0	35,925,873
303.10	CCS SOFTWARE	6,073,346	852,150	(12,015)	0	6,913,481	786,276	(2,714,411)	0	4,985,346
	TOTAL INTANGIBLE PLANT	**37,663,162**	**7,352,198**	**(5,846,900)**	**0**	**39,168,460**	**8,659,845**	**(6,917,086)**	**0**	**40,911,219**
	GENERAL PLANT									
	STRUCTURES AND IMPROVEMENTS									
390.10	GENERAL OFFICE	29,728,127	1,122,112	(5,867)	(587)	30,843,785	1,294,120	0	0	32,137,905
390.20	TRANSPORTATION	73,127	11,788	0	0	84,915	11,788	0	0	96,703
390.30	STORES	6,974,369	66,876	0	0	7,041,245	67,257	0	0	7,108,502
390.40	SHOPS	243,710	12,285	0	0	255,995	12,285	0	0	268,280
390.60	MICROWAVE	440,999	9,348	0	0	450,347	9,348	0	0	459,695
	TOTAL STRUCTURES AND IMPROVEMENTS	37,460,332	1,222,409	(5,867)	(587)	38,676,287	1,394,798	0	0	40,071,085
	OFFICE FURNITURE AND EQUIPMENT									
391.10	FURNITURE	5,437,621	76,024	(325,614)	0	5,188,031	75,934	(148,913)	0	5,115,051
391.20	EQUIPMENT	805,212	34,734	0	0	839,946	32,533	0	0	872,479
391.30	COMPUTER EQUIPMENT	6,984,838	3,580,445	(2,995,793)	0	7,569,490	3,650,092	(1,001,412)	0	10,218,170
391.31	PERSONAL COMPUTER	3,284,420	1,013,619	(1,179,998)	0	3,118,041	1,017,623	(13,224)	0	4,122,439
391.40	SECURITY EQUIPMENT	847,299	8,392	0	0	855,691	9,821	0	0	865,512
	TOTAL OFFICE FURNITURE AND EQUIPMENT	17,359,390	4,713,214	(4,501,406)	0	17,571,198	4,786,003	(1,163,550)	0	21,193,651
	TRANSPORTATION EQUIPMENT									
392.00	CARS AND LIGHT TRUCKS	1,049	10,152	0	0	11,201	10,294	0	0	21,495
392.10	HEAVY TRUCKS AND OTHER	178,324	4,736	0	0	183,060	4,736	0	0	187,796
392.20	TRAILERS	5,712	1,536	0	0	7,248	1,536	0	0	8,784
	TOTAL TRANSPORATION EQUIPMENT	185,085	16,424	0	0	201,509	16,566	0	0	218,075
393.00	STORES EQUIPMENT	161,182	24,487	0	0	185,669	36,363	0	0	222,032
394.00	TOOLS, SHOP AND GARAGE EQUIPMENT	2,162,704	79,669	0	0	2,242,373	80,769	(26,178)	0	2,296,964
	POWER OPERATED EQUIPMENT									
396.10	LARGE MACHINERY	238,802	10,380	(30,197)	0	218,985	10,709	0	0	229,694
396.20	OTHER	15,284	427	0	0	15,711	548	0	0	16,259
	TOTAL POWER OPERATED EQUIPMENT	254,086	10,807	(30,197)	0	234,696	11,257	0	0	245,953
	COMMUNICATION EQUIPMENT									
397.00	MICROWAVE, FIBER AND OTHER	15,592,101	162,767	0	0	15,754,868	164,721	0	0	15,919,589
397.10	RADIO AND TELEPHONE	11,669,018	582,664	0	0	12,251,682	681,188	0	0	12,932,870
	TOTAL COMMUNICATION EQUIPMENT	27,261,119	745,431	0	0	28,006,550	845,909	0	0	28,852,459
	TOTAL GENERAL PLANT	**84,843,898**	**6,812,441**	**(4,537,470)**	**(587)**	**87,118,282**	**7,171,665**	**(1,189,728)**	**0**	**93,100,219**
	TOTAL DEPRECIABLE PLANT	**122,507,060**	**14,164,639**	**(10,384,370)**	**(587)**	**126,286,742**	**15,831,510**	**(8,106,814)**	**0**	**134,011,438**
	NONDEPRECIABLE PLANT									
301.00	ORGANIZATION	0	0	0	0	0	0	0	0	0
389.10	LAND	0	0	0	0	0	0	0	0	0
	TOTAL NONDEPRECIABLE PLANT	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	TOTAL COMMON PLANT	**122,507,060**	**14,164,639**	**(10,384,370)**	**(587)**	**126,286,742**	**15,831,510**	**(8,106,814)**	**0**	**134,011,438**

LOUISVILLE GAS AND ELECTRIC COMPANY

Response to First Request for Information of the
United States Department of Defense and All Other Federal Executive Agencies
Dated January 8, 2021

Case No. 2020-00350

Question No. 19

Responding Witness: John J. Spanos

Q-1-19. Please provide all workpapers that show the calculations performed to determine the composite remaining life and annual accrual rate for each account as of June 30, 2021, as shown in Exhibit JJS-LG&E-2. These workpapers should be similar to those shown in Part V of the Company's depreciation study filed as Exhibit JJS-LG&E-1.

A-1-19. See attached for the remaining life calculations as of June 30, 2021 which supports Exhibit JJS-LG&E-2.

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 311 STRUCTURES AND IMPROVEMENTS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
RIVERPORT DISTRIBUTION CENTER						
INTERIM SURVIVOR CURVE.. IOWA 95-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2063						
NET SALVAGE PERCENT.. -30						
2013	4,932,569.72	1,028,091	618,149	5,794,191	40.64	142,574
2014	33,726.75	6,278	3,775	40,070	40.69	985
2015	66,384.14	10,801	6,494	79,805	40.75	1,958
2016	49,048.13	6,787	4,081	59,682	40.80	1,463
2017	37,976.87	4,304	2,588	46,782	40.84	1,145
2018	235,211.68	20,380	12,254	293,522	40.89	7,178
2020	1,294,731.23	48,677	29,268	1,653,883	40.96	40,378
	6,649,648.52	1,125,318	676,608	7,967,935		195,681
MILL CREEK UNIT 1						
INTERIM SURVIVOR CURVE.. IOWA 95-R2.5						
PROBABLE RETIREMENT YEAR.. 12-2024						
NET SALVAGE PERCENT.. -7						
1965	11,431.71	11,485	11,063	1,169	3.47	337
1972	15,527,403.76	15,476,241	14,907,023	1,707,299	3.47	492,017
1975	218,872.61	217,196	209,208	24,986	3.48	7,180
1977	4,197.77	4,153	4,000	491	3.48	141
1980	19,261.28	18,955	18,258	2,352	3.48	676
1981	8,073.16	7,930	7,638	1,000	3.48	287
1987	63,301.24	61,322	59,067	8,666	3.48	2,490
1991	3,386.36	3,240	3,121	503	3.49	144
1995	24,680.99	23,243	22,388	4,021	3.49	1,152
1996	38,411.41	36,003	34,679	6,421	3.49	1,840
1997	9,807.25	9,146	8,810	1,684	3.49	483
1998	289,774.86	268,756	258,871	51,188	3.49	14,667
1999	37,622.65	34,688	33,412	6,844	3.49	1,961
2001	98,083.06	89,209	85,928	19,021	3.49	5,450
2002	180,486.93	162,898	156,907	36,214	3.49	10,377
2003	741,965.92	663,942	639,522	154,381	3.49	44,235
2004	357,057.23	316,499	304,858	77,193	3.49	22,118
2005	439,217.59	385,200	371,032	98,931	3.49	28,347
2007	22,336.81	19,104	18,401	5,499	3.49	1,576
2008	272,031.03	229,133	220,705	70,368	3.49	20,163
2009	52,008.41	43,046	41,463	14,186	3.49	4,065
2011	119,120.13	94,361	90,890	36,568	3.49	10,478
2012	103,784.67	79,920	76,981	34,069	3.49	9,762

LOUISVILLE GAS AND ELECTRIC COMPANY
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CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
MILL CREEK UNIT 1						
INTERIM SURVIVOR CURVE.. IOWA 95-R2.5						
PROBABLE RETIREMENT YEAR.. 12-2024						
NET SALVAGE PERCENT.. -7						
2015	465.17	314	302	195	3.50	56
2016	111,292.14	69,932	67,360	51,723	3.50	14,778
2020	845,225.79	236,589	227,887	676,504	3.50	193,287
	19,599,299.93	18,562,505	17,879,774	3,091,477		888,067
MILL CREEK UNIT 2						
INTERIM SURVIVOR CURVE.. IOWA 95-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2028						
NET SALVAGE PERCENT.. -7						
1975	9,672,781.08	8,952,643	7,286,601	3,063,275	6.90	443,953
1976	96,856.85	89,395	72,759	30,878	6.90	4,475
1977	4,197.78	3,862	3,143	1,348	6.91	195
1979	3,493.45	3,194	2,600	1,138	6.91	165
1986	5,995.00	5,331	4,339	2,076	6.93	300
1998	184,368.44	150,873	122,796	74,478	6.96	10,701
2003	120,824.91	92,860	75,579	53,703	6.97	7,705
2005	22,227.29	16,509	13,437	10,346	6.97	1,484
2006	171,004.69	124,500	101,331	81,644	6.97	11,714
2007	5,838.00	4,156	3,383	2,864	6.97	411
2011	500,905.40	314,474	255,952	280,017	6.98	40,117
2012	313,472.11	188,262	153,227	182,188	6.98	26,101
2015	8,176,141.41	4,029,458	3,279,596	5,468,875	6.98	783,506
2016	170,882.49	76,045	61,893	120,951	6.98	17,328
2017	208,405.30	80,978	65,908	157,085	6.98	22,505
2018	13,005.40	4,173	3,396	10,519	6.98	1,507
2020	928,125.84	150,831	122,762	870,333	6.98	124,690
	20,598,525.44	14,287,544	11,628,704	10,411,719		1,496,857
MILL CREEK UNIT 2 SCRUBBER						
INTERIM SURVIVOR CURVE.. IOWA 95-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2028						
NET SALVAGE PERCENT.. -7						
2015	465.17	229	498			
	465.17	229	498			

LOUISVILLE GAS AND ELECTRIC COMPANY
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RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR	ORIGINAL COST	CALCULATED ACCRUED	ALLOC. BOOK RESERVE	FUTURE BOOK ACCRUALS	REM. LIFE	ANNUAL ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
MILL CREEK UNIT 3						
INTERIM SURVIVOR CURVE.. IOWA 95-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
1980	6,510.54	4,821	5,859	1,107	17.37	64
1982	21,039,646.63	15,336,362	18,638,809	3,873,613	17.42	222,366
1984	105,992.50	75,972	92,331	21,081	17.46	1,207
1986	436,730.18	307,297	373,469	93,833	17.50	5,362
1987	164,685.65	114,727	139,432	36,782	17.52	2,099
1988	31,410.69	21,654	26,317	7,293	17.54	416
1997	7,192.32	4,381	5,324	2,371	17.67	134
2002	21,186.01	11,597	14,094	8,575	17.73	484
2004	249,234.02	129,036	156,822	109,859	17.75	6,189
2005	160,652.50	80,603	97,960	73,939	17.76	4,163
2006	240,970.16	116,772	141,917	115,921	17.77	6,523
2009	414,775.80	176,836	214,915	228,895	17.80	12,859
2010	229,013.42	92,556	112,486	132,558	17.81	7,443
2016	2,938,080.04	681,438	828,175	2,315,571	17.85	129,724
2018	46,144.42	7,040	8,556	40,819	17.86	2,285
2020	1,203,250.02	83,544	101,534	1,185,944	17.87	66,365
	27,295,474.90	17,244,636	20,958,000	8,248,158		467,683
MILL CREEL UNIT 3 SCRUBBER						
INTERIM SURVIVOR CURVE.. IOWA 95-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
1982	124,786.75	90,960	133,522			
2016	28.09	7	30			
2017	10,561.49	2,047	11,301			
	135,376.33	93,014	144,853			
MILL CREEK UNIT 4						
INTERIM SURVIVOR CURVE.. IOWA 95-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
1978	15,826.75	11,885	12,053	4,882	17.33	282
1983	2,908,732.43	2,102,886	2,132,559	979,784	17.44	56,180
1984	32,457,933.93	23,264,925	23,593,211	11,136,778	17.46	637,845

LOUISVILLE GAS AND ELECTRIC COMPANY
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CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
MILL CREEK UNIT 4						
INTERIM SURVIVOR CURVE.. IOWA 95-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
1985	16,032.01	11,388	11,549	5,606	17.48	321
1986	10,849,210.09	7,633,851	7,741,571	3,867,084	17.50	220,976
1987	2,546,989.84	1,774,347	1,799,384	925,895	17.52	52,848
1988	1,132,027.85	780,409	791,421	419,849	17.54	23,937
1989	420,234.94	286,608	290,652	158,999	17.55	9,060
1990	139,393.92	93,970	95,296	53,856	17.57	3,065
1991	31,466.81	20,955	21,251	12,419	17.59	706
1994	168,295.50	107,610	109,128	70,948	17.63	4,024
1995	1,104,697.28	695,492	705,306	476,720	17.65	27,010
1996	311,789.92	193,170	195,896	137,719	17.66	7,798
1997	227,958.65	138,844	140,803	103,113	17.67	5,835
1998	442,793.64	264,791	268,527	205,262	17.68	11,610
1999	56,695.66	33,231	33,700	26,964	17.70	1,523
2000	74,447.42	42,719	43,322	36,337	17.71	2,052
2001	571,427.17	320,571	325,095	286,333	17.72	16,159
2002	578,577.27	316,702	321,171	297,907	17.73	16,802
2003	1,368,701.79	729,561	739,856	724,655	17.74	40,849
2004	292,312.92	151,339	153,475	159,300	17.75	8,975
2005	364,991.49	183,125	185,709	204,832	17.76	11,533
2006	166,238.65	80,558	81,695	96,181	17.77	5,413
2007	19,894.23	9,279	9,410	11,877	17.78	668
2008	25,127.93	11,235	11,394	15,493	17.79	871
2009	908,546.90	387,351	392,817	579,328	17.80	32,547
2010	257,491.80	104,065	105,533	169,983	17.81	9,544
2011	1,236,829.35	470,974	477,620	845,788	17.81	47,490
2012	252,495.83	89,718	90,984	179,187	17.82	10,055
2013	479,312.70	157,193	159,411	353,453	17.83	19,823
2014	7,358,389.81	2,195,913	2,226,899	5,646,578	17.84	316,512
2015	879,677.92	234,523	237,832	703,423	17.84	39,430
2016	340,734.69	79,028	80,143	284,443	17.85	15,935
2017	1,431,041.19	277,318	281,231	1,249,983	17.86	69,988
2018	1,177,406.23	179,626	182,161	1,077,664	17.86	60,340
2019	1,645,381.72	175,616	178,094	1,582,464	17.87	88,554
2020	1,795,739.95	124,682	126,441	1,795,000	17.87	100,448
	74,054,846.18	43,735,458	44,352,599	34,886,086		1,977,008

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ACCOUNT 311 STRUCTURES AND IMPROVEMENTS

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YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
MILL CREEK UNIT 4 SCRUBBER						
INTERIM SURVIVOR CURVE.. IOWA 95-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
1983	1,778,680.44	1,285,908	1,757,977	145,211	17.44	8,326
1984	320,219.90	229,525	313,786	28,849	17.46	1,652
2001	58,236.12	32,671	44,665	17,648	17.72	996
2004	212,084.02	109,802	150,111	76,819	17.75	4,328
2005	14,020.31	7,034	9,616	5,385	17.76	303
2006	12,043.50	5,836	7,978	4,908	17.77	276
2013	7,305.53	2,396	3,276	4,541	17.83	255
2014	55,594.11	16,591	22,682	36,804	17.84	2,063
2017	18,363.52	3,559	4,866	14,783	17.86	828
	2,476,547.45	1,693,322	2,314,957	334,949		19,027
TRIMBLE COUNTY UNIT 1						
INTERIM SURVIVOR CURVE.. IOWA 95-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2045						
NET SALVAGE PERCENT.. -11						
1990	102,947,499.01	64,211,567	66,799,545	47,472,179	23.17	2,048,864
1993	261,010.60	155,508	161,776	127,946	23.26	5,501
1994	362,457.24	212,300	220,857	181,471	23.29	7,792
1995	520,162.37	299,187	311,245	266,135	23.32	11,412
1996	124,393.22	70,216	73,046	65,030	23.34	2,786
1997	540,527.91	298,961	311,010	288,976	23.37	12,365
1998	291,947.64	158,058	164,428	159,634	23.39	6,825
1999	20,033.30	10,601	11,028	11,209	23.41	479
2000	112,766.78	58,200	60,546	64,625	23.44	2,757
2001	60,760.43	30,545	31,776	35,668	23.46	1,520
2002	259,907.60	127,023	132,143	156,355	23.48	6,659
2003	446,282.16	211,579	220,106	275,267	23.50	11,713
2004	80,252.62	36,805	38,288	50,792	23.52	2,160
2006	5,878.80	2,500	2,601	3,925	23.56	167
2007	3,126.83	1,275	1,326	2,144	23.57	91
2008	510,515.04	198,414	206,411	360,261	23.59	15,272
2009	150,166.01	55,358	57,589	109,095	23.61	4,621
2010	85,397.39	29,686	30,882	63,909	23.62	2,706
2011	33,353.80	10,850	11,287	25,735	23.64	1,089
2013	43,040.44	11,898	12,378	35,397	23.67	1,495
2017	116,477.02	18,376	19,117	110,173	23.72	4,645
2018	238,665.77	29,292	30,473	234,446	23.73	9,880

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YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
TRIMBLE COUNTY UNIT 1						
INTERIM SURVIVOR CURVE.. IOWA 95-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2045						
NET SALVAGE PERCENT.. -11						
2019	709,160.43	60,313	62,744	724,424	23.74	30,515
2020	307,135.95	16,787	17,464	323,457	23.75	13,619
2021	59,992.67			66,592	23.76	2,803
	108,290,911.03	66,315,299	68,988,066	51,214,845		2,207,736
TRIMBLE COUNTY UNIT 1 SCRUBBER						
INTERIM SURVIVOR CURVE.. IOWA 95-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2045						
NET SALVAGE PERCENT.. -11						
1990	101,916.70	63,569	40,818	72,309	23.17	3,121
1996	20,052.22	11,319	7,268	14,990	23.34	642
2004	61,254.94	28,093	18,039	49,954	23.52	2,124
2013	705,791.36	195,113	125,284	658,144	23.67	27,805
	889,015.22	298,094	191,409	795,398		33,692
TRIMBLE COUNTY UNIT 2						
INTERIM SURVIVOR CURVE.. IOWA 95-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2066						
NET SALVAGE PERCENT.. -11						
1990	22,344.25	10,266	10,900	13,902	41.16	338
2011	15,051,811.63	3,051,460	3,239,906	13,467,605	43.23	311,534
2012	409,666.94	76,081	80,779	373,951	43.30	8,636
2013	86,118.30	14,495	15,390	80,201	43.36	1,850
2014	154,925.17	23,221	24,655	147,312	43.43	3,392
2015	168,441.83	22,068	23,431	163,540	43.49	3,760
2016	404,816.59	45,029	47,810	401,537	43.55	9,220
2017	433,837.63	39,445	41,881	439,679	43.60	10,084
2018	615,631.26	42,839	45,485	637,866	43.66	14,610
2019	1,003,723.57	47,585	50,524	1,063,610	43.71	24,333
2020	1,078,503.85	32,478	34,484	1,162,656	43.75	26,575
	19,429,821.02	3,404,967	3,615,244	17,951,857		414,332

LOUISVILLE GAS AND ELECTRIC COMPANY
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CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
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YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
TRIMBLE COUNTY UNIT 2 SCRUBBER						
INTERIM SURVIVOR CURVE.. IOWA 95-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2066						
NET SALVAGE PERCENT.. -11						
2011	69,521.69	14,094	12,565	64,604	43.23	1,494
2012	411.79	76	68	389	43.30	9
2017	17,000.09	1,546	1,378	17,492	43.60	401
2018	165,687.60	11,530	10,279	173,634	43.66	3,977
	252,621.17	27,246	24,291	256,118		5,881
TRIMBLE COUNTY TRAINING CENTER						
INTERIM SURVIVOR CURVE.. IOWA 95-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2066						
NET SALVAGE PERCENT.. -5						
2017	593,768.14	51,067	33,513	589,944	43.60	13,531
2018	12,498.27	823	540	12,583	43.66	288
2019	135,994.85	6,099	4,003	138,792	43.71	3,175
2020	5,364.74	153	100	5,533	43.75	126
	747,626.00	58,142	38,156	746,851		17,120
	280,420,178.36	166,845,774	170,813,159	135,905,393		7,723,084
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..					17.6	2.75

LOUISVILLE GAS AND ELECTRIC COMPANY
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ACCOUNT 311.2 STRUCTURES AND IMPROVEMENT - RETIRED PLANT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR	ORIGINAL COST	CALCULATED ACCRUED	ALLOC. BOOK RESERVE	FUTURE BOOK ACCRUALS	REM. LIFE	ANNUAL ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CANE RUN UNIT 1						
INTERIM SURVIVOR CURVE.. IOWA 95-R2.5						
PROBABLE RETIREMENT YEAR.. 12-2015						
NET SALVAGE PERCENT.. -10						
2014	33,589.49	36,948	36,948			
2015	32,299.10	35,529	35,529			
	65,888.59	72,477	72,477			
CANE RUN UNIT 2						
INTERIM SURVIVOR CURVE.. IOWA 95-R2.5						
PROBABLE RETIREMENT YEAR.. 12-2015						
NET SALVAGE PERCENT.. -10						
2016	373.59	411	411			
	373.59	411	411			
CANE RUN UNIT 3						
INTERIM SURVIVOR CURVE.. IOWA 95-R2.5						
PROBABLE RETIREMENT YEAR.. 12-2015						
NET SALVAGE PERCENT.. -10						
2016	249.15	274	274			
	249.15	274	274			
CANE RUN UNIT 4						
INTERIM SURVIVOR CURVE.. IOWA 95-R2.5						
PROBABLE RETIREMENT YEAR.. 12-2015						
NET SALVAGE PERCENT.. -10						
1964	215.51	237	237			
1969	24.47	27	27			
2013	127.11	140	140			
2016	124.53	137	137			
	491.62	541	541			

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ACCOUNT 311.2 STRUCTURES AND IMPROVEMENT - RETIRED PLANT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
CANE RUN UNIT 4 SCRUBBER						
INTERIM SURVIVOR CURVE.. IOWA 95-R2.5						
PROBABLE RETIREMENT YEAR.. 12-2015						
NET SALVAGE PERCENT.. -10						
2014	17,192.20	18,911	18,911			
2016	373.59	411	411			
	17,565.79	19,322	19,322			
CANE RUN UNIT 5 AND UNIT 5 SCRUBBER						
INTERIM SURVIVOR CURVE.. IOWA 95-R2.5						
PROBABLE RETIREMENT YEAR.. 12-2015						
NET SALVAGE PERCENT.. -10						
1979	5.68	6	6			
1980	5.63	6	6			
1997	42,255.93	46,482	46,482			
2012	133,003.43	146,304	146,304			
2015	28,789.01	31,668	31,668			
2016	373.59	411	411			
	204,433.27	224,877	224,877			
CANE RUN UNIT 6 AND UNIT 6 SCRUBBER						
INTERIM SURVIVOR CURVE.. IOWA 95-R2.5						
PROBABLE RETIREMENT YEAR.. 12-2015						
NET SALVAGE PERCENT.. -10						
1973	155,413.00	170,954	170,954			
1977	10,404.66	11,445	11,445			
1978	104,011.35	114,412	114,412			
1983	775,327.73	852,861	852,861			
1984	147,868.83	162,656	162,656			
1987	240,188.77	264,208	264,208			
1998	6,924.37	7,617	7,617			
1999	0.21		0			
2001	236,769.12	260,446	260,446			
2002	519,538.22	571,492	571,492			
2003	57,879.48	63,667	63,667			
2009	1,407,414.03	1,548,155	1,548,155			
2010	65,760.89	72,337	72,337			
2011	442,110.71	486,322	486,322			

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ACCOUNT 311.2 STRUCTURES AND IMPROVEMENT - RETIRED PLANT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR	ORIGINAL COST	CALCULATED ACCRUED	ALLOC. BOOK RESERVE	FUTURE BOOK ACCRUALS	REM. LIFE	ANNUAL ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CANE RUN UNIT 6 AND UNIT 6 SCRUBBER						
INTERIM SURVIVOR CURVE.. IOWA 95-R2.5						
PROBABLE RETIREMENT YEAR.. 12-2015						
NET SALVAGE PERCENT.. -10						
2013	22,534.02	24,787	24,787			
2014	3,801,278.68	4,181,407	4,181,407			
2016	373.59	411	411			
	7,993,797.66	8,793,177	8,793,177			
	8,282,799.67	9,111,079	9,111,079			

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 0.0 0.00

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 312 BOILER PLANT EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
MILL CREEK UNIT 1						
INTERIM SURVIVOR CURVE.. IOWA 57-R1						
PROBABLE RETIREMENT YEAR.. 12-2024						
NET SALVAGE PERCENT.. -7						
1972	20,538,265.48	20,265,337	13,667,933	8,308,011	3.38	2,457,991
1973	7,875.43	7,760	5,234	3,193	3.39	942
1975	265,320.08	260,696	175,826	108,066	3.40	31,784
1976	1,821.92	1,788	1,206	744	3.40	219
1977	35,816.91	35,094	23,669	14,655	3.40	4,310
1978	119,342.82	116,725	78,725	48,972	3.41	14,361
1979	5,258.44	5,135	3,463	2,163	3.41	634
1980	40,473.88	39,456	26,611	16,696	3.41	4,896
1981	68,546.02	66,705	44,989	28,355	3.41	8,315
1982	350,502.00	340,342	229,543	145,494	3.42	42,542
1983	200,425.09	194,234	131,001	83,454	3.42	24,402
1984	13,324.05	12,885	8,690	5,566	3.42	1,627
1986	361,165.40	347,563	234,413	152,034	3.43	44,325
1987	186,502.84	179,033	120,749	78,809	3.43	22,976
1988	1,185.12	1,135	765	503	3.43	147
1989	64,563.44	61,639	41,572	27,511	3.43	8,021
1992	48,372.08	45,721	30,836	20,922	3.44	6,082
1993	23,285.15	21,928	14,789	10,126	3.44	2,944
1994	330,734.56	310,220	209,228	144,658	3.44	42,052
1995	272,815.11	254,816	171,860	120,052	3.44	34,899
1996	449,017.28	417,303	281,450	198,999	3.45	57,681
1997	775,321.29	717,001	483,581	346,013	3.45	100,294
1998	4,163,228.13	3,829,399	2,582,734	1,871,920	3.45	542,586
1999	3,361,192.84	3,073,585	2,072,976	1,523,500	3.45	441,594
2000	203,312.67	184,741	124,598	92,946	3.45	26,941
2001	962,802.63	868,787	585,952	444,246	3.45	128,767
2002	496,398.14	444,505	299,796	231,350	3.45	67,058
2003	2,979,926.02	2,644,527	1,783,598	1,404,923	3.46	406,047
2004	2,637,112.61	2,318,458	1,563,681	1,258,029	3.46	363,592
2005	298,953.89	260,085	175,414	144,467	3.46	41,753
2006	1,876,339.42	1,613,214	1,088,030	919,653	3.46	265,796
2007	141,819.17	120,326	81,154	70,593	3.46	20,403
2008	3,049,376.88	2,548,305	1,718,701	1,544,132	3.46	446,281
2009	101,933.21	83,724	56,468	52,601	3.46	15,203
2010	11,986.69	9,649	6,508	6,318	3.46	1,826
2011	3,542,654.92	2,784,832	1,878,227	1,912,414	3.46	552,721
2012	125,784.70	96,136	64,839	69,751	3.46	20,159
2013	6,461,711.58	4,772,341	3,218,700	3,695,331	3.46	1,068,015
2014	448,194.73	316,899	213,732	265,836	3.47	76,610

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 312 BOILER PLANT EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
MILL CREEK UNIT 1						
INTERIM SURVIVOR CURVE.. IOWA 57-R1						
PROBABLE RETIREMENT YEAR.. 12-2024						
NET SALVAGE PERCENT.. -7						
2015	116,731,827.79	78,199,305	52,741,432	72,161,624	3.47	20,795,857
2016	383,790.87	239,589	161,591	249,066	3.47	71,777
2017	943,241.82	534,075	360,206	649,062	3.47	187,050
2018	473,318.94	231,858	156,376	350,075	3.47	100,886
2019	11,268,504.67	4,352,203	2,935,338	9,121,962	3.47	2,628,807
2020	458,141.24	128,288	86,524	403,687	3.47	116,336
2021	3,251,083.29			3,478,659	3.47	1,002,495
	188,532,571.24	133,357,347	89,942,711	111,787,141		32,300,004
MILL CREEK UNIT 1 SCRUBBER						
INTERIM SURVIVOR CURVE.. IOWA 57-R1						
PROBABLE RETIREMENT YEAR.. 12-2024						
NET SALVAGE PERCENT.. -7						
1991	5,456,085.36	5,174,755	3,870,536	1,967,475	3.44	571,940
1997	2,685,050.95	2,483,080	1,857,257	1,015,747	3.45	294,419
1998	39.61	36	27	15	3.45	4
2001	9,599.04	8,662	6,479	3,792	3.45	1,099
2002	2,652,960.86	2,375,625	1,776,885	1,061,783	3.45	307,763
2003	5,225,116.30	4,637,015	3,468,325	2,122,549	3.46	613,453
2004	100,971.20	88,770	66,397	41,642	3.46	12,035
2005	54,427.99	47,352	35,418	22,820	3.46	6,595
2008	333,733.46	278,895	208,604	148,491	3.46	42,916
2009	97,149.36	79,795	59,684	44,266	3.46	12,794
2018	102,525.32	50,223	37,565	72,137	3.47	20,789
2019	94,317.37	36,428	27,247	73,673	3.47	21,231
2020	83,324.07	23,332	17,452	71,705	3.47	20,664
	16,895,300.89	15,283,968	11,431,875	6,646,097		1,925,702
MILL CREEK UNIT 2						
INTERIM SURVIVOR CURVE.. IOWA 57-R1						
PROBABLE RETIREMENT YEAR.. 6-2028						
NET SALVAGE PERCENT.. -7						
1975	16,523,722.34	15,022,845	8,698,584	8,981,799	6.57	1,367,093
1979	325,782.47	292,615	169,431	179,156	6.63	27,022
1980	2,618.47	2,344	1,357	1,445	6.64	218

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RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
MILL CREEK UNIT 2						
INTERIM SURVIVOR CURVE.. IOWA 57-R1						
PROBABLE RETIREMENT YEAR.. 6-2028						
NET SALVAGE PERCENT.. -7						
1981	147,416.68	131,519	76,153	81,583	6.65	12,268
1982	70,262.25	62,459	36,165	39,015	6.66	5,858
1983	82,815.77	73,336	42,463	46,150	6.67	6,919
1984	79,914.59	70,481	40,810	44,698	6.68	6,691
1986	15,306.13	13,381	7,748	8,630	6.70	1,288
1987	20,584.11	17,909	10,370	11,655	6.71	1,737
1988	958.31	830	481	545	6.72	81
1989	64,213.90	55,290	32,014	36,695	6.73	5,452
1992	27,240.05	23,039	13,340	15,807	6.75	2,342
1993	4,265.50	3,583	2,075	2,489	6.76	368
1995	153,540.15	127,065	73,574	90,714	6.77	13,399
1996	46,041.54	37,782	21,877	27,388	6.78	4,040
1997	645,436.50	524,862	303,908	386,709	6.79	56,953
1998	3,457,290.75	2,785,241	1,612,721	2,086,580	6.79	307,302
1999	1,437,192.66	1,145,566	663,310	874,486	6.80	128,601
2001	2,418,306.45	1,882,729	1,090,145	1,497,443	6.81	219,889
2002	5,968,802.26	4,586,422	2,655,647	3,730,971	6.81	547,867
2003	2,867,508.48	2,170,530	1,256,788	1,811,446	6.82	265,608
2004	1,367,245.90	1,018,523	589,749	873,204	6.82	128,036
2005	1,675,812.53	1,225,866	709,806	1,083,314	6.83	158,611
2006	350,859.29	251,610	145,688	229,731	6.83	33,636
2008	1,026,167.83	701,677	406,288	691,712	6.84	101,127
2009	410,516.25	272,890	158,010	281,243	6.84	41,117
2010	4,438,682.62	2,856,283	1,653,856	3,095,535	6.84	452,564
2011	409,231.25	253,408	146,729	291,148	6.85	42,503
2012	4,232,977.01	2,508,092	1,452,245	3,077,041	6.85	449,203
2014	2,650,283.03	1,395,867	808,240	2,027,563	6.86	295,563
2015	148,054,728.40	72,031,335	41,707,854	116,710,706	6.86	17,013,222
2016	3,673,925.28	1,610,925	932,764	2,998,336	6.87	436,439
2017	618,573.71	236,911	137,177	524,697	6.87	76,375
2018	7,403,888.72	2,345,831	1,358,292	6,563,869	6.87	955,439
2019	1,153,767.66	269,350	155,960	1,078,571	6.88	156,769
2020	1,403,933.16	224,685	130,098	1,372,111	6.88	199,435
2021	4,938,769.75			5,284,484	6.88	768,094
	218,168,581.75	116,233,081	67,301,714	166,138,668		24,289,129

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YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
MILL CREEK UNIT 2 SCRUBBER						
INTERIM SURVIVOR CURVE.. IOWA 57-R1						
PROBABLE RETIREMENT YEAR.. 6-2028						
NET SALVAGE PERCENT.. -7						
1984	97,760.91	86,221	41,904	62,700	6.68	9,386
2002	203,535.72	156,397	76,010	141,774	6.81	20,819
2005	6,998.17	5,119	2,488	5,000	6.83	732
2008	102,754.90	70,262	34,148	75,800	6.84	11,082
2009	229,511.81	152,568	74,149	171,429	6.84	25,063
2015	109,957,362.18	53,496,269	25,999,417	91,654,960	6.86	13,360,781
2016	34,447.60	15,104	7,341	29,518	6.87	4,297
2017	2,583,016.35	989,284	480,796	2,283,031	6.87	332,319
2018	64,009.12	20,281	9,857	58,633	6.87	8,535
2019	77,691.71	18,137	8,815	74,315	6.88	10,802
2020	797,415.55	127,618	62,023	791,212	6.88	115,002
	114,154,504.02	55,137,260	26,796,946	95,348,373		13,898,818
MILL CREEK UNIT 3						
INTERIM SURVIVOR CURVE.. IOWA 57-R1						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
1979	4,386.40	3,173	2,575	2,118	15.37	138
1980	3,384,009.30	2,429,617	1,972,079	1,648,811	15.45	106,719
1981	11,174.83	7,962	6,463	5,494	15.52	354
1982	39,840,774.42	28,150,475	22,849,259	19,780,370	15.60	1,267,972
1984	4,350,756.30	3,021,156	2,452,221	2,203,089	15.74	139,968
1985	1,684.43	1,159	941	862	15.81	55
1986	595,301.63	405,561	329,187	307,786	15.88	19,382
1987	121,729.53	82,101	66,640	63,611	15.94	3,991
1988	397,120.55	265,060	215,145	209,774	16.00	13,111
1990	65,276.43	42,577	34,559	35,287	16.12	2,189
1992	62,713.51	39,883	32,372	34,731	16.23	2,140
1993	71,563.05	44,881	36,429	40,143	16.29	2,464
1994	173,885.16	107,480	87,240	98,817	16.34	6,048
1995	2,151,919.89	1,310,292	1,063,542	1,239,013	16.38	75,642
1996	259,272.12	155,286	126,043	151,378	16.43	9,214
1997	271,945.78	160,113	129,961	161,021	16.47	9,777
1998	78,903.99	45,587	37,002	47,425	16.52	2,871
1999	494,489.49	280,113	227,363	301,741	16.56	18,221
2000	9,810.70	5,441	4,416	6,081	16.60	366
2001	121,882.32	66,096	53,649	76,765	16.63	4,616

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YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
MILL CREEK UNIT 3						
INTERIM SURVIVOR CURVE.. IOWA 57-R1						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
2002	584,857.89	309,388	251,125	374,673	16.67	22,476
2003	16,727,780.05	8,618,773	6,995,711	10,903,014	16.70	652,875
2004	52,404,369.72	26,244,255	21,302,013	34,770,663	16.73	2,078,342
2005	106,780.40	51,782	42,031	72,224	16.77	4,307
2006	936,474.57	438,638	356,035	645,993	16.80	38,452
2007	1,980,516.81	893,117	724,928	1,394,225	16.83	82,842
2008	45,872.86	19,849	16,111	32,973	16.85	1,957
2009	843,584.95	348,183	282,614	620,022	16.88	36,731
2010	98,168.17	38,415	31,181	73,859	16.91	4,368
2011	2,005,971.22	739,560	600,288	1,546,101	16.93	91,323
2012	618,010.58	212,665	172,617	488,655	16.96	28,812
2013	11,614,099.61	3,693,206	2,997,712	9,429,374	16.98	555,322
2014	188,703.26	54,658	44,365	157,548	17.00	9,268
2015	858,287.75	221,722	179,968	738,400	17.03	43,359
2016	152,782,002.17	34,375,889	27,902,321	135,574,422	17.05	7,951,579
2017	1,181,301.98	222,159	180,323	1,083,670	17.07	63,484
2018	4,622,246.14	683,015	554,392	4,391,412	17.10	256,808
2019	2,246,302.93	232,110	188,400	2,215,144	17.12	129,389
2020	11,264,053.07	751,596	610,058	11,442,479	17.14	667,589
2021	394,001.96			421,582	17.16	24,568
	313,971,985.92	114,772,993	93,159,274	242,790,751		14,429,089
MILL CREEL UNIT 3 SCRUBBER						
INTERIM SURVIVOR CURVE.. IOWA 57-R1						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
1982	612,880.78	433,046	268,371	387,412	15.60	24,834
1995	18,556.75	11,299	7,002	12,853	16.38	785
1996	185,176.23	110,908	68,733	129,406	16.43	7,876
2001	1,421,681.54	770,974	477,794	1,043,405	16.63	62,742
2003	682,427.14	351,612	217,904	512,293	16.70	30,676
2004	492,264.70	246,528	152,780	373,943	16.73	22,352
2007	72,067.10	32,499	20,141	56,971	16.83	3,385
2013	232,063.36	73,795	45,733	202,575	16.98	11,930
2016	145,516,787.92	32,741,219	20,290,635	135,412,329	17.05	7,942,072

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RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
MILL CREEL UNIT 3 SCRUBBER						
INTERIM SURVIVOR CURVE.. IOWA 57-R1						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
2017	546,111.42	102,703	63,648	520,691	17.07	30,503
2019	118,237.96	12,218	7,572	118,943	17.12	6,948
2020	28,009.44	1,869	1,158	28,812	17.14	1,681
	149,926,264.34	34,888,670	21,621,469	138,799,634		8,145,784
MILL CREEK UNIT 4						
INTERIM SURVIVOR CURVE.. IOWA 57-R1						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
1980	330,933.24	237,600	196,185	157,914	15.45	10,221
1981	226,151.07	161,131	133,045	108,937	15.52	7,019
1984	68,853,462.87	47,811,700	39,477,822	34,195,384	15.74	2,172,515
1985	330,964.51	227,689	188,001	166,131	15.81	10,508
1986	8,342,649.05	5,683,588	4,692,903	4,233,731	15.88	266,608
1987	374,725.19	252,735	208,682	192,274	15.94	12,062
1988	65,519.29	43,731	36,108	33,997	16.00	2,125
1989	777,576.96	513,057	423,628	408,379	16.07	25,413
1990	1,320,853.97	861,542	711,370	701,944	16.12	43,545
1991	4,995,589.64	3,218,233	2,657,275	2,688,006	16.18	166,131
1992	840,535.87	534,543	441,369	458,005	16.23	28,220
1993	114,187.10	71,613	59,130	63,050	16.29	3,870
1994	249,196.22	154,030	127,182	139,458	16.34	8,535
1995	680,934.31	414,617	342,347	386,253	16.38	23,581
1996	2,924,660.81	1,751,674	1,446,346	1,683,041	16.43	102,437
1997	829,307.71	488,269	403,161	484,199	16.47	29,399
1998	3,434,966.48	1,984,577	1,638,653	2,036,761	16.52	123,291
1999	1,778,914.08	1,007,699	832,051	1,071,387	16.56	64,697
2000	5,844,545.95	3,241,149	2,676,196	3,577,468	16.60	215,510
2001	23,312,692.11	12,642,412	10,438,761	14,505,820	16.63	872,268
2002	3,323,482.44	1,758,113	1,451,663	2,104,463	16.67	126,243
2003	61,763,465.11	31,822,829	26,275,911	39,810,997	16.70	2,383,892
2005	2,545,838.22	1,234,565	1,019,373	1,704,674	16.77	101,650
2006	8,638,468.73	4,046,194	3,340,917	5,902,244	16.80	351,324
2007	924,338.77	416,832	344,176	644,867	16.83	38,317
2008	3,672,293.14	1,588,952	1,311,988	2,617,366	16.85	155,333
2009	2,055,741.97	848,491	700,594	1,499,050	16.88	88,806
2010	2,035,759.28	796,634	657,776	1,520,487	16.91	89,916

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CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
MILL CREEK UNIT 4						
INTERIM SURVIVOR CURVE.. IOWA 57-R1						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
2011	6,471,339.05	2,385,848	1,969,980	4,954,353	16.93	292,638
2012	4,861,968.81	1,673,062	1,381,437	3,820,870	16.96	225,287
2013	704,083.70	223,894	184,868	568,502	16.98	33,481
2014	212,566,149.87	61,569,573	50,837,611	176,608,169	17.00	10,388,716
2015	5,043,857.72	1,302,980	1,075,862	4,321,065	17.03	253,733
2016	5,998,752.59	1,349,717	1,114,453	5,304,212	17.05	311,097
2017	23,680,633.69	4,453,456	3,677,191	21,661,087	17.07	1,268,956
2018	9,067,890.58	1,339,935	1,106,376	8,596,267	17.10	502,706
2019	264,896,337.11	27,371,712	22,600,651	260,838,429	17.12	15,235,890
2020	28,628,563.25	1,910,247	1,577,279	29,055,284	17.14	1,695,174
2021	21,686,929.27			23,205,014	17.16	1,352,274
	794,194,259.73	227,394,623	187,758,318	662,029,540		39,083,388
MILL CREEK UNIT 4 SCRUBBER						
INTERIM SURVIVOR CURVE.. IOWA 57-R1						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
1983	4,856,951.29	3,402,799	1,758,119	3,438,819	15.67	219,452
1988	228,587.27	152,572	78,829	165,759	16.00	10,360
1989	7,147.15	4,716	2,437	5,211	16.07	324
1996	3,857,734.12	2,310,522	1,193,774	2,934,002	16.43	178,576
1997	67,894.56	39,974	20,653	51,994	16.47	3,157
2000	21,132,735.57	11,719,361	6,055,024	16,557,003	16.60	997,410
2001	1,383,475.77	750,255	387,633	1,092,686	16.63	65,706
2002	4,986,007.69	2,637,585	1,362,757	3,972,271	16.67	238,289
2003	392,505.42	202,233	104,487	315,493	16.70	18,892
2004	10,792.74	5,405	2,793	8,756	16.73	523
2005	197,145.53	95,603	49,395	161,551	16.77	9,633
2006	416,718.83	195,188	100,847	345,042	16.80	20,538
2007	309,289.52	139,475	72,062	258,877	16.83	15,382
2008	7,483.27	3,238	1,673	6,334	16.85	376
2009	171,763.09	70,894	36,629	147,158	16.88	8,718
2010	54,772.37	21,434	11,074	47,532	16.91	2,811
2011	2,115,959.76	780,110	403,058	1,861,019	16.93	109,924
2012	9,950,661.39	3,424,142	1,769,146	8,878,061	16.96	523,471
2013	41,642.58	13,242	6,842	37,716	16.98	2,221
2014	136,384,113.49	39,503,522	20,410,224	125,520,777	17.00	7,383,575

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 312 BOILER PLANT EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
MILL CREEK UNIT 4 SCRUBBER						
INTERIM SURVIVOR CURVE.. IOWA 57-R1						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
2016	225,510.71	50,740	26,216	215,081	17.05	12,615
2017	4,978,114.07	936,200	483,705	4,842,877	17.07	283,707
2018	2,141,377.78	316,425	163,487	2,127,787	17.10	124,432
2019	547,098.14	56,532	29,208	556,187	17.12	32,488
2020	140,675.82	9,387	4,850	145,673	17.14	8,499
	194,606,157.93	66,841,554	34,534,924	173,693,665		10,271,079
TRIMBLE COUNTY UNIT 1						
INTERIM SURVIVOR CURVE.. IOWA 57-R1						
PROBABLE RETIREMENT YEAR.. 6-2045						
NET SALVAGE PERCENT.. -11						
1990	125,847,537.76	75,733,349	59,009,813	80,680,954	20.53	3,929,905
1992	38,045.04	22,212	17,307	24,923	20.72	1,203
1994	195,750.04	110,456	86,065	131,218	20.91	6,275
1995	12,808.15	7,095	5,528	8,689	21.00	414
1996	432,127.19	234,775	182,932	296,729	21.08	14,076
1997	1,421,837.09	756,513	589,459	988,780	21.17	46,707
1998	5,066,716.12	2,638,413	2,055,795	3,568,260	21.24	167,997
1999	223,730.78	113,822	88,688	159,653	21.32	7,488
2000	82,447.28	40,921	31,885	59,632	21.39	2,788
2001	473,492.27	228,841	178,308	347,268	21.46	16,182
2002	35,449,693.27	16,648,629	12,972,257	26,376,902	21.53	1,225,123
2003	5,150,590.93	2,346,492	1,828,337	3,888,819	21.59	180,121
2004	424,824.50	187,127	145,805	325,750	21.66	15,039
2005	1,866,013.03	793,422	618,218	1,453,057	21.71	66,930
2006	262,362.03	107,242	83,561	207,661	21.77	9,539
2007	271,351.43	106,206	82,753	218,447	21.83	10,007
2008	4,392,895.67	1,640,179	1,277,993	3,598,122	21.88	164,448
2009	2,159,600.92	765,077	596,132	1,801,025	21.93	82,126
2010	8,456,773.18	2,826,525	2,202,368	7,184,650	21.98	326,872
2011	9,344,658.23	2,922,057	2,276,805	8,095,766	22.03	367,488
2012	586,211.28	170,079	132,522	518,173	22.07	23,479
2013	3,407,396.26	906,217	706,105	3,076,105	22.12	139,064
2014	402,408.67	96,785	75,413	371,261	22.16	16,754
2015	85,546,178.38	18,210,711	14,189,398	80,766,860	22.21	3,636,509
2016	2,558,376.84	469,759	366,026	2,473,772	22.25	111,181
2017	19,698,906.21	2,996,706	2,334,970	19,530,816	22.29	876,214

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 312 BOILER PLANT EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
TRIMBLE COUNTY UNIT 1						
INTERIM SURVIVOR CURVE.. IOWA 57-R1						
PROBABLE RETIREMENT YEAR.. 6-2045						
NET SALVAGE PERCENT.. -11						
2018	1,096,919.16	130,038	101,323	1,116,257	22.33	49,989
2019	8,789,219.87	722,825	563,210	9,192,824	22.37	410,944
2020	1,747,329.00	92,361	71,966	1,867,569	22.40	83,374
2021	1,057,537.83			1,173,867	22.45	52,288
	326,463,738.41	132,024,834	102,870,940	259,503,810		12,040,524
TRIMBLE COUNTY UNIT 1 SCRUBBER						
INTERIM SURVIVOR CURVE.. IOWA 57-R1						
PROBABLE RETIREMENT YEAR.. 6-2045						
NET SALVAGE PERCENT.. -11						
1990	48,964,573.31	29,466,219	26,897,327	27,453,350	20.53	1,337,231
1994	253,366.21	142,967	130,503	150,733	20.91	7,209
1996	7,760.87	4,216	3,848	4,766	21.08	226
1997	146,964.06	78,195	71,378	91,752	21.17	4,334
1998	546,174.12	284,412	259,617	346,637	21.24	16,320
1999	100,597.08	51,178	46,716	64,947	21.32	3,046
2002	1,958,503.95	919,794	839,606	1,334,334	21.53	61,976
2004	3,912.29	1,723	1,573	2,770	21.66	128
2005	4,281,077.44	1,820,300	1,661,605	3,090,391	21.71	142,349
2006	4,579,814.50	1,872,034	1,708,828	3,374,766	21.77	155,019
2007	850,100.00	332,727	303,720	639,891	21.83	29,312
2010	33,337.92	11,143	10,172	26,834	21.98	1,221
2012	552,605.79	160,329	146,351	467,041	22.07	21,162
2015	89,147.45	18,977	17,323	81,631	22.21	3,675
2016	3,384,658.53	621,478	567,297	3,189,674	22.25	143,356
2018	556,748.60	66,001	60,247	557,744	22.33	24,977
2019	1,844,332.94	151,678	138,455	1,908,755	22.37	85,327
2020	256,460.39	13,556	12,374	272,297	22.40	12,156
	68,410,135.45	36,016,927	32,876,938	43,058,312		2,049,024

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 312 BOILER PLANT EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
TRIMBLE COUNTY UNIT 2						
INTERIM SURVIVOR CURVE.. IOWA 57-R1						
PROBABLE RETIREMENT YEAR.. 6-2066						
NET SALVAGE PERCENT.. -11						
2011	124,221,351.48	24,232,033	26,426,371	111,459,330	36.96	3,015,675
2012	3,546,023.15	633,789	691,182	3,244,904	37.15	87,346
2013	731,299.72	118,295	129,007	682,735	37.34	18,284
2014	3,256,120.35	469,388	511,894	3,102,400	37.52	82,687
2015	4,470,832.37	563,605	614,642	4,347,982	37.70	115,331
2016	2,526,423.25	270,253	294,726	2,509,604	37.88	66,251
2017	4,385,620.47	381,995	416,587	4,451,452	38.05	116,990
2018	2,368,378.15	158,417	172,762	2,456,137	38.21	64,280
2019	112,586,819.59	5,091,334	5,552,381	119,418,989	38.38	3,111,490
2020	39,974,700.95	1,145,239	1,248,946	43,122,972	38.50	1,120,077
2021	1,175,365.76			1,304,656	38.69	33,721
	299,242,935.24	33,064,348	36,058,498	296,101,160		7,832,132
TRIMBLE COUNTY UNIT 2 SCRUBBER						
INTERIM SURVIVOR CURVE.. IOWA 57-R1						
PROBABLE RETIREMENT YEAR.. 6-2066						
NET SALVAGE PERCENT.. -11						
2011	14,357,017.63	2,800,644	4,098,340	11,837,949	36.96	320,291
2012	298,031.71	53,268	77,950	252,865	37.15	6,807
2013	141,070.30	22,820	33,394	123,194	37.34	3,299
2014	275,467.84	39,710	58,110	247,659	37.52	6,601
2016	18,889.14	2,021	2,957	18,010	37.88	475
2018	233,288.43	15,604	22,834	236,116	38.21	6,179
2019	28,662.52	1,296	1,897	29,919	38.38	780
	15,352,427.57	2,935,363	4,295,482	12,745,713		344,432
	2,699,918,862.49	967,950,968	708,649,088	2,208,642,864		166,609,105
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..					13.3	6.17

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 312.10 BOILER PLANT EQUIPMENT - ASH PONDS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
MILL CREEK UNIT 1						
INTERIM SURVIVOR CURVE.. IOWA 100-S4						
PROBABLE RETIREMENT YEAR.. 5-2021						
NET SALVAGE PERCENT.. 0						
1972	411,750.29	411,750	411,750			
	411,750.29	411,750	411,750			
TRIMBLE COUNTY UNIT 1						
INTERIM SURVIVOR CURVE.. IOWA 100-S4						
PROBABLE RETIREMENT YEAR.. 9-2024						
NET SALVAGE PERCENT.. 0						
1990	4,846,362.74	4,386,491	4,560,242	286,121	3.25	88,037
	4,846,362.74	4,386,491	4,560,242	286,121		88,037
TRIMBLE COUNTY UNIT 2						
INTERIM SURVIVOR CURVE.. IOWA 100-S4						
PROBABLE RETIREMENT YEAR.. 9-2023						
NET SALVAGE PERCENT.. 0						
2011	5,057,242.50	4,128,379	4,857,670	199,572	2.25	88,699
	5,057,242.50	4,128,379	4,857,670	199,572		88,699
	10,315,355.53	8,926,620	9,829,662	485,693		176,736

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 2.7 1.71

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 314 TURBOGENERATOR UNITS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
MILL CREEK UNIT 1						
INTERIM SURVIVOR CURVE.. IOWA 62-R2						
PROBABLE RETIREMENT YEAR.. 12-2024						
NET SALVAGE PERCENT.. -7						
1972	9,492,030.46	9,422,363	6,902,778	3,253,695	3.39	959,792
1975	33,622.25	33,237	24,349	11,627	3.41	3,410
1988	9,480.76	9,130	6,689	3,456	3.45	1,002
1993	971,441.12	920,156	674,102	365,340	3.46	105,590
1994	185,064.18	174,595	127,907	70,111	3.46	20,263
1995	28,446.40	26,724	19,578	10,860	3.46	3,139
1996	254,031.63	237,454	173,958	97,856	3.47	28,201
1999	18,356.35	16,883	12,368	7,273	3.47	2,096
2002	180,996.96	163,009	119,420	74,247	3.47	21,397
2003	110,940.36	99,016	72,539	46,168	3.48	13,267
2004	691,281.91	611,228	447,783	291,889	3.48	83,876
2007	200,644.13	171,202	125,422	89,267	3.48	25,651
2008	175,609.64	147,588	108,122	79,780	3.48	22,925
2012	78,256.06	60,139	44,058	39,676	3.48	11,401
2013	6,135,993.11	4,557,779	3,339,007	3,226,506	3.48	927,157
2015	6,242,518.01	4,204,808	3,080,422	3,599,072	3.49	1,031,253
2017	289,718.68	164,777	120,715	189,284	3.49	54,236
2019	2,160,475.35	836,769	613,013	1,698,696	3.49	486,732
	27,258,907.36	21,856,857	16,012,228	13,154,803		3,801,388
MILL CREEK UNIT 2						
INTERIM SURVIVOR CURVE.. IOWA 62-R2						
PROBABLE RETIREMENT YEAR.. 6-2028						
NET SALVAGE PERCENT.. -7						
1974	1,119,923.17	1,033,238	778,057	420,261	6.60	63,676
1975	9,398,966.31	8,647,521	6,511,822	3,545,072	6.62	535,509
1977	32,117.17	29,382	22,125	12,240	6.65	1,841
1986	8,428.02	7,455	5,614	3,404	6.77	503
1988	95,857.98	83,961	63,225	39,343	6.79	5,794
1995	666,220.77	557,689	419,955	292,901	6.85	42,759
1996	37,365.50	31,028	23,365	16,616	6.85	2,426
1997	333,008.13	274,016	206,342	149,977	6.86	21,863
1999	7,342.02	5,922	4,459	3,397	6.87	494
2003	1,519,049.93	1,163,579	876,207	749,176	6.89	108,734
2005	196,319.25	145,327	109,435	100,626	6.90	14,583
2007	109,533.51	77,715	58,522	58,679	6.91	8,492
2008	56,103.77	38,793	29,212	30,819	6.92	4,454

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 314 TURBOGENERATOR UNITS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
MILL CREEK UNIT 2						
INTERIM SURVIVOR CURVE.. IOWA 62-R2						
PROBABLE RETIREMENT YEAR.. 6-2028						
NET SALVAGE PERCENT.. -7						
2010	57,422.60	37,332	28,112	33,330	6.93	4,810
2011	266,698.44	166,948	125,716	159,651	6.93	23,038
2012	5,241,270.85	3,138,999	2,363,753	3,244,407	6.93	468,168
2013	75,226.48	42,697	32,152	48,340	6.94	6,965
2014	350,971.22	186,819	140,680	234,859	6.94	33,841
2015	7,505,834.09	3,690,356	2,778,940	5,252,302	6.94	756,816
2016	23,846.81	10,564	7,955	17,561	6.95	2,527
2017	53,605.89	20,752	15,627	41,731	6.95	6,004
2018	3,998,326.95	1,277,858	962,262	3,315,947	6.95	477,115
2019	156,779.14	37,194	28,008	139,746	6.95	20,107
2020	632,079.33	101,570	76,485	599,840	6.96	86,184
2021	4,650,000.00			4,975,500	6.96	714,871
	36,592,297.33	20,806,715	15,668,031	23,485,727		3,411,574
MILL CREEK UNIT 3						
INTERIM SURVIVOR CURVE.. IOWA 62-R2						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
1978	2,266,250.97	1,703,314	1,812,842	612,047	15.53	39,411
1982	15,626,084.24	11,381,410	12,113,266	4,606,644	15.91	289,544
1989	2,190.83	1,490	1,586	758	16.46	46
1993	27,599.26	17,835	18,982	10,549	16.71	631
1994	818,975.40	521,716	555,264	321,040	16.76	19,155
1995	95,715.34	60,028	63,888	38,527	16.82	2,291
1996	1,102,172.42	680,199	723,938	455,387	16.87	26,994
1997	173,326.36	105,122	111,882	73,578	16.92	4,349
1999	7,306.45	4,265	4,539	3,279	17.01	193
2003	93,622.72	49,661	52,854	47,322	17.18	2,754
2004	1,738,303.19	896,103	953,725	906,260	17.21	52,659
2006	107,283.05	51,761	55,089	59,703	17.28	3,455
2007	22,978.71	10,666	11,352	13,235	17.32	764
2008	1,164,544.43	518,138	551,456	694,607	17.35	40,035
2009	158,733.25	67,384	71,717	98,128	17.38	5,646
2010	259,674.18	104,530	111,252	166,600	17.41	9,569
2011	379,110.92	143,628	152,864	252,785	17.44	14,495
2012	3,009,914.03	1,065,313	1,133,816	2,086,792	17.46	119,518
2013	1,048,230.00	342,236	364,243	757,363	17.49	43,303

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 314 TURBOGENERATOR UNITS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
MILL CREEK UNIT 3						
INTERIM SURVIVOR CURVE.. IOWA 62-R2						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
2014	78,697.50	23,404	24,909	59,297	17.51	3,386
2015	2,980,238.84	790,390	841,214	2,347,641	17.54	133,845
2016	474,716.50	109,574	116,620	391,327	17.56	22,285
2017	140,504.14	27,124	28,868	121,471	17.58	6,910
2018	232,636.00	35,317	37,588	211,333	17.60	12,008
2019	628,555.70	66,704	70,993	601,561	17.62	34,141
2020	7,877,226.43	541,034	575,824	7,852,808	17.64	445,171
	40,514,590.86	19,318,346	20,560,569	22,790,044		1,332,558
MILL CREEK UNIT 4						
INTERIM SURVIVOR CURVE.. IOWA 62-R2						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
1984	24,918,666.61	17,833,796	16,756,669	9,906,304	16.08	616,064
1989	2,208.14	1,501	1,410	952	16.46	58
1990	10,208.27	6,862	6,448	4,475	16.52	271
1991	2,123,839.66	1,409,592	1,324,455	948,053	16.59	57,146
1992	1,626,712.57	1,065,828	1,001,454	739,128	16.65	44,392
1993	30,320.47	19,593	18,410	14,033	16.71	840
1994	51,864.99	33,040	31,044	24,451	16.76	1,459
1996	209,000.84	128,984	121,194	102,437	16.87	6,072
1997	474,920.55	288,038	270,641	237,524	16.92	14,038
1998	63,359.58	37,717	35,439	32,356	16.97	1,907
1999	7,342.02	4,286	4,027	3,829	17.01	225
2000	2,816.43	1,609	1,512	1,502	17.06	88
2001	732,712.71	409,210	384,495	399,508	17.10	23,363
2003	253,031.34	134,218	126,111	144,632	17.18	8,419
2005	1,800,731.23	899,037	844,737	1,082,046	17.25	62,727
2006	906,191.19	437,213	410,806	558,818	17.28	32,339
2008	367,793.70	163,641	153,757	239,782	17.35	13,820
2009	25,026.43	10,624	9,982	16,796	17.38	966
2011	3,696,430.48	1,400,411	1,315,829	2,639,352	17.44	151,339
2012	2,154,628.14	762,597	716,538	1,588,914	17.46	91,003
2013	139,939.53	45,689	42,929	106,806	17.49	6,107
2014	12,047,226.88	3,582,795	3,366,401	9,524,132	17.51	543,925
2015	873,461.09	231,651	217,660	716,944	17.54	40,875
2016	17,756.85	4,099	3,851	15,148	17.56	863

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 314 TURBOGENERATOR UNITS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
MILL CREEK UNIT 4						
INTERIM SURVIVOR CURVE.. IOWA 62-R2						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
2017	418,448.25	80,781	75,902	371,838	17.58	21,151
2018	4,126,931.82	626,516	588,676	3,827,141	17.60	217,451
2019	534,221.88	56,693	53,269	518,349	17.62	29,418
2020	513,404.73	35,262	33,132	516,211	17.64	29,264
2021	280,618.53			300,262	17.66	17,002
	58,409,814.91	29,711,283	27,916,779	34,581,723		2,032,592
TRIMBLE COUNTY UNIT 1						
INTERIM SURVIVOR CURVE.. IOWA 62-R2						
PROBABLE RETIREMENT YEAR.. 6-2045						
NET SALVAGE PERCENT.. -11						
1990	38,559,173.06	24,141,297	24,497,999	18,302,683	21.17	864,558
1994	38,695.05	22,712	23,048	19,904	21.61	921
1996	35,401.53	20,006	20,302	18,994	21.81	871
1997	231,629.41	128,230	130,125	126,984	21.90	5,798
1998	17,799.41	9,642	9,784	9,973	21.99	454
2000	38,003.50	19,615	19,905	22,279	22.16	1,005
2001	172,557.22	86,721	88,002	103,536	22.24	4,655
2002	1,510,698.73	737,892	748,795	928,081	22.32	41,581
2003	257,463.44	121,967	123,769	162,015	22.39	7,236
2005	65,186.67	28,804	29,230	43,128	22.53	1,914
2007	14,260,066.39	5,801,367	5,887,086	9,941,588	22.66	438,729
2008	40,206.06	15,592	15,822	28,806	22.72	1,268
2009	57,074.38	20,994	21,304	42,048	22.78	1,846
2010	575,109.60	199,338	202,283	436,088	22.84	19,093
2011	481,291.72	156,108	158,415	375,819	22.89	16,418
2012	38,994.69	11,732	11,905	31,379	22.94	1,368
2013	52,600.67	14,506	14,720	43,666	22.99	1,899
2014	195,870.01	48,753	49,473	167,942	23.04	7,289
2016	198,565.22	37,747	38,305	182,103	23.13	7,873
2017	1,883,063.44	296,495	300,876	1,789,325	23.17	77,226
2019	406,680.60	34,434	34,943	416,473	23.25	17,913
2020	355,032.82	19,480	19,768	374,319	23.27	16,086
	59,471,163.62	31,973,432	32,445,859	33,567,133		1,536,001

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 314 TURBOGENERATOR UNITS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
TRIMBLE COUNTY UNIT 2						
INTERIM SURVIVOR CURVE.. IOWA 62-R2						
PROBABLE RETIREMENT YEAR.. 6-2066						
NET SALVAGE PERCENT.. -11						
1990	4,145,218.19	2,055,261	2,131,642	2,469,550	32.43	76,150
2011	15,544,668.29	3,240,583	3,361,015	13,893,567	39.44	352,271
2012	15,127.01	2,888	2,995	13,796	39.67	348
2014	590,716.55	90,833	94,209	561,487	40.11	13,999
2015	136,494.28	18,302	18,982	132,526	40.32	3,287
2016	554,322.02	63,099	65,444	549,853	40.52	13,570
2017	353,619.72	32,775	33,993	358,525	40.72	8,805
2018	1,013,207.59	71,821	74,490	1,050,170	40.90	25,677
2019	339,096.86	16,388	16,997	359,400	41.08	8,749
2020	62,220.42	1,907	1,978	67,087	41.21	1,628
2021	802,482.90			890,756	41.42	21,505
	23,557,173.83	5,593,857	5,801,745	20,346,718		525,989
	245,803,947.91	129,260,490	118,405,211	147,926,148		12,640,102

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 11.7 5.14

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 315 ACCESSORY ELECTRIC EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
MILL CREEK UNIT 1						
INTERIM SURVIVOR CURVE.. IOWA 70-R3						
PROBABLE RETIREMENT YEAR.. 12-2024						
NET SALVAGE PERCENT.. -7						
1972	4,655,584.13	4,639,995	4,001,812	979,663	3.43	285,616
1974	782,485.11	777,713	670,747	166,512	3.44	48,405
1975	176,219.38	174,907	150,850	37,704	3.44	10,960
1985	6,939.48	6,758	5,829	1,597	3.47	460
1986	10,096.51	9,809	8,460	2,343	3.47	675
1987	44,680.97	43,298	37,343	10,466	3.47	3,016
1988	88,192.17	85,229	73,507	20,859	3.47	6,011
1989	96,763.03	93,213	80,393	23,144	3.48	6,651
1993	23,071.28	21,924	18,909	5,778	3.48	1,660
1994	178,344.24	168,795	145,579	45,249	3.48	13,003
1996	0.30		0			
1997	1,313,417.99	1,225,303	1,056,775	348,582	3.49	99,880
1998	147,043.85	136,435	117,670	39,667	3.49	11,366
2000	6,581,775.64	6,031,901	5,202,276	1,840,224	3.49	527,285
2001	216,842.59	197,327	170,187	61,835	3.49	17,718
2004	12,633.27	11,204	9,663	3,855	3.49	1,105
2008	4,667.04	3,934	3,393	1,601	3.49	459
2011	261,938.32	207,448	178,916	101,358	3.50	28,959
2013	19,456.75	14,472	12,482	8,337	3.50	2,382
2015	2,955,716.97	1,996,212	1,721,654	1,440,963	3.50	411,704
2017	533,319.71	303,992	262,181	308,471	3.50	88,135
2020	48,034.14	13,526	11,666	39,731	3.50	11,352
	18,157,222.87	16,163,395	13,940,289	5,487,939		1,576,802
MILL CREEK UNIT 1 SCRUBBER						
INTERIM SURVIVOR CURVE.. IOWA 70-R3						
PROBABLE RETIREMENT YEAR.. 12-2024						
NET SALVAGE PERCENT.. -7						
1983	202,167.22	197,824	77,298	139,021	3.46	40,179
	202,167.22	197,824	77,298	139,021		40,179

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 315 ACCESSORY ELECTRIC EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
MILL CREEK UNIT 2						
INTERIM SURVIVOR CURVE.. IOWA 70-R3						
PROBABLE RETIREMENT YEAR.. 6-2028						
NET SALVAGE PERCENT.. -7						
1975	4,553,182.05	4,219,118	3,330,399	1,541,506	6.76	228,033
1981	19,704.77	17,911	14,138	6,946	6.83	1,017
1983	8,343.81	7,526	5,941	2,987	6.85	436
1984	66,767.91	59,970	47,338	24,104	6.86	3,514
1986	19,863.78	17,686	13,961	7,294	6.87	1,062
1987	1,136.02	1,007	795	421	6.88	61
1988	82,230.58	72,478	57,211	30,776	6.89	4,467
1989	99,084.22	86,882	68,581	37,439	6.89	5,434
1990	46,374.58	40,427	31,911	17,709	6.90	2,567
1991	78,172.89	67,727	53,461	30,184	6.91	4,368
1993	74,345.76	63,561	50,172	29,378	6.92	4,245
1994	137,636.61	116,832	92,222	55,049	6.92	7,955
1997	50,039.49	41,407	32,685	20,857	6.94	3,005
1998	497,415.48	407,697	321,819	210,415	6.94	30,319
2001	292,163.02	231,422	182,675	129,939	6.95	18,696
2002	32,290.53	25,223	19,910	14,641	6.96	2,104
2005	3,582.67	2,664	2,103	1,731	6.97	248
2008	12,413.17	8,630	6,812	6,470	6.97	928
2012	195,890.66	117,877	93,047	116,556	6.98	16,699
2013	74,934.03	42,744	33,740	46,439	6.98	6,653
2014	46,004.41	24,577	19,400	29,825	6.99	4,267
2015	2,154,049.82	1,062,666	838,825	1,466,008	6.99	209,729
2016	4,342,229.81	1,932,999	1,525,830	3,120,356	6.99	446,403
2017	222,731.66	86,604	68,362	169,961	6.99	24,315
2018	254,706.25	81,652	64,453	208,083	6.99	29,769
2021	170,767.95			182,722	6.99	26,140
	13,536,061.93	8,837,287	6,975,793	7,507,793		1,082,434
MILL CREEK UNIT 2 SCRUBBER						
INTERIM SURVIVOR CURVE.. IOWA 70-R3						
PROBABLE RETIREMENT YEAR.. 6-2028						
NET SALVAGE PERCENT.. -7						
2015	5,652,402.38	2,788,523	1,521,098	4,526,973	6.99	647,636
	5,652,402.38	2,788,523	1,521,098	4,526,973		647,636

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 315 ACCESSORY ELECTRIC EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
MILL CREEK UNIT 3						
INTERIM SURVIVOR CURVE.. IOWA 70-R3						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
1982	13,276,397.39	9,783,213	11,698,598	2,507,147	16.69	150,219
1987	9,920.77	6,977	8,343	2,272	17.01	134
1988	3,216.41	2,237	2,675	767	17.07	45
1989	390,602.85	268,722	321,333	96,612	17.12	5,643
1990	149,490.92	101,645	121,545	38,410	17.17	2,237
1991	59,775.71	40,141	48,000	15,960	17.22	927
1993	94,506.06	61,786	73,883	27,239	17.31	1,574
1994	6,220.30	4,008	4,793	1,863	17.35	107
1997	151,032.51	92,611	110,743	50,862	17.47	2,911
2007	7,958.95	3,732	4,463	4,053	17.74	228
2009	173,586.98	74,396	88,961	96,777	17.78	5,443
2012	84,450.35	30,155	36,059	54,303	17.83	3,046
2013	10,931.77	3,603	4,308	7,389	17.84	414
2014	39,483.96	11,852	14,172	28,075	17.85	1,573
2015	142,795.73	38,213	45,694	107,097	17.87	5,993
2016	8,660,004.18	2,015,492	2,410,091	6,856,114	17.88	383,452
2017	57,007.62	11,100	13,273	47,725	17.89	2,668
2020	3,506,499.76	242,827	290,368	3,461,586	17.92	193,169
	26,823,882.22	12,792,710	15,297,303	13,404,251		759,783
MILL CREEL UNIT 3 SCRUBBER						
INTERIM SURVIVOR CURVE.. IOWA 70-R3						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
1982	1,013,024.76	746,485	1,067,076	16,860	16.69	1,010
1993	75,852.16	49,591	70,889	10,273	17.31	593
2016	28.09	7	10	20	17.88	1
	1,088,905.01	796,083	1,137,975	27,153		1,604
MILL CREEK UNIT 4						
INTERIM SURVIVOR CURVE.. IOWA 70-R3						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
1975	609,149.56	473,252	494,899	156,891	16.06	9,769
1981	2,131,025.09	1,583,734	1,656,177	624,020	16.61	37,569

LOUISVILLE GAS AND ELECTRIC COMPANY
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CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
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YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
MILL CREEK UNIT 4						
INTERIM SURVIVOR CURVE.. IOWA 70-R3						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
1983	428,952.91	313,400	327,735	131,244	16.76	7,831
1984	16,352,633.46	11,839,735	12,381,304	5,116,013	16.83	303,982
1985	68,217.60	48,942	51,181	21,812	16.89	1,291
1986	1,509,608.72	1,072,579	1,121,641	493,641	16.95	29,123
1987	19,350.05	13,608	14,230	6,474	17.01	381
1988	429,211.43	298,576	312,233	147,023	17.07	8,613
1989	432,447.04	297,509	311,118	151,601	17.12	8,855
1991	89,502.99	60,104	62,853	32,915	17.22	1,911
1994	6,234.60	4,018	4,202	2,469	17.35	142
1996	14,186.28	8,854	9,259	5,920	17.43	340
1997	46,145.81	28,296	29,590	19,786	17.47	1,133
2000	70,424.63	40,688	42,549	32,805	17.56	1,868
2001	24,205.51	13,666	14,291	11,609	17.59	660
2005	5,393.02	2,720	2,844	2,926	17.70	165
2007	8,331.74	3,907	4,086	4,829	17.74	272
2008	492,420.65	221,289	231,411	295,479	17.76	16,637
2009	58,508.31	25,075	26,222	36,382	17.78	2,046
2011	70,770.26	27,090	28,329	47,395	17.81	2,661
2012	1,134,985.85	405,269	423,807	790,628	17.83	44,343
2013	54,361.25	17,915	18,734	39,432	17.84	2,210
2014	3,655,807.26	1,097,353	1,147,548	2,764,166	17.85	154,855
2015	2,800,095.99	749,325	783,600	2,212,502	17.87	123,811
2016	23,292.87	5,421	5,669	19,254	17.88	1,077
2017	334,452.02	65,124	68,103	289,761	17.89	16,197
2018	901,083.30	138,000	144,312	819,847	17.90	45,802
2019	131,605.91	14,082	14,726	126,092	17.91	7,040
2020	1,641,681.14	113,687	118,887	1,637,712	17.92	91,390
2021	51,182.60			54,765	17.93	3,054
	33,595,267.85	18,983,218	19,851,542	16,095,394		925,028

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 315 ACCESSORY ELECTRIC EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
MILL CREEK UNIT 4 SCRUBBER						
INTERIM SURVIVOR CURVE.. IOWA 70-R3						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
1983	3,722.01	2,719	1,132	2,850	16.76	170
2003	53,899.52	28,893	12,031	45,642	17.65	2,586
2014	7,994,386.51	2,399,652	999,207	7,554,787	17.85	423,237
	8,052,008.04	2,431,264	1,012,370	7,603,279		425,993
TRIMBLE COUNTY UNIT 1						
INTERIM SURVIVOR CURVE.. IOWA 70-R3						
PROBABLE RETIREMENT YEAR.. 6-2045						
NET SALVAGE PERCENT.. -11						
1990	44,394,131.07	28,136,951	28,114,960	21,162,525	22.33	947,717
1992	7,925.03	4,870	4,866	3,931	22.52	175
1993	36,015.56	21,773	21,756	18,221	22.60	806
1994	3,105,541.63	1,844,743	1,843,301	1,603,850	22.68	70,716
1996	16,791.24	9,604	9,596	9,042	22.83	396
1997	11,557.40	6,473	6,468	6,361	22.91	278
1998	51,241.29	28,088	28,066	28,812	22.97	1,254
2000	79,034.14	41,270	41,238	46,490	23.10	2,013
2001	17,727.44	9,014	9,007	10,671	23.15	461
2003	31,908.05	15,285	15,273	20,145	23.26	866
2005	22,378.23	9,996	9,988	14,852	23.36	636
2009	249,300.73	92,711	92,639	184,085	23.52	7,827
2010	119,663.51	41,935	41,902	90,924	23.56	3,859
2011	694,741.82	227,802	227,624	543,539	23.59	23,041
2013	33,727.78	9,401	9,394	28,044	23.65	1,186
2015	15,555,328.27	3,463,815	3,461,108	13,805,307	23.71	582,257
2016	145,099.43	27,844	27,822	133,238	23.73	5,615
2017	319,840.64	50,956	50,916	304,107	23.75	12,805
2018	9,047.54	1,122	1,121	8,922	23.77	375
2019	559,035.60	47,899	47,862	572,668	23.79	24,072
2020	53,197.38	2,923	2,921	56,128	23.81	2,357
	65,513,233.78	34,094,475	34,067,828	38,651,861		1,688,712

LOUISVILLE GAS AND ELECTRIC COMPANY
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CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
TRIMBLE COUNTY UNIT 1 SCRUBBER						
INTERIM SURVIVOR CURVE.. IOWA 70-R3						
PROBABLE RETIREMENT YEAR.. 6-2045						
NET SALVAGE PERCENT.. -11						
1979	71,999.18	52,017	74,264	5,655	20.92	270
1990	2,664,921.03	1,689,024	2,411,395	546,667	22.33	24,481
	2,736,920.21	1,741,041	2,485,659	552,322		24,751
TRIMBLE COUNTY UNIT 2						
INTERIM SURVIVOR CURVE.. IOWA 70-R3						
PROBABLE RETIREMENT YEAR.. 6-2066						
NET SALVAGE PERCENT.. -11						
2010	34,379.96	7,793	8,371	29,790	42.05	708
2011	8,775,673.52	1,835,886	1,972,166	7,768,832	42.24	183,921
2012	1,130,271.18	216,607	232,686	1,021,915	42.41	24,096
2013	11,211.95	1,944	2,088	10,357	42.57	243
2014	108,078.94	16,679	17,917	102,051	42.73	2,388
2015	247,338.42	33,256	35,725	238,821	42.88	5,570
2016	206,007.20	23,512	25,257	203,411	43.02	4,728
2017	148,453.34	13,819	14,845	149,938	43.15	3,475
2018	265,514.08	18,865	20,265	274,455	43.28	6,341
2019	181,234.79	8,777	9,429	191,742	43.40	4,418
	11,108,163.38	2,177,138	2,338,749	9,991,312		235,888
TRIMBLE COUNTY UNIT 2 SCRUBBER						
INTERIM SURVIVOR CURVE.. IOWA 70-R3						
PROBABLE RETIREMENT YEAR.. 6-2066						
NET SALVAGE PERCENT.. -11						
2020	160,189.96	4,931	1,443	176,368	43.48	4,056
2021	153,726.30			170,636	43.62	3,912
	313,916.26	4,931	1,443	347,004		7,968
	186,780,151.15	101,007,889	98,707,347	104,334,302		7,416,778
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..					14.1	3.97

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 316 MISCELLANEOUS POWER PLANT EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
RIVERPORT DISTRIBUTION CENTER						
INTERIM SURVIVOR CURVE.. IOWA 43-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2063						
NET SALVAGE PERCENT.. -5						
2013	487,938.91	94,270	94,465	417,871	33.04	12,647
2016	21,052.85	2,640	2,645	19,460	34.65	562
2017	73,926.20	7,521	7,537	70,086	35.14	1,994
2018	211,524.94	16,409	16,443	205,658	35.60	5,777
2019	1,136,042.24	59,738	59,862	1,132,983	36.04	31,437
	1,930,485.14	180,578	180,952	1,846,057		52,417
MILL CREEK UNIT 1						
INTERIM SURVIVOR CURVE.. IOWA 43-R2.5						
PROBABLE RETIREMENT YEAR.. 12-2024						
NET SALVAGE PERCENT.. -7						
1972	325,508.28	322,952	284,735	63,559	3.00	21,186
2001	186,981.08	169,649	149,573	50,496	3.45	14,637
2003	50,572.50	45,141	39,799	14,313	3.46	4,137
2010	44,349.97	35,890	31,643	15,812	3.48	4,544
2012	17,602.50	13,527	11,926	6,908	3.48	1,985
2015	465.17	314	277	221	3.48	64
2018	19,818.59	9,767	8,611	12,595	3.49	3,609
2019	73,969.78	28,742	25,341	53,807	3.49	15,417
2020	124,106.99	34,813	30,693	102,101	3.49	29,255
2021	99,008.21			105,939	3.49	30,355
	942,383.07	660,795	582,599	425,751		125,189
MILL CREEK UNIT 2						
INTERIM SURVIVOR CURVE.. IOWA 43-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2028						
NET SALVAGE PERCENT.. -7						
1998	6,708.80	5,478	4,227	2,951	6.71	440
2005	3,862.94	2,862	2,208	1,925	6.84	281
2010	9,949.34	6,483	5,003	5,643	6.89	819
2012	33,862.98	20,306	15,669	20,565	6.91	2,976
2015	465.17	229	177	321	6.93	46
2018	19,818.55	6,334	4,888	16,318	6.95	2,348
	74,667.78	41,692	32,171	47,724		6,910

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 316 MISCELLANEOUS POWER PLANT EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
MILL CREEK UNIT 3						
INTERIM SURVIVOR CURVE.. IOWA 43-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
1978	214,095.26	177,685	221,641	7,441	9.56	778
1991	32,583.41	22,684	28,296	6,569	13.89	473
2000	3,303.47	1,936	2,415	1,120	15.84	71
2010	9,893.79	4,033	5,031	5,556	17.01	327
2013	30,699.31	10,141	12,650	20,199	17.22	1,173
2020	446,089.34	30,992	38,659	438,657	17.57	24,966
	736,664.58	247,471	308,691	479,540		27,788
MILL CREEK UNIT 4						
INTERIM SURVIVOR CURVE.. IOWA 43-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
1984	124,610.61	96,140	87,369	45,964	11.66	3,942
1985	68,236.26	51,929	47,191	25,821	12.01	2,150
1986	159,616.74	119,792	108,863	61,927	12.35	5,014
1987	106,357.14	78,684	71,506	42,297	12.68	3,336
1988	127,898.38	93,246	84,739	52,112	13.00	4,009
1989	71,689.31	51,492	46,794	29,913	13.31	2,247
1990	22,512.45	15,927	14,474	9,614	13.60	707
1991	780,820.05	543,603	494,009	341,468	13.89	24,584
1992	82,697.10	56,644	51,476	37,010	14.16	2,614
1993	68,211.00	45,937	41,746	31,240	14.42	2,166
1994	231,875.23	153,486	139,483	108,623	14.66	7,409
1995	348,194.87	226,350	205,700	166,869	14.89	11,207
1996	272,232.52	173,713	157,865	133,424	15.10	8,836
1997	189,595.60	118,582	107,764	95,104	15.31	6,212
1998	40,157.44	24,606	22,361	20,607	15.50	1,329
1999	489,727.15	293,743	266,944	257,064	15.67	16,405
2000	77,212.36	45,249	41,121	41,496	15.84	2,620
2001	227,359.32	129,991	118,132	125,143	16.00	7,821
2002	157,363.66	87,665	79,667	88,712	16.14	5,496
2003	654,741.27	354,539	322,194	378,379	16.28	23,242
2004	124,532.63	65,447	59,476	73,774	16.40	4,498
2005	107,873.72	54,872	49,866	65,559	16.52	3,968
2006	133,411.00	65,474	59,501	83,249	16.63	5,006
2007	121,810.79	57,438	52,198	78,140	16.74	4,668

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 316 MISCELLANEOUS POWER PLANT EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
MILL CREEK UNIT 4						
INTERIM SURVIVOR CURVE.. IOWA 43-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
2008	351,468.75	158,796	144,309	231,763	16.83	13,771
2009	251,491.03	108,322	98,440	170,656	16.92	10,086
2010	727,286.92	296,493	269,444	508,753	17.01	29,909
2011	471,954.35	181,221	164,688	340,303	17.08	19,924
2012	335,224.35	119,935	108,993	249,697	17.16	14,551
2013	345,085.25	113,988	103,589	265,652	17.22	15,427
2014	1,535,178.93	460,728	418,695	1,223,946	17.29	70,789
2015	216,332.66	57,920	52,636	178,840	17.35	10,308
2016	551,102.33	128,332	116,624	473,055	17.40	27,187
2017	873,932.88	170,096	154,578	780,530	17.45	44,730
2018	1,062,077.94	162,031	147,249	989,175	17.50	56,524
2019	123,162.01	13,185	11,982	119,801	17.54	6,830
2020	2,599,155.24	180,577	164,103	2,616,993	17.57	148,947
2021	421,934.06			451,469	17.62	25,623
	14,654,123.30	5,156,173	4,685,769	10,994,143		654,092
MILL CREEK UNIT 4 SCRUBBER						
INTERIM SURVIVOR CURVE.. IOWA 43-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
2005	11,565.66	5,883	12,375			
2008	9,333.18	4,217	9,804	182	16.83	11
2009	22,312.73	9,610	22,343	1,532	16.92	91
	43,211.57	19,710	44,522	1,714		102
TRIMBLE COUNTY UNIT 1						
INTERIM SURVIVOR CURVE.. IOWA 43-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2045						
NET SALVAGE PERCENT.. -11						
1990	1,630,050.53	1,131,499	1,171,121	638,235	15.66	40,756
1991	122,629.87	83,393	86,313	49,806	16.11	3,092
1994	50,812.34	32,348	33,481	22,921	17.40	1,317
1995	84,332.06	52,457	54,294	39,315	17.80	2,209
1996	128,289.84	77,907	80,635	61,767	18.18	3,398
1997	41,179.79	24,384	25,238	20,472	18.55	1,104

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 316 MISCELLANEOUS POWER PLANT EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
TRIMBLE COUNTY UNIT 1						
INTERIM SURVIVOR CURVE.. IOWA 43-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2045						
NET SALVAGE PERCENT.. -11						
1998	29,495.63	17,015	17,611	15,129	18.90	800
1999	23,663.84	13,279	13,744	12,523	19.24	651
2000	32,104.75	17,512	18,125	17,511	19.55	896
2001	17,645.02	9,339	9,666	9,920	19.85	500
2002	139,009.38	71,231	73,725	80,575	20.14	4,001
2003	146,287.98	72,442	74,979	87,401	20.41	4,282
2004	70,619.53	33,736	34,917	43,470	20.66	2,104
2005	30,898.33	14,206	14,703	19,594	20.89	938
2006	44,883.25	19,775	20,467	29,353	21.12	1,390
2008	93,478.28	37,443	38,754	65,007	21.52	3,021
2009	35,206.86	13,351	13,819	25,261	21.70	1,164
2010	143,772.49	51,298	53,094	106,493	21.87	4,869
2013	8,693.89	2,454	2,540	7,110	22.32	319
2017	70,491.32	11,308	11,704	66,541	22.79	2,920
2018	237,945.61	29,608	30,645	233,475	22.89	10,200
2019	8,137.47	700	725	8,308	22.98	362
2020	553,498.83	30,658	31,732	582,652	23.04	25,289
2021	2,906,431.03			3,226,138	23.14	139,418
	6,649,557.92	1,847,343	1,912,032	5,468,977		255,000
TRIMBLE COUNTY UNIT 2						
INTERIM SURVIVOR CURVE.. IOWA 43-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2066						
NET SALVAGE PERCENT.. -11						
2011	1,779,639.91	436,188	330,038	1,645,362	32.57	50,518
2012	95,216.25	21,194	16,036	89,654	33.25	2,696
2013	274,940.16	54,896	41,537	263,647	33.92	7,773
2014	264,128.32	46,593	35,254	257,928	34.56	7,463
2015	72,617.49	11,083	8,386	72,220	35.19	2,052
2016	136,297.87	17,562	13,288	138,002	35.79	3,856
2017	762,807.61	79,524	60,171	786,545	36.37	21,626
2018	452,098.75	35,720	27,027	474,802	36.93	12,857

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 316 MISCELLANEOUS POWER PLANT EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR	ORIGINAL COST	CALCULATED ACCRUED	ALLOC. BOOK RESERVE	FUTURE BOOK ACCRUALS	REM. LIFE	ANNUAL ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
TRIMBLE COUNTY UNIT 2						
INTERIM SURVIVOR CURVE.. IOWA 43-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2066						
NET SALVAGE PERCENT.. -11						
2019	195,734.99	10,435	7,896	209,370	37.46	5,589
2020	169,274.92	5,682	4,299	183,596	37.84	4,852
2021	454,687.25			504,703	38.44	13,130
	4,657,443.52	718,877	543,933	4,625,829		132,412
	29,688,536.88	8,872,639	8,290,669	23,889,735		1,253,910

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 19.1 4.22

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 331 STRUCTURES AND IMPROVEMENTS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
OHIO FALLS - NON-PROJECT						
INTERIM SURVIVOR CURVE.. IOWA 95-R2						
PROBABLE RETIREMENT YEAR.. 10-2045						
NET SALVAGE PERCENT.. -2						
1934	21,880.17	17,443	8,858	13,460	19.25	699
1949	1,073.95	814	413	682	20.91	33
1965	2,569.17	1,812	920	1,700	22.15	77
1986	3,175.00	1,893	961	2,277	23.15	98
2020	509,219.99	25,207	12,801	506,603	23.92	21,179
2021	207,333.12			211,480	23.94	8,834
	745,251.40	47,169	23,954	736,202		30,920
OHIO FALLS - PROJECT 289						
INTERIM SURVIVOR CURVE.. IOWA 95-R2						
PROBABLE RETIREMENT YEAR.. 10-2045						
NET SALVAGE PERCENT.. -2						
1934	2,694,315.39	2,147,912	1,921,054	827,147	19.25	42,969
1939	1,741.69	1,367	1,223	554	19.86	28
1950	1,532.13	1,157	1,035	528	21.01	25
1951	67,105.43	50,493	45,160	23,287	21.10	1,104
1962	4,935.39	3,537	3,163	1,871	21.95	85
1974	15,602.63	10,394	9,296	6,618	22.65	292
1978	2,098.38	1,355	1,212	928	22.83	41
1984	1,339.42	817	731	635	23.07	28
1992	139,461.04	76,674	68,576	73,674	23.34	3,157
1994	13,562.71	7,213	6,451	7,383	23.40	316
1995	109,318.86	57,100	51,069	60,436	23.43	2,579
1997	13,965.22	7,013	6,272	7,972	23.48	340
1998	31,540.40	15,497	13,860	18,311	23.51	779
2005	424,808.83	170,458	152,455	280,850	23.67	11,865
2007	204,665.26	75,631	67,643	141,116	23.71	5,952
2008	10,158.22	3,579	3,201	7,160	23.73	302
2009	149,446.41	49,935	44,661	107,774	23.75	4,538
2011	170,761.93	50,301	44,988	129,189	23.79	5,430
2012	1,017,271.28	277,998	248,636	788,980	23.80	33,150
2013	139,761.26	34,996	31,300	111,257	23.82	4,671
2014	49,953.01	11,295	10,102	40,850	23.84	1,714
2015	143,301.79	28,712	25,680	120,488	23.85	5,052
2017	178,585.29	25,573	22,872	159,285	23.88	6,670

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 331 STRUCTURES AND IMPROVEMENTS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
OHIO FALLS - PROJECT 289						
INTERIM SURVIVOR CURVE.. IOWA 95-R2						
PROBABLE RETIREMENT YEAR.. 10-2045						
NET SALVAGE PERCENT.. -2						
2018	27,463.65	3,050	2,728	25,285	23.90	1,058
2019	24,846.99	1,911	1,709	23,635	23.91	988
2020	1,302,899.00	64,494	57,682	1,271,275	23.92	53,147
	6,940,441.61	3,178,462	2,842,760	4,236,490		186,280
	7,685,693.01	3,225,631	2,866,714	4,972,692		217,200

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 22.9 2.83

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 332 RESERVOIRS, DAMS AND WATERWAYS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
OHIO FALLS - PROJECT 289						
INTERIM SURVIVOR CURVE.. IOWA 90-R2.5						
PROBABLE RETIREMENT YEAR.. 10-2045						
NET SALVAGE PERCENT.. -2						
1934	7,025.14	5,743	2,237	4,928	17.20	287
2004	3,102,143.38	1,297,095	505,329	2,658,857	23.78	111,811
2007	4,425,091.14	1,643,399	640,244	3,873,349	23.84	162,473
2008	2,031,897.63	719,584	280,339	1,792,196	23.86	75,113
2011	388,893.77	115,118	44,848	351,823	23.92	14,708
2012	1,485,219.29	407,530	158,768	1,356,156	23.94	56,648
2013	230,634.48	57,998	22,595	212,652	23.96	8,875
2014	2,267,579.18	515,228	200,725	2,112,206	23.97	88,119
2015	1,156,901.50	232,609	90,621	1,089,418	23.99	45,411
2016	996,484.01	172,628	67,253	949,160	24.00	39,548
2017	1,394,680.35	200,028	77,928	1,344,646	24.02	55,980
2018	1,735,145.26	193,515	75,391	1,694,458	24.03	70,514
2020	162,392.07	8,060	3,140	162,500	24.05	6,757
	19,384,087.20	5,568,535	2,169,419	17,602,350		736,244

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 23.9 3.80

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 333 WATER WHEELS, TURBINES AND GENERATORS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
OHIO FALLS - PROJECT 289						
INTERIM SURVIVOR CURVE.. IOWA 80-R3						
PROBABLE RETIREMENT YEAR.. 10-2045						
NET SALVAGE PERCENT.. -2						
2003	130,701.86	56,902	30,206	103,110	23.81	4,331
2005	180,534.43	73,314	38,918	145,227	23.87	6,084
2007	6,349,492.04	2,373,177	1,259,778	5,216,703	23.93	217,998
2008	8,874,906.49	3,161,733	1,678,376	7,374,029	23.96	307,764
2011	402,649.51	119,921	63,659	347,044	24.03	14,442
2012	16,754,729.19	4,627,412	2,456,418	14,633,406	24.05	608,458
2013	59,982.12	15,176	8,056	53,126	24.07	2,207
2014	30,249,299.14	6,908,274	3,667,192	27,187,093	24.09	1,128,563
2015	14,350,368.00	2,901,128	1,540,036	13,097,339	24.11	543,233
2016	13,293,005.92	2,311,922	1,227,262	12,331,604	24.13	511,049
2017	16,697,498.49	2,410,631	1,279,661	15,751,788	24.14	652,518
2018	7,237,865.80	810,612	430,306	6,952,317	24.16	287,761
2021	2,454,098.05			2,503,180	24.20	103,437
	117,035,131.04	25,770,202	13,679,867	105,695,967		4,387,845

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 24.1 3.75

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 334 ACCESSORY ELECTRIC EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
OHIO FALLS - PROJECT 289						
INTERIM SURVIVOR CURVE.. IOWA 80-R4						
PROBABLE RETIREMENT YEAR.. 10-2045						
NET SALVAGE PERCENT.. -2						
1934	33,467.77	30,364	15,965	18,172	8.84	2,056
1948	1,012.31	845	444	588	14.38	41
1952	4,047.87	3,282	1,726	2,403	16.12	149
1964	1,098.58	816	429	692	20.20	34
1968	1,684.70	1,214	638	1,080	21.10	51
1988	76,660.24	45,466	23,905	54,288	23.56	2,304
1989	743,189.41	434,736	228,578	529,476	23.62	22,416
1995	511,763.16	271,371	142,683	379,316	23.92	15,858
1996	5,886.92	3,061	1,609	4,395	23.96	183
2003	292,849.31	127,440	67,006	231,700	24.15	9,594
2004	10,626.42	4,473	2,352	8,487	24.17	351
2005	3,855.04	1,564	822	3,110	24.19	129
2007	215,718.55	80,525	42,339	177,694	24.22	7,337
2008	86,395.31	30,756	16,171	71,952	24.23	2,970
2011	119,125.54	35,467	18,648	102,860	24.26	4,240
2012	635,402.38	175,320	92,181	555,930	24.27	22,906
2014	1,506,974.47	343,499	180,607	1,356,507	24.29	55,846
2015	707,169.27	142,885	75,127	646,186	24.29	26,603
2016	655,063.70	114,022	59,951	608,214	24.30	25,029
2017	791,851.48	114,159	60,023	747,665	24.30	30,768
2018	137,222.01	15,375	8,084	131,883	24.31	5,425
2019	27,731.81	2,150	1,130	27,156	24.31	1,117
	6,568,796.25	1,978,790	1,040,418	5,659,754		235,407

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 24.0 3.58

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 335 MISCELLANEOUS POWER PLANT EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
OHIO FALLS - NON-PROJECT						
INTERIM SURVIVOR CURVE.. IOWA 70-R3						
PROBABLE RETIREMENT YEAR.. 10-2045						
NET SALVAGE PERCENT.. -2						
2008	3,782.01	1,350	2,409	1,449	23.80	61
2020	16,164.76	812	1,449	15,039	24.13	623
	19,946.77	2,162	3,858	16,488		684
OHIO FALLS - PROJECT 289						
INTERIM SURVIVOR CURVE.. IOWA 70-R3						
PROBABLE RETIREMENT YEAR.. 10-2045						
NET SALVAGE PERCENT.. -2						
1986	2,076.71	1,270	2,118			
1988	2,360.29	1,406	2,407			
1996	34,804.27	18,173	35,500			
2005	4,942.65	2,013	4,020	1,022	23.67	43
2007	18,237.85	6,832	13,643	4,960	23.76	209
2009	31,738.01	10,743	21,453	10,920	23.84	458
2010	28,599.70	9,128	18,228	10,944	23.87	458
2014	29,816.43	6,822	13,623	16,790	24.00	700
2019	27,106.23	2,107	4,208	23,441	24.12	972
	179,682.14	58,494	115,200	68,076		2,840
	199,628.91	60,656	119,058	84,564		3,524

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 24.0 1.77

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 336 ROADS, RAILROADS AND BRIDGES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
OHIO FALLS - NON-PROJECT						
INTERIM SURVIVOR CURVE.. IOWA 80-S4						
PROBABLE RETIREMENT YEAR.. 10-2045						
NET SALVAGE PERCENT.. -2						
2020	1,524,326.19	75,984	81,056	1,473,757	24.33	60,574
	1,524,326.19	75,984	81,056	1,473,757		60,574
OHIO FALLS - PROJECT 289						
INTERIM SURVIVOR CURVE.. IOWA 80-S4						
PROBABLE RETIREMENT YEAR.. 10-2045						
NET SALVAGE PERCENT.. -2						
1934	8,609.68	7,822	3,078	5,704	8.74	653
1941	1,133.98	1,000	393	763	10.79	71
1992	2,375.81	1,321	520	1,904	24.21	79
	12,119.47	10,143	3,991	8,371		803
	1,536,445.66	86,127	85,047	1,482,128		61,377

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 24.1 3.99

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 341 STRUCTURES AND IMPROVEMENTS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
CANE RUN CC 7						
INTERIM SURVIVOR CURVE.. IOWA 60-R4						
PROBABLE RETIREMENT YEAR.. 6-2055						
NET SALVAGE PERCENT.. -11						
1955	726,068.85	719,838	786,299	19,637	6.41	3,063
1956	8,223.71	8,101	8,849	279	6.75	41
1959	1,016,742.68	979,984	1,070,464	58,121	7.90	7,357
1967	1,038,868.75	921,558	1,006,643	146,501	12.05	12,158
1970	754,674.08	642,364	701,672	136,016	13.99	9,722
2015	13,217,224.04	2,226,489	2,432,056	12,239,063	33.48	365,563
2016	18,415.36	2,652	2,897	17,544	33.54	523
2017	443,313.39	52,347	57,180	434,898	33.60	12,943
2018	391,545.28	35,578	38,863	395,752	33.65	11,761
2019	94,374.75	5,868	6,410	98,346	33.70	2,918
2020	42,899.88	1,701	1,858	45,761	33.73	1,357
	17,752,350.77	5,596,480	6,113,191	13,591,918		427,406
ZORN AND RIVER ROAD GAS TURBINE						
INTERIM SURVIVOR CURVE.. IOWA 60-R4						
PROBABLE RETIREMENT YEAR.. 6-2021						
NET SALVAGE PERCENT.. -9						
1970	8,241.14	8,983	8,983			
	8,241.14	8,983	8,983			
PADDY'S RUN GENERATOR 12						
INTERIM SURVIVOR CURVE.. IOWA 60-R4						
PROBABLE RETIREMENT YEAR.. 6-2025						
NET SALVAGE PERCENT.. -6						
1970	42,864.53	42,124	45,436			
2009	21,248.82	16,889	22,524			
	64,113.35	59,013	67,960			

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 341 STRUCTURES AND IMPROVEMENTS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
PADDY'S RUN GENERATOR 13						
INTERIM SURVIVOR CURVE.. IOWA 60-R4						
PROBABLE RETIREMENT YEAR.. 6-2041						
NET SALVAGE PERCENT.. -6						
2001	2,149,662.53	1,148,846	1,452,539	826,103	19.57	42,213
2002	4,500.00	2,342	2,961	1,809	19.62	92
2013	47,564.58	14,434	18,250	32,169	19.92	1,615
2015	200,761.69	49,222	62,234	150,574	19.94	7,551
2016	9,437.69	2,005	2,535	7,469	19.95	374
2017	53,699.09	9,502	12,014	44,907	19.96	2,250
2018	18,459.80	2,556	3,232	16,336	19.97	818
	2,484,085.38	1,228,907	1,553,764	1,079,367		54,913
BROWN CT 5						
INTERIM SURVIVOR CURVE.. IOWA 60-R4						
PROBABLE RETIREMENT YEAR.. 6-2041						
NET SALVAGE PERCENT.. -7						
2001	766,825.66	413,681	458,247	362,256	19.57	18,511
2002	1,258.00	661	732	614	19.62	31
2015	12,199.46	3,019	3,344	9,709	19.94	487
2016	391,686.95	83,989	93,037	326,068	19.95	16,344
	1,171,970.07	501,350	555,361	698,647		35,373
BROWN CT 6						
INTERIM SURVIVOR CURVE.. IOWA 60-R4						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
2000	56,712.22	32,907	38,130	22,552	17.64	1,278
2006	36,244.46	17,694	20,503	18,279	17.84	1,025
2019	29,892.37	3,202	3,710	28,275	17.98	1,573
	122,849.05	53,803	62,343	69,105		3,876

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 341 STRUCTURES AND IMPROVEMENTS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
BROWN CT 7						
INTERIM SURVIVOR CURVE.. IOWA 60-R4						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
2000	103,306.63	59,944	74,765	35,773	17.64	2,028
2003	2,493.80	1,341	1,673	996	17.76	56
2006	36,032.36	17,591	21,940	16,614	17.84	931
	141,832.79	78,876	98,379	53,383		3,015
TRIMBLE COUNTY CT 5						
INTERIM SURVIVOR CURVE.. IOWA 60-R4						
PROBABLE RETIREMENT YEAR.. 6-2042						
NET SALVAGE PERCENT.. -9						
2002	1,458,614.33	762,114	937,150	652,739	20.55	31,763
2004	11,339.85	5,572	6,852	5,509	20.65	267
2005	85,700.90	40,654	49,991	43,423	20.70	2,098
	1,555,655.08	808,340	993,993	701,671		34,128
TRIMBLE COUNTY CT 6						
INTERIM SURVIVOR CURVE.. IOWA 60-R4						
PROBABLE RETIREMENT YEAR.. 6-2042						
NET SALVAGE PERCENT.. -9						
2002	1,457,842.69	761,710	934,146	654,903	20.55	31,869
2004	10,081.20	4,954	6,075	4,913	20.65	238
	1,467,923.89	766,664	940,221	659,816		32,107
TRIMBLE COUNTY CT 7						
INTERIM SURVIVOR CURVE.. IOWA 60-R4						
PROBABLE RETIREMENT YEAR.. 6-2044						
NET SALVAGE PERCENT.. -9						
2004	2,083,698.13	974,790	1,206,783	1,064,448	22.53	47,246
	2,083,698.13	974,790	1,206,783	1,064,448		47,246

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 341 STRUCTURES AND IMPROVEMENTS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
TRIMBLE COUNTY CT 8						
INTERIM SURVIVOR CURVE.. IOWA 60-R4						
PROBABLE RETIREMENT YEAR.. 6-2044						
NET SALVAGE PERCENT.. -9						
2004	2,075,526.50	970,967	1,202,049	1,060,275	22.53	47,061
	2,075,526.50	970,967	1,202,049	1,060,275		47,061
TRIMBLE COUNTY CT 9						
INTERIM SURVIVOR CURVE.. IOWA 60-R4						
PROBABLE RETIREMENT YEAR.. 6-2044						
NET SALVAGE PERCENT.. -9						
2004	2,137,402.33	999,913	1,234,234	1,095,535	22.53	48,626
	2,137,402.33	999,913	1,234,234	1,095,535		48,626
TRIMBLE COUNTY CT 10						
INTERIM SURVIVOR CURVE.. IOWA 60-R4						
PROBABLE RETIREMENT YEAR.. 6-2044						
NET SALVAGE PERCENT.. -9						
2004	2,132,789.69	997,755	1,205,768	1,118,972	22.53	49,666
2017	382,160.00	61,871	74,770	341,784	22.93	14,906
2018	10,063.53	1,269	1,534	9,436	22.94	411
	2,525,013.22	1,060,895	1,282,072	1,470,192		64,983
BROWN SOLAR						
INTERIM SURVIVOR CURVE.. IOWA 40-S3						
PROBABLE RETIREMENT YEAR.. 6-2041						
NET SALVAGE PERCENT.. -3						
2016	923,945.85	192,179	175,074	776,590	19.76	39,301
	923,945.85	192,179	175,074	776,590		39,301

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 341 STRUCTURES AND IMPROVEMENTS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SIMPSONVILLE SOLAR						
INTERIM SURVIVOR CURVE.. IOWA 40-S3						
PROBABLE RETIREMENT YEAR.. 6-2044						
NET SALVAGE PERCENT.. -1						
2019	629,097.75	51,327	47,796	587,592	22.76	25,817
2020	10,091.80	530	494	9,699	22.81	425
	639,189.55	51,857	48,290	597,291		26,242
	35,153,797.10	13,353,017	15,542,697	22,918,238		864,277
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..					26.5	2.46

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 341.2 STRUCTURES AND IMPROVEMENT - RETIRED PLANT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR	ORIGINAL COST	CALCULATED ACCRUED	ALLOC. BOOK RESERVE	FUTURE BOOK ACCRUALS	REM. LIFE	ANNUAL ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CANE RUN GT 11						
INTERIM SURVIVOR CURVE.. IOWA 60-R4						
PROBABLE RETIREMENT YEAR.. 6-2018						
NET SALVAGE PERCENT.. -10						
1970	23,139.35	25,453	25,453			
1982	11,803.86	12,984	12,984			
2009	59,937.11	65,931	65,931			
2011	108,072.94	118,880	118,880			
2016	117,784.68	129,563	479,473	349,910-		
	320,737.94	352,811	702,722	349,910-		

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 0.0 0.00

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 342 FUEL HOLDERS, PRODUCERS AND ACCESSORIES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
CANE RUN CC 7						
INTERIM SURVIVOR CURVE.. IOWA 55-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2055						
NET SALVAGE PERCENT.. -11						
2015	1,761,469.29	298,955	1,117,866	837,365	31.80	26,332
2017	77,880.00	9,244	34,566	51,881	32.07	1,618
	1,839,349.29	308,199	1,152,432	889,246		27,950
CANE RUN PIPELINE						
INTERIM SURVIVOR CURVE.. IOWA 55-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2055						
NET SALVAGE PERCENT.. -11						
2015	6,602,221.07	1,120,522	1,127,572	6,200,893	31.80	194,997
	6,602,221.07	1,120,522	1,127,572	6,200,893		194,997
ZORN AND RIVER ROAD GAS TURBINE						
INTERIM SURVIVOR CURVE.. IOWA 55-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2021						
NET SALVAGE PERCENT.. -9						
1970	8,880.48	9,680	9,680			
2011	13,348.54	14,550	14,549	1		
	22,229.02	24,230	24,229	1		
PADDY'S RUN GENERATOR 11						
INTERIM SURVIVOR CURVE.. IOWA 55-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2025						
NET SALVAGE PERCENT.. -6						
1970	9,237.57	9,026	9,792			
	9,237.57	9,026	9,792			

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 342 FUEL HOLDERS, PRODUCERS AND ACCESSORIES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
PADDY'S RUN GENERATOR 12						
INTERIM SURVIVOR CURVE.. IOWA 55-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2025						
NET SALVAGE PERCENT.. -6						
1970	9,978.71	9,751	10,577			
1984	2,218.40	2,113	2,352			
2011	9,469.97	7,156	10,038			
	21,667.08	19,020	22,967			
PADDY'S RUN GENERATOR 13						
INTERIM SURVIVOR CURVE.. IOWA 55-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2041						
NET SALVAGE PERCENT.. -6						
2001	2,228,523.85	1,185,511	1,481,768	880,467	18.70	47,084
2002	5,250.00	2,720	3,400	2,165	18.78	115
2014	1,326.76	364	455	951	19.44	49
	2,235,100.61	1,188,595	1,485,623	883,584		47,248
PADDY'S RUN CT PIPELINE						
INTERIM SURVIVOR CURVE.. IOWA 55-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2041						
NET SALVAGE PERCENT.. -6						
2016	7,693,302.29	1,628,289	1,163,640	6,991,260	19.52	358,159
	7,693,302.29	1,628,289	1,163,640	6,991,260		358,159
BROWN CT 5						
INTERIM SURVIVOR CURVE.. IOWA 55-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2041						
NET SALVAGE PERCENT.. -7						
2001	762,655.49	409,539	503,416	312,626	18.70	16,718
2002	943.92	494	607	403	18.78	21
2010	83,307.22	31,633	38,884	50,255	19.27	2,608
	846,906.63	441,666	542,907	363,283		19,347

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 342 FUEL HOLDERS, PRODUCERS AND ACCESSORIES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
BROWN CT 6						
INTERIM SURVIVOR CURVE.. IOWA 55-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
2000	276,555.92	159,519	194,796	101,119	16.93	5,973
2010	83,307.22	33,757	41,222	47,917	17.44	2,748
2011	43,196.99	16,474	20,117	26,104	17.48	1,493
2014	342,181.83	102,379	125,020	241,115	17.57	13,723
2018	20,762.68	3,158	3,856	18,360	17.68	1,038
	766,004.64	315,287	385,011	434,614		24,975
BROWN CT 7						
INTERIM SURVIVOR CURVE.. IOWA 55-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
2000	14,858.91	8,571	11,139	4,760	16.93	281
2010	83,307.24	33,757	43,871	45,268	17.44	2,596
2011	43,197.01	16,474	21,410	24,811	17.48	1,419
2014	342,181.77	102,379	133,052	233,083	17.57	13,266
	483,544.93	161,181	209,471	307,922		17,562
TRIMBLE COUNTY CT 5						
INTERIM SURVIVOR CURVE.. IOWA 55-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2042						
NET SALVAGE PERCENT.. -9						
2002	97,240.96	50,568	63,165	42,828	19.63	2,182
2004	755.94	370	462	362	19.79	18
	97,996.90	50,938	63,627	43,190		2,200
TRIMBLE COUNTY CT 6						
INTERIM SURVIVOR CURVE.. IOWA 55-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2042						
NET SALVAGE PERCENT.. -9						
2002	97,189.52	50,541	63,134	42,803	19.63	2,180
2004	672.06	329	411	322	19.79	16
	97,861.58	50,870	63,545	43,124		2,196

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 342 FUEL HOLDERS, PRODUCERS AND ACCESSORIES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
TRIMBLE COUNTY CT PIPELINE						
INTERIM SURVIVOR CURVE.. IOWA 55-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2044						
NET SALVAGE PERCENT.. -9						
2002	1,835,164.93	912,490	1,147,151	853,179	21.28	40,093
2005	157,329.57	70,780	88,982	82,507	21.57	3,825
2006	5,896.12	2,552	3,208	3,218	21.65	149
2013	2,405.48	678	852	1,770	22.15	80
2017	319,678.10	51,658	64,943	283,506	22.35	12,685
	2,320,474.20	1,038,158	1,305,136	1,224,181		56,832
TRIMBLE COUNTY CT 7						
INTERIM SURVIVOR CURVE.. IOWA 55-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2044						
NET SALVAGE PERCENT.. -9						
2004	338,423.07	157,811	199,021	169,860	21.48	7,908
	338,423.07	157,811	199,021	169,860		7,908
TRIMBLE COUNTY CT 8						
INTERIM SURVIVOR CURVE.. IOWA 55-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2044						
NET SALVAGE PERCENT.. -9						
2004	337,096.18	157,192	198,242	169,193	21.48	7,877
	337,096.18	157,192	198,242	169,193		7,877
TRIMBLE COUNTY CT 9						
INTERIM SURVIVOR CURVE.. IOWA 55-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2044						
NET SALVAGE PERCENT.. -9						
2004	347,146.53	161,879	203,577	174,813	21.48	8,138
	347,146.53	161,879	203,577	174,813		8,138

LOUISVILLE GAS AND ELECTRIC COMPANY
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ACCOUNT 342 FUEL HOLDERS, PRODUCERS AND ACCESSORIES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR	ORIGINAL COST	CALCULATED ACCRUED	ALLOC. BOOK RESERVE	FUTURE BOOK ACCRUALS	REM. LIFE	ANNUAL ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
TRIMBLE COUNTY CT 10						
INTERIM SURVIVOR CURVE.. IOWA 55-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2044						
NET SALVAGE PERCENT.. -9						
2004	346,397.46	161,530	198,004	179,569	21.48	8,360
2007	15,462.56	6,409	7,856	8,998	21.74	414
2017	84,660.00	13,680	16,769	75,510	22.35	3,379
	446,520.02	181,619	222,629	264,078		12,153
	24,505,081.61	7,014,482	8,379,421	18,159,242		787,542
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..					23.1	3.21

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 343 PRIME MOVERS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
CANE RUN CC 7						
INTERIM SURVIVOR CURVE.. IOWA 35-R1.5						
PROBABLE RETIREMENT YEAR.. 6-2055						
NET SALVAGE PERCENT.. -11						
2015	67,789,826.55	11,912,306	8,664,418	66,582,289	26.37	2,524,926
2016	58,558.82	8,766	6,376	58,624	26.75	2,192
2017	2,505,665.30	305,775	222,406	2,558,883	27.12	94,354
2018	235,275.68	22,023	16,018	245,138	27.47	8,924
2019	411,892.45	26,339	19,158	438,043	27.81	15,751
2020	6,016,785.70	245,373	178,472	6,500,160	28.05	231,735
2021	211,474.36			234,737	28.44	8,254
	77,229,478.86	12,520,582	9,106,848	76,617,874		2,886,136
PADDY'S RUN GENERATOR 13						
INTERIM SURVIVOR CURVE.. IOWA 35-R1.5						
PROBABLE RETIREMENT YEAR.. 6-2041						
NET SALVAGE PERCENT.. -6						
2001	15,349,838.34	8,241,826	9,547,815	6,723,014	15.46	434,865
2002	43,500.00	22,682	26,276	19,834	15.71	1,263
2004	46,174.72	22,548	26,121	22,824	16.18	1,411
2005	26,959.17	12,705	14,718	13,859	16.39	846
2007	54,465.86	23,650	27,398	30,336	16.79	1,807
2009	1,932,208.56	760,065	880,504	1,167,637	17.15	68,084
2011	3,715,731.81	1,294,721	1,499,881	2,438,795	17.46	139,679
2012	429,269.99	139,111	161,154	293,872	17.60	16,697
2013	47,564.58	14,169	16,414	34,004	17.73	1,918
2014	128,595.73	34,704	40,203	96,108	17.86	5,381
2017	149,511.87	25,879	29,980	128,503	18.19	7,064
2019	222,660.16	21,053	24,389	211,631	18.38	11,514
	22,146,480.79	10,613,113	12,294,853	11,180,416		690,529
BROWN CT 5						
INTERIM SURVIVOR CURVE.. IOWA 35-R1.5						
PROBABLE RETIREMENT YEAR.. 6-2041						
NET SALVAGE PERCENT.. -7						
2001	12,011,493.92	6,510,203	7,760,432	5,091,866	15.46	329,357
2002	18,246.00	9,604	11,448	8,075	15.71	514
2006	179,014.46	81,865	97,586	93,959	16.60	5,660
2007	19,389.37	8,498	10,130	10,617	16.79	632

LOUISVILLE GAS AND ELECTRIC COMPANY
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ACCOUNT 343 PRIME MOVERS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
BROWN CT 5						
INTERIM SURVIVOR CURVE.. IOWA 35-R1.5						
PROBABLE RETIREMENT YEAR.. 6-2041						
NET SALVAGE PERCENT.. -7						
2011	1,686,101.02	593,053	706,944	1,097,184	17.46	62,840
2012	91,482.16	29,926	35,673	62,213	17.60	3,535
2017	4,448,053.14	777,165	926,413	3,833,004	18.19	210,720
2018	36,262.33	4,959	5,911	32,889	18.29	1,798
	18,490,042.40	8,015,273	9,554,538	10,229,807		615,056
BROWN CT 6						
INTERIM SURVIVOR CURVE.. IOWA 35-R1.5						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
2000	10,273,161.16	5,944,077	6,130,116	4,862,167	14.20	342,406
2003	267,629.11	142,552	147,014	139,350	14.82	9,403
2006	2,300,856.09	1,106,853	1,141,496	1,320,421	15.34	86,077
2007	13,901.82	6,426	6,627	8,248	15.49	532
2008	3,799,248.65	1,679,454	1,732,018	2,333,178	15.64	149,180
2009	94,897.04	39,975	41,226	60,314	15.77	3,825
2010	191,580.29	76,417	78,809	126,182	15.90	7,936
2012	87,292.43	30,523	31,478	61,925	16.13	3,839
2014	38,055.90	11,166	11,515	29,204	16.33	1,788
2015	29,122.16	7,625	7,864	23,297	16.42	1,419
2018	95,916.38	14,359	14,808	87,822	16.66	5,271
2019	6,910,254.30	721,430	744,009	6,649,963	16.74	397,250
2020	493,957.61	33,604	34,656	493,879	16.79	29,415
	24,595,872.94	9,814,461	10,121,636	16,195,948		1,038,341
BROWN CT 7						
INTERIM SURVIVOR CURVE.. IOWA 35-R1.5						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
1999	40,943.08	24,261	31,145	12,664	13.98	906
2000	12,616,482.04	7,299,928	9,371,399	4,128,237	14.20	290,721
2001	1,389,112.87	782,935	1,005,105	481,245	14.42	33,373
2004	21,963.88	11,341	14,559	8,942	15.00	596
2006	2,123,163.65	1,021,372	1,311,203	960,582	15.34	62,619
2007	13,901.82	6,426	8,249	6,625	15.49	428

LOUISVILLE GAS AND ELECTRIC COMPANY
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ACCOUNT 343 PRIME MOVERS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
BROWN CT 7						
INTERIM SURVIVOR CURVE.. IOWA 35-R1.5						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
2009	2,206,369.93	929,430	1,193,171	1,167,645	15.77	74,042
2012	109,501.73	38,289	49,154	68,013	16.13	4,217
2013	63,940.18	20,637	26,493	41,923	16.23	2,583
2015	29,122.13	7,625	9,789	21,372	16.42	1,302
2020	143,397.89	9,755	12,523	140,913	16.79	8,393
	18,757,899.20	10,151,999	13,032,791	7,038,161		479,180
TRIMBLE COUNTY CT 5						
INTERIM SURVIVOR CURVE.. IOWA 35-R1.5						
PROBABLE RETIREMENT YEAR.. 6-2042						
NET SALVAGE PERCENT.. -9						
2002	11,497,779.76	6,048,223	7,394,155	5,138,425	16.21	316,991
2004	237,995.35	117,064	143,115	116,300	16.72	6,956
2005	67,728.62	32,089	39,230	34,594	16.96	2,040
2007	17,083.25	7,444	9,101	9,520	17.40	547
2010	25,132.71	9,333	11,410	15,985	17.98	889
2011	220,864.22	76,874	93,981	146,761	18.14	8,090
2012	1,135,022.91	366,723	448,331	788,844	18.30	43,106
2013	9,781.51	2,902	3,548	7,114	18.45	386
2014	35,366.84	9,489	11,601	26,949	18.59	1,450
2016	601,794.45	123,910	151,484	504,472	18.85	26,762
2017	1,850,721.91	317,380	388,008	1,629,279	18.96	85,932
2018	25,766.79	3,449	4,217	23,869	19.07	1,252
2019	19,153.98	1,782	2,179	18,699	19.18	975
2020	288,512.88	17,290	21,138	293,341	19.25	15,238
2021	3,044,246.61			3,318,229	19.37	171,308
	19,076,951.79	7,133,952	8,721,495	12,072,382		681,922
TRIMBLE COUNTY CT 6						
INTERIM SURVIVOR CURVE.. IOWA 35-R1.5						
PROBABLE RETIREMENT YEAR.. 6-2042						
NET SALVAGE PERCENT.. -9						
2002	11,425,692.29	6,010,303	7,248,500	5,205,505	16.21	321,129
2004	217,980.82	107,219	129,307	108,292	16.72	6,477
2007	3,918.62	1,708	2,060	2,211	17.40	127

LOUISVILLE GAS AND ELECTRIC COMPANY
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CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
TRIMBLE COUNTY CT 6						
INTERIM SURVIVOR CURVE.. IOWA 35-R1.5						
PROBABLE RETIREMENT YEAR.. 6-2042						
NET SALVAGE PERCENT.. -9						
2009	9,037.13	3,559	4,292	5,558	17.80	312
2010	9,920.21	3,684	4,443	6,370	17.98	354
2011	958,951.24	333,771	402,532	642,725	18.14	35,431
2012	336,317.02	108,663	131,049	235,537	18.30	12,871
2013	704,445.72	209,000	252,057	515,789	18.45	27,956
2014	35,337.81	9,481	11,434	27,084	18.59	1,457
2016	724,971.99	149,272	180,024	610,196	18.85	32,371
2021	161,369.95			175,893	19.37	9,081
	14,587,942.80	6,936,660	8,365,698	7,535,160		447,566
TRIMBLE COUNTY CT 7						
INTERIM SURVIVOR CURVE.. IOWA 35-R1.5						
PROBABLE RETIREMENT YEAR.. 6-2044						
NET SALVAGE PERCENT.. -9						
2004	11,688,560.70	5,534,614	6,741,972	5,998,559	17.72	338,519
2005	192,132.86	87,508	106,598	102,827	18.00	5,713
2006	34,314.19	14,964	18,228	19,174	18.28	1,049
2007	2,499.81	1,041	1,268	1,457	18.54	79
2011	281,775.88	92,902	113,168	193,967	19.44	9,978
2012	1,876,209.22	572,190	697,011	1,348,057	19.64	68,638
2013	10,202.23	2,850	3,472	7,649	19.82	386
2014	45,055.31	11,347	13,822	35,288	20.00	1,764
2018	1,549,981.31	191,925	233,793	1,455,687	20.60	70,664
2020	69,261.75	3,822	4,656	70,840	20.82	3,402
	15,749,993.26	6,513,163	7,933,988	9,233,505		500,192
TRIMBLE COUNTY CT 8						
INTERIM SURVIVOR CURVE.. IOWA 35-R1.5						
PROBABLE RETIREMENT YEAR.. 6-2044						
NET SALVAGE PERCENT.. -9						
2004	12,010,900.72	5,687,244	6,999,964	6,091,917	17.72	343,788
2006	173,870.82	75,821	93,322	96,197	18.28	5,262
2007	2,499.81	1,041	1,281	1,444	18.54	78
2010	9,920.21	3,498	4,305	6,508	19.24	338
2011	281,776.08	92,902	114,345	192,790	19.44	9,917

LOUISVILLE GAS AND ELECTRIC COMPANY
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CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
TRIMBLE COUNTY CT 8						
INTERIM SURVIVOR CURVE.. IOWA 35-R1.5						
PROBABLE RETIREMENT YEAR.. 6-2044						
NET SALVAGE PERCENT.. -9						
2012	1,847,802.75	563,526	693,598	1,320,507	19.64	67,236
2013	151,513.75	42,326	52,096	113,054	19.82	5,704
2014	161,260.88	40,614	49,988	125,786	20.00	6,289
2018	98,664.20	12,217	15,037	92,507	20.60	4,491
2019	140,367.15	12,037	14,815	138,185	20.73	6,666
	14,878,576.37	6,531,226	8,038,753	8,178,895		449,769
TRIMBLE COUNTY CT 9						
INTERIM SURVIVOR CURVE.. IOWA 35-R1.5						
PROBABLE RETIREMENT YEAR.. 6-2044						
NET SALVAGE PERCENT.. -9						
2004	11,983,747.17	5,674,387	7,071,413	5,990,872	17.72	338,085
2006	169,567.79	73,944	92,149	92,680	18.28	5,070
2007	2,494.87	1,039	1,295	1,425	18.54	77
2009	113,323.83	42,481	52,940	70,583	19.02	3,711
2010	9,901.67	3,491	4,350	6,442	19.24	335
2011	281,258.40	92,732	115,562	191,009	19.44	9,826
2012	1,796,074.64	547,751	682,606	1,275,115	19.64	64,924
2013	10,184.15	2,845	3,545	7,555	19.82	381
2014	44,976.77	11,328	14,117	34,908	20.00	1,745
2018	265,729.46	32,904	41,005	248,640	20.60	12,070
2019	57,000.11	4,888	6,091	56,039	20.73	2,703
2020	100,010.56	5,518	6,877	102,135	20.82	4,906
	14,834,269.42	6,493,308	8,091,951	8,077,403		443,833
TRIMBLE COUNTY CT 10						
INTERIM SURVIVOR CURVE.. IOWA 35-R1.5						
PROBABLE RETIREMENT YEAR.. 6-2044						
NET SALVAGE PERCENT.. -9						
2004	11,966,229.81	5,666,092	7,096,354	5,946,836	17.72	335,600
2006	169,225.28	73,795	92,423	92,033	18.28	5,035
2007	105,528.53	43,940	55,032	59,995	18.54	3,236
2009	9,003.34	3,375	4,227	5,587	19.02	294
2011	280,783.77	92,575	115,943	190,111	19.44	9,779
2012	427,630.60	130,415	163,335	302,782	19.64	15,417

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CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
TRIMBLE COUNTY CT 10						
INTERIM SURVIVOR CURVE.. IOWA 35-R1.5						
PROBABLE RETIREMENT YEAR.. 6-2044						
NET SALVAGE PERCENT.. -9						
2013	1,370,437.29	382,840	479,478	1,014,298	19.82	51,175
2014	59,379.77	14,955	18,730	45,994	20.00	2,300
2017	129,867.57	20,678	25,898	115,658	20.46	5,653
2018	180,711.81	22,376	28,024	168,952	20.60	8,202
2019	305,505.10	26,197	32,810	300,191	20.73	14,481
2020	61,820.30	3,411	4,272	63,112	20.82	3,031
2021	253,247.65			276,040	20.97	13,164
	15,319,370.82	6,480,649	8,116,526	8,581,588		467,367
	255,666,878.65	91,204,386	103,379,077	174,941,139		8,699,891

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 20.1 3.40

LOUISVILLE GAS AND ELECTRIC COMPANY
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CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
CANE RUN CC 7						
INTERIM SURVIVOR CURVE.. IOWA 60-S3						
PROBABLE RETIREMENT YEAR.. 6-2055						
NET SALVAGE PERCENT.. -11						
2015	16,127,579.67	2,721,940	3,248,304	14,653,309	33.46	437,935
2017	277,540.79	32,763	39,099	268,972	33.61	8,003
2018	1,101,900.25	100,038	119,383	1,103,726	33.68	32,771
2019	15,701.27	976	1,165	16,264	33.73	482
2020	4,037.74	160	191	4,291	33.77	127
	17,526,759.72	2,855,877	3,408,142	16,046,561		479,318
ZORN AND RIVER ROAD GAS TURBINE						
INTERIM SURVIVOR CURVE.. IOWA 60-S3						
PROBABLE RETIREMENT YEAR.. 6-2021						
NET SALVAGE PERCENT.. -9						
1970	1,426,718.06	1,555,123	1,555,123			
1975	2,429.22	2,648	2,648			
1984	3,115.19	3,396	3,396			
1993	9,818.66	10,702	10,702			
1996	381,233.45	415,544	415,544			
2019	95,990.12	104,629	104,629			
	1,919,304.70	2,092,042	2,092,042			
PADDY'S RUN GENERATOR 11						
INTERIM SURVIVOR CURVE.. IOWA 60-S3						
PROBABLE RETIREMENT YEAR.. 6-2025						
NET SALVAGE PERCENT.. -6						
1970	1,215,926.17	1,194,819	1,288,882			
1984	3,115.19	2,981	3,302			
1993	9,343.42	8,671	9,904			
1997	294,730.78	267,833	312,415			
2013	16,843.43	11,903	17,855			
	1,539,958.99	1,486,207	1,632,357			

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ACCOUNT 344 GENERATORS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
PADDY'S RUN GENERATOR 12						
INTERIM SURVIVOR CURVE.. IOWA 60-S3						
PROBABLE RETIREMENT YEAR.. 6-2025						
NET SALVAGE PERCENT.. -6						
1968	40.59	40	43			
1970	2,519,878.74	2,476,137	2,671,071			
1987	20,505.89	19,459	21,736			
1993	20,111.98	18,664	21,319			
1995	38,755.83	35,618	41,081			
1999	382,473.30	343,133	405,422			
2012	84,843.82	62,263	85,399	4,535	4.00	1,134
2013	56,676.62	40,052	54,935	5,142	4.00	1,286
2014	211,526.81	142,684	195,704	28,514	4.00	7,128
	3,334,813.58	3,138,050	3,496,711	38,191		9,548
PADDY'S RUN GENERATOR 13						
INTERIM SURVIVOR CURVE.. IOWA 60-S3						
PROBABLE RETIREMENT YEAR.. 6-2041						
NET SALVAGE PERCENT.. -6						
2001	5,598,601.95	3,004,884	3,291,067	2,643,451	19.48	135,701
2002	12,750.00	6,656	7,290	6,225	19.56	318
2012	31,468.17	10,373	11,361	21,995	19.94	1,103
2014	26,156.27	7,196	7,881	19,844	19.97	994
2017	5,206.09	920	1,008	4,511	19.99	226
2018	14,162.53	1,959	2,146	12,867	19.99	644
2019	347,339.55	33,486	36,675	331,505	19.99	16,584
	6,035,684.56	3,065,474	3,357,428	3,040,398		155,570
BROWN CT 5						
INTERIM SURVIVOR CURVE.. IOWA 60-S3						
PROBABLE RETIREMENT YEAR.. 6-2041						
NET SALVAGE PERCENT.. -7						
2001	3,074,966.15	1,665,967	1,980,840	1,309,374	19.48	67,216
2002	4,404.00	2,321	2,760	1,953	19.56	100
2011	76,581.01	27,378	32,553	49,389	19.93	2,478

LOUISVILLE GAS AND ELECTRIC COMPANY
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ACCOUNT 344 GENERATORS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
BROWN CT 5						
INTERIM SURVIVOR CURVE.. IOWA 60-S3						
PROBABLE RETIREMENT YEAR.. 6-2041						
NET SALVAGE PERCENT.. -7						
2012	22,823.36	7,595	9,030	15,391	19.94	772
2017	13,218.82	2,358	2,804	11,340	19.99	567
2018	256,733.91	35,846	42,621	232,084	19.99	11,610
	3,448,727.25	1,741,465	2,070,607	1,619,531		82,743
BROWN CT 6						
INTERIM SURVIVOR CURVE.. IOWA 60-S3						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
2000	2,417,994.54	1,407,078	1,735,427	851,827	17.58	48,454
2012	22,823.35	8,149	10,051	14,370	17.97	800
2017	8,655.33	1,685	2,078	7,183	17.99	399
	2,449,473.22	1,416,912	1,747,556	873,380		49,653
BROWN CT 7						
INTERIM SURVIVOR CURVE.. IOWA 60-S3						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
2000	2,276,866.74	1,324,953	1,560,322	875,926	17.58	49,825
2012	22,823.35	8,149	9,597	14,824	17.97	825
2017	5,847.65	1,138	1,340	4,917	17.99	273
2019	202,672.44	21,686	25,538	191,321	18.00	10,629
	2,508,210.18	1,355,926	1,596,797	1,086,988		61,552
TRIMBLE COUNTY CT 5						
INTERIM SURVIVOR CURVE.. IOWA 60-S3						
PROBABLE RETIREMENT YEAR.. 6-2042						
NET SALVAGE PERCENT.. -9						
2002	1,524,415.61	799,219	961,986	699,627	20.48	34,161
2004	11,874.67	5,847	7,038	5,906	20.62	286

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ACCOUNT 344 GENERATORS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
TRIMBLE COUNTY CT 5						
INTERIM SURVIVOR CURVE.. IOWA 60-S3						
PROBABLE RETIREMENT YEAR.. 6-2042						
NET SALVAGE PERCENT.. -9						
2012	13,782.72	4,517	5,437	9,586	20.93	458
2016	81,289.29	17,059	20,533	68,072	20.97	3,246
2017	4,541.72	793	955	3,996	20.98	190
	1,635,904.01	827,435	995,948	787,187		38,341
TRIMBLE COUNTY CT 6						
INTERIM SURVIVOR CURVE.. IOWA 60-S3						
PROBABLE RETIREMENT YEAR.. 6-2042						
NET SALVAGE PERCENT.. -9						
2002	1,491,033.15	781,718	926,042	699,185	20.48	34,140
2004	10,556.72	5,198	6,158	5,349	20.62	259
2012	13,782.72	4,517	5,351	9,672	20.93	462
2016	76,662.95	16,088	19,058	64,504	20.97	3,076
2017	3,928.13	686	813	3,469	20.98	165
	1,595,963.67	808,207	957,421	782,179		38,102
TRIMBLE COUNTY CT 7						
INTERIM SURVIVOR CURVE.. IOWA 60-S3						
PROBABLE RETIREMENT YEAR.. 6-2044						
NET SALVAGE PERCENT.. -9						
2004	1,695,531.94	795,731	955,029	893,101	22.47	39,746
2012	17,580.79	5,410	6,493	12,670	22.88	554
2016	10,047.59	1,959	2,351	8,601	22.96	375
2017	4,793.12	775	930	4,294	22.97	187
2018	65,530.70	8,251	9,903	61,526	22.97	2,679
	1,793,484.14	812,126	974,706	980,192		43,541
TRIMBLE COUNTY CT 8						
INTERIM SURVIVOR CURVE.. IOWA 60-S3						
PROBABLE RETIREMENT YEAR.. 6-2044						
NET SALVAGE PERCENT.. -9						
2004	1,686,001.22	791,258	949,556	888,185	22.47	39,528
2012	17,580.81	5,410	6,492	12,671	22.88	554

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CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
TRIMBLE COUNTY CT 8						
INTERIM SURVIVOR CURVE.. IOWA 60-S3						
PROBABLE RETIREMENT YEAR.. 6-2044						
NET SALVAGE PERCENT.. -9						
2016	9,996.39	1,949	2,339	8,557	22.96	373
2017	4,755.50	769	923	4,261	22.97	186
2018	65,530.70	8,251	9,902	61,527	22.97	2,679
	1,783,864.62	807,637	969,212	975,200		43,320
TRIMBLE COUNTY CT 9						
INTERIM SURVIVOR CURVE.. IOWA 60-S3						
PROBABLE RETIREMENT YEAR.. 6-2044						
NET SALVAGE PERCENT.. -9						
2004	1,432,117.55	672,108	597,927	963,081	22.47	42,861
2012	17,580.79	5,410	4,813	14,350	22.88	627
2016	542,116.46	105,672	94,009	496,898	22.96	21,642
2017	4,788.07	774	689	4,530	22.97	197
	1,996,602.87	783,964	697,437	1,478,860		65,327
TRIMBLE COUNTY CT 10						
INTERIM SURVIVOR CURVE.. IOWA 60-S3						
PROBABLE RETIREMENT YEAR.. 6-2044						
NET SALVAGE PERCENT.. -9						
2004	1,672,602.02	784,970	916,175	906,961	22.47	40,363
2012	17,557.68	5,403	6,306	12,832	22.88	561
2016	11,366.32	2,216	2,586	9,803	22.96	427
2017	163,758.96	26,473	30,898	147,599	22.97	6,426
2020	109,321.33	6,147	7,174	111,986	22.98	4,873
	1,974,606.31	825,209	963,140	1,189,181		52,650
BROWN SOLAR						
INTERIM SURVIVOR CURVE.. IOWA 25-S2.5						
PROBABLE RETIREMENT YEAR.. 6-2041						
NET SALVAGE PERCENT.. -3						
2016	8,363,103.36	1,937,977	1,957,394	6,656,602	17.19	387,237
	8,363,103.36	1,937,977	1,957,394	6,656,602		387,237

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ACCOUNT 344 GENERATORS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SIMPSONVILLE SOLAR						
INTERIM SURVIVOR CURVE.. IOWA 25-S2.5						
PROBABLE RETIREMENT YEAR.. 6-2044						
NET SALVAGE PERCENT.. -1						
2019	219,926.17	20,029	21,792	200,334	20.18	9,927
2020	343,026.64	19,876	21,625	324,832	20.54	15,815
	562,952.81	39,905	43,417	525,165		25,742
OTHER SOLAR						
SURVIVOR CURVE.. IOWA 25-S2.5						
NET SALVAGE PERCENT.. -10						
2018	57,651.55	7,610	7,525	55,892	22.00	2,541
	57,651.55	7,610	7,525	55,892		2,541
	58,527,065.54	24,002,023	26,967,840	36,135,507		1,535,185
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..					23.5	2.62

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CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
CANE RUN CC 7						
INTERIM SURVIVOR CURVE.. IOWA 50-S2.5						
PROBABLE RETIREMENT YEAR.. 6-2055						
NET SALVAGE PERCENT.. -11						
2015	5,055,638.51	883,908	918,426	4,693,332	32.04	146,484
2017	1,734,353.07	211,091	219,335	1,705,797	32.48	52,518
2019	17,225.74	1,097	1,140	17,981	32.85	547
2020	49,947.73	2,026	2,105	53,337	32.96	1,618
	6,857,165.05	1,098,122	1,141,006	6,470,447		201,167
ZORN AND RIVER ROAD GAS TURBINE						
INTERIM SURVIVOR CURVE.. IOWA 50-S2.5						
PROBABLE RETIREMENT YEAR.. 6-2021						
NET SALVAGE PERCENT.. -9						
1970	39,531.14	43,089	43,089			
1974	330.33	360	360			
2011	3,818.97	4,163	4,163			
2012	41,019.14	44,711	44,711			
2015	9,956.91	10,853	10,853			
	94,656.49	103,176	103,176			
PADDY'S RUN GENERATOR 11						
INTERIM SURVIVOR CURVE.. IOWA 50-S2.5						
PROBABLE RETIREMENT YEAR.. 6-2025						
NET SALVAGE PERCENT.. -6						
1970	42,993.47	42,105	45,573			
1988	4,190.15	3,961	4,442			
1998	6,870.11	6,207	7,282			
2002	9,028.95	7,911	9,571			
2011	509,883.19	385,943	540,476			
2013	9,465.20	6,689	10,033			
2015	9,931.03	6,316	10,527			
2020	13,513.75	3,411	13,549	775	4.00	194
	605,875.85	462,543	641,453	775		194

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CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
PADDY'S RUN GENERATOR 12						
INTERIM SURVIVOR CURVE.. IOWA 50-S2.5						
PROBABLE RETIREMENT YEAR.. 6-2025						
NET SALVAGE PERCENT.. -6						
1970	65,060.85	63,716	68,965			
1998	16,896.62	15,266	17,910			
2011	798,671.63	604,534	846,592			
2018	20,589.44	9,353	21,825			
	901,218.54	692,869	955,292			
PADDY'S RUN GENERATOR 13						
INTERIM SURVIVOR CURVE.. IOWA 50-S2.5						
PROBABLE RETIREMENT YEAR.. 6-2041						
NET SALVAGE PERCENT.. -6						
2001	2,749,906.79	1,509,190	2,148,474	766,427	18.34	41,790
2002	6,000.00	3,201	4,557	1,803	18.51	97
2012	28,330.61	9,430	13,424	16,606	19.64	846
2014	11,855.82	3,289	4,682	7,885	19.75	399
2015	46,754.60	11,530	16,414	33,146	19.79	1,675
2018	3,000.61	417	594	2,587	19.89	130
2019	15,064.81	1,457	2,074	13,895	19.92	698
2020	17,439.56	1,091	1,553	16,933	19.93	850
	2,878,352.80	1,539,605	2,191,773	859,281		46,485
BROWN CT 5						
INTERIM SURVIVOR CURVE.. IOWA 50-S2.5						
PROBABLE RETIREMENT YEAR.. 6-2041						
NET SALVAGE PERCENT.. -7						
2001	2,556,495.61	1,416,279	1,765,115	970,335	18.34	52,908
2002	3,460.00	1,864	2,323	1,379	18.51	75
2010	13,121.14	5,059	6,305	7,735	19.49	397
2012	29,296.54	9,843	12,267	19,080	19.64	971
	2,602,373.29	1,433,045	1,786,011	998,528		54,351

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YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
BROWN CT 6						
INTERIM SURVIVOR CURVE.. IOWA 50-S2.5						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
2000	896,522.26	531,498	554,130	405,149	16.62	24,377
2010	27,599.75	11,326	11,808	17,723	17.65	1,004
2012	21,005.07	7,562	7,884	14,591	17.75	822
2019	97,237.37	10,430	10,874	93,170	17.95	5,191
2020	73,361.25	5,108	5,326	73,171	17.96	4,074
	1,115,725.70	565,924	590,022	603,804		35,468
BROWN CT 7						
INTERIM SURVIVOR CURVE.. IOWA 50-S2.5						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
2000	932,233.68	552,669	669,249	328,241	16.62	19,750
2010	9,408.42	3,861	4,675	5,392	17.65	305
2012	21,005.07	7,562	9,157	13,318	17.75	750
2019	168,002.89	18,021	21,822	157,941	17.95	8,799
2020	22,104.96	1,539	1,864	21,789	17.96	1,213
	1,152,755.02	583,652	706,768	526,680		30,817
TRIMBLE COUNTY CT 5						
INTERIM SURVIVOR CURVE.. IOWA 50-S2.5						
PROBABLE RETIREMENT YEAR.. 6-2042						
NET SALVAGE PERCENT.. -9						
2002	641,493.97	344,741	412,888	286,341	19.28	14,852
2004	5,292.01	2,664	3,191	2,578	19.63	131
2011	11,234.08	4,015	4,809	7,436	20.48	363
2012	20,807.27	6,900	8,264	14,416	20.56	701
2013	7,811.75	2,379	2,849	5,666	20.63	275
2016	53,711.68	11,350	13,594	44,952	20.79	2,162
2019	42,447.95	4,042	4,841	41,427	20.89	1,983
	782,798.71	376,091	450,435	402,816		20,467

LOUISVILLE GAS AND ELECTRIC COMPANY
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CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
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YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
TRIMBLE COUNTY CT 6						
INTERIM SURVIVOR CURVE.. IOWA 50-S2.5						
PROBABLE RETIREMENT YEAR.. 6-2042						
NET SALVAGE PERCENT.. -9						
2002	1,563,332.03	840,139	958,558	745,474	19.28	38,666
2004	4,704.54	2,369	2,703	2,425	19.63	124
2012	2,977.10	987	1,126	2,119	20.56	103
2014	84,650.68	23,326	26,614	65,655	20.69	3,173
2016	53,711.68	11,350	12,950	45,596	20.79	2,193
	1,709,376.03	878,171	1,001,951	861,269		44,259
TRIMBLE COUNTY CT 7						
INTERIM SURVIVOR CURVE.. IOWA 50-S2.5						
PROBABLE RETIREMENT YEAR.. 6-2044						
NET SALVAGE PERCENT.. -9						
2004	1,801,349.20	868,934	1,048,938	914,532	21.20	43,138
2009	1,409.27	540	652	884	22.04	40
2012	2,977.10	930	1,123	2,122	22.38	95
2013	38,938.88	11,130	13,436	29,008	22.48	1,290
2014	255,565.68	65,895	79,545	199,021	22.56	8,822
2016	68,528.70	13,488	16,282	58,414	22.69	2,574
	2,168,768.83	960,917	1,159,976	1,203,982		55,959
TRIMBLE COUNTY CT 8						
INTERIM SURVIVOR CURVE.. IOWA 50-S2.5						
PROBABLE RETIREMENT YEAR.. 6-2044						
NET SALVAGE PERCENT.. -9						
2004	1,834,731.90	885,037	1,070,716	929,142	21.20	43,827
2009	1,409.27	540	653	883	22.04	40
2012	2,977.10	930	1,125	2,120	22.38	95
2014	104,628.01	26,977	32,637	81,408	22.56	3,609
	1,943,746.28	913,484	1,105,131	1,013,552		47,571

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CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
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YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
TRIMBLE COUNTY CT 9						
INTERIM SURVIVOR CURVE.. IOWA 50-S2.5						
PROBABLE RETIREMENT YEAR.. 6-2044						
NET SALVAGE PERCENT.. -9						
2004	1,883,837.98	908,725	1,122,619	930,764	21.20	43,904
2009	1,409.24	540	667	869	22.04	39
2012	2,977.10	930	1,149	2,096	22.38	94
2013	10,043.69	2,871	3,547	7,401	22.48	329
	1,898,268.01	913,066	1,127,982	941,130		44,366
TRIMBLE COUNTY CT 10						
INTERIM SURVIVOR CURVE.. IOWA 50-S2.5						
PROBABLE RETIREMENT YEAR.. 6-2044						
NET SALVAGE PERCENT.. -9						
2004	4,357,112.79	2,101,782	2,391,605	2,357,648	21.20	111,210
2009	1,409.27	540	614	922	22.04	42
2011	29,314.03	9,885	11,248	20,704	22.28	929
2012	2,977.10	930	1,058	2,187	22.38	98
2013	34,769.07	9,938	11,308	26,590	22.48	1,183
2014	140,020.09	36,103	41,081	111,541	22.56	4,944
2017	1,648,664.83	268,712	305,766	1,491,279	22.75	65,551
	6,214,267.18	2,427,890	2,762,681	4,010,870		183,957
BROWN SOLAR						
INTERIM SURVIVOR CURVE.. IOWA 45-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2041						
NET SALVAGE PERCENT.. -3						
2016	285,072.02	58,822	71,932	221,692	19.28	11,499
	285,072.02	58,822	71,932	221,692		11,499
SIMPSONVILL SOLAR						
INTERIM SURVIVOR CURVE.. IOWA 45-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2044						
NET SALVAGE PERCENT.. -1						
2019	259,439.84	20,976	11,783	250,251	22.18	11,283
	259,439.84	20,976	11,783	250,251		11,283

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CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
OTHER SOLAR						
SURVIVOR CURVE.. IOWA 45-R2.5						
NET SALVAGE PERCENT.. -5						
2018	27,319.98	1,798	2,845	25,841	42.18	613
	27,319.98	1,798	2,845	25,841		613
	31,497,179.62	13,030,151	15,810,217	18,390,918		788,456
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..					23.3	2.50

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 346 MISCELLANEOUS POWER PLANT EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
CANE RUN 7						
INTERIM SURVIVOR CURVE.. IOWA 55-R4						
PROBABLE RETIREMENT YEAR.. 6-2055						
NET SALVAGE PERCENT.. -11						
2015	878,185.77	148,879	119,677	855,109	33.23	25,733
2017	25,000.00	2,967	2,385	25,365	33.41	759
2018	33,639.69	3,070	2,468	34,872	33.49	1,041
2019	28,674.88	1,790	1,439	30,390	33.56	906
2020	110,423.18	4,395	3,533	119,037	33.61	3,542
	1,075,923.52	161,101	129,502	1,064,773		31,981
ZORN AND RIVER ROAD GAS TURBINE						
INTERIM SURVIVOR CURVE.. IOWA 55-R4						
PROBABLE RETIREMENT YEAR.. 6-2021						
NET SALVAGE PERCENT.. -9						
2007	9,488.39	10,342	10,342			
	9,488.39	10,342	10,342			
PADDY'S RUN GENERATOR 11						
INTERIM SURVIVOR CURVE.. IOWA 55-R4						
PROBABLE RETIREMENT YEAR.. 6-2025						
NET SALVAGE PERCENT.. -6						
2007	9,494.38	7,825	10,064			
2021	59,553.64			63,127	4.00	15,782
	69,048.02	7,825	10,064	63,127		15,782
PADDY'S RUN GENERATOR 12						
INTERIM SURVIVOR CURVE.. IOWA 55-R4						
PROBABLE RETIREMENT YEAR.. 6-2025						
NET SALVAGE PERCENT.. -6						
2021	59,553.64		304	62,823	4.00	15,706
	59,553.64		304	62,823		15,706

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 346 MISCELLANEOUS POWER PLANT EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
PADDY'S RUN GENERATOR 13						
INTERIM SURVIVOR CURVE.. IOWA 55-R4						
PROBABLE RETIREMENT YEAR.. 6-2041						
NET SALVAGE PERCENT.. -6						
2001	1,249,487.27	671,009	844,512	479,944	19.35	24,803
2002	3,000.00	1,568	1,973	1,207	19.43	62
2007	14,428.54	6,344	7,984	7,310	19.71	371
2010	6,550.80	2,475	3,115	3,829	19.82	193
2014	2,416.55	666	838	1,723	19.91	87
2016	16,014.23	3,405	4,285	12,690	19.93	637
2018	7,453.78	1,033	1,300	6,601	19.95	331
2021	63,126.84			66,914	19.97	3,351
	1,362,478.01	686,500	864,009	580,218		29,835
BROWN CT 5						
INTERIM SURVIVOR CURVE.. IOWA 55-R4						
PROBABLE RETIREMENT YEAR.. 6-2041						
NET SALVAGE PERCENT.. -7						
2001	2,339,121.55	1,268,024	1,552,846	950,014	19.35	49,096
2002	3,146.00	1,659	2,032	1,335	19.43	69
2007	24,568.74	10,904	13,353	12,935	19.71	656
2016	32,413.72	6,956	8,518	26,164	19.93	1,313
2020	30,821.95	1,943	2,379	30,600	19.97	1,532
	2,430,071.96	1,289,486	1,579,129	1,021,048		52,666
BROWN CT 6						
INTERIM SURVIVOR CURVE.. IOWA 55-R4						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
2000	11,034.25	6,424	7,924	3,883	17.47	222
2003	11,421.52	6,159	7,597	4,624	17.64	262
2019	10,299.94	1,098	1,354	9,667	17.98	538
	32,755.71	13,681	16,875	18,174		1,022

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 346 MISCELLANEOUS POWER PLANT EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
BROWN CT 7						
INTERIM SURVIVOR CURVE.. IOWA 55-R4						
PROBABLE RETIREMENT YEAR.. 6-2039						
NET SALVAGE PERCENT.. -7						
2000	11,048.30	6,432	8,163	3,659	17.47	209
2003	11,999.48	6,470	8,211	4,628	17.64	262
	23,047.78	12,902	16,374	8,287		471
TRIMBLE COUNTY CT 5						
INTERIM SURVIVOR CURVE.. IOWA 55-R4						
PROBABLE RETIREMENT YEAR.. 6-2042						
NET SALVAGE PERCENT.. -9						
2005	8,937.45	4,256	9,742			
2007	5,591.47	2,458	43,611	37,516-		
	14,528.92	6,714	53,353	37,516-		
TRIMBLE COUNTY CT 7						
INTERIM SURVIVOR CURVE.. IOWA 55-R4						
PROBABLE RETIREMENT YEAR.. 6-2044						
NET SALVAGE PERCENT.. -9						
2004	5,204.51	2,447	8,890	3,217-		
	5,204.51	2,447	8,890	3,217-		
TRIMBLE COUNTY CT 8						
INTERIM SURVIVOR CURVE.. IOWA 55-R4						
PROBABLE RETIREMENT YEAR.. 6-2044						
NET SALVAGE PERCENT.. -9						
2004	5,182.59	2,437	2,976	2,673	22.30	120
	5,182.59	2,437	2,976	2,673		120

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 346 MISCELLANEOUS POWER PLANT EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
TRIMBLE COUNTY CT 9						
INTERIM SURVIVOR CURVE.. IOWA 55-R4						
PROBABLE RETIREMENT YEAR.. 6-2044						
NET SALVAGE PERCENT.. -9						
2004	5,328.44	2,506	2,966	2,842	22.30	127
	5,328.44	2,506	2,966	2,842		127
TRIMBLE COUNTY CT 10						
INTERIM SURVIVOR CURVE.. IOWA 55-R4						
PROBABLE RETIREMENT YEAR.. 6-2044						
NET SALVAGE PERCENT.. -9						
2004	5,316.29	2,500	796	4,998	22.30	224
2010	16,663.61	5,921	1,886	16,277	22.70	717
2011	3,353.01	1,115	355	3,300	22.74	145
	25,332.91	9,536	3,038	24,575		1,086
BROWN SOLAR						
INTERIM SURVIVOR CURVE.. IOWA 40-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2041						
NET SALVAGE PERCENT.. -3						
2016	271,849.13	56,399	11,983	268,022	19.07	14,055
	271,849.13	56,399	11,983	268,022		14,055
SIMPSONVILLE SOLAR						
INTERIM SURVIVOR CURVE.. IOWA 40-R2.5						
PROBABLE RETIREMENT YEAR.. 6-2044						
NET SALVAGE PERCENT.. -1						
2019	23,884.71	1,950	1,092	23,032	21.95	1,049
	23,884.71	1,950	1,092	23,032		1,049
	5,413,678.24	2,263,826	2,710,897	3,098,861		163,900

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 18.9 3.03

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 350.1 LAND RIGHTS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 75-R4						
NET SALVAGE PERCENT.. 0						
1924	524.00	497	524			
1936	6,427.00	5,810	6,427			
1937	106.83	96	107			
1938	1,197.13	1,072	1,197			
1939	10,690.00	9,524	10,690			
1940	134,404.63	119,119	134,405			
1941	2,306.00	2,033	2,306			
1943	98,666.00	85,945	98,666			
1945	1,599.00	1,375	1,599			
1948	45,332.00	38,109	45,332			
1949	73,107.00	60,951	73,107			
1950	49,327.76	40,771	49,328			
1951	4,444.00	3,639	4,444			
1952	212,138.00	172,086	212,138			
1954	10,061.48	7,998	10,061			
1955	2,054.00	1,615	2,054			
1956	103.00	80	103			
1957	48,020.00	36,924	47,666	354	17.33	20
1958	102,241.00	77,690	100,291	1,950	18.01	108
1959	41,920.00	31,474	40,630	1,290	18.69	69
1960	4,936.00	3,661	4,726	210	19.38	11
1961	9,374.00	6,864	8,861	513	20.08	26
1962	34,954.00	25,265	32,615	2,339	20.79	113
1963	124,253.00	88,617	114,397	9,856	21.51	458
1964	18,622.00	13,100	16,911	1,711	22.24	77
1965	9,159.00	6,353	8,201	958	22.98	42
1966	1,246.00	852	1,100	146	23.73	6
1967	11,816.77	7,958	10,273	1,544	24.49	63
1968	18,431.00	12,223	15,779	2,652	25.26	105
1969	315,902.00	206,221	266,213	49,689	26.04	1,908
1970	21,103.00	13,554	17,497	3,606	26.83	134
1971	16,398.00	10,357	13,370	3,028	27.63	110
1972	2,407.00	1,494	1,929	478	28.44	17
1973	66,035.00	40,273	51,989	14,046	29.26	480
1974	37,854.00	22,667	29,261	8,593	30.09	286
1975	87,044.86	51,148	66,027	21,018	30.93	680
1976	307,843.00	177,401	229,008	78,835	31.78	2,481
1977	40,880.00	23,094	29,812	11,068	32.63	339
1978	32,634.00	18,057	23,310	9,324	33.50	278
1979	138,276.00	74,908	96,699	41,577	34.37	1,210
1980	271,275.35	143,741	185,557	85,718	35.26	2,431

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 350.1 LAND RIGHTS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 75-R4						
NET SALVAGE PERCENT.. 0						
1981	25,121.00	13,013	16,799	8,322	36.15	230
1982	82,797.00	41,906	54,097	28,700	37.04	775
1983	25.00	12	15	10	37.95	
1984	2,330.00	1,123	1,450	880	38.86	23
1986	5,634.00	2,577	3,327	2,307	40.70	57
1989	6.00	3	4	2	43.51	
1991	21,165.00	8,350	10,779	10,386	45.41	229
1994	2,763.00	984	1,270	1,493	48.28	31
1995	37,300.00	12,806	16,531	20,769	49.25	422
1998	520.00	158	204	316	52.17	6
2007	5,188,636.78	965,761	1,246,709	3,941,928	61.04	64,579
2012	806,242.00	96,531	124,613	681,629	66.02	10,325
	8,587,652.59	2,787,840	3,540,408	5,047,245		88,129

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 57.3 1.03

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 352 STRUCTURES AND IMPROVEMENTS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 65-R2						
NET SALVAGE PERCENT.. -10						
1940	1,162.00	1,052	1,258	20	11.48	2
1941	11,330.40	10,195	12,188	275	11.83	23
1942	35,382.26	31,628	37,810	1,110	12.18	91
1947	1,530.00	1,319	1,577	106	14.06	8
1948	2,319.00	1,983	2,371	180	14.46	12
1949	16,355.00	13,875	16,587	1,404	14.87	94
1950	13,105.00	11,025	13,180	1,236	15.29	81
1951	1,673.00	1,395	1,668	172	15.72	11
1952	6,519.34	5,389	6,442	729	16.15	45
1953	48,775.00	39,951	47,760	5,892	16.60	355
1954	66,176.24	53,699	64,195	8,599	17.05	504
1955	4,222.48	3,394	4,057	588	17.51	34
1957	33,890.00	26,692	31,909	5,370	18.46	291
1958	71,716.91	55,889	66,813	12,076	18.95	637
1959	24,007.00	18,506	22,123	4,285	19.45	220
1961	15,400.08	11,605	13,873	3,067	20.47	150
1963	4,710.00	3,464	4,141	1,040	21.54	48
1964	33,728.52	24,498	29,286	7,815	22.08	354
1966	3,081.00	2,179	2,605	784	23.20	34
1967	10,540.00	7,354	8,791	2,803	23.77	118
1968	2,693.00	1,853	2,215	747	24.35	31
1969	3,083.12	2,091	2,500	891	24.93	36
1970	2,402.76	1,605	1,919	724	25.53	28
1971	6,045.00	3,975	4,752	1,898	26.14	73
1972	52,809.33	34,184	40,866	17,224	26.75	644
1973	9,020.82	5,745	6,868	3,055	27.37	112
1974	83,171.00	52,078	62,257	29,231	28.00	1,044
1975	151,081.00	92,963	111,134	55,055	28.64	1,922
1976	4,720.00	2,852	3,409	1,783	29.29	61
1977	32,594.00	19,339	23,119	12,734	29.94	425
1978	60,729.20	35,354	42,264	24,538	30.60	802
1979	49,165.00	28,064	33,549	20,532	31.27	657
1980	103,255.99	57,752	69,040	44,542	31.95	1,394
1981	155,328.00	85,089	101,721	69,140	32.63	2,119
1982	30,959.00	16,593	19,836	14,219	33.33	427
1983	9,621.13	5,042	6,028	4,555	34.03	134
1984	13,695.00	7,015	8,386	6,678	34.73	192
1985	13,414.00	6,710	8,022	6,733	35.44	190
1986	65,150.48	31,797	38,012	33,654	36.16	931
1987	35,029.00	16,664	19,921	18,611	36.89	504
1988	12,383.21	5,738	6,860	6,762	37.62	180

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 352 STRUCTURES AND IMPROVEMENTS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 65-R2						
NET SALVAGE PERCENT.. -10						
1990	199,609.00	87,457	104,551	115,019	39.11	2,941
1991	48,040.89	20,439	24,434	28,411	39.86	713
1992	95,483.00	39,395	47,095	57,936	40.62	1,426
1993	4,265.59	1,704	2,037	2,655	41.39	64
1994	271,818.74	105,063	125,599	173,402	42.16	4,113
1995	36,997.21	13,812	16,512	24,185	42.94	563
1997	9,409.00	3,263	3,901	6,449	44.51	145
2000	112,924.29	34,551	41,304	82,913	46.92	1,767
2001	26,216.00	7,662	9,160	19,678	47.73	412
2002	410,134.89	114,244	136,574	314,574	48.54	6,481
2003	66,683.98	17,638	21,086	52,266	49.37	1,059
2004	71,578.65	17,928	21,432	57,305	50.20	1,142
2005	18,356.71	4,340	5,188	15,004	51.03	294
2006	66,363.10	14,746	17,628	55,371	51.87	1,067
2007	39,921.10	8,303	9,926	33,987	52.71	645
2008	2,138,364.13	413,987	494,905	1,857,296	53.56	34,677
2009	107,992.72	19,354	23,137	95,655	54.41	1,758
2010	902,575.28	148,617	177,666	815,167	55.27	14,749
2011	324,896.86	48,769	58,301	299,086	56.13	5,328
2012	81,500.91	11,034	13,191	76,460	57.00	1,341
2013	97,125.47	11,719	14,010	92,828	57.87	1,604
2014	665,319.53	70,368	84,122	647,729	58.75	11,025
2015	895,243.81	81,362	97,265	887,503	59.63	14,883
2016	8,890,383.14	675,562	807,607	8,971,814	60.51	148,270
2017	373,079.40	22,727	27,169	383,218	61.40	6,241
2018	390,312.04	17,835	21,321	408,022	62.30	6,549
2019	26,060.21	798	954	27,712	63.19	439
2020	39,087.65	747	893	42,103	63.87	659
	17,711,716.57	2,851,019	3,408,280	16,074,608		285,373

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 56.3 1.61

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 353 STATION EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 60-R1.5						
NET SALVAGE PERCENT.. -20						
1939	968.93	952	1,046	117	10.88	11
1941	126,662.77	122,838	134,921	17,074	11.51	1,483
1942	765,310.74	737,150	809,659	108,714	11.84	9,182
1943	70,912.13	67,835	74,508	10,587	12.17	870
1944	109,761.81	104,274	114,531	17,183	12.50	1,375
1945	98,856.13	93,241	102,413	16,214	12.84	1,263
1946	8,156.34	7,636	8,387	1,401	13.19	106
1947	84,242.82	78,278	85,978	15,113	13.54	1,116
1948	55,642.65	51,302	56,348	10,423	13.90	750
1949	629,435.51	575,684	632,311	123,012	14.27	8,620
1950	335,420.69	304,294	334,226	68,279	14.64	4,664
1951	203,010.70	182,629	200,593	43,020	15.02	2,864
1952	615,070.79	548,523	602,478	135,607	15.41	8,800
1953	651,126.79	575,466	632,071	149,281	15.81	9,442
1954	1,514,977.14	1,326,811	1,457,322	360,651	16.21	22,249
1955	545,386.70	473,066	519,599	134,865	16.63	8,110
1956	1,514,922.18	1,301,312	1,429,315	388,592	17.05	22,791
1957	430,311.37	365,939	401,934	114,440	17.48	6,547
1958	1,588,007.24	1,336,461	1,467,921	437,688	17.92	24,425
1959	1,726,647.78	1,437,600	1,579,008	492,969	18.37	26,836
1960	333,488.64	274,660	301,677	98,509	18.82	5,234
1961	57,507.98	46,823	51,429	17,581	19.29	911
1962	728,070.41	585,954	643,591	230,093	19.76	11,644
1963	212,363.67	168,872	185,483	69,353	20.24	3,427
1964	289,870.08	227,605	249,993	97,851	20.74	4,718
1965	548,550.19	425,236	467,064	191,196	21.24	9,002
1966	1,268,041.74	970,052	1,065,470	456,180	21.75	20,974
1967	551,688.25	416,414	457,374	204,652	22.26	9,194
1968	634,535.53	472,224	518,674	242,769	22.79	10,652
1969	1,658,602.41	1,216,744	1,336,428	653,895	23.32	28,040
1971	691,102.04	491,788	540,162	289,160	24.42	11,841
1972	6,484,246.92	4,541,592	4,988,322	2,792,774	24.98	111,800
1973	98,129.80	67,612	74,263	43,493	25.55	1,702
1974	3,268,535.64	2,214,773	2,432,628	1,489,615	26.12	57,030
1975	815,273.16	542,806	596,199	382,129	26.71	14,307
1976	2,969,240.87	1,941,884	2,132,896	1,430,193	27.30	52,388
1977	3,814,694.79	2,449,034	2,689,931	1,887,703	27.90	67,660
1978	4,549,796.59	2,865,444	3,147,301	2,312,455	28.51	81,110
1979	2,774,253.03	1,713,390	1,881,926	1,447,178	29.12	49,697
1980	4,123,067.83	2,495,264	2,740,709	2,206,972	29.74	74,209
1981	1,257,683.24	745,298	818,609	690,611	30.37	22,740

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 353 STATION EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 60-R1.5						
NET SALVAGE PERCENT.. -20						
1982	632,384.31	366,659	402,725	356,136	31.01	11,485
1983	252,297.97	143,053	157,124	145,634	31.65	4,601
1984	27,458.72	15,212	16,708	16,242	32.30	503
1985	223,355.94	120,792	132,674	135,353	32.96	4,107
1986	170,284.75	89,808	98,642	105,700	33.63	3,143
1987	211,396.02	108,657	119,345	134,330	34.30	3,916
1988	330,310.86	165,355	181,620	214,753	34.97	6,141
1989	20,708.75	10,081	11,073	13,778	35.66	386
1990	13,358,972.31	6,321,412	6,943,213	9,087,554	36.34	250,070
1991	854,850.42	392,551	431,164	594,657	37.04	16,054
1992	868,729.38	386,758	424,801	617,674	37.74	16,367
1993	1,662,927.18	716,728	787,228	1,208,285	38.45	31,425
1994	3,237,765.07	1,349,488	1,482,229	2,403,089	39.16	61,366
1995	646,995.31	260,480	286,102	490,292	39.87	12,297
1996	2,103,814.42	816,701	897,035	1,627,542	40.59	40,097
1997	1,482,290.09	553,778	608,250	1,170,498	41.32	28,328
1998	1,435,518.53	515,357	566,050	1,156,572	42.05	27,505
1999	462,074.05	159,044	174,688	379,801	42.79	8,876
2000	1,756,074.38	578,451	635,350	1,471,939	43.53	33,814
2001	140,478.95	44,195	48,542	120,033	44.27	2,711
2002	3,698,390.53	1,108,053	1,217,046	3,221,023	45.02	71,546
2003	5,796,956.22	1,649,837	1,812,122	5,144,225	45.77	112,393
2004	357,449.08	96,297	105,769	323,170	46.53	6,945
2005	6,887,074.67	1,750,667	1,922,870	6,341,620	47.29	134,101
2006	965,948.43	230,668	253,358	905,780	48.06	18,847
2007	2,654,260.61	593,482	651,859	2,533,254	48.82	51,890
2008	1,532,592.69	318,773	350,129	1,488,982	49.60	30,020
2009	1,585,913.47	305,447	335,492	1,567,604	50.37	31,122
2010	1,472,431.53	260,620	286,256	1,480,662	51.15	28,947
2011	5,253,660.99	846,869	930,171	5,374,222	51.94	103,470
2012	13,154,862.91	1,912,770	2,100,918	13,684,917	52.73	259,528
2013	2,278,103.24	295,242	324,283	2,409,441	53.52	45,019
2014	8,830,859.84	1,003,221	1,101,902	9,495,130	54.32	174,800
2015	20,202,105.05	1,971,645	2,165,585	22,076,941	55.12	400,525
2016	31,609,302.78	2,579,319	2,833,032	35,098,131	55.92	627,649
2017	4,677,481.42	305,907	335,997	5,276,981	56.73	93,019
2018	29,373,139.79	1,445,158	1,587,310	33,660,458	57.54	584,992

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 353 STATION EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 60-R1.5						
NET SALVAGE PERCENT.. -20						
2019	16,039,310.73	526,025	577,767	18,669,406	58.36	319,901
2020	11,705,816.63	241,187	264,912	13,782,068	58.97	233,713
2021	21,570,600.09		0	25,884,720	60.00	431,412
	267,728,522.13	65,120,507	71,526,039	249,748,188		5,132,815
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..					48.7	1.92

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 354 TOWERS AND FIXTURES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 75-R4						
NET SALVAGE PERCENT.. -50						
1942	690,697.80	907,991	1,036,047			
1948	161,892.61	204,147	234,374	8,465	11.95	708
1950	278,647.25	345,465	396,616	21,355	13.01	1,641
1952	87,435.00	106,391	122,144	9,008	14.16	636
1954	11,040.75	13,165	15,114	1,447	15.38	94
1955	614,150.00	724,451	831,717	89,508	16.02	5,587
1956	59,479.12	69,388	79,662	9,557	16.67	573
1957	95,283.85	109,900	126,172	16,754	17.33	967
1958	234,882.03	267,720	307,360	44,963	18.01	2,497
1959	480,095.65	540,684	620,740	99,403	18.69	5,319
1960	16,277.06	18,107	20,788	3,628	19.38	187
1961	11,708.00	12,860	14,764	2,798	20.08	139
1962	1,467,865.39	1,591,460	1,827,099	374,699	20.79	18,023
1963	5,650.00	6,044	6,939	1,536	21.51	71
1964	17,450.62	18,414	21,140	5,036	22.24	226
1965	15,715.05	16,350	18,771	4,802	22.98	209
1966	90,213.78	92,505	106,202	29,119	23.73	1,227
1967	58,782.26	59,382	68,174	19,999	24.49	817
1968	13,244.25	13,175	15,126	4,740	25.26	188
1969	2,339,967.17	2,291,296	2,630,556	879,395	26.04	33,771
1970	48,328.00	46,559	53,453	19,039	26.83	710
1971	214,059.00	202,799	232,826	88,262	27.63	3,194
1972	165,009.69	153,657	176,408	71,107	28.44	2,500
1973	194,826.64	178,228	204,617	87,623	29.26	2,995
1974	155,682.00	139,834	160,538	72,985	30.09	2,426
1975	531,929.00	468,842	538,261	259,632	30.93	8,394
1976	6,203,556.00	5,362,385	6,156,366	3,148,968	31.78	99,086
1977	897,947.00	760,916	873,581	473,340	32.63	14,506
1978	141,542.16	117,479	134,874	77,439	33.50	2,312
1980	1,132,216.55	899,891	1,033,133	665,192	35.26	18,865
1982	1,886,216.09	1,432,006	1,644,036	1,185,288	37.04	32,000
1984	4,471.00	3,232	3,711	2,996	38.86	77
1985	6,969.00	4,909	5,636	4,818	39.78	121
1986	11,008.00	7,551	8,669	7,843	40.70	193
1993	13.57	8	9	11	47.32	
1994	4,284,591.72	2,289,707	2,628,732	3,798,156	48.28	78,669
1997	286,139.00	136,261	156,436	272,772	51.19	5,329
2001	24,582.00	9,779	11,227	25,646	55.11	465
2002	144,643.00	54,675	62,770	154,194	56.10	2,749
2004	48,122.49	16,294	18,707	53,477	58.07	921
2005	757,189.84	241,388	277,129	858,656	59.06	14,539

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 354 TOWERS AND FIXTURES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 75-R4						
NET SALVAGE PERCENT.. -50						
2006	22,848.65	6,832	7,844	26,429	60.05	440
2009	696,240.91	166,680	191,359	853,002	63.03	13,533
2010	14,730,191.30	3,231,878	3,710,405	18,384,882	64.03	287,129
2011	101,870.88	20,334	23,345	129,461	65.02	1,991
2012	1,079,741.29	193,916	222,628	1,396,984	66.02	21,160
2013	68,789.52	10,992	12,620	90,564	67.01	1,351
2014	416,145.60	58,177	66,791	557,427	68.01	8,196
2015	2,082,697.42	249,518	286,462	2,837,584	69.01	41,118
2016	611,309.35	61,006	70,039	846,925	70.01	12,097
2017	239,236.42	19,138	21,972	336,883	71.00	4,745
2018	1,436,408.71	86,185	98,946	2,055,667	72.00	28,551
2019	982,266.85	39,296	45,114	1,428,286	73.00	19,566
	46,357,266.29	24,079,247	27,638,149	41,897,750		802,808

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 52.2 1.73

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 355 POLES AND FIXTURES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 60-R2						
NET SALVAGE PERCENT.. -80						
1935	395.82	629	625	87	7.07	12
1939	359.54	558	555	92	8.27	11
1941	2,858.00	4,382	4,355	789	8.89	89
1946	37.68	56	56	12	10.52	1
1949	40.20	58	58	14	11.58	1
1953	142,361.00	200,303	199,087	57,163	13.10	4,364
1954	6,028.00	8,407	8,356	2,494	13.51	185
1955	2,033.01	2,810	2,793	866	13.92	62
1956	11,006.97	15,077	14,986	4,827	14.34	337
1957	115,005.08	156,050	155,103	51,906	14.77	3,514
1958	263,248.43	353,646	351,500	122,347	15.22	8,039
1959	20,860.62	27,742	27,574	9,975	15.67	637
1960	366.66	483	480	180	16.13	11
1961	2,044.34	2,662	2,646	1,034	16.60	62
1962	42,111.00	54,222	53,893	21,907	17.08	1,283
1963	8,950.55	11,393	11,324	4,787	17.57	272
1964	54,294.58	68,297	67,883	29,847	18.07	1,652
1965	51,931.00	64,529	64,137	29,339	18.58	1,579
1966	72,976.63	89,543	89,000	42,358	19.10	2,218
1967	64,258.73	77,823	77,351	38,315	19.63	1,952
1968	153,533.42	183,456	182,343	94,017	20.17	4,661
1969	97,440.35	114,824	114,127	61,266	20.72	2,957
1970	214,455.15	249,110	247,598	138,421	21.28	6,505
1971	202,053.40	231,249	229,846	133,850	21.85	6,126
1972	40,773.75	45,956	45,677	27,716	22.43	1,236
1973	31,077.91	34,478	34,269	21,671	23.02	941
1974	216,318.93	236,155	234,722	154,652	23.61	6,550
1975	199,115.73	213,730	212,433	145,975	24.22	6,027
1976	591,596.91	624,197	620,409	444,465	24.83	17,900
1977	690,870.26	715,884	711,539	532,027	25.46	20,897
1978	403,905.76	410,896	408,402	318,628	26.09	12,213
1979	1,976,257.82	1,972,503	1,960,532	1,596,732	26.73	59,736
1980	2,446,388.55	2,393,302	2,378,778	2,024,721	27.39	73,922
1981	515,024.96	493,809	490,812	436,233	28.04	15,558
1982	1,545,518.02	1,450,778	1,441,974	1,339,958	28.71	46,672
1983	98,628.55	90,571	90,021	87,510	29.39	2,978
1984	130,172.01	116,881	116,172	118,138	30.07	3,929
1985	445,030.36	390,378	388,009	413,046	30.76	13,428
1986	550,714.52	471,525	468,663	522,623	31.46	16,612
1987	569,048.58	475,095	472,212	552,075	32.17	17,161
1988	326,449.39	265,599	263,987	323,622	32.88	9,843

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 355 POLES AND FIXTURES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 60-R2						
NET SALVAGE PERCENT.. -80						
1989	796,851.31	630,862	627,033	807,299	33.61	24,020
1990	341,542.21	263,020	261,424	353,352	34.33	10,293
1991	743,161.53	555,811	552,438	785,253	35.07	22,391
1992	1,289,106.25	935,118	929,443	1,390,948	35.82	38,832
1993	405,906.07	285,311	283,580	447,051	36.57	12,225
1994	2,185,637.13	1,487,108	1,478,083	2,456,064	37.32	65,811
1995	1,688,857.59	1,110,096	1,103,359	1,936,585	38.09	50,842
1996	269,101.73	170,663	169,627	314,756	38.86	8,100
1997	550,926.95	336,503	334,461	657,208	39.64	16,579
1998	563,479.65	330,985	328,976	685,287	40.42	16,954
1999	190,696.79	107,497	106,845	236,409	41.21	5,737
2000	326,477.57	176,198	175,129	412,531	42.01	9,820
2001	2,668,781.30	1,376,291	1,367,939	3,435,867	42.81	80,259
2002	24,590.00	12,084	12,011	32,251	43.62	739
2003	611,913.88	285,825	284,090	817,355	44.43	18,396
2004	106,768.27	47,244	46,957	145,226	45.25	3,209
2005	4,706,632.11	1,965,490	1,953,562	6,518,376	46.08	141,458
2006	503,773.65	197,835	196,634	710,159	46.91	15,139
2007	5,207,016.80	1,913,610	1,901,997	7,470,633	47.75	156,453
2008	577,669.51	197,740	196,540	843,265	48.59	17,355
2009	1,895,689.04	600,554	596,909	2,815,331	49.44	56,944
2010	2,433,461.76	708,853	704,551	3,675,680	50.29	73,090
2011	1,258,630.94	334,167	332,139	1,933,397	51.15	37,799
2012	9,896,754.17	2,369,283	2,354,905	15,459,253	52.02	297,179
2013	3,956,538.26	845,140	840,011	6,281,758	52.88	118,793
2014	6,063,897.54	1,135,162	1,128,273	9,786,743	53.76	182,045
2015	11,271,939.52	1,812,460	1,801,461	18,488,030	54.64	338,361
2016	18,159,972.52	2,440,809	2,425,996	30,261,955	55.52	545,064
2017	4,549,241.60	489,926	486,953	7,701,682	56.41	136,530
2018	2,859,020.16	231,581	230,176	4,916,060	57.30	85,795
2019	5,332,199.99	289,570	287,813	9,310,147	58.19	159,996
2020	16,468,861.39	558,196	554,808	29,089,143	58.87	494,125
2021	7,000,624.40			12,601,124	60.00	210,019
	127,211,263.76	36,520,038	36,298,410	192,681,865		3,822,485

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 50.4 3.00

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 356 OVERHEAD CONDUCTORS AND DEVICES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 60-R2						
NET SALVAGE PERCENT.. -80						
1942	726,289.36	1,106,869	1,106,781	200,540	9.20	21,798
1943	41.75	63	63	12	9.52	1
1944	173.00	260	260	51	9.85	5
1945	6.00	9	9	2	10.18	
1947	0.31			1	10.87	
1948	10,597.11	15,508	15,507	3,568	11.22	318
1949	255,933.15	371,768	371,738	88,942	11.58	7,681
1950	49,437.00	71,263	71,257	17,730	11.95	1,484
1951	2,515.42	3,598	3,598	930	12.32	75
1952	760.00	1,078	1,078	290	12.71	23
1953	76,321.30	107,385	107,376	30,002	13.10	2,290
1954	35,734.40	49,839	49,835	14,487	13.51	1,072
1955	15,387.18	21,271	21,269	6,428	13.92	462
1956	313,363.44	429,245	429,211	134,843	14.34	9,403
1957	70,282.42	95,366	95,358	31,150	14.77	2,109
1958	410,060.33	550,873	550,829	187,280	15.22	12,305
1959	132,225.72	175,846	175,832	62,174	15.67	3,968
1960	172,002.37	226,373	226,355	83,249	16.13	5,161
1961	7,704.75	10,032	10,031	3,838	16.60	231
1962	1,191,876.52	1,534,653	1,534,531	610,847	17.08	35,764
1963	47,246.06	60,140	60,135	24,908	17.57	1,418
1964	112,026.58	140,918	140,907	60,741	18.07	3,361
1965	104,958.24	130,420	130,410	58,515	18.58	3,149
1966	167,889.96	206,002	205,986	96,216	19.10	5,037
1967	171,885.28	208,169	208,152	101,242	19.63	5,158
1968	226,875.83	271,093	271,071	137,305	20.17	6,807
1969	2,112,945.87	2,489,908	2,489,710	1,313,593	20.72	63,397
1970	218,435.09	253,733	253,713	139,470	21.28	6,554
1971	295,431.65	338,120	338,093	193,684	21.85	8,864
1972	479,338.23	540,265	540,222	322,587	22.43	14,382
1973	171,623.54	190,398	190,383	118,539	23.02	5,149
1974	349,080.95	381,092	381,062	247,284	23.61	10,474
1975	717,866.94	770,554	770,493	521,667	24.22	21,539
1976	2,625,833.06	2,770,532	2,770,311	1,956,189	24.83	78,783
1977	835,257.37	865,499	865,430	638,033	25.46	25,060
1978	693,915.14	705,924	705,868	543,179	26.09	20,819
1979	1,501,839.38	1,498,986	1,498,867	1,204,444	26.73	45,060
1980	1,385,730.77	1,355,660	1,355,552	1,138,763	27.39	41,576
1981	86,371.86	82,814	82,807	72,662	28.04	2,591
1982	1,622,655.78	1,523,187	1,523,066	1,397,714	28.71	48,684
1983	549,958.15	505,030	504,990	484,935	29.39	16,500

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 356 OVERHEAD CONDUCTORS AND DEVICES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 60-R2						
NET SALVAGE PERCENT.. -80						
1984	21,097.74	18,944	18,942	19,034	30.07	633
1985	218,331.76	191,519	191,504	201,493	30.76	6,550
1986	287,343.29	246,025	246,005	271,213	31.46	8,621
1987	206,967.62	172,796	172,782	199,760	32.17	6,210
1988	265,418.65	215,945	215,928	261,826	32.88	7,963
1989	320,273.75	253,559	253,539	322,954	33.61	9,609
1990	484,365.06	373,007	372,977	498,880	34.33	14,532
1991	233,570.37	174,687	174,673	245,754	35.07	7,008
1992	738,018.92	535,359	535,316	793,118	35.82	22,142
1993	122,774.68	86,298	86,291	134,703	36.57	3,683
1994	2,460,445.15	1,674,087	1,673,954	2,754,847	37.32	73,817
1995	483,064.06	317,521	317,496	552,019	38.09	14,492
1996	78,475.35	49,769	49,765	91,491	38.86	2,354
1997	503,066.70	307,270	307,246	598,274	39.64	15,093
1998	63,948.29	37,563	37,560	77,547	40.42	1,919
1999	293,699.38	165,560	165,547	363,112	41.21	8,811
2001	1,561,494.45	805,263	805,199	2,005,491	42.81	46,846
2002	5,455,258.81	2,680,714	2,680,500	7,138,966	43.62	163,663
2003	778,828.34	363,791	363,762	1,038,129	44.43	23,365
2004	49,927.92	22,093	22,091	67,779	45.25	1,498
2005	1,016,141.08	424,341	424,307	1,404,747	46.08	30,485
2006	734,072.15	288,275	288,252	1,033,078	46.91	22,023
2007	2,077,631.85	763,542	763,481	2,976,256	47.75	62,330
2008	412,214.40	141,103	141,092	600,894	48.59	12,367
2009	1,572,916.64	498,300	498,260	2,332,990	49.44	47,188
2010	589,952.15	171,850	171,836	890,078	50.29	17,699
2011	589,339.10	156,470	156,458	904,352	51.15	17,680
2012	6,420,681.65	1,537,111	1,536,988	10,020,239	52.02	192,623
2013	884,152.90	188,860	188,845	1,402,630	52.88	26,525
2014	714,866.82	133,823	133,812	1,152,948	53.76	21,446
2015	5,912,790.78	950,741	950,665	9,692,358	54.64	177,386
2016	5,052,377.64	679,070	679,016	8,415,264	55.52	151,572
2017	856,674.81	92,259	92,252	1,449,763	56.41	25,700
2018	1,510,511.63	122,351	122,341	2,596,580	57.30	45,316
2019	2,810,670.57	152,636	152,624	4,906,583	58.19	84,320
2020	4,888,838.17	165,702	165,689	8,634,220	58.87	146,666
	68,618,079.89	35,217,947	35,215,141	88,297,403		2,058,647

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 42.9 3.00

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 357 UNDERGROUND CONDUIT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 55-S3						
NET SALVAGE PERCENT.. -5						
1969	73,862.36	60,521	63,988	13,567	12.08	1,123
1975	40,686.01	31,132	32,915	9,805	14.92	657
1979	6,215.48	4,488	4,745	1,781	17.18	104
1994	14,948.90	7,557	7,990	7,706	28.52	270
1995	9,089.42	4,439	4,693	4,851	29.42	165
1998	1,131,845.28	492,441	520,652	667,786	32.21	20,732
2001	504,873.55	191,902	202,895	327,222	35.09	9,325
2003	12,433.92	4,261	4,505	8,551	37.05	231
2012	8,406.41	1,444	1,527	7,300	46.00	159
2018	138,680.19	7,943	8,398	137,216	52.00	2,639
	1,941,041.52	806,128	852,308	1,185,786		35,405

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 33.5 1.82

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 358 UNDERGROUND CONDUCTORS AND DEVICES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 50-R3						
NET SALVAGE PERCENT.. -25						
1966	10,511.00	11,044	13,038	101	7.97	13
1967	18,010.95	18,749	22,134	380	8.36	45
1969	67,240.30	68,602	80,989	3,061	9.19	333
1971	0.37					
1974	61,045.00	58,634	69,221	7,085	11.58	612
1975	197,269.48	186,814	220,545	26,042	12.12	2,149
1976	6,134.45	5,725	6,759	909	12.67	72
1978	10,231.75	9,250	10,920	1,870	13.84	135
1993	133,925.00	85,545	100,991	66,415	24.45	2,716
1995	89,983.40	53,833	63,553	48,926	26.07	1,877
1998	3,735,788.42	2,000,515	2,361,722	2,308,014	28.58	80,756
1999	89,467.00	46,008	54,315	57,519	29.43	1,954
2001	525,152.69	247,347	292,007	364,434	31.16	11,696
2003	1,781.01	760	897	1,329	32.93	40
2005	10,537.39	4,023	4,749	8,423	34.73	243
2011	497,426.73	120,502	142,260	479,523	40.31	11,896
2012	2,004,721.61	438,032	517,122	1,988,780	41.26	48,201
2016	6,593.47	806	952	7,290	45.11	162
2017	279.19	27	32	317	46.08	7
2018	1,032,291.34	75,873	89,572	1,200,792	47.06	25,516
	8,498,390.55	3,432,089	4,051,778	6,571,210		188,423

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 34.9 2.22

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 361 STRUCTURES AND IMPROVEMENTS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 50-S0.5						
NET SALVAGE PERCENT.. -10						
1922	9,268.29	10,114	10,195			
1924	14,461.00	15,564	15,907			
1925	17,850.00	19,073	19,635			
1928	34,451.00	36,032	37,896			
1932	12,352.81	12,553	13,588			
1937	37.00	36	41			
1939	412.00	397	453			
1940	4,530.00	4,336	4,983			
1941	44.00	42	48			
1946	61.00	56	67			
1947	11,841.00	10,712	12,917	108	8.88	12
1948	3,584.00	3,215	3,877	65	9.22	7
1953	959.00	823	992	63	10.99	6
1954	7,109.00	6,045	7,289	531	11.35	47
1955	50.13	42	51	4	11.71	
1956	12,996.79	10,845	13,077	1,219	12.07	101
1957	7,966.74	6,583	7,938	825	12.44	66
1958	17,753.00	14,525	17,515	2,013	12.81	157
1959	11,778.00	9,538	11,501	1,455	13.19	110
1960	16,219.36	12,999	15,675	2,166	13.57	160
1961	4,664.00	3,699	4,460	670	13.95	48
1962	3,004.05	2,357	2,842	462	14.33	32
1963	32,269.21	25,046	30,201	5,295	14.72	360
1964	12,987.29	9,969	12,021	2,265	15.11	150
1965	2,436.86	1,850	2,231	450	15.50	29
1966	9,152.42	6,866	8,279	1,789	15.90	113
1967	68,745.68	50,953	61,441	14,179	16.31	869
1968	88,808.00	65,022	78,406	19,283	16.72	1,153
1969	36,136.56	26,132	31,511	8,239	17.13	481
1970	27,938.98	19,952	24,059	6,674	17.54	381
1971	48,769.94	34,366	41,440	12,207	17.97	679
1972	3,039.10	2,113	2,548	795	18.39	43
1973	108,452.09	74,394	89,707	29,590	18.82	1,572
1974	1,222.12	826	996	348	19.26	18
1975	59,007.79	39,335	47,431	17,478	19.70	887
1976	17,413.85	11,436	13,790	5,365	20.15	266
1977	143,946.85	93,105	112,269	46,073	20.60	2,237
1978	112,127.99	71,390	86,084	37,257	21.06	1,769
1979	68,426.89	42,858	51,680	23,590	21.53	1,096
1980	115,534.87	71,169	85,818	41,270	22.00	1,876
1982	5,560.55	3,308	3,989	2,128	22.96	93

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 361 STRUCTURES AND IMPROVEMENTS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 50-S0.5						
NET SALVAGE PERCENT.. -10						
1983	2,478.55	1,448	1,746	980	23.45	42
1984	19,457.65	11,151	13,446	7,957	23.95	332
1985	94,047.68	52,844	63,721	39,731	24.46	1,624
1986	4,882.47	2,689	3,242	2,129	24.97	85
1987	54,784.33	29,541	35,622	24,641	25.49	967
1988	38,163.12	20,133	24,277	17,702	26.02	680
1989	32,402.31	16,709	20,148	15,495	26.56	583
1991	36,086.80	17,736	21,387	18,308	27.66	662
1992	162,896.74	78,018	94,077	85,109	28.23	3,015
1993	131,406.01	61,288	73,903	70,644	28.80	2,453
1994	129,757.00	58,863	70,979	71,754	29.38	2,442
1995	119,539.36	52,650	63,487	68,006	29.98	2,268
1996	142,700.61	60,967	73,516	83,455	30.58	2,729
1997	2,113.67	875	1,055	1,270	31.19	41
1998	102,412.95	40,961	49,392	63,262	31.82	1,988
2000	43,035.94	16,001	19,295	28,045	33.10	847
2001	41,593.00	14,860	17,919	27,833	33.76	824
2003	73,187.52	23,959	28,891	51,615	35.12	1,470
2004	19,708.36	6,153	7,419	14,260	35.81	398
2005	223,396.95	66,251	79,888	165,849	36.52	4,541
2006	89,523.54	25,111	30,280	68,196	37.25	1,831
2007	98,071.12	25,912	31,246	76,632	37.99	2,017
2009	163,484.43	37,765	45,538	134,295	39.50	3,400
2010	704,261.48	150,444	181,410	593,278	40.29	14,725
2011	362,163.40	71,071	85,700	312,680	41.08	7,611
2012	1,941,157.03	346,341	417,629	1,717,644	41.89	41,004
2013	551,200.21	88,280	106,451	499,869	42.72	11,701
2014	167,408.10	23,682	28,556	155,593	43.57	3,571
2015	6,020.27	738	890	5,732	44.43	129
2016	62,392.44	6,438	7,763	60,869	45.31	1,343
2017	91,613.65	7,639	9,211	91,564	46.21	1,981
2018	281,401.82	17,768	21,425	288,117	47.13	6,113
2019	5,781,443.57	246,752	297,542	6,062,046	48.06	126,135
2020	4,379,035.41	117,533	141,725	4,675,214	48.78	95,843
2021	9,996,999.01			10,996,699	50.00	219,934
	27,303,595.71	2,628,247	3,153,624	26,880,331		580,147

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 46.3 2.12

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 362 STATION EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 52-R1						
NET SALVAGE PERCENT.. -20						
1926	156,557.39	176,488	187,869			
1927	103,280.33	115,690	123,936			
1928	37,397.33	41,632	44,877			
1929	1,286.27	1,423	1,544			
1931	22,778.38	24,890	27,334			
1932	39,582.72	42,987	47,499			
1935	292.60	312	351			
1936	1,145.44	1,212	1,375			
1937	13,041.41	13,699	15,650			
1938	43,137.26	45,005	51,765			
1939	22,805.22	23,619	27,366			
1940	2,841.37	2,922	3,397	13	7.44	2
1941	188,036.90	191,929	223,148	2,496	7.77	321
1942	26,299.16	26,637	30,970	589	8.11	73
1943	46,249.28	46,481	54,042	1,457	8.45	172
1944	63.68	63	73	3	8.79	
1946	5,224.24	5,125	5,959	310	9.49	33
1947	100,580.53	97,834	113,748	6,949	9.85	705
1948	6,796.62	6,555	7,621	535	10.21	52
1949	134,291.83	128,363	149,242	11,908	10.58	1,126
1950	35,334.86	33,465	38,908	3,494	10.96	319
1951	72,084.59	67,655	78,660	7,842	11.33	692
1952	67,706.75	62,936	73,173	8,075	11.72	689
1953	225,677.63	207,746	241,538	29,275	12.11	2,417
1954	521,683.55	475,538	552,888	73,132	12.50	5,851
1955	698,915.13	630,634	733,212	105,486	12.90	8,177
1956	392,232.13	350,293	407,271	63,408	13.30	4,768
1957	606,972.94	536,333	623,572	104,796	13.71	7,644
1958	1,124,956.85	983,127	1,143,041	206,907	14.13	14,643
1959	98,311.21	84,963	98,783	19,190	14.55	1,319
1960	556,079.60	475,061	552,334	114,962	14.98	7,674
1961	45,647.54	38,544	44,814	9,963	15.41	647
1962	96,080.24	80,153	93,191	22,105	15.85	1,395
1963	10,060.61	8,288	9,636	2,437	16.30	150
1964	481,946.72	392,042	455,811	122,525	16.75	7,315
1965	258,834.28	207,864	241,675	68,926	17.20	4,007
1966	788,110.29	624,363	725,921	219,811	17.67	12,440
1967	543,468.13	424,655	493,729	158,433	18.14	8,734
1968	609,089.59	469,330	545,671	185,237	18.61	9,954
1969	1,197,737.07	909,356	1,057,271	380,013	19.10	19,896
1970	972,817.45	727,594	845,944	321,437	19.59	16,408

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ACCOUNT 362 STATION EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 52-R1						
NET SALVAGE PERCENT.. -20						
1971	1,013,299.48	746,417	867,828	348,131	20.08	17,337
1972	717,935.95	520,558	605,231	256,292	20.58	12,453
1973	1,059,761.07	755,932	878,891	392,822	21.09	18,626
1974	1,526,005.98	1,070,194	1,244,271	586,936	21.61	27,160
1975	1,314,086.39	905,805	1,053,142	523,762	22.13	23,668
1976	1,205,019.58	815,890	948,602	497,421	22.66	21,952
1977	2,416,060.59	1,605,762	1,866,953	1,032,320	23.20	44,497
1978	4,321,804.44	2,818,473	3,276,923	1,909,242	23.74	80,423
1979	1,999,622.72	1,278,671	1,486,658	912,889	24.29	37,583
1980	41,980.24	26,302	30,580	19,796	24.85	797
1981	36,874.59	22,627	26,307	17,943	25.41	706
1982	1,875,637.99	1,126,238	1,309,431	941,335	25.98	36,233
1983	152,337.12	89,468	104,021	78,784	26.55	2,967
1984	320,687.99	183,977	213,902	170,924	27.14	6,298
1985	233,074.47	130,539	151,772	127,917	27.73	4,613
1986	818,497.32	447,273	520,026	462,171	28.32	16,320
1987	698,473.32	372,021	432,534	405,634	28.92	14,026
1988	98,272.65	50,959	59,248	58,679	29.53	1,987
1989	87,940.11	44,362	51,578	53,950	30.14	1,790
1990	107,213.10	52,551	61,099	67,557	30.76	2,196
1991	4,433,188.20	2,108,513	2,451,481	2,868,345	31.39	91,378
1992	4,420,521.16	2,038,196	2,369,727	2,934,898	32.02	91,658
1993	2,893,986.67	1,292,292	1,502,495	1,970,289	32.65	60,346
1994	308,545.41	133,221	154,891	215,363	33.29	6,469
1995	3,045,219.37	1,269,162	1,475,602	2,178,661	33.94	64,192
1996	2,376,882.34	954,965	1,110,299	1,741,960	34.59	50,360
1997	1,997,993.11	772,768	898,466	1,499,126	35.24	42,540
1998	434,967.84	161,610	187,897	334,064	35.90	9,305
1999	3,978,207.30	1,416,544	1,646,957	3,126,892	36.57	85,504
2001	2,693,040.09	876,261	1,018,793	2,212,855	37.90	58,387
2002	500,596.45	155,033	180,250	420,466	38.58	10,899
2003	1,791,529.12	527,118	612,858	1,536,977	39.25	39,159
2004	976,421.47	271,976	316,215	855,491	39.93	21,425
2005	3,371,913.53	885,532	1,029,572	3,016,724	40.62	74,267
2006	3,841,968.73	948,674	1,102,984	3,507,378	41.30	84,924
2007	2,043,811.94	472,121	548,916	1,903,658	41.99	45,336
2008	689,746.24	148,348	172,478	655,217	42.68	15,352
2009	6,558,127.43	1,304,569	1,516,769	6,352,984	43.38	146,450
2010	10,725,049.73	1,962,684	2,281,932	10,588,128	44.07	240,257
2011	3,812,819.86	635,292	738,628	3,836,756	44.78	85,680
2012	13,756,210.61	2,069,704	2,406,360	14,101,093	45.48	310,050

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 362 STATION EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 52-R1						
NET SALVAGE PERCENT.. -20						
2013	8,679,452.43	1,163,706	1,352,993	9,062,350	46.19	196,197
2014	6,438,627.10	757,801	881,064	6,845,289	46.90	145,955
2015	4,881,681.23	493,421	573,680	5,284,337	47.62	110,969
2016	7,468,608.39	630,769	733,369	8,228,961	48.34	170,231
2017	7,487,033.34	507,980	590,608	8,393,832	49.06	171,093
2018	6,364,555.16	324,592	377,390	7,260,076	49.79	145,814
2019	18,237,721.66	622,855	724,168	21,161,098	50.52	418,866
2020	20,224,365.07	433,934	504,518	23,764,720	51.07	465,336
2021	4,203,499.52		0	5,044,200	52.00	97,004
	189,036,310.72	47,186,466	54,825,166	172,018,407		4,064,658
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..					42.3	2.15

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 364 POLES, TOWERS AND FIXTURES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 56-R1.5						
NET SALVAGE PERCENT.. -80						
1915	481.76	833	800	67	2.18	31
1925	1,323.82	2,174	2,088	295	4.91	60
1932	409.28	650	624	113	6.59	17
1935	2,061.45	3,221	3,094	617	7.39	83
1936	1,912.17	2,971	2,854	588	7.67	77
1937	11,048.63	17,064	16,389	3,499	7.95	440
1938	836.65	1,285	1,234	272	8.23	33
1939	16,584.61	25,311	24,310	5,542	8.52	650
1940	20,421.35	30,976	29,751	7,007	8.81	795
1941	513.76	774	743	182	9.10	20
1942	23,548.62	35,272	33,877	8,511	9.40	905
1943	8,153.89	12,135	11,655	3,022	9.70	312
1944	5,543.08	8,194	7,870	2,108	10.01	211
1945	4,248.51	6,238	5,991	1,656	10.32	160
1946	19,461.25	28,375	27,253	7,777	10.64	731
1947	4,707.01	6,814	6,545	1,928	10.96	176
1948	12,991.80	18,671	17,933	5,452	11.29	483
1949	4,845.95	6,913	6,640	2,083	11.62	179
1950	11,474.16	16,243	15,601	5,052	11.96	422
1951	35,103.64	49,297	47,348	15,839	12.31	1,287
1952	5,710.98	7,956	7,641	2,639	12.66	208
1953	5,768.86	7,970	7,655	2,729	13.02	210
1954	19,041.99	26,080	25,049	9,227	13.39	689
1955	77,625.79	105,394	101,226	38,500	13.76	2,798
1956	13,423.20	18,057	17,343	6,819	14.15	482
1957	21,609.42	28,798	27,659	11,238	14.54	773
1959	236,697.48	309,269	297,039	129,016	15.35	8,405
1960	504,425.12	652,273	626,480	281,485	15.77	17,849
1961	360,146.00	460,727	442,508	205,755	16.20	12,701
1962	495,196.49	626,497	601,723	289,631	16.64	17,406
1963	160,523.92	200,815	192,874	96,069	17.08	5,625
1964	472,969.28	584,695	561,574	289,771	17.54	16,521
1965	372,098.37	454,491	436,519	233,258	18.00	12,959
1966	372,627.49	449,389	431,619	239,110	18.48	12,939
1967	458,460.86	545,832	524,248	300,982	18.96	15,875
1968	527,899.44	620,189	595,665	354,554	19.45	18,229
1969	552,515.30	640,048	614,738	379,790	19.96	19,028
1970	581,865.03	664,506	638,229	409,128	20.47	19,987
1971	687,666.45	773,848	743,247	494,553	20.99	23,561
1972	783,263.48	868,074	833,747	576,127	21.52	26,772
1973	875,082.78	954,651	916,901	658,248	22.06	29,839

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 364 POLES, TOWERS AND FIXTURES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 56-R1.5						
NET SALVAGE PERCENT.. -80						
1974	988,911.26	1,061,349	1,019,380	760,660	22.61	33,643
1975	1,154,300.80	1,218,450	1,170,268	907,473	23.16	39,183
1976	1,375,869.25	1,427,120	1,370,687	1,105,878	23.73	46,603
1977	1,342,182.73	1,367,585	1,313,506	1,102,423	24.30	45,367
1978	1,826,945.61	1,826,894	1,754,652	1,533,850	24.89	61,625
1979	1,904,741.49	1,868,551	1,794,662	1,633,873	25.48	64,124
1980	2,213,989.75	2,129,243	2,045,046	1,940,136	26.08	74,392
1981	2,224,490.15	2,095,697	2,012,826	1,991,256	26.69	74,607
1982	2,274,254.02	2,097,999	2,015,037	2,078,620	27.30	76,140
1983	2,882,643.98	2,600,866	2,498,019	2,690,740	27.93	96,339
1984	2,255,557.12	1,989,401	1,910,733	2,149,270	28.56	75,255
1985	2,428,013.12	2,091,554	2,008,847	2,361,577	29.20	80,876
1986	2,683,352.80	2,255,433	2,166,246	2,663,789	29.85	89,239
1987	2,380,079.34	1,950,827	1,873,685	2,410,458	30.50	79,031
1988	2,942,700.26	2,349,528	2,256,620	3,040,240	31.16	97,569
1989	3,041,852.33	2,363,209	2,269,760	3,205,574	31.83	100,709
1990	2,946,003.96	2,224,315	2,136,358	3,166,449	32.51	97,399
1991	2,925,364.64	2,144,807	2,059,994	3,205,662	33.19	96,585
1992	2,750,153.16	1,955,359	1,878,037	3,072,239	33.88	90,680
1993	3,078,465.21	2,120,521	2,036,668	3,504,569	34.57	101,376
1994	3,064,346.50	2,041,848	1,961,106	3,554,718	35.27	100,786
1995	2,958,217.05	1,903,613	1,828,338	3,496,453	35.98	97,178
1996	3,069,222.72	1,904,993	1,829,663	3,694,938	36.69	100,707
1997	3,610,289.20	2,157,249	2,071,944	4,426,577	37.41	118,326
1998	2,511,278.06	1,442,473	1,385,433	3,134,868	38.13	82,215
1999	1,902,688.35	1,048,240	1,006,789	2,418,050	38.86	62,225
2000	1,448,547.71	764,068	733,854	1,873,532	39.59	47,323
2001	3,259,076.87	1,641,519	1,576,608	4,289,730	40.33	106,366
2002	2,277,729.63	1,093,078	1,049,854	3,050,059	41.07	74,265
2003	2,785,141.46	1,269,406	1,219,209	3,794,046	41.82	90,723
2004	1,522,161.42	657,081	631,098	2,108,793	42.57	49,537
2005	2,470,097.44	1,005,947	966,168	3,480,007	43.33	80,314
2006	1,501,511.40	574,815	552,085	2,150,636	44.09	48,778
2007	944,618.17	338,549	325,162	1,375,151	44.85	30,661
2008	5,031,824.47	1,678,858	1,612,470	7,444,814	45.62	163,192
2009	12,740,722.45	3,935,584	3,779,958	19,153,342	46.39	412,877
2010	8,091,248.00	2,296,490	2,205,679	12,358,567	47.17	262,001
2011	4,701,588.60	1,216,536	1,168,430	7,294,429	47.95	152,126
2012	11,545,294.78	2,694,118	2,587,583	18,193,948	48.74	373,286
2013	10,093,914.50	2,099,252	2,016,241	16,152,805	49.53	326,122
2014	19,106,155.95	3,488,287	3,350,348	31,040,733	50.32	616,867

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 364 POLES, TOWERS AND FIXTURES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 56-R1.5						
NET SALVAGE PERCENT.. -80						
2015	19,112,509.47	2,997,835	2,879,291	31,523,226	51.12	616,652
2016	8,640,086.88	1,133,130	1,088,322	14,463,834	51.92	278,579
2017	5,197,578.48	546,276	524,674	8,830,967	52.73	167,475
2018	9,338,534.38	738,435	709,235	16,100,127	53.54	300,712
2019	10,911,478.19	575,275	552,527	19,088,134	54.36	351,143
2020	33,220,919.96	1,099,679	1,056,194	58,741,462	54.97	1,068,609
2021	5,952,763.02		0	10,714,974	56.00	191,339
	250,399,705.21	90,754,312	87,165,578	363,553,891		8,161,054
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..					44.5	3.26

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 365 OVERHEAD CONDUCTORS AND DEVICES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 52-R1.5						
NET SALVAGE PERCENT.. -75						
1925	3,193.94	5,285	4,768	821	2.83	290
1932	3,289.41	5,248	4,734	1,022	4.59	223
1934	5,071.83	8,014	7,230	1,646	5.05	326
1935	1,818.39	2,859	2,579	603	5.28	114
1936	3,126.34	4,889	4,410	1,061	5.53	192
1937	27,867.72	43,357	39,113	9,656	5.77	1,673
1938	3,320.70	5,137	4,634	1,177	6.03	195
1939	3,303.05	5,081	4,584	1,196	6.29	190
1940	14,440.96	22,088	19,926	5,346	6.55	816
1941	11,757.24	17,873	16,123	4,452	6.83	652
1942	69.85	106	96	26	7.10	4
1943	31,561.38	47,394	42,755	12,477	7.38	1,691
1944	11,373.89	16,972	15,311	4,593	7.66	600
1945	13,586.08	20,141	18,169	5,607	7.95	705
1946	9.84	14	13	4	8.24	
1947	3,305.06	4,834	4,361	1,423	8.54	167
1948	955.28	1,388	1,252	420	8.84	48
1949	5,800.50	8,367	7,548	2,603	9.14	285
1950	409.06	586	529	187	9.45	20
1951	158.54	225	203	74	9.77	8
1952	1,574.69	2,221	2,004	752	10.09	75
1953	348.00	487	439	170	10.41	16
1954	4,006.01	5,563	5,018	1,993	10.74	186
1955	10,584.97	14,577	13,150	5,374	11.08	485
1956	3,584.15	4,894	4,415	1,857	11.43	162
1957	3,506.94	4,747	4,282	1,855	11.78	157
1958	3,057.57	4,102	3,700	1,651	12.14	136
1959	116,892.29	155,348	140,141	64,421	12.51	5,150
1960	139,332.27	183,391	165,439	78,392	12.89	6,082
1961	159,622.23	208,001	187,640	91,699	13.28	6,905
1962	135,583.52	174,897	157,777	79,494	13.67	5,815
1963	137.36	175	158	82	14.08	6
1964	5,855.24	7,391	6,668	3,579	14.49	247
1965	337.15	421	380	210	14.92	14
1966	34,017.88	41,958	37,851	21,680	15.35	1,412
1967	931,261.59	1,134,521	1,023,464	606,244	15.80	38,370
1968	892,437.41	1,073,714	968,609	593,156	16.25	36,502
1969	1,290,140.33	1,531,790	1,381,845	875,901	16.72	52,386
1970	951,075.15	1,114,170	1,005,105	659,277	17.19	38,352
1971	1,244,856.33	1,437,809	1,297,063	881,436	17.68	49,855
1972	1,171,389.98	1,333,645	1,203,096	846,836	18.17	46,606

LOUISVILLE GAS AND ELECTRIC COMPANY
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ACCOUNT 365 OVERHEAD CONDUCTORS AND DEVICES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 52-R1.5						
NET SALVAGE PERCENT.. -75						
1973	1,357,789.98	1,522,554	1,373,513	1,002,619	18.68	53,673
1974	1,217,248.48	1,344,061	1,212,492	917,693	19.19	47,821
1975	1,888,965.00	2,052,072	1,851,197	1,454,492	19.72	73,757
1976	2,068,673.97	2,210,409	1,994,035	1,626,144	20.25	80,303
1977	2,304,019.77	2,419,987	2,183,097	1,848,938	20.79	88,934
1978	3,098,276.74	3,195,826	2,882,990	2,538,994	21.35	118,922
1979	3,231,515.79	3,272,354	2,952,027	2,703,126	21.91	123,374
1980	3,072,837.16	3,051,711	2,752,982	2,624,483	22.49	116,696
1981	2,893,775.00	2,817,416	2,541,622	2,522,484	23.07	109,340
1982	3,116,202.52	2,972,078	2,681,145	2,772,209	23.66	117,169
1983	2,950,875.89	2,754,805	2,485,140	2,678,893	24.26	110,424
1984	2,609,766.27	2,382,788	2,149,540	2,417,551	24.87	97,208
1985	2,392,521.06	2,134,530	1,925,583	2,261,329	25.49	88,714
1986	3,310,937.42	2,884,787	2,602,398	3,191,742	26.11	122,242
1987	2,754,011.46	2,340,263	2,111,177	2,708,343	26.75	101,246
1988	3,655,081.02	3,027,220	2,730,889	3,665,503	27.39	133,826
1989	3,888,490.27	3,135,474	2,828,546	3,976,312	28.04	141,809
1990	4,616,224.28	3,619,766	3,265,431	4,812,961	28.70	167,699
1991	4,260,657.83	3,244,842	2,927,208	4,528,943	29.37	154,203
1992	3,896,251.23	2,879,495	2,597,624	4,220,816	30.04	140,507
1993	3,318,753.16	2,376,733	2,144,077	3,663,741	30.72	119,262
1994	3,022,968.62	2,094,706	1,889,658	3,400,537	31.41	108,263
1995	7,204,029.35	4,824,592	4,352,318	8,254,733	32.10	257,157
1996	3,596,623.32	2,323,967	2,096,476	4,197,615	32.80	127,976
1997	5,014,720.90	3,120,485	2,815,024	5,960,738	33.51	177,879
1998	2,977,389.29	1,781,551	1,607,157	3,603,274	34.22	105,297
1999	6,143,415.54	3,527,181	3,181,909	7,569,068	34.94	216,630
2000	10,893,934.03	5,986,979	5,400,920	13,663,465	35.67	383,052
2001	6,794,980.90	3,567,365	3,218,160	8,673,057	36.40	238,271
2002	11,021,372.75	5,515,426	4,975,527	14,311,875	37.13	385,453
2003	13,072,611.87	6,216,386	5,607,871	17,269,200	37.87	456,013
2004	5,342,211.23	2,405,558	2,170,081	7,178,789	38.62	185,883
2005	4,201,533.47	1,785,820	1,611,008	5,741,676	39.37	145,839
2006	6,733,408.51	2,692,050	2,428,528	9,354,937	40.12	233,174
2007	4,974,728.26	1,861,730	1,679,487	7,026,287	40.88	171,876
2008	5,778,289.06	2,012,694	1,815,674	8,296,332	41.65	199,192
2009	24,430,119.04	7,876,331	7,105,326	35,647,382	42.42	840,344
2010	11,872,179.45	3,519,923	3,175,362	17,600,952	43.19	407,524
2011	7,014,354.44	1,895,524	1,709,973	10,565,147	43.97	240,281
2012	17,281,300.33	4,216,378	3,803,642	26,438,634	44.75	590,807
2013	11,468,457.39	2,493,271	2,249,208	17,820,592	45.54	391,317

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 365 OVERHEAD CONDUCTORS AND DEVICES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 52-R1.5						
NET SALVAGE PERCENT.. -75						
2014	44,152,711.38	8,425,220	7,600,485	69,666,760	46.33	1,503,707
2015	22,693,976.10	3,719,259	3,355,185	36,359,273	47.13	771,468
2016	5,158,255.67	706,539	637,377	8,389,570	47.93	175,038
2017	36,189,191.09	3,982,259	3,592,440	59,738,644	48.73	1,225,911
2018	11,520,061.47	953,775	860,411	19,299,697	49.54	389,578
2019	12,371,578.20	682,849	616,006	21,034,256	50.36	417,678
2020	38,331,589.79	1,328,860	1,198,779	65,881,503	50.97	1,292,555
2021	15,935,199.82		0	27,886,600	52.00	536,281
	424,338,085.69	153,809,529	138,753,287	603,838,363		14,778,691

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 40.9 3.48

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 366 UNDERGROUND CONDUIT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 75-S4						
NET SALVAGE PERCENT.. -40						
1915	269.21	359	370	7	3.49	2
1925	7,323.85	9,566	9,871	382	5.03	76
1936	1,304.92	1,647	1,699	128	7.37	17
1937	16.28	20	21	2	7.64	
1938	43,316.29	54,247	55,976	4,667	7.91	590
1939	4,725.36	5,893	6,081	535	8.19	65
1940	23,103.63	28,688	29,602	2,743	8.48	323
1941	7,062.70	8,730	9,008	880	8.78	100
1942	972.86	1,197	1,235	127	9.10	14
1943	5,007.01	6,128	6,323	687	9.43	73
1944	1,825.76	2,223	2,294	262	9.77	27
1945	949.46	1,150	1,187	142	10.12	14
1946	263.16	317	327	41	10.49	4
1947	1,800.63	2,156	2,225	296	10.87	27
1948	6,228.77	7,410	7,646	1,074	11.27	95
1949	100,724.14	119,054	122,848	18,166	11.68	1,555
1950	29,130.48	34,192	35,282	5,501	12.12	454
1951	25,759.30	30,024	30,981	5,082	12.56	405
1952	24,281.71	28,089	28,984	5,010	13.03	384
1953	22,101.59	25,364	26,172	4,770	13.52	353
1954	14,514.44	16,522	17,048	3,272	14.02	233
1955	33,978.88	38,348	39,570	8,000	14.54	550
1956	54,237.74	60,655	62,588	13,345	15.09	884
1957	19,458.38	21,557	22,244	4,998	15.65	319
1958	75,654.57	82,982	85,626	20,290	16.24	1,249
1959	35,001.17	37,992	39,203	9,799	16.85	582
1960	68,638.12	73,697	76,045	20,048	17.48	1,147
1961	27,394.24	29,086	30,013	8,339	18.12	460
1962	56,800.09	59,587	61,486	18,034	18.80	959
1963	79,602.91	82,483	85,111	26,333	19.49	1,351
1964	56,740.91	58,031	59,880	19,557	20.21	968
1965	50,463.66	50,915	52,537	18,112	20.95	865
1966	79,201.14	78,785	81,296	29,586	21.71	1,363
1967	155,822.83	152,765	157,633	60,519	22.48	2,692
1968	186,789.38	180,300	186,045	75,460	23.29	3,240
1969	227,265.49	215,889	222,768	95,404	24.11	3,957
1970	330,117.07	308,481	318,311	143,853	24.94	5,768
1971	120,234.44	110,423	113,942	54,386	25.80	2,108
1972	436,063.82	393,399	405,935	204,554	26.67	7,670
1973	609,683.39	539,900	557,104	296,453	27.56	10,757
1974	400,423.65	347,865	358,950	201,643	28.46	7,085

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 366 UNDERGROUND CONDUIT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 75-S4						
NET SALVAGE PERCENT.. -40						
1975	397,553.29	338,548	349,336	207,239	29.38	7,054
1976	526,931.08	439,575	453,582	284,122	30.31	9,374
1977	467,371.58	381,685	393,848	260,472	31.25	8,335
1978	517,206.27	413,216	426,383	297,706	32.20	9,246
1979	380,230.23	297,036	306,501	225,821	33.15	6,812
1980	634,250.59	483,995	499,418	388,533	34.12	11,387
1981	424,508.45	316,251	326,328	267,984	35.09	7,637
1982	642,431.72	466,854	481,730	417,674	36.07	11,580
1983	476,374.65	337,464	348,217	318,708	37.05	8,602
1984	340,111.91	234,650	242,127	234,030	38.04	6,152
1985	744,564.38	499,930	515,860	526,530	39.03	13,490
1986	1,292,869.86	844,192	871,093	938,925	40.02	23,461
1987	579,678.92	367,795	379,515	432,035	41.01	10,535
1988	1,369,958.05	843,645	870,528	1,047,413	42.01	24,932
1989	1,855,883.24	1,108,226	1,143,540	1,454,697	43.01	33,822
1990	1,780,264.46	1,030,171	1,062,998	1,429,372	44.00	32,486
1991	2,482,788.41	1,390,362	1,434,666	2,041,238	45.00	45,361
1992	1,952,567.03	1,056,999	1,090,681	1,642,913	46.00	35,716
1993	4,150,191.11	2,169,147	2,238,268	3,572,000	47.00	76,000
1994	3,787,529.55	1,908,915	1,969,743	3,332,798	48.00	69,433
1995	4,704,154.55	2,283,105	2,355,857	4,229,959	49.00	86,326
1996	4,351,348.55	2,030,609	2,095,315	3,996,573	50.00	79,931
1997	3,732,961.17	1,672,367	1,725,658	3,500,488	51.00	68,637
1998	1,552,523.81	666,557	687,797	1,485,736	52.00	28,572
1999	999,656.25	410,521	423,602	975,917	53.00	18,414
2000	1,768,579.79	693,283	715,375	1,760,637	54.00	32,604
2001	2,229,773.33	832,459	858,986	2,262,697	55.00	41,140
2002	3,263,929.83	1,157,592	1,194,479	3,375,023	56.00	60,268
2003	3,837,677.15	1,289,460	1,330,549	4,042,199	57.00	70,916
2004	4,084,341.86	1,296,117	1,337,418	4,380,661	58.00	75,529
2005	1,132,984.54	338,379	349,162	1,237,016	59.00	20,966
2007	757,009.28	197,835	204,139	855,674	61.00	14,027
2008	687,373.89	166,800	172,115	790,208	62.00	12,745
2009	3,993,321.61	894,504	923,008	4,667,642	63.00	74,090
2010	1,830,459.50	375,863	387,840	2,174,803	64.00	33,981
2011	39,759.23	7,422	7,659	48,004	65.00	739
2012	4,353,177.59	731,334	754,638	5,339,811	66.00	80,906
2013	2,218,237.92	331,267	341,823	2,763,710	67.00	41,249
2014	1,987,956.93	259,750	268,027	2,515,113	68.00	36,987
2015	2,955,510.48	331,017	341,565	3,796,150	69.00	55,017
2016	1,369,648.82	127,840	131,914	1,785,594	70.00	25,508

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 366 UNDERGROUND CONDUIT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 75-S4						
NET SALVAGE PERCENT.. -40						
2017	4,997,465.02	373,121	385,010	6,611,441	71.00	93,119
2018	1,134,763.76	63,547	65,572	1,523,097	72.00	21,154
2019	819,182.61	30,587	31,562	1,115,294	73.00	15,278
2020	11,718,867.48	273,495	282,209	16,124,205	73.75	218,633
	98,748,183.16	35,069,603	36,187,108	102,060,348		1,816,936
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..					56.2	1.84

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 367 UNDERGROUND CONDUCTORS AND DEVICES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 58-R3						
NET SALVAGE PERCENT.. -50						
1947	3,927.07	5,279	4,354	1,537	6.02	255
1953	6,202.31	8,055	6,644	2,659	7.78	342
1957	44,281.38	55,921	46,126	20,296	9.17	2,213
1963	66,404.82	79,514	65,586	34,021	11.70	2,908
1964	53,443.48	63,331	52,238	27,927	12.18	2,293
1965	93,573.28	109,698	90,483	49,877	12.67	3,937
1966	98,694.00	114,375	94,341	53,700	13.19	4,071
1967	215,886.34	247,283	203,969	119,861	13.71	8,743
1968	239,198.59	270,584	223,188	135,610	14.26	9,510
1969	216,679.93	242,029	199,635	125,385	14.81	8,466
1970	492,914.99	543,187	448,042	291,330	15.39	18,930
1971	931,104.81	1,011,850	834,614	562,043	15.98	35,172
1972	1,159,256.99	1,241,808	1,024,293	714,592	16.58	43,100
1973	415,901.50	438,849	361,980	261,872	17.20	15,225
1974	1,001,016.94	1,039,671	857,562	643,963	17.84	36,097
1975	1,148,680.84	1,174,032	968,388	754,633	18.48	40,835
1976	913,356.84	917,924	757,140	612,895	19.14	32,022
1977	950,743.90	939,026	774,546	651,570	19.81	32,891
1978	971,843.73	942,518	777,426	680,340	20.50	33,187
1979	1,320,569.66	1,256,813	1,036,669	944,185	21.20	44,537
1980	899,524.63	839,580	692,519	656,768	21.91	29,976
1981	1,295,373.01	1,185,266	977,654	965,406	22.62	42,679
1982	1,576,678.88	1,412,484	1,165,073	1,199,945	23.36	51,368
1983	1,597,496.70	1,400,557	1,155,235	1,241,010	24.10	51,494
1984	1,020,410.99	874,824	721,590	809,026	24.85	32,556
1985	931,793.05	780,540	643,820	753,870	25.61	29,437
1986	1,380,938.75	1,129,270	931,467	1,139,941	26.38	43,212
1987	1,745,205.98	1,391,941	1,148,128	1,469,681	27.16	54,112
1988	1,627,548.30	1,264,849	1,043,298	1,398,024	27.95	50,019
1989	2,236,413.51	1,691,769	1,395,438	1,959,182	28.75	68,145
1990	2,206,268.69	1,622,733	1,338,495	1,970,908	29.56	66,675
1991	3,305,210.46	2,361,804	1,948,110	3,009,706	30.37	99,101
1992	2,230,928.79	1,546,268	1,275,423	2,070,970	31.20	66,377
1993	3,374,476.77	2,266,434	1,869,445	3,192,270	32.03	99,665
1994	2,086,611.16	1,355,567	1,118,125	2,011,792	32.88	61,186
1995	3,059,864.19	1,920,600	1,584,187	3,005,609	33.73	89,108
1996	1,970,359.92	1,193,417	984,378	1,971,162	34.58	57,003
1997	3,626,970.39	2,115,195	1,744,697	3,695,759	35.45	104,253
1998	3,637,369.09	2,038,491	1,681,428	3,774,626	36.33	103,898
1999	3,793,536.37	2,039,690	1,682,417	4,007,888	37.21	107,710
2000	7,722,254.54	3,974,258	3,278,126	8,305,256	38.10	217,986

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 367 UNDERGROUND CONDUCTORS AND DEVICES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 58-R3						
NET SALVAGE PERCENT.. -50						
2001	4,701,214.76	2,311,305	1,906,456	5,145,366	38.99	131,966
2002	3,241,092.29	1,517,998	1,252,105	3,609,533	39.89	90,487
2003	5,926,401.19	2,636,211	2,174,451	6,715,151	40.80	164,587
2004	3,243,622.17	1,365,678	1,126,465	3,738,968	41.72	89,621
2005	2,402,393.61	954,339	787,177	2,816,413	42.64	66,051
2006	1,274,272.77	475,539	392,243	1,519,166	43.57	34,867
2007	2,123,902.73	741,539	611,651	2,574,203	44.50	57,847
2008	5,639,698.28	1,831,915	1,511,036	6,948,511	45.44	152,916
2009	18,637,770.61	5,600,836	4,619,792	23,336,864	46.38	503,167
2010	17,692,477.13	4,882,328	4,027,138	22,511,578	47.33	475,630
2011	7,665,779.32	1,927,062	1,589,517	9,909,152	48.28	205,243
2012	14,647,138.84	3,318,236	2,737,013	19,233,695	49.24	390,611
2013	5,614,507.09	1,132,558	934,179	7,487,582	50.20	149,155
2014	55,084,975.47	9,744,257	8,037,450	74,590,013	51.16	1,457,975
2015	27,418,585.64	4,162,553	3,433,439	37,694,439	52.13	723,085
2016	12,125,034.91	1,536,484	1,267,353	16,920,199	53.10	318,648
2017	20,303,762.95	2,058,497	1,697,930	28,757,714	54.08	531,762
2018	21,870,969.13	1,668,536	1,376,274	31,430,180	55.05	570,939
2019	28,340,412.92	1,444,086	1,191,139	41,319,480	56.03	737,453
2020	30,607,964.20	973,792	803,222	45,108,724	56.77	794,587
2021	11,709,606.93		1	17,564,410	58.00	302,835
	361,940,498.51	95,391,033	78,682,308	464,228,440		9,850,126

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 47.1 2.72

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 368 LINE TRANSFORMERS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 47-R3						
NET SALVAGE PERCENT.. -10						
1967	14,765.27	13,937	16,242			
1968	23,987.79	22,445	26,387			
1969	1,003,835.44	930,835	1,102,406	1,813	7.38	246
1970	1,096,611.58	1,007,105	1,192,734	13,539	7.76	1,745
1971	1,001,145.32	910,059	1,077,801	23,459	8.16	2,875
1972	1,352,681.04	1,216,324	1,440,516	47,433	8.58	5,528
1973	1,432,129.48	1,273,018	1,507,660	67,682	9.02	7,504
1974	2,215,687.26	1,945,661	2,304,284	132,972	9.48	14,027
1975	956,333.03	829,044	981,853	70,113	9.96	7,039
1976	1,056,856.59	903,818	1,070,409	92,133	10.46	8,808
1977	1,370,400.36	1,155,272	1,368,211	139,229	10.98	12,680
1978	1,787,786.58	1,484,540	1,758,170	208,395	11.52	18,090
1979	1,353,207.74	1,105,947	1,309,795	178,734	12.08	14,796
1980	990,957.57	796,437	943,236	146,817	12.66	11,597
1981	1,850,807.38	1,461,503	1,730,887	305,001	13.26	23,002
1982	1,390,048.41	1,077,493	1,276,096	252,957	13.88	18,225
1983	1,233,203.22	937,738	1,110,581	245,943	14.51	16,950
1984	2,483,332.43	1,850,567	2,191,663	540,003	15.16	35,620
1985	2,328,793.21	1,699,414	2,012,649	549,024	15.82	34,704
1986	6,459,626.34	4,609,538	5,459,166	1,646,423	16.51	99,723
1987	3,731,632.79	2,602,605	3,082,316	1,022,480	17.20	59,447
1988	4,644,116.39	3,161,872	3,744,667	1,363,861	17.91	76,151
1989	4,010,922.88	2,663,181	3,154,057	1,257,958	18.63	67,523
1990	3,505,603.46	2,266,923	2,684,761	1,171,403	19.37	60,475
1991	4,153,992.62	2,613,281	3,094,960	1,474,432	20.12	73,282
1992	3,463,262.68	2,117,141	2,507,371	1,302,218	20.88	62,367
1993	2,487,492.05	1,475,244	1,747,160	989,081	21.66	45,664
1994	2,580,024.50	1,483,011	1,756,359	1,081,668	22.44	48,203
1995	2,500,348.64	1,390,401	1,646,679	1,103,705	23.24	47,492
1996	2,306,384.90	1,238,829	1,467,169	1,069,854	24.05	44,485
1997	3,720,092.49	1,926,766	2,281,907	1,810,195	24.87	72,786
1998	1,908,946.72	951,627	1,127,031	972,810	25.70	37,853
1999	3,987,360.62	1,909,356	2,261,288	2,124,809	26.54	80,061
2000	3,425,377.65	1,572,087	1,861,853	1,906,062	27.39	69,590
2001	2,259,383.42	991,494	1,174,246	1,311,076	28.25	46,410
2002	2,944,790.55	1,232,315	1,459,455	1,779,815	29.12	61,120
2003	1,725,181.13	686,398	812,915	1,084,784	30.00	36,159
2004	3,507,276.25	1,322,408	1,566,154	2,291,850	30.89	74,194
2005	3,504,522.03	1,248,356	1,478,452	2,376,522	31.78	74,780
2006	4,495,938.72	1,505,766	1,783,308	3,162,225	32.69	96,734
2007	464,264.50	145,603	172,440	338,251	33.60	10,067

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 368 LINE TRANSFORMERS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 47-R3						
NET SALVAGE PERCENT.. -10						
2008	11,029,096.35	3,221,412	3,815,181	8,316,825	34.52	240,928
2009	9,715,768.41	2,626,308	3,110,388	7,576,957	35.45	213,736
2010	6,497,781.84	1,615,063	1,912,751	5,234,809	36.38	143,892
2011	4,586,876.30	1,039,184	1,230,726	3,814,838	37.32	102,220
2012	4,499,113.40	919,232	1,088,664	3,860,361	38.27	100,872
2013	3,576,600.88	651,238	771,274	3,162,987	39.22	80,647
2014	5,694,941.14	909,032	1,076,584	5,187,851	40.18	129,115
2015	7,940,362.64	1,089,005	1,289,730	7,444,669	41.14	180,959
2016	3,787,821.38	433,493	513,394	3,653,210	42.11	86,754
2017	3,858,582.40	353,986	419,233	3,825,208	43.08	88,793
2018	6,425,227.39	442,088	523,574	6,544,176	44.06	148,529
2019	7,739,451.06	356,796	422,560	8,090,836	45.03	179,677
2020	5,572,829.20	160,425	189,995	5,940,117	45.77	129,782
2021	2,888,993.53		0	3,177,893	47.00	67,615
	180,542,556.95	73,552,621	87,109,348	111,487,465		3,471,521

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 32.1 1.92

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 369.1 SERVICES - UNDERGROUND

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 47-S2						
NET SALVAGE PERCENT.. -50						
1952	115.05	154	85	88	5.12	17
1953	128.25	170	93	99	5.36	18
1954	1,448.58	1,914	1,051	1,122	5.61	200
1955	131.44	173	95	102	5.87	17
1956	1,184.62	1,545	848	929	6.13	152
1957	1,568.36	2,033	1,116	1,237	6.39	194
1958	1,882.75	2,423	1,330	1,494	6.67	224
1959	287.43	367	201	230	6.94	33
1960	298.10	378	208	239	7.22	33
1961	6,113.49	7,705	4,230	4,940	7.51	658
1962	1,834.44	2,295	1,260	1,492	7.80	191
1963	1,250.37	1,552	852	1,024	8.10	126
1964	6,625.30	8,160	4,480	5,458	8.41	649
1965	6,682.00	8,163	4,482	5,541	8.72	635
1966	1,296.16	1,570	862	1,082	9.04	120
1967	1,937.82	2,327	1,278	1,629	9.37	174
1968	3,080.74	3,666	2,013	2,608	9.71	269
1969	4,882.85	5,758	3,161	4,163	10.05	414
1970	5,774.04	6,743	3,702	4,959	10.41	476
1971	15,164.16	17,534	9,627	13,119	10.77	1,218
1972	11,502.49	13,164	7,227	10,027	11.14	900
1973	22,196.63	25,134	13,799	19,496	11.52	1,692
1974	16,677.20	18,677	10,254	14,762	11.91	1,239
1975	28,542.82	31,601	17,350	25,464	12.31	2,069
1976	49,892.72	54,569	29,959	44,880	12.73	3,526
1977	21,305.40	23,017	12,637	19,321	13.15	1,469
1978	30,177.15	32,177	17,666	27,600	13.59	2,031
1979	54,517.01	57,365	31,495	50,281	14.03	3,584
1980	28,681.99	29,759	16,338	26,685	14.49	1,842
1981	41,512.73	42,436	23,298	38,971	14.97	2,603
1982	56,600.74	56,974	31,280	53,621	15.46	3,468
1983	62,495.62	61,911	33,990	59,753	15.96	3,744
1984	68,010.72	66,245	36,370	65,646	16.48	3,983
1985	84,378.91	80,762	44,340	82,228	17.01	4,834
1986	70,861.81	66,580	36,554	69,739	17.56	3,971
1987	33,294.61	30,688	16,848	33,094	18.12	1,826
1988	50,517.79	45,627	25,050	50,727	18.70	2,713
1989	41,457.44	36,650	20,122	42,064	19.30	2,179
1990	192,484.75	166,356	91,333	197,394	19.92	9,909
1991	98,282.24	82,965	45,549	101,874	20.55	4,957
1992	37,528.77	30,902	16,966	39,327	21.20	1,855

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 369.1 SERVICES - UNDERGROUND

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 47-S2						
NET SALVAGE PERCENT.. -50						
1993	183,481.40	147,156	80,792	194,430	21.87	8,890
1994	150,430.45	117,336	64,420	161,226	22.56	7,147
1995	13,452.00	10,188	5,593	14,585	23.27	627
1996	179,450.00	131,723	72,319	196,856	24.00	8,202
1997	317,669.27	225,577	123,846	352,658	24.75	14,249
1998	29,361.00	20,128	11,051	32,990	25.52	1,293
2000	1,344.00	853	468	1,548	27.11	57
2003	1,153,459.93	639,063	350,858	1,379,332	29.64	46,536
2004	29,090.43	15,300	8,400	35,236	30.52	1,155
2008	178,329.17	72,964	40,059	227,435	34.18	6,654
2009	928,978.25	351,920	193,211	1,200,256	35.13	34,166
2010	706,771.14	246,094	135,111	925,046	36.09	25,632
2011	664,033.62	210,655	115,654	880,396	37.06	23,756
2012	1,191,836.11	340,817	187,115	1,600,639	38.04	42,078
2013	104,280.93	26,559	14,581	141,840	39.02	3,635
2014	7,045,273.21	1,571,660	862,873	9,705,037	40.01	242,565
2016	1,421.52	227	125	2,007	42.00	48
2020	180,477.66	7,201	3,953	266,763	45.75	5,831
	14,221,745.58	5,263,610	2,889,828	18,442,790		542,733

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 34.0 3.82

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 369.2 SERVICES - OVERHEAD

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 65-R2.5						
NET SALVAGE PERCENT.. -100						
1900	32.41	65	65			
1905	169.68	333	339			
1915	3,412.47	6,415	6,825			
1925	7,315.88	13,247	14,632			
1934	4,513.48	7,884	9,027			
1935	18,523.14	32,213	37,046			
1936	1,056.93	1,830	2,114			
1937	19,329.54	33,318	38,659			
1938	323.36	555	647			
1939	25,675.38	43,838	51,351			
1940	22,921.81	38,946	45,844			
1941	13,965.49	23,608	27,931			
1942	28,803.25	48,434	57,606			
1943	13,309.04	22,257	26,618			
1944	15,233.00	25,334	30,466			
1945	18,376.41	30,381	36,753			
1946	5,674.20	9,323	11,348			
1947	26,368.00	43,057	52,736			
1948	1,249.16	2,026	2,498			
1949	28,452.24	45,839	56,904			
1950	16,567.57	26,498	33,135			
1951	29,232.09	46,412	58,464			
1952	3,962.80	6,243	7,891	35	13.80	3
1953	15,185.03	23,726	29,988	382	14.22	27
1954	8,184.38	12,682	16,029	340	14.64	23
1955	1,224.27	1,880	2,376	73	15.08	5
1956	3,476.17	5,291	6,687	265	15.53	17
1957	13,734.61	20,708	26,173	1,296	16.00	81
1958	21,347.49	31,870	40,281	2,414	16.48	146
1959	42,400.66	62,661	79,198	5,603	16.97	330
1960	14,364.03	21,007	26,551	2,177	17.47	125
1961	22,908.42	33,136	41,881	3,936	17.99	219
1962	44,389.47	63,470	80,221	8,558	18.53	462
1963	139,138.46	196,636	248,531	29,746	19.07	1,560
1964	174,116.16	243,066	307,215	41,017	19.63	2,090
1965	194,779.22	268,495	339,355	50,203	20.20	2,485
1966	193,712.00	263,568	333,128	54,296	20.78	2,613
1967	188,686.14	253,304	320,155	57,217	21.37	2,677
1968	197,370.69	261,319	330,285	64,456	21.97	2,934
1969	215,516.76	281,232	355,454	75,580	22.59	3,346
1970	199,764.88	256,866	324,657	74,873	23.21	3,226

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 369.2 SERVICES - OVERHEAD

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 65-R2.5						
NET SALVAGE PERCENT.. -100						
1971	245,251.80	310,528	392,481	98,023	23.85	4,110
1972	283,014.25	352,681	445,759	120,270	24.50	4,909
1973	310,325.01	380,508	480,930	139,720	25.15	5,555
1974	298,766.34	360,175	455,231	142,302	25.82	5,511
1975	359,901.10	426,454	539,002	180,800	26.49	6,825
1976	406,623.83	473,188	598,070	215,178	27.18	7,917
1977	435,408.40	497,437	628,719	242,098	27.87	8,687
1978	485,985.38	544,605	688,335	283,636	28.58	9,924
1979	525,242.78	577,116	729,426	321,060	29.29	10,961
1980	583,693.50	628,416	794,265	373,122	30.01	12,433
1981	604,983.74	637,931	806,292	403,675	30.73	13,136
1982	680,268.19	701,833	887,058	473,478	31.47	15,045
1983	775,824.77	782,745	989,324	562,326	32.21	17,458
1984	866,373.59	854,106	1,079,519	653,228	32.96	19,819
1985	737,235.20	709,559	896,823	577,647	33.72	17,131
1986	804,156.65	754,910	954,143	654,170	34.49	18,967
1987	703,172.56	643,459	813,279	593,066	35.26	16,820
1988	596,282.35	531,335	671,563	521,002	36.04	14,456
1989	577,143.94	500,245	632,268	522,020	36.83	14,174
1990	658,555.93	554,609	700,980	616,132	37.63	16,373
1991	750,188.89	613,309	775,171	725,207	38.43	18,871
1992	794,278.42	629,799	796,013	792,544	39.23	20,202
1993	688,747.00	528,751	668,297	709,197	40.05	17,708
1994	731,710.00	543,265	686,642	776,778	40.87	19,006
1995	945,204.00	677,636	856,475	1,033,933	41.70	24,795
1996	803,048.00	555,211	701,741	904,355	42.53	21,264
1997	864,836.00	575,583	727,489	1,002,183	43.37	23,108
1998	618,609.00	395,526	499,912	737,306	44.22	16,674
1999	525,880.00	322,491	407,602	644,158	45.07	14,292
2000	140,364.00	82,360	104,096	176,632	45.93	3,846
2001	260,024.00	145,691	184,141	335,907	46.79	7,179
2002	246.00	131	166	326	47.66	7
2003	611,358.99	309,812	391,576	831,142	48.53	17,126
2010	186,624.34	58,686	74,174	299,075	54.78	5,460
2012	1,497,342.92	386,554	488,572	2,506,114	56.61	44,270
2014	3,120,567.30	628,919	794,901	5,446,234	58.45	93,178
2020	1,886,438.06	68,478	86,551	3,686,325	63.82	57,761
	27,358,442.40	20,553,015	25,944,050	28,772,835		667,327

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 43.1 2.44

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 370 METERS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
INTERIM SURVIVOR CURVE.. IOWA 37-R1.5						
PROBABLE RETIREMENT YEAR.. 12-2029						
NET SALVAGE PERCENT.. 0						
1935	17,641.01	17,641	17,641			
1936	920.53	921	921			
1937	21,384.88	21,385	21,385			
1938	20,595.11	20,595	20,595			
1939	34,053.02	34,053	34,053			
1940	45,016.26	45,016	45,016			
1941	1,365.09	1,365	1,365			
1942	46,841.16	46,841	46,841			
1943	16,486.08	16,486	16,486			
1944	17,266.80	17,267	17,267			
1945	47,047.60	47,048	47,048			
1946	51,002.10	51,002	51,002			
1947	23,173.17	23,061	22,294	879	0.18	879
1948	40,436.78	39,934	38,606	1,831	0.46	1,831
1949	43,138.75	42,229	40,824	2,315	0.78	2,315
1950	69,706.37	67,596	65,347	4,359	1.12	3,892
1951	77,642.98	74,600	72,118	5,525	1.45	3,810
1952	85,603.71	81,462	78,752	6,852	1.79	3,828
1953	58,929.91	55,569	53,720	5,210	2.11	2,469
1954	44,248.30	41,378	40,002	4,246	2.40	1,769
1955	79,174.11	73,504	71,059	8,115	2.65	3,062
1956	5,774.68	5,324	5,147	628	2.89	217
1957	152,989.31	140,172	135,509	17,480	3.10	5,639
1958	129,963.97	118,408	114,469	15,495	3.29	4,710
1959	10,247.45	9,286	8,977	1,270	3.47	366
1960	66,995.33	60,384	58,375	8,620	3.65	2,362
1961	13,705.33	12,286	11,877	1,828	3.83	477
1962	92,474.26	82,446	79,703	12,771	4.01	3,185
1963	35,886.56	31,829	30,770	5,117	4.18	1,224
1964	67,369.07	59,422	57,445	9,924	4.36	2,276
1965	129,439.55	113,566	109,788	19,652	4.53	4,338
1966	261,286.12	228,084	220,497	40,789	4.69	8,697
1967	5,497.00	4,774	4,615	882	4.85	182
1968	98,769.48	85,367	82,527	16,242	5.00	3,248
1969	203,923.80	175,442	169,606	34,318	5.14	6,677
1970	78,305.32	67,073	64,842	13,463	5.27	2,555
1971	25,179.44	21,473	20,759	4,420	5.40	819
1972	49.84	42	41	9	5.53	2
1973	2,433.83	2,057	1,989	445	5.65	79
1974	51,615.15	43,433	41,988	9,627	5.77	1,668

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 370 METERS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
INTERIM SURVIVOR CURVE.. IOWA 37-R1.5						
PROBABLE RETIREMENT YEAR.. 12-2029						
NET SALVAGE PERCENT.. 0						
1975	87,967.26	73,686	71,235	16,732	5.89	2,841
1976	126,149.96	105,207	101,707	24,443	6.00	4,074
1977	139,257.16	115,609	111,763	27,494	6.11	4,500
1978	37,296.34	30,816	29,791	7,505	6.22	1,207
1979	66,926.65	55,030	53,199	13,728	6.33	2,169
1980	65,153.24	53,316	51,542	13,611	6.43	2,117
1981	205,319.84	167,118	161,559	43,761	6.54	6,691
1982	356,619.63	288,751	279,145	77,475	6.64	11,668
1983	419,322.58	337,760	326,524	92,799	6.73	13,789
1984	561,322.53	449,518	434,564	126,759	6.83	18,559
1985	288,543.54	229,747	222,104	66,440	6.92	9,601
1986	1,324,934.16	1,048,911	1,014,018	310,916	7.00	44,417
1987	1,519,831.57	1,195,363	1,155,598	364,234	7.09	51,373
1988	937,264.21	732,378	708,015	229,249	7.17	31,973
1989	1,609,648.84	1,249,522	1,207,955	401,694	7.24	55,483
1990	808,426.42	622,917	602,195	206,231	7.32	28,174
1991	648,150.93	495,706	479,216	168,935	7.39	22,860
1992	1,231,950.78	935,026	903,921	328,030	7.45	44,031
1993	991,661.83	746,444	721,613	270,049	7.51	35,959
1994	438,507.59	327,153	316,270	122,238	7.57	16,148
1995	2,221,361.31	1,641,519	1,586,912	634,449	7.63	83,152
1996	607,746.83	444,719	429,925	177,822	7.68	23,154
1997	501,512.05	363,060	350,982	150,530	7.73	19,473
1998	375,539.34	268,751	259,811	115,728	7.78	14,875
1999	236,187.88	166,987	161,432	74,756	7.82	9,560
2000	327,709.97	228,640	221,034	106,676	7.86	13,572
2001	785,319.70	540,104	522,137	263,183	7.90	33,314
2002	1,103,037.43	747,175	722,319	380,718	7.93	48,010
2003	750,687.19	499,725	483,101	267,586	7.97	33,574
2004	456,557.49	298,306	288,383	168,174	8.00	21,022
2005	1,094,388.17	700,485	677,183	417,205	8.03	51,956
2006	841,858.95	526,945	509,416	332,443	8.05	41,297
2008	218,906.20	129,803	125,485	93,421	8.10	11,533
2009	2,353,663.33	1,351,991	1,307,015	1,046,648	8.12	128,898
2010	845,422.14	467,924	452,358	393,064	8.14	48,288
2011	335,348.82	177,899	171,981	163,368	8.16	20,021
2012	730,454.33	368,763	356,496	373,958	8.18	45,716
2013	673,380.62	320,327	309,671	363,710	8.20	44,355
2014	3,262,707.14	1,447,892	1,399,726	1,862,981	8.21	226,916
2015	115,110.23	46,758	45,203	69,907	8.23	8,494

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 370 METERS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
INTERIM SURVIVOR CURVE.. IOWA 37-R1.5						
PROBABLE RETIREMENT YEAR.. 12-2029						
NET SALVAGE PERCENT.. 0						
2016	94,132.12	34,237	33,098	61,034	8.24	7,407
2017	341,716.92	107,566	103,988	237,729	8.25	28,816
2018	564,665.62	144,718	139,904	424,762	8.27	51,362
2019	1,224,463.38	229,513	221,878	1,002,585	8.28	121,085
2020	1,619,650.99	203,315	196,551	1,423,100	8.29	171,665
2021	425,291.79		0	425,292	8.30	51,240
	36,244,654.21	22,796,921	22,049,189	14,195,466		1,838,965

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 7.7 5.07

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 370.01 METERS - AMS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 15-S0.5						
NET SALVAGE PERCENT.. 0						
2015	3,009,321.77	977,036	761,558	2,247,764	10.13	221,892
2020	6,070.40	478	373	5,697	13.82	412
	3,015,392.17	977,514	761,931	2,253,461		222,304

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 10.1 7.37

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 370.11 METERS - AMI

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 15-S2.5						
NET SALVAGE PERCENT.. 0						
2015	1,451.45	567	510	941	9.14	103
2019	72,631.81	9,684	8,705	63,927	13.00	4,917
	74,083.26	10,251	9,215	64,868		5,020

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 12.9 6.78

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 370.2 METER - CT AND PT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 18-S3						
NET SALVAGE PERCENT.. 0						
1972	12,156.79	12,157	12,157			
1973	33,645.05	33,645	33,645			
1974	34,727.02	34,727	34,727			
1975	28,333.56	28,334	28,334			
1976	27,895.08	27,895	27,895			
1977	34,508.84	34,509	34,509			
1978	32,193.42	32,193	32,193			
1979	42,029.30	42,029	42,029			
1980	43,396.33	43,396	43,396			
1981	50,163.29	50,163	50,163			
1982	43,565.82	43,566	43,566			
1983	72,781.74	72,782	72,782			
1984	120,060.43	120,060	120,060			
1985	116,818.64	116,819	116,819			
1986	317,656.31	317,656	317,656			
1987	299,252.54	295,760	290,634	8,619	0.21	8,619
1988	297,307.18	291,361	286,311	10,996	0.36	10,996
1989	218,173.35	212,235	208,557	9,616	0.49	9,616
1990	341,914.82	330,139	324,417	17,498	0.62	17,498
1991	281,635.24	269,745	265,070	16,565	0.76	16,565
1992	309,735.08	294,075	288,978	20,757	0.91	20,757
1993	263,488.33	247,827	243,532	19,956	1.07	18,650
1994	62,965.52	58,628	57,612	5,354	1.24	4,318
1995	436,598.93	402,156	395,186	41,413	1.42	29,164
1996	148,643.14	135,348	133,002	15,641	1.61	9,715
1997	238,794.49	214,650	210,930	27,864	1.82	15,310
1998	45,746.47	40,536	39,833	5,913	2.05	2,884
2000	39,032.72	33,460	32,880	6,153	2.57	2,394
2001	184,489.00	155,176	152,487	32,002	2.86	11,190
2002	239,263.27	196,861	193,449	45,814	3.19	14,362
2003	242,933.03	194,886	191,508	51,425	3.56	14,445
2004	16,445.38	12,827	12,605	3,840	3.96	970
2005	47,875.88	36,146	35,519	12,357	4.41	2,802
2006	9,982.91	7,260	7,134	2,849	4.91	580
2009	109,648.45	68,409	67,223	42,425	6.77	6,267
2010	140,719.78	81,930	80,510	60,210	7.52	8,007
2011	37,567.03	20,203	19,853	17,714	8.32	2,129
2012	228,419.28	111,798	109,860	118,559	9.19	12,901
2013	107,336.46	47,109	46,293	61,043	10.10	6,044

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 370.2 METER - CT AND PT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR	ORIGINAL COST	CALCULATED ACCRUED	ALLOC. BOOK RESERVE	FUTURE BOOK ACCRUALS	REM. LIFE	ANNUAL ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
SURVIVOR CURVE.. IOWA 18-S3						
NET SALVAGE PERCENT.. 0						
2014	341,053.48	131,875	129,590	211,463	11.04	19,154
2017	144,723.76	32,161	31,603	113,121	14.00	8,080
2019	83,727.95	9,303	9,142	74,586	16.00	4,662
	5,927,405.09	4,941,795	4,873,649	1,053,756		278,079

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 3.8 4.69

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 371.01 INSTALLATIONS ON CUSTOMERS' PREMISES - EV CHARGING STATIONS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 10-S3						
NET SALVAGE PERCENT.. 0						
2019	176,161.49	35,232	34,208	141,953	8.00	17,744
2020	7,226.09	903	877	6,349	8.75	726
	183,387.58	36,135	35,085	148,303		18,470

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 8.0 10.07

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 373.1 STREET LIGHTING AND SIGNAL SYSTEMS - OVERHEAD

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 35-R1.5						
NET SALVAGE PERCENT.. -40						
1978	70,428.20	76,175	64,599	34,000	7.96	4,271
1979	117,203.96	125,081	106,073	58,013	8.32	6,973
1980	128,056.76	134,716	114,244	65,035	8.70	7,475
1981	192,043.78	199,035	168,789	100,072	9.09	11,009
1982	274,069.46	279,662	237,164	146,533	9.49	15,441
1983	307,941.26	309,051	262,087	169,031	9.91	17,057
1984	222,963.52	219,931	186,510	125,639	10.34	12,151
1985	260,312.34	252,085	213,777	150,660	10.79	13,963
1986	296,654.92	281,822	238,995	176,322	11.25	15,673
1987	255,796.11	238,096	201,914	156,201	11.73	13,316
1988	265,610.60	242,025	205,246	166,609	12.22	13,634
1989	362,446.61	322,870	273,806	233,619	12.73	18,352
1990	635,445.28	552,839	468,828	420,795	13.25	31,758
1991	490,372.25	416,032	352,810	333,711	13.79	24,199
1992	665,854.78	550,266	466,646	465,551	14.34	32,465
1993	899,064.69	722,853	613,006	645,685	14.90	43,335
1994	1,021,904.22	797,897	676,646	754,020	15.48	48,709
1995	781,478.12	591,738	501,816	592,253	16.07	36,855
1996	995,458.55	729,474	618,621	775,021	16.68	46,464
1997	1,045,481.44	740,195	627,712	835,962	17.30	48,322
1998	1,082,890.12	739,391	627,031	889,015	17.93	49,583
1999	673,533.07	442,647	375,381	567,565	18.57	30,564
2000	680,092.89	429,001	363,809	588,321	19.23	30,594
2001	415,338.93	251,028	212,881	368,594	19.89	18,532
2002	514,520.38	296,984	251,853	468,476	20.57	22,775
2003	390,645.45	214,698	182,072	364,832	21.26	17,160
2004	251,686.65	131,279	111,329	241,032	21.96	10,976
2005	595,026.69	293,704	249,072	583,965	22.66	25,771
2006	572.15	266	226	575	23.38	25
2007	693,577.73	302,401	256,447	714,562	24.10	29,650
2008	534,677.27	217,296	184,275	564,273	24.84	22,716
2009	51,086.21	19,249	16,324	55,197	25.58	2,158
2010	9,675,568.16	3,359,357	2,848,858	10,696,937	26.32	406,419
2011	2,215,936.23	702,022	595,340	2,506,971	27.08	92,576
2012	3,480,303.37	996,752	845,282	4,027,143	27.84	144,653
2013	1,652,684.50	422,423	358,230	1,955,528	28.61	68,351
2014	19,761,587.25	4,442,365	3,767,288	23,898,934	29.38	813,442
2015	9,187,787.60	1,775,081	1,505,334	11,357,569	30.17	376,452
2016	89,639.13	14,486	12,285	113,210	30.96	3,657
2017	25,449.37	3,309	2,806	32,823	31.75	1,034
2018	41,558.52	4,073	3,454	54,728	32.55	1,681

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 373.1 STREET LIGHTING AND SIGNAL SYSTEMS - OVERHEAD

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR	ORIGINAL COST	CALCULATED ACCRUED	ALLOC. BOOK RESERVE	FUTURE BOOK ACCRUALS	REM. LIFE	ANNUAL ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
SURVIVOR CURVE.. IOWA 35-R1.5						
NET SALVAGE PERCENT.. -40						
2019	510,161.28	33,469	28,383	685,843	33.36	20,559
2020	5,299,942.24	218,368	185,184	7,234,735	33.97	212,974
2021	3,399,646.52		0	4,759,505	35.00	135,986
	70,512,498.56	23,091,492	19,582,433	79,135,065		2,999,710

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 26.4 4.25

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 373.2 STREET LIGHTING AND SIGNAL SYSTEMS - UNDERGROUND

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 35-R1.5						
NET SALVAGE PERCENT.. -40						
1971	22,672.91	26,582	27,666	4,076	5.69	716
1972	82,263.50	95,459	99,353	15,816	5.99	2,640
1973	18,872.34	21,665	22,549	3,872	6.30	615
1974	142,812.25	162,177	168,793	31,144	6.61	4,712
1975	235,297.18	264,192	274,969	54,447	6.93	7,857
1976	198,494.98	220,250	229,235	48,658	7.26	6,702
1977	264,668.24	290,077	301,910	68,626	7.60	9,030
1978	154,797.53	167,429	174,259	42,458	7.96	5,334
1979	151,033.52	161,184	167,759	43,688	8.32	5,251
1980	142,572.22	149,986	156,104	43,497	8.70	5,000
1981	175,833.46	182,235	189,669	56,498	9.09	6,215
1982	240,317.05	245,220	255,223	81,221	9.49	8,559
1983	222,992.87	223,797	232,926	79,264	9.91	7,998
1984	175,659.38	173,270	180,338	65,585	10.34	6,343
1985	115,442.26	111,794	116,354	45,265	10.79	4,195
1986	371,345.82	352,778	367,169	152,715	11.25	13,575
1987	520,534.03	484,515	504,280	224,468	11.73	19,136
1988	439,284.54	400,278	416,607	198,391	12.22	16,235
1989	434,254.79	386,837	402,617	205,340	12.73	16,130
1990	1,419,996.21	1,235,400	1,285,796	702,199	13.25	52,996
1991	1,849,143.62	1,568,813	1,632,810	955,991	13.79	69,325
1992	936,287.04	773,753	805,317	505,485	14.34	35,250
1993	2,404,340.00	1,933,104	2,011,961	1,354,115	14.90	90,880
1994	1,600,747.02	1,249,854	1,300,839	940,207	15.48	60,737
1995	1,517,481.50	1,149,043	1,195,916	928,558	16.07	57,782
1996	2,767,183.61	2,027,798	2,110,518	1,763,539	16.68	105,728
1997	2,913,410.20	2,062,677	2,146,820	1,931,954	17.30	111,674
1998	759,957.45	518,894	540,061	523,879	17.93	29,218
1999	982,598.85	645,766	672,109	703,529	18.57	37,885
2000	1,724,387.88	1,087,740	1,132,112	1,282,031	19.23	66,668
2001	2,206,503.11	1,333,597	1,387,998	1,701,106	19.89	85,526
2002	3,935,349.72	2,271,507	2,364,169	3,145,321	20.57	152,908
2003	2,775,239.65	1,525,266	1,587,486	2,297,850	21.26	108,083
2004	2,105,841.43	1,098,403	1,143,210	1,804,968	21.96	82,193
2005	4,055,197.82	2,001,638	2,083,291	3,593,986	22.66	158,605
2006	110,916.55	51,554	53,657	101,626	23.38	4,347
2007	19,812.60	8,638	8,990	18,748	24.10	778
2008	1,723,450.43	700,421	728,993	1,683,838	24.84	67,787
2009	1,765,700.13	665,309	692,449	1,779,531	25.58	69,567
2010	2,248,228.04	780,585	812,427	2,335,092	26.32	88,719
2011	1,994,458.66	631,856	657,631	2,134,611	27.08	78,826

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 373.2 STREET LIGHTING AND SIGNAL SYSTEMS - UNDERGROUND

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 35-R1.5						
NET SALVAGE PERCENT.. -40						
2012	1,785,387.03	511,331	532,190	1,967,352	27.84	70,666
2013	637,929.41	163,053	169,704	723,397	28.61	25,285
2014	11,337,538.47	2,548,656	2,652,624	13,219,930	29.38	449,964
2015	5,247,634.27	1,013,843	1,055,201	6,291,487	30.17	208,535
2019	178,740.49	11,726	12,204	238,033	33.36	7,135
2020	734,926.60	30,280	31,516	997,381	33.97	29,361
	65,847,536.66	33,720,230	35,095,779	57,090,772		2,552,671

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 22.4 3.88

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 392 TRANSPORTATION EQUIPMENT - CARS AND LIGHT TRUCKS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR	ORIGINAL COST	CALCULATED ACCRUED	ALLOC. BOOK RESERVE	FUTURE BOOK ACCRUALS	REM. LIFE	ANNUAL ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
SURVIVOR CURVE.. IOWA 14-S2						
NET SALVAGE PERCENT.. 0						
1994	133.26	132	133			
2003	6,890.24	5,808	6,890			
2005	30,369.95	24,253	30,370			
2008	14,298.59	10,254	12,846	1,453	3.96	367
2009	8,754.94	5,991	7,505	1,250	4.42	283
2010	63,342.09	41,082	51,467	11,875	4.92	2,414
2011	191,233.77	116,517	145,970	45,264	5.47	8,275
2012	90,256.45	51,059	63,966	26,290	6.08	4,324
2013	18,451.36	9,555	11,970	6,481	6.75	960
2014	149,703.82	69,612	87,209	62,495	7.49	8,344
2015	132,338.10	53,975	67,619	64,719	8.29	7,807
2016	102,208.41	35,408	44,358	57,850	9.15	6,322
2017	254,060.70	71,500	89,574	164,487	10.06	16,351
2018	79,733.10	16,972	21,262	58,471	11.02	5,306
2019	71,263.97	10,181	12,755	58,509	12.00	4,876
	1,213,038.75	522,299	653,894	559,145		65,629

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 8.5 5.41

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 392.1 TRANSPORTATION EQUIPMENT - HEAVY TRUCKS AND OTHER

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 13-R2						
NET SALVAGE PERCENT.. 0						
1981	535.59	536	536			
1986	31,667.05	31,667	31,667			
1991	6,452.02	6,452	6,452			
1993	14,662.07	14,662	14,662			
1994	63,241.35	63,241	63,241			
1996	27,133.97	27,134	27,134			
1997	100,697.05	100,387	100,697			
1998	12,484.13	12,196	12,484			
1999	35,388.02	33,864	35,388			
2001	35,239.64	32,177	35,240			
2003	36,651.66	31,802	36,652			
2005	69,135.33	56,531	66,218	2,917	2.37	1,231
2007	5,884.30	4,463	5,228	656	3.14	209
2008	25,782.88	18,643	21,838	3,945	3.60	1,096
2009	6,481.88	4,443	5,204	1,278	4.09	312
2010	64,403.26	41,416	48,513	15,890	4.64	3,425
2011	764,342.17	456,840	535,123	229,219	5.23	43,828
2012	137,197.44	75,353	88,265	48,932	5.86	8,350
2013	73,898.70	36,779	43,081	30,818	6.53	4,719
2014	948,070.75	420,801	492,908	455,163	7.23	62,955
2015	1,701,024.71	658,160	770,941	930,084	7.97	116,698
2016	329,179.09	107,869	126,353	202,826	8.74	23,207
2017	245,465.57	65,142	76,305	169,161	9.55	17,713
2018	476,667.96	96,435	112,960	363,708	10.37	35,073
2019	628,313.86	85,545	100,203	528,111	11.23	47,027
2020	1,097,321.51	94,534	110,733	986,588	11.88	83,046
	6,937,321.96	2,577,072	2,968,026	3,969,296		448,889

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 8.8 6.47

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 392.2 TRANSPORTATION EQUIPMENT - TRAILERS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR	ORIGINAL COST	CALCULATED ACCRUED	ALLOC. BOOK RESERVE	FUTURE BOOK ACCRUALS	REM. LIFE	ANNUAL ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
SURVIVOR CURVE.. IOWA 23-S2.5						
NET SALVAGE PERCENT.. 0						
1996	619.45	499	106	513	4.48	115
2002	0.35					
2005	28,091.30	17,478	3,711	24,380	8.69	2,806
2009	54,380.23	26,954	5,724	48,656	11.60	4,194
2010	30,920.52	14,210	3,017	27,904	12.43	2,245
2012	94,907.33	36,312	7,711	87,196	14.20	6,141
2013	39,065.80	13,384	2,842	36,224	15.12	2,396
2016	26,573.79	5,754	1,222	25,352	18.02	1,407
2017	113,173.61	19,633	4,168	109,006	19.01	5,734
2019	3,068.78	267	57	3,012	21.00	143
	390,801.16	134,491	28,558	362,243		25,181

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 14.4 6.44

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 394 TOOLS, SHOP AND GARAGE EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. 25-SQUARE						
NET SALVAGE PERCENT.. 0						
1996	216,868.73	216,869	216,869			
1997	182,157.83	174,872	174,357	7,801	1.00	7,801
1998	201,239.01	185,140	184,595	16,644	2.00	8,322
1999	555,592.17	488,921	487,481	68,111	3.00	22,704
2000	281,872.54	236,773	236,076	45,797	4.00	11,449
2001	543,383.54	434,707	433,426	109,958	5.00	21,992
2002	73,586.47	55,926	55,761	17,825	6.00	2,971
2003	155,546.13	111,993	111,663	43,883	7.00	6,269
2004	19,792.68	13,459	13,419	6,374	8.00	797
2005	23,499.51	15,040	14,996	8,504	9.00	945
2006	21,063.87	12,638	12,601	8,463	10.00	846
2007	6,380.55	3,573	3,562	2,819	11.00	256
2008	92,859.95	48,287	48,145	44,715	12.00	3,726
2009	118,290.08	56,779	56,612	61,678	13.00	4,744
2010	1,030,307.85	453,335	452,000	578,308	14.00	41,308
2011	480,965.13	192,386	191,819	289,146	15.00	19,276
2012	203,338.27	73,202	72,986	130,352	16.00	8,147
2013	177,708.66	56,867	56,700	121,009	17.00	7,118
2014	566,020.09	158,486	158,019	408,001	18.00	22,667
2015	345,230.35	82,855	82,611	262,619	19.00	13,822
2016	195,806.28	39,161	39,046	156,760	20.00	7,838
2017	590,211.72	94,434	94,156	496,056	21.00	23,622
2018	258,551.50	31,026	30,935	227,616	22.00	10,346
2019	317,988.07	25,439	25,364	292,624	23.00	12,723
2020	2,271,398.86	113,570	113,235	2,158,164	23.75	90,870
2021	493,078.38			493,078	25.00	19,723
	9,422,738.22	3,375,738	3,366,434	6,056,304		370,282

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 16.4 3.93

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 396.1 POWER OPERATED EQUIPMENT - LARGE MACHINERY

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 22-S1						
NET SALVAGE PERCENT.. 0						
1986	113,547.19	100,593	113,547			
1987	17,071.87	14,884	17,072			
1988	68,392.70	58,693	68,393			
1989	16,133.40	13,611	16,133			
1990	7,241.70	6,004	7,242			
1991	9,416.37	7,666	9,416			
1992	65,538.73	52,342	65,539			
1993	38,037.26	29,773	38,037			
1994	162,597.34	124,683	162,597			
1995	53,339.16	40,004	53,339			
1998	38,750.95	27,038	38,751			
1999	67,210.89	45,642	66,618	593	7.06	84
2000	123,248.98	81,289	118,648	4,601	7.49	614
2002	47,505.91	29,410	42,926	4,580	8.38	547
2007	31,321.54	15,746	22,983	8,339	10.94	762
2008	62,220.03	29,639	43,261	18,959	11.52	1,646
2010	153,907.57	64,641	94,349	59,559	12.76	4,668
2011	18,902.90	7,364	10,748	8,155	13.43	607
2014	75,773.64	21,974	32,073	43,701	15.62	2,798
2015	184,988.92	46,835	68,359	116,630	16.43	7,099
2016	154,313.77	33,177	48,425	105,889	17.27	6,131
2017	20,371.03	3,556	5,190	15,181	18.16	836
2018	61,548.31	8,197	11,964	49,584	19.07	2,600
2019	582,700.28	52,181	76,162	506,538	20.03	25,289
2020	113,719.75	6,409	9,355	104,365	20.76	5,027
	2,287,800.19	921,351	1,241,127	1,046,673		58,708

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 17.8 2.57

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 396.2 POWER OPERATED EQUIPMENT - OTHER

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 23-S1						
NET SALVAGE PERCENT.. 0						
1991	4,038.60	3,206	4,039			
1992	22,129.87	17,233	22,130			
1993	18,380.27	14,025	18,380			
1995	2,090.19	1,528	2,090			
2010	73,054.36	29,635	43,536	29,518	13.67	2,159
2011	31,393.64	11,807	17,345	14,049	14.35	979
2013	45,161.31	14,118	20,741	24,420	15.81	1,545
	196,248.24	91,552	128,261	67,987		4,683

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 14.5 2.39

LOUISVILLE GAS AND ELECTRIC COMPANY
ELECTRIC PLANT

ACCOUNT 397.2 COMMUNICATION EQUIPMENT - DSM

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR	ORIGINAL COST	CALCULATED ACCRUED	ALLOC. BOOK RESERVE	FUTURE BOOK ACCRUALS	REM. LIFE	ANNUAL ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
SURVIVOR CURVE.. 10-SQUARE						
NET SALVAGE PERCENT.. 0						
2012	6,803,952.49	6,123,557	5,705,483	1,098,469	1.00	1,098,469
2020	43,984.77	5,498	5,123	38,862	8.75	4,441
2021	31,749.98			31,750	10.00	3,175
	6,879,687.24	6,129,055	5,710,606	1,169,081		1,106,085

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 1.1 16.08

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 302 FRANCHISES AND CONSENTS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR	ORIGINAL COST	CALCULATED ACCRUED	ALLOC. BOOK RESERVE	FUTURE BOOK ACCRUALS	REM. LIFE	ANNUAL ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
SURVIVOR CURVE.. 20-SQUARE						
NET SALVAGE PERCENT.. 0						
2001	387.49	387	375	12		
	387.49	387	375	12		

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 0.0 0.00

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 350.2 RIGHTS OF WAY

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 65-R4						
NET SALVAGE PERCENT.. 0						
1949	2,301.70	2,062	2,302			
1950	23.11	21	23			
1990	14,774.44	6,896	14,774			
2001	42,921.89	13,107	36,013	6,909	45.15	153
2009	31,935.45	5,876	16,146	15,789	53.04	298
2013	9,255.90	1,136	3,121	6,135	57.02	108
	101,212.49	29,098	72,379	28,833		559

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 51.6 0.55

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 351.2 COMPRESSOR STATION STRUCTURES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 60-R2.5						
NET SALVAGE PERCENT.. -20						
1942	3,322.25	3,460	3,548	439	7.92	55
1944	3,293.95	3,397	3,484	469	8.43	56
1947	1,605.25	1,629	1,671	255	9.25	28
1949	4,340.57	4,355	4,466	743	9.83	76
1952	20,583.49	20,262	20,779	3,921	10.78	364
1953	3,693.43	3,611	3,703	729	11.12	66
1956	1,383.00	1,322	1,356	304	12.22	25
1958	3,446.26	3,237	3,320	816	13.03	63
1959	62,752.98	58,423	59,913	15,391	13.45	1,144
1960	395.73	365	374	101	13.89	7
1962	45,415.93	41,056	42,103	12,396	14.80	838
1964	43,861.00	38,791	39,780	12,853	15.78	815
1970	47,445.00	38,867	39,858	17,076	19.04	897
1971	403.00	325	333	151	19.63	8
1974	15,689.62	12,087	12,395	6,433	21.48	299
1975	2,693.05	2,041	2,093	1,139	22.11	52
1977	762.15	558	572	343	23.42	15
1978	0.23					
1979	12,480.44	8,794	9,018	5,959	24.77	241
1982	69,919.00	46,329	47,511	36,392	26.87	1,354
1983	6,077.00	3,939	4,039	3,253	27.59	118
1987	43,647.00	25,717	26,373	26,003	30.54	851
1988	4,403.78	2,528	2,592	2,693	31.30	86
1989	9,988.62	5,580	5,722	6,264	32.07	195
1991	8,000.00	4,219	4,327	5,273	33.63	157
1996	187,196.00	83,638	85,771	138,864	37.66	3,687
1997	176,318.56	75,852	77,787	133,795	38.49	3,476
1998	7,922.00	3,275	3,359	6,147	39.33	156
2001	154,920.74	56,175	57,608	128,297	41.87	3,064
2003	177,445.34	58,238	59,723	153,211	43.59	3,515
2004	284,036.54	88,279	90,530	250,314	44.46	5,630
2005	134,563.01	39,453	40,459	121,017	45.34	2,669
2006	14,093.03	3,884	3,983	12,929	46.22	280
2008	30,410.72	7,299	7,485	29,008	48.00	604
2009	145,144.03	32,222	33,044	141,129	48.90	2,886
2010	3,542,270.90	722,623	741,053	3,509,672	49.80	70,475
2011	21,187.03	3,936	4,036	21,388	50.71	422
2012	222,549.43	37,300	38,251	228,808	51.62	4,433
2013	156,083.71	23,287	23,881	163,419	52.54	3,110
2014	3,942,183.13	515,638	528,790	4,201,830	53.46	78,598
2016	468,800.28	43,975	45,097	517,463	55.31	9,356

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 351.2 COMPRESSOR STATION STRUCTURES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 60-R2.5						
NET SALVAGE PERCENT.. -20						
2017	59,009.11	4,438	4,551	66,260	56.24	1,178
2018	131,528.07	7,418	7,607	150,227	57.18	2,627
2019	389,028.52	14,705	15,080	451,754	58.11	7,774
2020	54,122.76	1,278	1,311	63,637	58.82	1,082
	10,714,415.64	2,153,805	2,208,736	10,648,563		212,832
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..					50.0	1.99

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 351.3 MEASURING AND REGULATING STATION STRUCTURES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR	ORIGINAL COST	CALCULATED ACCRUED	ALLOC. BOOK RESERVE	FUTURE BOOK ACCRUALS	REM. LIFE	ANNUAL ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
SURVIVOR CURVE.. IOWA 65-R3						
NET SALVAGE PERCENT.. -5						
1959	3,000.00	2,443	3,150			
1960	1,697.83	1,368	1,783			
1965	5,577.00	4,241	5,856			
1966	130.85	98	137			
1968	365.37	267	384			
2010	22,272.00	3,846	6,428	16,958	54.31	312
	33,043.05	12,263	17,738	16,957		312

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 54.3 0.94

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 351.4 OTHER STRUCTURES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 65-R2.5						
NET SALVAGE PERCENT.. -20						
1942	5,761.00	5,812	6,105	808	10.35	78
1947	44.98	44	46	8	11.93	1
1948	754.00	734	771	134	12.28	11
1951	1,697.00	1,617	1,699	337	13.40	25
1952	765.00	723	759	159	13.80	12
1953	3,279.63	3,075	3,230	706	14.22	50
1954	6,961.08	6,472	6,798	1,555	14.64	106
1959	122,955.14	109,025	114,521	33,025	16.97	1,946
1961	10,393.61	9,020	9,475	2,997	17.99	167
1962	7,933.16	6,806	7,149	2,371	18.53	128
1963	1,439.55	1,221	1,283	444	19.07	23
1964	49,205.83	41,215	43,293	15,754	19.63	803
1965	5,088.04	4,208	4,420	1,686	20.20	83
1966	484.58	396	416	165	20.78	8
1967	26,544.84	21,381	22,459	9,395	21.37	440
1968	34,520.74	27,423	28,805	12,620	21.97	574
1969	2,818.73	2,207	2,318	1,064	22.59	47
1970	19,651.22	15,161	15,925	7,656	23.21	330
1971	272.00	207	217	109	23.85	5
1972	517.31	387	407	214	24.50	9
1974	21,780.80	15,755	16,549	9,588	25.82	371
1976	4,879.94	3,407	3,579	2,277	27.18	84
1977	1,823.01	1,250	1,313	875	27.87	31
1978	2,308.40	1,552	1,630	1,140	28.58	40
1980	22,046.11	14,241	14,959	11,496	30.01	383
1982	7,046.13	4,362	4,582	3,873	31.47	123
1985	4,215.94	2,435	2,558	2,501	33.72	74
1986	2,550.61	1,437	1,509	1,552	34.49	45
1987	5,901.00	3,240	3,403	3,678	35.26	104
1988	78,245.00	41,834	43,943	49,951	36.04	1,386
1989	28,140.00	14,634	15,372	18,396	36.83	499
1992	13,975.00	6,649	6,984	9,786	39.23	249
1993	52,743.24	24,295	25,520	37,772	40.05	943
1994	4,264.82	1,900	1,996	3,122	40.87	76
1996	39,914.00	16,557	17,392	30,505	42.53	717
1998	42,054.00	16,133	16,946	33,519	44.22	758
2000	301,793.01	106,248	111,604	250,548	45.93	5,455
2002	79,807.00	25,548	26,836	68,932	47.66	1,446
2003	1,488.78	453	476	1,311	48.53	27
2004	39,299.24	11,311	11,881	35,278	49.41	714
2005	30,409.57	8,253	8,669	27,822	50.30	553

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 351.4 OTHER STRUCTURES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 65-R2.5						
NET SALVAGE PERCENT.. -20						
2006	14,041.34	3,583	3,764	13,086	51.18	256
2007	65,474.78	15,617	16,404	62,166	52.08	1,194
2008	15,645.53	3,472	3,647	15,128	52.98	286
2009	373,964.64	76,773	80,643	368,115	53.88	6,832
2010	493,621.51	93,135	97,830	494,516	54.78	9,027
2011	478,282.92	82,119	86,259	487,681	55.70	8,755
2012	46,768.42	7,244	7,609	48,513	56.61	857
2013	1,484,492.43	204,717	215,036	1,566,355	57.53	27,227
2014	624,345.70	75,498	79,304	669,911	58.45	11,461
2015	245,908.21	25,513	26,799	268,291	59.38	4,518
2016	872,057.07	75,503	79,309	967,159	60.31	16,036
2017	735,829.34	51,081	53,656	829,339	61.24	13,542
2018	308,026.64	16,094	16,905	352,727	62.17	5,674
2019	612,170.97	21,362	22,439	712,166	63.11	11,285
2020	796,912.22	17,357	18,232	938,063	63.82	14,699
2021	84,987.61			101,985	65.00	1,569
	8,338,302.37	1,347,696	1,415,633	8,590,330		152,142

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 56.5 1.82

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 352.1 STORAGE LEASEHOLDS AND RIGHTS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 75-R4						
NET SALVAGE PERCENT.. 0						
1930	3,937.46	3,650	3,937			
1959	206,067.42	154,715	206,067			
1960	15.43	11	15			
1961	2,198.00	1,610	2,198			
1964	43,127.71	30,339	43,128			
1971	257,345.05	162,539	257,345			
1973	292.00	178	292			
1975	30,166.00	17,726	30,038	128	30.93	4
1982	1,500.00	759	1,286	214	37.04	6
1990	2,005.50	817	1,385	620	44.45	14
1998	1,586.57	483	818	769	52.17	15
2020	61,286.08	1,022	1,732	59,554	73.75	808
	609,527.22	373,849	548,241	61,286		847

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 72.4 0.14

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 352.2 RESERVOIRS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 65-R4						
NET SALVAGE PERCENT.. 0						
1968	84,535.13	62,803	84,535			
1969	112,400.82	82,294	112,401			
1970	29,156.24	21,028	29,156			
1971	110,767.57	78,662	110,768			
1972	38,151.80	26,665	38,152			
1975	25,499.84	16,932	25,499			
	400,511.40	288,384	400,511			

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 0.0 0.00

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 352.3 NONRECOVERABLE NATURAL GAS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. 50-SQUARE						
NET SALVAGE PERCENT.. 0						
1971	1,067,813.00	1,067,813	1,067,813			
1977	1,179,520.00	1,037,978	1,179,520			
1985	7,401,522.00	5,329,096	6,357,756	1,043,766	14.00	74,555
	9,648,855.00	7,434,887	8,605,089	1,043,766		74,555

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 14.0 0.77

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 352.4 WELL DRILLING

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 65-R2.5						
NET SALVAGE PERCENT.. -50						
1944	1,713.09	2,137	1,443	1,127	10.95	103
1947	6,083.52	7,450	5,031	4,094	11.93	343
1948	15,490.36	18,846	12,727	10,509	12.28	856
1949	7,541.15	9,112	6,153	5,159	12.64	408
1950	2,051.96	2,461	1,662	1,416	13.02	109
1951	14,017.21	16,691	11,272	9,754	13.40	728
1952	24,730.11	29,219	19,732	17,363	13.80	1,258
1953	6,372.44	7,468	5,043	4,516	14.22	318
1954	4,955.87	5,759	3,889	3,545	14.64	242
1955	18,491.17	21,302	14,386	13,351	15.08	885
1956	17,807.16	20,329	13,728	12,983	15.53	836
1957	21,709.58	24,549	16,578	15,986	16.00	999
1958	6,371.95	7,135	4,818	4,740	16.48	288
1959	151,402.67	167,812	113,326	113,778	16.97	6,705
1960	27,100.05	29,725	20,074	20,576	17.47	1,178
1961	33,471.62	36,312	24,522	25,685	17.99	1,428
1962	45,710.80	49,019	33,103	35,463	18.53	1,914
1963	46,660.23	49,457	33,399	36,591	19.07	1,919
1964	46,178.66	48,349	32,651	36,617	19.63	1,865
1965	27,644.30	28,580	19,300	22,166	20.20	1,097
1966	27,115.71	27,671	18,687	21,987	20.78	1,058
1967	30,354.86	30,563	20,640	24,892	21.37	1,165
1968	323,489.83	321,225	216,927	268,308	21.97	12,212
1970	105,166.17	101,420	68,490	89,259	23.21	3,846
1971	47,197.50	44,820	30,268	40,528	23.85	1,699
1972	28,215.15	26,370	17,808	24,515	24.50	1,001
1973	51,820.81	47,655	32,182	45,549	25.15	1,811
1974	25,632.65	23,176	15,651	22,798	25.82	883
1975	26,723.75	23,749	16,038	24,048	26.49	908
1976	23,415.54	20,436	13,801	21,322	27.18	784
1977	51,015.18	43,712	29,519	47,004	27.87	1,687
1978	56,910.46	47,831	32,301	53,065	28.58	1,857
1979	24,530.23	20,215	13,651	23,144	29.29	790
1981	23,071.06	18,246	12,322	22,285	30.73	725
1982	106,923.65	82,735	55,872	104,513	31.47	3,321
1984	31,018.11	22,934	15,488	31,039	32.96	942
1985	71,220.07	51,410	34,718	72,112	33.72	2,139
1986	65,645.77	46,219	31,212	67,257	34.49	1,950
1987	10,706.56	7,348	4,962	11,098	35.26	315
1988	7,805.44	5,216	3,522	8,186	36.04	227
1996	14,483.89	7,510	5,072	16,654	42.53	392

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 352.4 WELL DRILLING

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 65-R2.5						
NET SALVAGE PERCENT.. -50						
1997	72,843.07	36,360	24,554	84,711	43.37	1,953
2000	164,115.19	72,222	48,772	197,401	45.93	4,298
2001	76,508.99	32,151	21,712	93,051	46.79	1,989
2003	72,925.62	27,717	18,718	90,670	48.53	1,868
2012	1,828,099.15	353,957	239,032	2,503,117	56.61	44,217
2013	1,287,793.32	221,990	149,912	1,781,778	57.53	30,971
2014	515,442.60	77,912	52,615	720,549	58.45	12,328
2018	47,573.49	3,107	2,098	69,262	62.17	1,114
2020	1,576,608.49	42,923	28,987	2,335,926	63.82	36,602
	7,319,876.21	2,470,512	1,668,368	9,311,446		198,531

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 46.9 2.71

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 352.5 WELL EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 45-R0.5						
NET SALVAGE PERCENT.. -50						
1952	52.99	63	25	54	9.14	6
1953	3,469.94	4,101	1,638	3,567	9.54	374
1954	5,141.70	6,009	2,400	5,313	9.94	535
1955	21,411.60	24,745	9,884	22,233	10.33	2,152
1956	10,720.03	12,246	4,892	11,188	10.73	1,043
1957	17,169.06	19,378	7,740	18,014	11.14	1,617
1958	4,493.96	5,012	2,002	4,739	11.54	411
1959	92,347.50	101,736	40,637	97,884	11.95	8,191
1960	21,851.18	23,782	9,499	23,278	12.35	1,885
1961	23,857.10	25,630	10,238	25,548	12.77	2,001
1962	40,286.54	42,731	17,068	43,362	13.18	3,290
1963	46,634.65	48,811	19,497	50,455	13.60	3,710
1964	46,892.15	48,424	19,342	50,996	14.02	3,637
1965	25,269.56	25,733	10,279	27,625	14.45	1,912
1966	39,814.14	39,973	15,967	43,754	14.88	2,940
1967	37,008.89	36,627	14,630	40,883	15.31	2,670
1968	56,055.04	54,654	21,831	62,252	15.75	3,953
1969	44,156.68	42,405	16,938	49,297	16.19	3,045
1970	90,038.35	85,116	33,999	101,059	16.64	6,073
1971	40,524.64	37,701	15,059	45,728	17.09	2,676
1972	21,144.82	19,348	7,728	23,989	17.55	1,367
1973	50,860.45	45,758	18,278	58,013	18.01	3,221
1974	9,559.44	8,450	3,375	10,964	18.48	593
1975	33,366.68	28,973	11,573	38,477	18.95	2,030
1976	10,408.15	8,871	3,543	12,069	19.43	621
1977	33,763.92	28,238	11,279	39,367	19.91	1,977
1978	49,775.36	40,816	16,304	58,359	20.40	2,861
1979	8,449.97	6,791	2,713	9,962	20.89	477
1981	47,236.34	36,388	14,535	56,320	21.89	2,573
1982	51,970.13	39,151	15,638	62,317	22.40	2,782
1983	261.38	192	77	315	22.91	14
1984	87,396.53	62,838	25,100	105,995	23.43	4,524
1985	86,736.63	60,860	24,310	105,795	23.95	4,417
1986	105,687.54	72,290	28,875	129,656	24.48	5,296
1987	76,628.71	51,060	20,395	94,548	25.01	3,780
1988	5,457.51	3,538	1,413	6,773	25.55	265
1989	14,390.96	9,066	3,621	17,965	26.10	688
1990	112,689.26	68,966	27,548	141,486	26.64	5,311
1991	243,743.59	144,703	57,800	307,815	27.19	11,321
1992	4,391.20	2,525	1,009	5,578	27.75	201
1993	181,653.57	101,060	40,367	232,113	28.31	8,199

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 352.5 WELL EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 45-R0.5						
NET SALVAGE PERCENT.. -50						
1994	101,952.52	54,816	21,896	131,033	28.87	4,539
1995	22,152.01	11,490	4,590	28,638	29.44	973
1996	66,964.02	33,460	13,365	87,081	30.01	2,902
1997	193,348.70	92,871	37,096	252,927	30.59	8,268
1998	12,656.20	5,839	2,332	16,652	31.16	534
1999	57,764.64	25,532	10,198	76,449	31.74	2,409
2000	275,399.89	116,312	46,460	366,640	32.33	11,341
2001	254,338.63	102,500	40,942	340,566	32.91	10,348
2002	225,357.99	86,389	34,507	303,530	33.50	9,061
2003	197,056.28	71,661	28,624	266,960	34.09	7,831
2004	336,832.46	115,758	46,238	459,011	34.69	13,232
2005	320,718.40	103,913	41,507	439,571	35.28	12,459
2006	11,565.11	3,516	1,404	15,944	35.88	444
2007	11,890.55	3,381	1,351	16,485	36.47	452
2008	6,717.21	1,776	709	9,367	37.07	253
2009	973,953.64	237,971	95,055	1,365,875	37.67	36,259
2010	1,256,059.26	281,784	112,556	1,771,533	38.27	46,290
2011	1,069,178.55	218,112	87,123	1,516,645	38.88	39,008
2012	2,317,671.11	426,463	170,346	3,306,161	39.48	83,743
2013	1,621,393.65	265,365	105,997	2,326,093	40.09	58,022
2014	435,401.38	62,554	24,987	628,115	40.69	15,437
2015	238,998.59	29,476	11,774	346,724	41.30	8,395
2016	500,995.14	51,432	20,544	730,949	41.92	17,437
2017	940,342.97	77,423	30,926	1,379,588	42.53	32,438
2018	694,518.46	43,057	17,198	1,024,580	43.14	23,750
2019	1,373,439.94	56,778	22,679	2,037,481	43.76	46,560
2020	2,022,199.19	52,567	20,997	3,012,302	44.22	68,121
2021	346,529.00		0	519,793	45.00	11,551
	17,788,163.33	4,156,955	1,660,447	25,021,798		686,696

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 36.4 3.86

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 353 LINES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 50-R2						
NET SALVAGE PERCENT.. -20						
1952	34,321.37	35,675	41,186			
1953	387.78	400	465			
1954	2,790.88	2,860	3,349			
1955	7,263.56	7,388	8,709	7	7.62	1
1956	1,914.28	1,932	2,278	19	7.94	2
1957	39,823.07	39,893	47,028	760	8.26	92
1958	350.73	348	410	11	8.60	1
1959	21,553.49	21,240	25,039	825	8.94	92
1960	8,535.92	8,340	9,832	411	9.29	44
1961	35,343.34	34,226	40,348	2,064	9.65	214
1962	19,508.78	18,719	22,067	1,344	10.02	134
1963	5,179.20	4,922	5,802	413	10.40	40
1964	3,739.10	3,519	4,148	339	10.79	31
1965	12,676.36	11,807	13,919	1,293	11.19	116
1966	13,453.97	12,399	14,617	1,528	11.60	132
1967	131,308.44	119,690	141,098	16,472	12.02	1,370
1968	133,965.77	120,698	142,286	18,473	12.46	1,483
1970	240,138.89	211,169	248,939	39,228	13.36	2,936
1971	25,120.30	21,806	25,706	4,438	13.83	321
1972	20,819.76	17,833	21,023	3,961	14.31	277
1973	282.82	239	282	57	14.81	4
1974	23,201.12	19,316	22,771	5,070	15.31	331
1975	35,869.97	29,416	34,677	8,367	15.83	529
1976	13,023.13	10,514	12,395	3,233	16.36	198
1977	23,114.29	18,362	21,646	6,091	16.90	360
1978	328,127.63	256,333	302,181	91,572	17.45	5,248
1979	98,038.00	75,246	88,705	28,941	18.02	1,606
1980	594,106.01	447,861	527,966	184,961	18.59	9,949
1981	484,874.36	358,652	422,801	159,048	19.18	8,292
1982	493,470.37	357,904	421,919	170,245	19.78	8,607
1983	197,362.28	140,254	165,340	71,495	20.39	3,506
1984	217,933.07	151,629	178,750	82,770	21.01	3,940
1985	596,396.82	405,932	478,538	237,138	21.64	10,958
1986	534,113.65	355,335	418,891	222,045	22.28	9,966
1987	766,481.66	497,968	587,035	332,743	22.93	14,511
1988	102,581.58	65,020	76,650	46,448	23.59	1,969
1989	226,990.92	140,226	165,307	107,082	24.26	4,414
1990	212,131.45	127,584	150,404	104,154	24.94	4,176
1991	869,798.65	508,728	599,720	444,038	25.63	17,325
1992	218,324.88	123,974	146,148	115,842	26.34	4,398
1994	103,160.84	55,063	64,912	58,881	27.76	2,121

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 353 LINES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 50-R2						
NET SALVAGE PERCENT.. -20						
1995	129,327.99	66,764	78,706	76,488	28.49	2,685
1996	868,794.64	433,077	510,538	532,016	29.23	18,201
1997	11,634.00	5,593	6,593	7,368	29.97	246
1998	206,111.33	95,372	112,430	134,904	30.72	4,391
1999	160,192.29	71,202	83,937	108,294	31.48	3,440
2001	818,557.07	333,382	393,011	589,257	33.03	17,840
2002	144,240.19	56,046	66,071	107,017	33.81	3,165
2003	256,295.12	94,665	111,597	195,957	34.61	5,662
2004	1,263,528.76	442,437	521,572	994,663	35.41	28,090
2005	539,132.96	178,431	210,346	436,614	36.21	12,058
2006	299,165.88	93,124	109,780	249,219	37.03	6,730
2009	1,427,757.94	359,452	423,744	1,289,566	39.51	32,639
2010	706,960.63	163,732	193,017	655,336	40.35	16,241
2011	635,394.56	134,195	158,197	604,276	41.20	14,667
2012	1,329,371.97	253,644	299,011	1,296,235	42.05	30,826
2013	2,553,955.20	434,581	512,311	2,552,435	42.91	59,483
2014	2,917,008.07	435,451	513,337	2,987,073	43.78	68,229
2015	695,413.86	89,291	105,262	729,235	44.65	16,332
2016	1,354,031.45	145,260	171,242	1,453,596	45.53	31,926
2017	228,093.58	19,653	23,168	250,544	46.41	5,398
2018	2,763,969.98	179,105	211,140	3,105,624	47.30	65,658
2019	1,706,247.43	73,710	86,894	1,960,603	48.20	40,676
2020	3,128,292.15	84,839	100,014	3,653,937	48.87	74,769
	31,041,055.54	9,083,426	10,707,205	26,542,062		679,046

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 39.1 2.19

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 354 COMPRESSOR STATION EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 45-R1.5						
NET SALVAGE PERCENT.. -15						
1947	1,057.01	1,089	1,110	106	4.67	23
1948	198.67	203	207	21	4.92	4
1949	55,190.79	56,177	57,243	6,226	5.17	1,204
1951	4,783.65	4,804	4,895	606	5.70	106
1952	204,740.22	204,214	208,091	27,360	5.97	4,583
1953	24.26	24	24	4	6.25	1
1954	223.00	219	223	33	6.53	5
1956	78,190.09	75,731	77,169	12,750	7.10	1,796
1957	17,468.68	16,786	17,105	2,984	7.40	403
1959	677,767.70	640,694	652,856	126,577	8.01	15,802
1960	699.00	655	667	137	8.32	16
1961	17,028.51	15,823	16,123	3,460	8.64	400
1962	519,388.62	478,369	487,450	109,847	8.96	12,260
1963	4,114.92	3,755	3,826	906	9.29	98
1964	438,354.40	396,229	403,751	100,357	9.63	10,421
1965	75,600.30	67,659	68,943	17,997	9.98	1,803
1967	38,138.99	33,431	34,066	9,794	10.70	915
1968	23,014.19	19,956	20,335	6,131	11.07	554
1969	63,805.06	54,689	55,727	17,649	11.46	1,540
1970	371,362.81	314,509	320,479	106,588	11.86	8,987
1971	5,435.48	4,548	4,634	1,617	12.26	132
1972	1,306.25	1,079	1,099	403	12.68	32
1973	47,483.00	38,697	39,432	15,173	13.11	1,157
1974	165,982.21	133,404	135,936	54,944	13.55	4,055
1976	89,777.05	70,045	71,375	31,869	14.47	2,202
1978	4,720.15	3,567	3,635	1,793	15.43	116
1979	6,322.73	4,697	4,786	2,485	15.93	156
1980	1,703.60	1,243	1,267	692	16.44	42
1981	6,577.00	4,713	4,802	2,762	16.96	163
1982	848.00	596	607	368	17.49	21
1983	27,946.72	19,255	19,621	12,518	18.04	694
1984	5,076.67	3,426	3,491	2,347	18.59	126
1985	5,256.67	3,471	3,537	2,508	19.16	131
1987	1,346.99	849	865	684	20.33	34
1988	31,653.16	19,479	19,849	16,552	20.92	791
1989	5,620.00	3,371	3,435	3,028	21.53	141
1990	7,392.00	4,317	4,399	4,102	22.15	185
1991	85,136.00	48,344	49,262	48,644	22.78	2,135
1992	219,812.00	121,225	123,526	129,258	23.42	5,519
1993	144,032.60	77,040	78,502	87,135	24.07	3,620
1994	208,751.45	108,190	110,244	129,820	24.72	5,252

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 354 COMPRESSOR STATION EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 45-R1.5						
NET SALVAGE PERCENT.. -15						
1995	2,780.16	1,393	1,419	1,778	25.39	70
1996	280,153.84	135,601	138,175	184,002	26.06	7,061
1997	55,126.00	25,724	26,212	37,183	26.74	1,391
1998	410,799.19	184,451	187,952	284,467	27.43	10,371
1999	12,281.93	5,295	5,396	8,728	28.13	310
2000	2,271,508.91	938,654	956,472	1,655,763	28.83	57,432
2001	1,531,694.82	604,758	616,238	1,145,211	29.55	38,755
2002	549,308.61	206,921	210,849	420,856	30.26	13,908
2003	69,524.29	24,892	25,365	54,588	30.99	1,761
2004	10,519.20	3,570	3,638	8,459	31.72	267
2005	227,295.86	72,842	74,225	187,165	32.46	5,766
2006	75,975.78	22,911	23,346	64,026	33.20	1,928
2007	1,095,256.25	309,294	315,165	944,380	33.95	27,817
2008	111,159.44	29,232	29,787	98,046	34.71	2,825
2009	2,217,187.84	539,989	550,240	1,999,526	35.47	56,372
2010	1,721,912.08	385,921	393,247	1,586,952	36.23	43,802
2011	920,149.60	188,122	191,693	866,479	37.00	23,418
2012	580,289.92	107,067	109,099	558,234	37.78	14,776
2013	1,167,212.31	192,096	195,743	1,146,551	38.56	29,734
2014	27,591,340.39	3,984,024	4,059,652	27,670,389	39.35	703,187
2015	847,234.99	105,227	107,224	867,096	40.14	21,602
2016	8,998,799.96	933,652	951,375	9,397,245	40.94	229,537
2017	3,347,214.60	278,843	284,136	3,565,161	41.74	85,414
2018	3,158,986.81	197,772	201,527	3,431,308	42.55	80,642
2019	4,907,244.23	205,643	209,547	5,433,784	43.36	125,318
2020	3,639,106.60	95,794	97,612	4,087,361	43.97	92,958
2021	510,230.87			586,766	45.00	13,039
	69,973,625.08	12,836,260	13,079,928	67,389,741		1,777,086

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 37.9 2.54

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 355 MEASURING AND REGULATING EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 45-S0						
NET SALVAGE PERCENT.. -20						
1951	1,151.71	1,151	1,209	173	7.52	23
1954	1,574.73	1,525	1,602	288	8.69	33
1957	3,723.60	3,487	3,662	806	9.88	82
1958	428.07	396	416	98	10.29	10
1959	34,700.33	31,748	33,344	8,296	10.69	776
1962	1,472.35	1,299	1,364	403	11.91	34
1964	369.92	318	334	110	12.73	9
1965	33,282.00	28,268	29,689	10,249	13.15	779
1966	7,983.92	6,692	7,028	2,553	13.57	188
1968	6,477.75	5,284	5,550	2,223	14.41	154
1970	19,308.00	15,313	16,083	7,087	15.26	464
1971	906.00	708	744	343	15.69	22
1972	179.00	138	145	70	16.13	4
1980	2,848.81	1,921	2,018	1,401	19.71	71
1983	4,467.49	2,846	2,989	2,372	21.11	112
1986	5,089.85	3,047	3,200	2,908	22.55	129
1987	11,571.60	6,776	7,117	6,769	23.04	294
1989	52,825.00	29,540	31,025	32,365	24.03	1,347
1990	32,112.95	17,529	18,410	20,126	24.53	820
2001	42,158.70	16,324	17,145	33,445	30.48	1,097
2002	36,889.85	13,704	14,393	29,875	31.07	962
2003	13,292.02	4,725	4,963	10,987	31.67	347
2006	11,339.56	3,471	3,645	9,962	33.52	297
2009	11,379.40	2,892	3,037	10,618	35.47	299
2010	114,669.26	27,062	28,423	109,180	36.15	3,020
2011	12,125.84	2,635	2,767	11,784	36.85	320
2012	70,069.00	13,901	14,600	69,483	37.56	1,850
2013	38,659.77	6,917	7,265	39,127	38.29	1,022
2014	162,396.23	25,854	27,154	167,721	39.03	4,297
2015	1,238,056.55	171,684	180,315	1,305,353	39.80	32,798
2016	18,787.30	2,209	2,320	20,225	40.59	498
2017	229,284.18	21,951	23,055	252,086	41.41	6,088
2019	265,372.25	13,235	13,900	304,547	43.13	7,061
	2,484,952.99	484,550	508,911	2,473,033		65,307

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 37.9 2.63

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 356 PURIFICATION EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 49-R2						
NET SALVAGE PERCENT.. -30						
1959	14,150.63	15,265	16,552	1,844	8.34	221
1961	47,057.37	49,901	54,108	7,067	9.03	783
1963	6,831.14	7,113	7,713	1,167	9.75	120
1964	214,596.21	221,303	239,962	39,013	10.13	3,851
1965	3,262.11	3,330	3,611	630	10.52	60
1966	1,902.00	1,922	2,084	389	10.92	36
1967	275,317.00	275,156	298,356	59,556	11.33	5,256
1968	23,355.73	23,082	25,028	5,334	11.75	454
1969	40,059.83	39,133	42,432	9,646	12.18	792
1970	972.55	938	1,017	247	12.63	20
1971	1,123.74	1,071	1,161	300	13.09	23
1972	596.08	561	608	167	13.55	12
1974	80,708.29	73,809	80,032	24,889	14.53	1,713
1976	769.00	682	740	260	15.56	17
1977	6,047.08	5,280	5,725	2,136	16.09	133
1984	45,577.00	34,909	37,852	21,398	20.13	1,063
1985	3,754.30	2,814	3,051	1,830	20.75	88
1986	54,117.10	39,655	42,999	27,353	21.38	1,279
1987	16,866.00	12,068	13,086	8,840	22.03	401
1989	64,213.00	43,698	47,382	36,095	23.35	1,546
1990	8,546.00	5,664	6,142	4,968	24.02	207
1991	22,118.35	14,254	15,456	13,298	24.71	538
1992	111,099.30	69,561	75,426	69,003	25.40	2,717
1993	32,439.16	19,700	21,361	20,810	26.11	797
1994	56,546.99	33,275	36,081	37,430	26.82	1,396
1995	66,415.00	37,813	41,001	45,338	27.54	1,646
1996	886,023.69	487,294	528,380	623,451	28.27	22,053
1997	2,267,980.30	1,202,819	1,304,235	1,644,139	29.01	56,675
1999	499,045.85	244,673	265,303	383,457	30.52	12,564
2000	1,034,809.58	486,484	527,502	817,750	31.28	26,143
2001	1,455,443.21	654,110	709,261	1,182,815	32.06	36,894
2002	685,525.74	293,912	318,693	572,490	32.84	17,433
2003	450,853.30	183,845	199,346	386,763	33.63	11,501
2004	263,428.56	101,830	110,416	232,041	34.43	6,740
2005	92,430.18	33,767	36,614	83,545	35.23	2,371
2006	30,516.54	10,493	11,378	28,294	36.04	785
2007	5,533.37	1,782	1,932	5,261	36.86	143
2009	255,375.63	71,006	76,993	254,995	38.52	6,620
2010	1,480,250.72	378,573	410,492	1,513,834	39.36	38,461
2011	423,289.04	98,714	107,037	443,239	40.21	11,023
2012	1,357,472.77	285,954	310,064	1,454,651	41.06	35,427

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 356 PURIFICATION EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 49-R2						
NET SALVAGE PERCENT.. -30						
2013	1,170,126.21	219,793	238,325	1,282,839	41.92	30,602
2014	1,435,957.90	236,965	256,945	1,609,800	42.78	37,630
2015	3,427,521.43	486,482	527,500	3,928,278	43.65	89,995
2016	3,972,225.40	471,050	510,767	4,653,126	44.53	104,494
2017	1,155,795.51	110,091	119,373	1,383,161	45.41	30,459
2018	3,684,647.86	263,931	286,184	4,503,858	46.30	97,276
2019	756,354.25	36,115	39,160	944,101	47.20	20,002
2020	6,163,916.21	184,782	200,362	7,812,729	47.87	163,207
	34,152,964.21	7,576,422	8,215,228	36,183,625		883,667

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 40.9 2.59

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 357 OTHER EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 47-R2						
NET SALVAGE PERCENT.. -10						
1958	270.25	254	243	54	6.86	8
1959	10,401.38	9,696	9,258	2,184	7.17	305
1960	1,622.00	1,500	1,432	352	7.49	47
1961	433.00	397	379	97	7.82	12
1962	5,031.40	4,574	4,367	1,168	8.16	143
1963	122.43	110	105	30	8.50	4
1964	0.44					
1965	1,061.00	938	896	271	9.22	29
1967	3,764.00	3,261	3,114	1,026	9.98	103
1968	4,359.00	3,737	3,568	1,227	10.37	118
1969	2,699.97	2,289	2,186	784	10.78	73
1970	275.87	231	221	82	11.20	7
1981	12,918.80	9,180	8,765	5,446	16.64	327
1982	1,733.39	1,209	1,154	753	17.21	44
1983	6,482.00	4,431	4,231	2,899	17.79	163
1986	866.00	555	530	423	19.61	22
1987	18,300.00	11,461	10,943	9,187	20.24	454
1989	15,115.00	9,010	8,603	8,024	21.53	373
1990	8,951.00	5,197	4,962	4,884	22.19	220
1991	33,678.00	19,027	18,168	18,878	22.86	826
1992	51,940.77	28,519	27,231	29,904	23.54	1,270
1995	51,149.00	25,558	24,404	31,860	25.65	1,242
1997	11,007.00	5,126	4,895	7,213	27.10	266
2001	222,940.23	88,076	84,098	161,136	30.12	5,350
2002	331,365.96	124,941	119,299	245,204	30.89	7,938
2003	591.31	212	202	448	31.68	14
2004	42,348.74	14,401	13,751	32,833	32.47	1,011
2005	33,803.28	10,862	10,371	26,813	33.27	806
2006	121,725.95	36,837	35,173	98,726	34.07	2,898
2007	16,368.60	4,639	4,430	13,575	34.89	389
2008	34,601.54	9,143	8,730	29,332	35.71	821
2009	138,396.24	33,880	32,350	119,886	36.54	3,281
2010	271,456.87	61,118	58,358	240,245	37.38	6,427
2011	59,622.70	12,252	11,699	53,886	38.22	1,410
2012	381,254.84	70,758	67,563	351,817	39.07	9,005
2013	846,944.30	140,146	133,817	797,822	39.93	19,981
2014	298,661.79	43,408	41,448	287,080	40.79	7,038
2015	117,062.74	14,631	13,970	114,799	41.66	2,756
2016	1,061,552.88	111,061	106,045	1,061,663	42.53	24,963
2017	181,596.42	15,215	14,528	185,228	43.42	4,266
2018	190,175.27	12,018	11,475	197,718	44.30	4,463

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 357 OTHER EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 47-R2						
NET SALVAGE PERCENT.. -10						
2019	374,485.80	15,777	15,065	396,869	45.20	8,780
2020	2,909,413.55	76,937	73,462	3,126,893	45.87	68,169
2021	639,027.64			702,930	47.00	14,956
	8,515,578.35	1,042,572	995,489	8,371,647		200,778

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 41.7 2.36

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 365.2 RIGHTS OF WAY

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 75-R4						
NET SALVAGE PERCENT.. 0						
1941	190.15	168	190			
1942	10,446.81	9,156	10,447			
1947	391.73	332	392			
1948	13,137.32	11,044	13,137			
1949	11,311.93	9,431	11,312			
1952	6,225.01	5,050	6,225			
1953	22,843.90	18,348	22,844			
1956	632.50	492	632			
1960	58,857.92	43,649	58,858			
1962	8,796.11	6,358	8,796			
1970	26,318.99	16,904	26,319			
1971	3,075.02	1,942	3,063	12	27.63	
1972	25.84	16	25	1	28.44	
1979	57,934.38	31,385	49,499	8,435	34.37	245
1981	471.44	244	385	86	36.15	2
	220,659.05	154,519	212,124	8,535		247

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 34.6 0.11

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 367 MAINS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 65-R2.5						
NET SALVAGE PERCENT.. -40						
1952	24,782.85	27,330	23,390	11,306	13.80	819
1953	94,304.96	103,143	88,275	43,752	14.22	3,077
1955	58,812.34	63,235	54,120	28,217	15.08	1,871
1956	107,191.39	114,214	97,750	52,318	15.53	3,369
1957	202,872.75	214,110	183,246	100,776	16.00	6,298
1958	1,378,252.44	1,440,334	1,232,713	696,840	16.48	42,284
1959	769,410.12	795,946	681,212	395,962	16.97	23,333
1960	5,598.26	5,731	4,905	2,933	17.47	168
1961	1,978.83	2,004	1,715	1,055	17.99	59
1962	212,648.56	212,837	182,157	115,551	18.53	6,236
1963	167,125.66	165,332	141,500	92,476	19.07	4,849
1964	1,350.91	1,320	1,130	761	19.63	39
1965	92,484.79	89,241	76,377	53,102	20.20	2,629
1966	2,715.98	2,587	2,214	1,588	20.78	76
1967	184,022.29	172,930	148,002	109,629	21.37	5,130
1968	1,105,780.67	1,024,838	877,110	670,983	21.97	30,541
1969	150,586.32	137,552	117,724	93,097	22.59	4,121
1970	917,848.84	826,145	707,058	577,930	23.21	24,900
1971	113,310.59	100,429	85,952	72,683	23.85	3,048
1972	1,006,178.13	877,701	751,182	657,467	24.50	26,835
1973	744,935.34	639,387	547,221	495,688	25.15	19,709
1975	2,370.05	1,966	1,683	1,635	26.49	62
1976	452.42	369	316	317	27.18	12
1977	101,168.21	80,906	69,244	72,391	27.87	2,597
1978	51,820.83	40,650	34,790	37,759	28.58	1,321
1979	108,817.03	83,695	71,631	80,713	29.29	2,756
1980	21,391.71	16,122	13,798	16,150	30.01	538
1981	46,072.14	34,007	29,105	35,396	30.73	1,152
1982	203,227.40	146,769	125,613	158,905	31.47	5,049
1983	1,491.42	1,053	901	1,187	32.21	37
1984	113,108.17	78,055	66,804	91,547	32.96	2,778
1985	110,897.03	74,714	63,944	91,312	33.72	2,708
1986	11,409.48	7,498	6,417	9,556	34.49	277
1987	6,850.59	4,388	3,755	5,836	35.26	166
1989	92,645.90	56,211	48,108	81,596	36.83	2,215
1991	1,258,302.92	720,099	616,298	1,145,326	38.43	29,803
1993	3,778.67	2,031	1,738	3,552	40.05	89
1996	212,758.41	102,968	88,125	209,737	42.53	4,932
1998	416,168.37	186,263	159,414	423,222	44.22	9,571
1999	3,239.50	1,391	1,190	3,345	45.07	74
2003	297,447.63	105,514	90,304	326,123	48.53	6,720

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 367 MAINS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 65-R2.5						
NET SALVAGE PERCENT.. -40						
2004	7,611.10	2,556	2,188	8,468	49.41	171
2005	186,685.88	59,107	50,587	210,773	50.30	4,190
2007	7,767.94	2,162	1,850	9,025	52.08	173
2009	526,464.93	126,095	107,919	629,132	53.88	11,677
2010	2,979,966.50	655,956	561,401	3,610,552	54.78	65,910
2011	1,102,955.00	220,935	189,088	1,355,049	55.70	24,328
2012	4,914,306.47	888,074	760,060	6,119,969	56.61	108,108
2013	11,464,281.44	1,844,465	1,578,589	14,471,405	57.53	251,545
2014	14,937,517.34	2,107,355	1,803,584	19,108,940	58.45	326,928
2015	917,490.60	111,057	95,048	1,189,439	59.38	20,031
2016	3,290,811.22	332,405	284,490	4,322,646	60.31	71,674
2017	1,839,425.38	148,975	127,501	2,447,695	61.24	39,969
2018	2,282,221.48	139,115	119,062	3,076,048	62.17	49,478
2019	3,688,312.21	150,159	128,514	5,035,123	63.11	79,783
2020	91,611,020.47	2,327,836	1,992,282	126,263,147	63.82	1,978,426
2021	41,270,647.78		0	57,778,907	65.00	888,906
	191,433,095.64	17,877,267	15,300,294	252,706,040		4,203,545

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 60.1 2.20

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 374.22 OTHER DISTRIBUTION LAND RIGHTS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR	ORIGINAL COST	CALCULATED ACCRUED	ALLOC. BOOK RESERVE	FUTURE BOOK ACCRUALS	REM. LIFE	ANNUAL ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
SURVIVOR CURVE.. IOWA 75-S3						
NET SALVAGE PERCENT.. 0						
1914	14,904.32	13,678	14,904			
1957	5,219.36	3,849	5,219			
1958	19,774.35	14,446	19,774			
1960	4,795.00	3,435	4,795			
1962	400.00	281	400			
1964	20,823.97	14,274	20,824			
1979	4,600.00	2,490	4,600			
1990	3,501.23	1,435	3,502			
	74,018.23	53,888	74,018			

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 0.0 0.00

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 375.1 STRUCTURES AND IMPROVEMENTS - CITY GATE STATION

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 50-R3						
NET SALVAGE PERCENT.. -20						
1950	3,579.00	4,010	3,107	1,188	3.32	358
1952	717.00	794	615	245	3.83	64
1955	781.00	851	659	278	4.61	60
1962	675.00	703	545	265	6.59	40
1965	5,389.72	5,485	4,250	2,218	7.60	292
1969	24,996.25	24,482	18,970	11,026	9.19	1,200
1970	925.82	897	695	416	9.63	43
1971	1,531.01	1,466	1,136	701	10.09	69
1972	402.78	381	295	188	10.57	18
1994	8,479.00	5,034	3,901	6,274	25.26	248
2001	26,343.08	11,911	9,229	22,383	31.16	718
2003	27,404.15	11,227	8,699	24,186	32.93	734
2004	37,769.79	14,658	11,358	33,966	33.83	1,004
2006	15,450.34	5,321	4,123	14,417	35.65	404
2010	160,898.55	41,087	31,838	161,240	39.36	4,097
2013	183,680.95	34,297	26,576	193,841	42.22	4,591
2017	20,520.00	1,931	1,496	23,128	46.08	502
	519,543.44	164,535	127,492	495,960		14,442

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 34.3 2.78

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 375.2 STRUCTURES AND IMPROVEMENTS - OTHER DISTRIBUTION

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 42-L1.5						
NET SALVAGE PERCENT.. -20						
1906	3,040.56	3,361	3,649			
1911	792.00	858	950			
1914	17,930.00	19,206	21,516			
1915	405.00	432	486			
1916	351.00	373	421			
1920	1,286.00	1,345	1,543			
1924	1,047.00	1,077	1,235	21	6.00	4
1926	3,649.41	3,721	4,267	112	6.31	18
1928	5,135.00	5,189	5,951	211	6.63	32
1929	1,476.15	1,485	1,703	68	6.80	10
1941	3,121.00	2,945	3,377	368	8.97	41
1942	153.00	144	165	19	9.16	2
1943	1,494.00	1,393	1,598	195	9.36	21
1944	193.00	179	205	27	9.56	3
1945	4,247.00	3,912	4,487	609	9.76	62
1949	1,820.00	1,633	1,873	311	10.60	29
1950	4,663.00	4,154	4,764	832	10.82	77
1951	18,339.00	16,222	18,604	3,403	11.04	308
1953	4,464.00	3,893	4,465	892	11.48	78
1954	10,304.98	8,918	10,228	2,138	11.71	183
1955	2,847.00	2,445	2,804	612	11.94	51
1957	2,370.00	2,004	2,298	546	12.41	44
1958	1,040.00	872	1,000	248	12.65	20
1959	60.00	50	57	15	12.89	1
1960	891.26	735	843	227	13.13	17
1961	1,321.53	1,081	1,240	346	13.37	26
1964	3,530.00	2,812	3,225	1,011	14.12	72
1965	15,910.59	12,556	14,400	4,693	14.38	326
1966	4,398.06	3,439	3,944	1,334	14.63	91
1967	1,040.00	806	924	324	14.89	22
1968	2,730.00	2,095	2,403	873	15.14	58
1969	5,172.31	3,931	4,508	1,699	15.40	110
1970	2,582.33	1,943	2,228	871	15.66	56
1975	8,524.00	6,096	6,991	3,238	16.97	191
1976	314.00	222	255	122	17.23	7
1977	1,318.00	923	1,059	523	17.50	30
1982	1,692.00	1,119	1,283	747	18.85	40
1983	833.33	545	625	375	19.13	20
1986	1,225.00	770	883	587	20.00	29
1989	11,245.00	6,770	7,764	5,730	20.93	274
1992	16,080.00	9,202	10,553	8,743	21.97	398

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 375.2 STRUCTURES AND IMPROVEMENTS - OTHER DISTRIBUTION

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 42-L1.5						
NET SALVAGE PERCENT.. -20						
1993	4,615.00	2,591	2,972	2,566	22.35	115
1994	208,970.52	114,993	131,881	118,884	22.74	5,228
1996	7,807.56	4,109	4,712	4,657	23.58	197
2002	7,827.00	3,433	3,937	5,455	26.65	205
2010	59,133.02	16,557	18,989	51,971	32.20	1,614
2013	12,074.40	2,536	2,908	11,581	34.65	334
2014	39,540.71	7,343	8,422	39,027	35.50	1,099
2015	20,230.73	3,248	3,725	20,552	36.38	565
2016	148,067.41	19,968	22,901	154,780	37.28	4,152
2017	64,116.05	6,979	8,004	68,935	38.19	1,805
2018	23,850.05	1,956	2,243	26,377	39.13	674
	765,267.96	324,569	371,468	546,854		18,739

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 29.2 2.45

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 376 MAINS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 67-R2.5						
NET SALVAGE PERCENT.. -40						
1942	1,133.76	1,317	1,336	251	11.41	22
1943	1,244.07	1,437	1,458	284	11.73	24
1944	3,276.51	3,761	3,816	771	12.06	64
1945	2,887.52	3,294	3,342	701	12.40	57
1946	760.06	862	875	189	12.75	15
1947	221.16	249	253	57	13.11	4
1948	2,516.54	2,814	2,855	668	13.49	50
1949	123,459.05	137,037	139,050	33,793	13.88	2,435
1950	18,196.14	20,045	20,340	5,135	14.28	360
1951	230,767.53	252,240	255,946	67,129	14.69	4,570
1952	130,177.51	141,120	143,193	39,056	15.12	2,583
1953	4,640.13	4,988	5,061	1,435	15.56	92
1954	958,475.45	1,021,213	1,036,217	305,649	16.01	19,091
1955	931,452.68	983,281	997,727	306,307	16.48	18,587
1956	1,672,014.59	1,748,616	1,774,307	566,513	16.95	33,423
1957	813,090.98	841,850	854,219	284,108	17.45	16,281
1958	1,458,190.27	1,494,537	1,516,495	524,971	17.95	29,246
1959	653,714.42	662,907	672,647	242,553	18.47	13,132
1960	1,293,828.60	1,297,695	1,316,761	494,599	19.00	26,032
1961	1,364,257.29	1,352,939	1,372,817	537,143	19.54	27,489
1962	978,329.87	958,969	973,058	396,604	20.09	19,741
1963	1,654,802.44	1,602,339	1,625,881	690,842	20.66	33,439
1964	1,631,455.78	1,559,975	1,582,894	701,144	21.24	33,011
1965	1,365,262.51	1,288,892	1,307,829	603,539	21.82	27,660
1966	2,524,972.16	2,352,057	2,386,614	1,148,347	22.42	51,220
1967	1,043,253.71	958,299	972,378	488,177	23.04	21,188
1968	2,283,030.50	2,067,554	2,097,931	1,098,312	23.66	46,421
1969	1,525,272.69	1,361,220	1,381,219	754,163	24.29	31,048
1970	1,596,945.62	1,403,833	1,424,458	811,266	24.93	32,542
1971	2,005,606.34	1,735,840	1,761,343	1,046,506	25.58	40,911
1972	4,428,782.18	3,772,011	3,827,430	2,372,865	26.24	90,429
1973	2,052,880.38	1,719,706	1,744,972	1,129,061	26.91	41,957
1974	1,095,926.66	902,489	915,748	618,549	27.59	22,419
1975	958,142.57	775,208	786,597	554,803	28.28	19,618
1976	555,821.16	441,569	448,057	330,093	28.98	11,390
1977	925,762.20	721,922	732,529	563,538	29.68	18,987
1978	309,356.99	236,589	240,065	193,035	30.40	6,350
1979	1,257,101.27	942,484	956,331	803,611	31.12	25,823
1980	1,301,834.81	956,174	970,222	852,347	31.85	26,761
1981	2,699,271.97	1,940,809	1,969,324	1,809,657	32.59	55,528
1982	3,784,786.00	2,662,809	2,701,931	2,596,769	33.33	77,911

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 376 MAINS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 67-R2.5						
NET SALVAGE PERCENT.. -40						
1983	2,141,569.64	1,473,134	1,494,777	1,503,420	34.08	44,114
1984	2,379,074.23	1,598,738	1,622,227	1,708,477	34.84	49,038
1985	1,795,859.54	1,177,929	1,195,235	1,318,968	35.61	37,039
1986	5,662,137.22	3,622,715	3,675,940	4,251,052	36.38	116,851
1987	6,943,329.86	4,329,291	4,392,898	5,327,764	37.16	143,374
1988	2,128,383.67	1,291,954	1,310,936	1,668,801	37.95	43,974
1989	4,398,272.83	2,596,283	2,634,428	3,523,154	38.75	90,920
1990	4,738,019.67	2,717,633	2,757,561	3,875,667	39.55	97,994
1991	7,092,302.23	3,949,448	4,007,474	5,921,749	40.35	146,760
1992	5,089,340.23	2,746,859	2,787,216	4,337,860	41.17	105,365
1993	7,752,572.77	4,051,433	4,110,957	6,742,645	41.99	160,577
1994	7,581,640.87	3,830,700	3,886,981	6,727,316	42.82	157,107
1995	11,653,654.89	5,685,981	5,769,520	10,545,597	43.65	241,594
1996	7,924,236.92	3,727,228	3,781,989	7,311,943	44.49	164,350
1997	6,657,607.97	3,014,578	3,058,869	6,261,782	45.33	138,138
1998	9,224,777.79	4,013,240	4,072,203	8,842,486	46.18	191,479
1999	15,044,668.62	6,274,740	6,366,929	14,695,607	47.04	312,407
2000	11,332,793.73	4,522,895	4,589,346	11,276,565	47.90	235,419
2001	10,522,549.50	4,010,522	4,069,445	10,662,124	48.76	218,665
2002	19,577,166.40	7,101,421	7,205,756	20,202,277	49.64	406,976
2003	19,876,008.37	6,848,636	6,949,257	20,877,155	50.51	413,327
2004	8,797,393.31	2,869,587	2,911,747	9,404,604	51.39	183,005
2005	10,016,691.22	3,080,934	3,126,200	10,897,168	52.28	208,439
2006	5,771,015.85	1,667,754	1,692,257	6,387,165	53.17	120,127
2007	11,380,188.20	3,074,768	3,119,943	12,812,320	54.07	236,958
2008	10,406,462.43	2,615,872	2,654,305	11,914,742	54.97	216,750
2009	26,773,620.49	6,226,687	6,318,170	31,164,899	55.87	557,811
2010	4,198,232.71	896,558	909,730	4,967,796	56.78	87,492
2011	9,298,583.42	1,808,984	1,835,562	11,182,455	57.69	193,837
2012	19,429,174.40	3,406,090	3,456,133	23,744,711	58.61	405,131
2013	18,495,621.63	2,886,908	2,929,323	22,964,547	59.53	385,764
2014	13,903,907.83	1,902,944	1,930,902	17,534,569	60.45	290,067
2015	19,757,225.93	2,320,131	2,354,219	25,305,897	61.38	412,282
2016	16,457,983.06	1,612,882	1,636,579	21,404,597	62.31	343,518
2017	23,518,551.19	1,847,806	1,874,954	31,051,018	63.24	491,003
2018	13,793,679.57	815,703	827,688	18,483,463	64.17	288,039

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 376 MAINS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 67-R2.5						
NET SALVAGE PERCENT.. -40						
2019	14,483,195.97	571,999	580,403	19,696,071	65.11	302,505
2020	32,857,167.99	810,061	821,962	45,178,073	65.82	686,388
2021	5,220,196.58		0	7,308,275	67.00	109,079
	479,717,760.80	157,333,976	159,645,547	511,959,318		9,961,574
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..					51.4	2.08

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 378 MEASURING AND REGULATING STATION EQUIPMENT - GENERAL

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 43-S0						
NET SALVAGE PERCENT.. -20						
1950	8,069.91	8,425	5,407	4,277	5.59	765
1954	350.68	351	225	196	7.14	27
1955	29,342.22	29,045	18,642	16,569	7.53	2,200
1956	36,842.77	36,068	23,150	21,061	7.92	2,659
1957	30,515.63	29,542	18,961	17,658	8.31	2,125
1958	31,663.25	30,299	19,447	18,549	8.71	2,130
1959	10,194.59	9,642	6,189	6,045	9.11	664
1960	31,772.15	29,695	19,059	19,068	9.51	2,005
1961	24,578.25	22,696	14,567	14,927	9.91	1,506
1962	5,108.33	4,660	2,991	3,139	10.31	304
1963	3,842.92	3,462	2,222	2,390	10.72	223
1964	36,979.57	32,900	21,116	23,259	11.12	2,092
1965	22,116.90	19,424	12,467	14,073	11.53	1,221
1966	52,102.19	45,147	28,977	33,546	11.95	2,807
1967	46,142.62	39,455	25,324	30,047	12.36	2,431
1968	66,261.22	55,881	35,866	43,647	12.78	3,415
1969	5,358.30	4,456	2,860	3,570	13.20	270
1970	81,125.80	66,516	42,692	54,659	13.62	4,013
1971	33,626.20	27,176	17,443	22,908	14.04	1,632
1972	24,168.52	19,243	12,351	16,651	14.47	1,151
1973	52,575.49	41,229	26,462	36,629	14.90	2,458
1974	43,503.45	33,593	21,561	30,643	15.33	1,999
1975	5,663.86	4,304	2,762	4,035	15.77	256
1976	43,007.08	32,153	20,637	30,971	16.21	1,911
1977	3,328.42	2,448	1,571	2,423	16.65	146
1978	14,096.58	10,189	6,540	10,376	17.10	607
1979	26,873.92	19,087	12,251	19,998	17.55	1,139
1980	30,534.86	21,304	13,674	22,968	18.00	1,276
1981	12,819.55	8,783	5,637	9,746	18.45	528
1982	42,066.84	28,281	18,152	32,328	18.91	1,710
1983	49,411.19	32,570	20,905	38,388	19.38	1,981
1984	33,706.37	21,776	13,977	26,471	19.85	1,334
1985	67,792.96	42,908	27,540	53,812	20.32	2,648
1986	428,037.74	265,303	170,281	343,364	20.79	16,516
1987	132,910.16	80,563	51,708	107,784	21.28	5,065
1988	15,466.63	9,168	5,884	12,676	21.76	583
1989	80,795.92	46,787	30,030	66,925	22.25	3,008
1990	103,347.08	58,403	37,485	86,531	22.75	3,804
1991	20,640.23	11,376	7,302	17,466	23.25	751
1993	28,614.77	14,957	9,600	24,738	24.27	1,019
1994	1,397.71	710	456	1,221	24.79	49

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 378 MEASURING AND REGULATING STATION EQUIPMENT - GENERAL

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 43-S0						
NET SALVAGE PERCENT.. -20						
1995	71,515.41	35,306	22,661	63,157	25.31	2,495
1996	94,483.38	45,247	29,041	84,339	25.84	3,264
1997	104,834.55	48,624	31,209	94,592	26.38	3,586
1998	191,697.41	85,969	55,178	174,859	26.93	6,493
1999	36,963.49	16,009	10,275	34,081	27.48	1,240
2000	644,094.01	268,904	172,592	600,321	28.04	21,409
2001	60,698.46	24,375	15,645	57,193	28.61	1,999
2002	53,933.64	20,786	13,341	51,379	29.19	1,760
2003	477,954.02	176,331	113,175	460,370	29.78	15,459
2004	447,868.63	157,734	101,239	436,203	30.38	14,358
2005	763,993.13	256,060	164,348	752,444	30.99	24,280
2006	294,994.91	93,766	60,182	293,812	31.61	9,295
2007	156,925.72	47,121	30,244	158,067	32.24	4,903
2008	205,435.46	58,019	37,239	209,284	32.88	6,365
2009	1,024,996.72	270,599	173,680	1,056,316	33.54	31,494
2010	1,209,234.15	296,630	190,387	1,260,694	34.21	36,852
2011	1,327,645.06	300,106	192,618	1,400,556	34.90	40,131
2012	2,450,646.23	506,078	324,818	2,615,957	35.60	73,482
2013	2,159,224.52	402,523	258,353	2,332,716	36.32	64,227
2014	1,811,847.22	300,346	192,772	1,981,445	37.06	53,466
2015	1,476,757.37	213,061	136,750	1,635,359	37.83	43,229
2016	3,222,756.00	394,813	253,405	3,613,902	38.61	93,600
2017	608,991.47	60,846	39,053	691,737	39.42	17,548
2018	6,124,269.85	468,286	300,562	7,048,562	40.26	175,076
2019	3,199,178.18	166,959	107,160	3,731,854	41.13	90,733
2020	6,974,294.14	231,574	148,632	8,220,521	41.81	196,616
2021	380,303.22		0	456,363	43.00	10,613
	37,392,289.18	6,246,047	4,008,930	40,861,817		1,126,401

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 36.3 3.01

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 379 MEASURING AND REGULATING STATION EQUIPMENT - CITY GATE

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 37-S0						
NET SALVAGE PERCENT.. -40						
1950	708.19	962	580	411	1.10	374
1953	420.78	554	334	255	2.21	115
1954	323.54	421	254	199	2.58	77
1956	411.91	525	316	261	3.33	78
1957	2,153.38	2,712	1,635	1,380	3.71	372
1958	12,280.48	15,292	9,217	7,976	4.09	1,950
1960	8,189.45	9,962	6,004	5,461	4.85	1,126
1961	1,475.22	1,773	1,069	996	5.23	190
1962	11,390.26	13,524	8,151	7,795	5.62	1,387
1963	58,696.86	68,828	41,483	40,693	6.01	6,771
1964	6,655.51	7,706	4,644	4,674	6.40	730
1965	50,631.07	57,876	34,882	36,001	6.79	5,302
1967	35,508.36	39,528	23,824	25,888	7.58	3,415
1968	28,012.68	30,759	18,538	20,680	7.98	2,591
1969	24,888.39	26,952	16,244	18,600	8.38	2,220
1970	929.64	993	598	703	8.78	80
1971	3,156.23	3,322	2,002	2,417	9.18	263
1972	1,954.47	2,027	1,222	1,514	9.59	158
1973	93.23	95	57	74	10.00	7
1974	4,238.90	4,265	2,571	3,363	10.41	323
1976	8,333.46	8,120	4,894	6,773	11.25	602
1977	651.27	624	376	536	11.67	46
1979	4,445.55	4,118	2,482	3,742	12.52	299
1980	261.34	238	143	223	12.95	17
1982	108,005.76	94,730	57,094	94,114	13.82	6,810
1983	5,676.16	4,882	2,942	5,005	14.27	351
1984	21,462.87	18,102	10,910	19,138	14.71	1,301
1985	348.10	288	174	313	15.16	21
1987	3,569.96	2,827	1,704	3,294	16.07	205
1989	7,739.66	5,857	3,530	7,306	17.00	430
1990	2,816.07	2,081	1,254	2,688	17.47	154
1991	94,309.28	67,979	40,971	91,062	17.95	5,073
1994	1,463.57	974	587	1,462	19.41	75
1995	983.91	636	383	994	19.91	50
1997	862.53	524	316	892	20.93	43
1998	570,920.31	335,917	202,458	596,830	21.45	27,824
1999	25,049.52	14,236	8,580	26,489	21.98	1,205
2000	51,825.15	28,414	17,125	55,430	22.51	2,462
2001	589,345.06	310,858	187,355	637,728	23.06	27,655
2002	8,888.31	4,503	2,714	9,730	23.61	412
2003	714,292.32	346,763	208,995	791,014	24.17	32,727

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 379 MEASURING AND REGULATING STATION EQUIPMENT - CITY GATE

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 37-S0						
NET SALVAGE PERCENT.. -40						
2004	164,874.15	76,483	46,096	184,728	24.74	7,467
2005	98,751.92	43,644	26,304	111,949	25.32	4,421
2006	34,271.43	14,368	8,660	39,320	25.92	1,517
2008	50,372.19	18,793	11,327	59,194	27.14	2,181
2009	105,799.10	36,950	22,270	125,849	27.77	4,532
2010	206,918.71	67,175	40,486	249,200	28.42	8,768
2011	232,229.99	69,592	41,943	283,179	29.08	9,738
2012	322,517.42	88,354	53,251	398,273	29.76	13,383
2013	1,874,866.96	464,671	280,058	2,344,756	30.45	77,003
2014	873,959.13	192,794	116,197	1,107,346	31.17	35,526
2015	94,353.91	18,172	10,952	121,143	31.91	3,796
2016	677,087.18	110,935	66,861	881,061	32.67	26,969
2017	4,937,809.86	659,563	397,520	6,515,414	33.47	194,664
2018	1,381,956.58	141,700	85,403	1,849,336	34.29	53,932
2019	169,454.84	11,926	7,188	230,049	35.14	6,547
2020	649,559.56	29,000	17,478	891,905	35.82	24,900
2021	1,463,620.88		0	2,049,069	37.00	55,380
	15,811,772.52	3,584,867	2,160,606	19,975,875		666,015

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 30.0 4.21

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 380 SERVICES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 46-S0						
NET SALVAGE PERCENT.. -55						
1947	302.33	400	469			
1948	95.66	125	148			
1949	323.10	419	499	2	7.51	
1950	957.48	1,229	1,462	22	7.90	3
1951	11,640.46	14,791	17,601	442	8.29	53
1952	1,737.22	2,185	2,600	93	8.68	11
1953	4,109.79	5,113	6,084	286	9.08	31
1954	7,737.13	9,524	11,333	660	9.47	70
1955	12,754.34	15,527	18,477	1,292	9.87	131
1956	12,356.61	14,877	17,703	1,450	10.27	141
1958	39,775.93	46,802	55,693	5,960	11.08	538
1959	4,219.13	4,908	5,840	700	11.48	61
1960	12,760.28	14,666	17,452	2,326	11.89	196
1961	186,491.83	211,770	252,002	37,060	12.30	3,013
1962	426,577.32	478,507	569,414	91,781	12.71	7,221
1963	264,340.09	292,779	348,401	61,326	13.13	4,671
1964	434,914.78	475,691	566,063	108,055	13.54	7,980
1965	440,865.06	475,961	566,384	116,957	13.96	8,378
1966	239,031.38	254,677	303,060	67,439	14.38	4,690
1967	342,336.23	359,782	428,133	102,488	14.81	6,920
1968	499,368.29	517,750	616,112	157,909	15.23	10,368
1969	483,014.95	493,802	587,614	161,059	15.66	10,285
1970	551,012.79	555,333	660,835	193,235	16.09	12,010
1971	807,763.45	802,391	954,829	297,204	16.52	17,991
1972	830,625.20	812,779	967,190	320,279	16.96	18,884
1973	979,934.23	944,360	1,123,769	395,129	17.40	22,709
1974	429,422.28	407,463	484,873	180,732	17.84	10,131
1975	394,880.76	368,702	438,748	173,317	18.29	9,476
1976	344,170.18	316,136	376,195	157,269	18.74	8,392
1977	487,080.00	440,021	523,616	231,358	19.19	12,056
1978	415,918.49	369,288	439,445	205,229	19.65	10,444
1979	574,535.48	501,404	596,661	293,869	20.10	14,620
1980	1,034,434.34	886,393	1,054,790	548,583	20.57	26,669
1981	1,137,513.08	957,088	1,138,915	624,230	21.03	29,683
1982	1,029,383.73	849,803	1,011,248	584,297	21.50	27,177
1983	1,218,331.92	986,073	1,173,407	715,007	21.98	32,530
1984	1,402,391.37	1,112,373	1,323,701	850,006	22.46	37,845
1985	1,525,224.13	1,185,122	1,410,271	953,826	22.94	41,579
1986	1,914,466.89	1,455,966	1,732,570	1,234,854	23.43	52,704
1987	2,625,163.09	1,953,121	2,324,174	1,744,829	23.92	72,944
1988	2,772,538.27	2,016,055	2,399,064	1,898,370	24.42	77,738

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 380 SERVICES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 46-S0						
NET SALVAGE PERCENT.. -55						
1989	2,590,123.90	1,839,773	2,189,292	1,825,400	24.92	73,250
1990	3,017,482.43	2,091,458	2,488,792	2,188,306	25.43	86,052
1991	4,527,716.78	3,060,463	3,641,889	3,376,072	25.94	130,149
1992	5,427,790.57	3,573,706	4,252,637	4,160,438	26.46	157,235
1993	5,825,505.44	3,733,531	4,442,826	4,586,707	26.98	170,004
1994	3,330,755.11	2,075,187	2,469,430	2,693,240	27.51	97,900
1995	3,846,141.54	2,326,304	2,768,254	3,193,265	28.05	113,842
1996	4,620,612.57	2,710,655	3,225,624	3,936,325	28.59	137,682
1997	3,654,892.82	2,076,367	2,470,834	3,194,250	29.14	109,617
1998	3,319,027.06	1,822,951	2,169,275	2,975,217	29.70	100,176
1999	8,124,527.83	4,308,953	5,127,566	7,465,452	30.26	246,710
2000	7,268,113.32	3,712,796	4,418,152	6,847,424	30.84	222,031
2001	2,470,800.36	1,213,875	1,444,487	2,385,254	31.42	75,915
2002	4,512,420.94	2,127,162	2,531,279	4,462,973	32.01	139,424
2003	7,047,656.90	3,179,829	3,783,932	7,139,936	32.61	218,949
2004	4,351,971.59	1,874,118	2,230,162	4,515,394	33.22	135,924
2005	6,399,044.01	2,621,960	3,120,079	6,798,439	33.84	200,899
2006	105,217.72	40,878	48,644	114,443	34.47	3,320
2007	9,590,536.30	3,515,948	4,183,906	10,681,425	35.12	304,141
2008	5,786,956.40	1,994,790	2,373,759	6,596,023	35.77	184,401
2009	28,521,763.94	9,187,901	10,933,415	33,275,319	36.44	913,154
2010	1,716,265.73	513,527	611,087	2,049,125	37.12	55,203
2011	16,522,474.87	4,554,197	5,419,402	20,190,434	37.82	533,856
2012	19,724,031.15	4,957,902	5,899,802	24,672,446	38.54	640,178
2013	17,647,580.99	4,001,854	4,762,125	22,591,626	39.27	575,290
2014	27,354,350.74	5,511,902	6,559,051	35,840,193	40.02	895,557
2015	61,933,298.26	10,872,576	12,938,144	83,058,468	40.79	2,036,246
2016	42,095,751.06	6,269,720	7,460,839	57,787,575	41.58	1,389,793
2017	57,568,462.21	6,983,227	8,309,898	80,921,218	42.40	1,908,519
2018	18,732,103.94	1,735,698	2,065,445	26,969,316	43.25	623,568
2019	24,096,780.11	1,526,495	1,816,498	35,533,511	44.12	805,383
2020	28,041,766.62	1,124,433	1,338,052	42,126,686	44.81	940,118
2021	6,412,892.69		0	9,939,983	46.00	216,087
	470,085,314.97	127,751,292	152,021,422	576,610,816		15,040,916

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 38.3 3.20

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 381 METERS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 26-R2.5						
NET SALVAGE PERCENT.. -10						
1993	209,018.90	182,523	126,351	103,570	5.36	19,323
1994	1,062,019.62	908,970	629,232	538,990	5.77	93,412
1995	677,937.75	567,614	392,929	352,803	6.21	56,812
1996	1,196,999.20	977,899	676,948	639,751	6.69	95,628
1997	1,373,458.78	1,092,433	756,234	754,571	7.20	104,802
1998	439,775.80	339,745	235,188	248,565	7.74	32,114
1999	859,801.79	643,491	445,455	500,327	8.31	60,208
2000	1,085,856.59	785,119	543,497	650,945	8.91	73,058
2001	4,253,132.38	2,961,830	2,050,320	2,628,126	9.54	275,485
2002	264,253.38	176,756	122,359	168,320	10.19	16,518
2003	4,736,619.95	3,031,967	2,098,872	3,111,410	10.87	286,238
2004	437,081.86	266,838	184,718	296,072	11.57	25,590
2006	5,376,570.81	2,950,313	2,042,347	3,871,881	13.03	297,151
2007	1,137,695.57	587,225	406,505	844,960	13.80	61,229
2008	284,714.92	137,683	95,311	217,875	14.57	14,954
2009	3,860,716.35	1,736,299	1,201,949	3,044,839	15.37	198,103
2010	1,054,911.86	438,273	303,393	857,010	16.18	52,967
2011	3,681,486.41	1,400,242	969,314	3,080,321	17.01	181,089
2012	2,408,428.01	829,434	574,174	2,075,097	17.86	116,187
2013	2,174,895.19	669,868	463,714	1,928,671	18.72	103,027
2014	2,174,532.35	589,720	408,232	1,983,754	19.59	101,264
2015	2,347,839.72	549,298	380,250	2,202,374	20.47	107,590
2016	2,545,344.45	498,602	345,156	2,454,723	21.37	114,868
2017	5,266,001.90	828,806	573,739	5,218,863	22.28	234,240
2018	9,879,585.58	1,170,326	810,155	10,057,389	23.20	433,508
2019	3,357,181.28	267,034	184,854	3,508,045	24.12	145,441
2020	4,717,504.43	235,488	163,016	5,026,239	24.82	202,508
2021	1,612,076.78		0	1,773,285	26.00	68,203
	68,475,441.61	24,823,796	17,184,212	58,138,774		3,571,517

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 16.3 5.22

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 383 HOUSE REGULATORS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 31-S1.5						
NET SALVAGE PERCENT.. -10						
1998	87,907.95	57,396	50,584	46,115	12.60	3,660
2003	2,059,371.42	1,129,007	995,003	1,270,306	15.55	81,692
2004	18,468.30	9,686	8,536	11,779	16.22	726
2005	80,423.54	40,238	35,462	53,004	16.90	3,136
2006	3,798,461.59	1,803,399	1,589,351	2,588,957	17.62	146,933
2007	1,180,776.85	530,011	467,103	831,752	18.35	45,327
2008	2,787,571.51	1,175,109	1,035,633	2,030,696	19.12	106,208
2009	1,810,331.08	712,391	627,836	1,363,528	19.91	68,485
2010	4,540,379.89	1,656,199	1,459,622	3,534,796	20.72	170,598
2011	5,947,817.69	1,992,352	1,755,877	4,786,722	21.56	222,019
2012	1,806,635.72	550,025	484,742	1,502,557	22.42	67,019
2014	699,408.99	168,265	148,293	621,057	24.22	25,642
2015	770,091.70	160,127	141,121	705,980	25.14	28,082
2016	605,810.51	105,550	93,022	573,370	26.09	21,977
2017	756,460.05	106,027	93,443	738,663	27.05	27,307
2018	275,647.42	29,148	25,688	277,524	28.02	9,904
2019	263,156.49	18,581	16,376	273,096	29.01	9,414
2020	128,636.95	5,705	5,028	136,473	29.75	4,587
	27,617,357.65	10,249,216	9,032,720	21,346,373		1,042,716

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 20.5 3.78

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 385 INDUSTRIAL MEASURING AND REGULATING STATION EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 45-S1.5						
NET SALVAGE PERCENT.. -5						
1957	431.10	385	358	95	6.73	14
1960	7,073.43	6,178	5,747	1,680	7.57	222
1964	7,102.05	6,007	5,588	1,869	8.75	214
1968	18,406.00	15,019	13,972	5,354	10.03	534
1969	4,902.00	3,962	3,686	1,461	10.36	141
1970	7,573.75	6,062	5,640	2,312	10.70	216
1972	101.06	79	73	33	11.41	3
1974	10,965.53	8,405	7,819	3,695	12.15	304
1983	4,519.00	3,062	2,849	1,896	15.96	119
1990	2,094.65	1,241	1,155	1,044	19.61	53
2005	16,560.23	5,777	5,374	12,014	30.05	400
2009	11,863.75	3,186	2,964	9,493	33.49	283
2010	800,664.97	198,220	184,407	656,291	34.39	19,084
2014	16,362.36	2,631	2,448	14,732	38.11	387
2019	272,842.86	12,731	11,844	274,641	43.00	6,387
2020	413,282.85	12,055	11,215	422,732	43.75	9,662
2021	236,448.40			248,271	45.00	5,517
	1,831,193.99	285,000	265,139	1,657,615		43,540

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 38.1 2.38

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 387 OTHER EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 42-R2.5						
NET SALVAGE PERCENT.. 0						
1953	8,948.41	8,386	7,112	1,836	2.64	695
1987	4,390.75	2,891	2,452	1,939	14.35	135
1988	43.00	28	24	19	14.97	1
1999	630.65	289	245	386	22.76	17
2000	33,691.23	14,808	12,558	21,133	23.54	898
2002	3,408.30	1,368	1,160	2,248	25.14	89
2020	1,004,597.57	28,229	23,939	980,659	40.82	24,024
2021	770,188.31			770,188	42.00	18,338
	1,825,898.22	55,999	47,490	1,778,408		44,197

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 40.2 2.42

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 392 TRANSPORTATION EQUIPMENT - CARS AND LIGHT TRUCKS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR	ORIGINAL COST	CALCULATED ACCRUED	ALLOC. BOOK RESERVE	FUTURE BOOK ACCRUALS	REM. LIFE	ANNUAL ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
SURVIVOR CURVE.. IOWA 10-S2						
NET SALVAGE PERCENT.. 0						
2010	12,617.94	9,892	8,407	4,211	2.16	1,950
2016	28,322.78	13,170	11,193	17,130	5.35	3,202
2017	46,461.92	17,841	15,163	31,299	6.16	5,081
	87,402.64	40,903	34,763	52,640		10,233

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 5.1 11.71

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 392.1 TRANSPORTATION EQUIPMENT - HEAVY TRUCKS AND OTHER

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 11-L3						
NET SALVAGE PERCENT.. 0						
1988	64,981.07	64,981	64,981			
1991	6,968.54	6,969	6,969			
1994	96,430.59	96,431	96,431			
2001	172,357.96	152,771	155,643	16,715	1.25	13,372
2010	109,987.48	76,991	78,438	31,549	3.30	9,560
2011	113,938.34	77,789	79,251	34,687	3.49	9,939
2012	108,091.77	71,242	72,581	35,511	3.75	9,470
2013	8,440.63	5,264	5,363	3,078	4.14	743
2014	64,881.44	37,219	37,919	26,962	4.69	5,749
2016	139,050.34	60,549	61,687	77,363	6.21	12,458
2017	272,763.87	96,708	98,527	174,237	7.10	24,540
2019	128,153.25	23,301	23,739	104,414	9.00	11,602
	1,286,045.28	770,215	781,529	504,516		97,433

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 5.2 7.58

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 392.2 TRANSPORTATION EQUIPMENT - TRAILERS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 17-S2						
NET SALVAGE PERCENT.. 0						
1990	1,637.94	1,585	1,401	237	0.55	237
2000	1,599.28	1,325	1,171	428	2.92	147
2004	50,703.04	37,848	33,453	17,250	4.31	4,002
2005	17,559.61	12,684	11,211	6,349	4.72	1,345
2006	5,274.52	3,674	3,247	2,028	5.16	393
2007	0.01					
2010	51,548.86	29,292	25,891	25,658	7.34	3,496
2011	47,954.94	25,388	22,440	25,515	8.00	3,189
2012	88,034.27	42,930	37,945	50,089	8.71	5,751
2013	22,307.17	9,868	8,722	13,585	9.48	1,433
2014	163,861.37	64,581	57,083	106,778	10.30	10,367
2015	10,164.26	3,486	3,081	7,083	11.17	634
2016	241,517.81	69,898	61,783	179,735	12.08	14,879
	702,163.08	302,559	267,428	434,735		45,873

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 9.5 6.53

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 394 TOOLS, SHOP AND GARAGE EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. 25-SQUARE						
NET SALVAGE PERCENT.. 0						
1997	61,102.73	58,659	59,105	1,998	1.00	1,998
1999	341,633.48	300,637	302,923	38,710	3.00	12,903
2000	464,381.10	390,080	393,046	71,335	4.00	17,834
2001	125,333.72	100,267	101,029	24,305	5.00	4,861
2002	32,467.98	24,676	24,864	7,604	6.00	1,267
2003	317,715.91	228,755	230,494	87,222	7.00	12,460
2004	165,137.39	112,293	113,147	51,990	8.00	6,499
2005	247,875.10	158,640	159,846	88,029	9.00	9,781
2006	90,928.58	54,557	54,972	35,957	10.00	3,596
2007	98,700.97	55,273	55,693	43,008	11.00	3,910
2008	31,925.95	16,601	16,727	15,199	12.00	1,267
2009	140,335.53	67,361	67,873	72,463	13.00	5,574
2010	340,141.82	149,662	150,800	189,342	14.00	13,524
2011	251,290.74	100,516	101,280	150,011	15.00	10,001
2012	823,993.71	296,638	298,894	525,100	16.00	32,819
2013	390,984.61	125,115	126,066	264,919	17.00	15,583
2014	764,049.57	213,934	215,561	548,489	18.00	30,472
2015	312,247.57	74,939	75,509	236,739	19.00	12,460
2016	652,488.74	130,498	131,490	520,999	20.00	26,050
2017	534,494.80	85,519	86,169	448,326	21.00	21,349
2018	792,166.22	95,060	95,783	696,383	22.00	31,654
2019	619,902.24	49,592	49,969	569,933	23.00	24,780
2020	315,191.77	15,760	15,880	299,312	23.75	12,603
2021	311,474.29		0	311,474	25.00	12,459
	8,225,964.52	2,905,032	2,927,120	5,298,844		325,704

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 16.3 3.96

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 396.1 POWER OPERATED EQUIPMENT - HOURLY RATED

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 15-L2.5						
NET SALVAGE PERCENT.. 0						
1993	1,563.85	1,308	1,564			
1994	13,963.38	11,524	13,963			
1997	56,437.49	44,398	56,174	263	3.20	82
1999	25,233.21	19,110	24,179	1,054	3.64	290
2002	6,387.56	4,535	5,738	650	4.35	149
2004	408,499.25	278,053	351,802	56,697	4.79	11,837
2005	180,184.87	120,243	152,135	28,050	4.99	5,621
2009	15,755.75	9,590	12,134	3,622	5.87	617
2010	12,727.88	7,450	9,426	3,302	6.22	531
2011	298,583.83	165,813	209,792	88,792	6.67	13,312
2012	151,208.13	78,527	99,355	51,853	7.21	7,192
2014	662,841.74	283,696	358,941	303,901	8.58	35,420
2015	199,258.69	74,656	94,457	104,802	9.38	11,173
2016	710,824.97	226,042	285,995	424,830	10.23	41,528
2017	632,285.63	163,130	206,397	425,889	11.13	38,265
2018	414,627.91	81,267	102,822	311,806	12.06	25,855
2019	211,190.82	27,877	35,271	175,920	13.02	13,512
2020	473,306.16	39,441	49,902	423,404	13.75	30,793
	4,474,881.12	1,636,660	2,070,047	2,404,834		236,177

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 10.2 5.28

LOUISVILLE GAS AND ELECTRIC COMPANY
GAS PLANT

ACCOUNT 396.2 POWER OPERATED EQUIPMENT - OTHER

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 24-L1.5						
NET SALVAGE PERCENT.. 0						
1985	3,174.15	2,218	2,795	379	7.23	52
1987	24,017.44	16,302	20,543	3,474	7.71	451
1988	3,704.44	2,476	3,120	584	7.96	73
1992	12,695.67	7,940	10,005	2,691	8.99	299
1997	4,363.43	2,491	3,139	1,224	10.30	119
2010	41,621.67	15,365	19,362	22,260	15.14	1,470
2011	15,607.60	5,365	6,761	8,847	15.75	562
2012	60,334.56	19,081	24,044	36,291	16.41	2,212
2013	35,451.06	10,177	12,824	22,627	17.11	1,322
2014	13,358.49	3,423	4,313	9,045	17.85	507
2017	89,239.74	13,795	17,383	71,857	20.29	3,541
2019	122,546.51	9,752	12,289	110,258	22.09	4,991
2020	619,444.76	30,972	39,029	580,416	22.80	25,457
2021	117,025.26			117,025	24.00	4,876
	1,162,584.78	139,357	175,607	986,978		45,932

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 21.5 3.95

LOUISVILLE GAS AND ELECTRIC COMPANY
COMMON PLANT

ACCOUNT 303 COMPUTER SOFTWARE

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. 5-SQUARE						
NET SALVAGE PERCENT.. 0						
2016	7,764,551.59	7,764,552	7,764,552			
2017	8,576,095.96	6,860,877	6,815,783	1,760,313	1.00	1,760,313
2018	12,875,804.84	7,725,483	7,674,706	5,201,099	2.00	2,600,550
2019	19,829,148.23	7,931,659	7,879,526	11,949,622	3.00	3,983,207
2020	23,318,487.52	5,829,622	5,791,306	17,527,182	3.75	4,673,915
2021	22,981,124.60		0	22,981,125	5.00	4,596,225
	95,345,212.74	36,112,193	35,925,873	59,419,340		17,614,210

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 3.4 18.47

LOUISVILLE GAS AND ELECTRIC COMPANY
COMMON PLANT

ACCOUNT 303.1 CCS SOFTWARE

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
GROUP 1 SOFTWARE						
SURVIVOR CURVE.. 10-SQUARE						
NET SALVAGE PERCENT.. 0						
2011	137,952.18	137,952	137,952			
	137,952.18	137,952	137,952			
GROUP 2 SOFTWARE						
INTERIM SURVIVOR CURVE.. SQUARE						
PROBABLE RETIREMENT YEAR.. 12-2027						
NET SALVAGE PERCENT.. 0						
2012	171,102.11	99,350	94,152	76,950	6.50	11,838
2013	1,121,581.88	618,799	586,425	535,157	6.50	82,332
2017	11,352,680.05	4,324,803	4,098,538	7,254,142	6.50	1,116,022
2019	257,975.24	60,699	57,523	200,452	6.50	30,839
2020	70,367.35	11,350	10,756	59,611	6.50	9,171
2021	213,750.03			213,750	6.50	32,885
	13,187,456.66	5,115,001	4,847,394	8,340,063		1,283,087
	13,325,408.84	5,252,953	4,985,346	8,340,063		1,283,087

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 6.5 9.63

LOUISVILLE GAS AND ELECTRIC COMPANY
COMMON PLANT

ACCOUNT 303.3 CLOUD SOFTWARE

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. 10-SQUARE						
NET SALVAGE PERCENT.. 0						
2020	1,714,180.28	214,273		1,714,180	8.75	195,906
	1,714,180.28	214,273		1,714,180		195,906
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..					8.8	11.43

LOUISVILLE GAS AND ELECTRIC COMPANY
COMMON PLANT

ACCOUNT 390.1 STRUCTURES AND IMPROVEMENTS - GENERAL OFFICE

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 40-S0.5						
NET SALVAGE PERCENT.. -10						
1983	213,415.98	145,374	162,442	72,316	15.23	4,748
1984	6,437,845.61	4,307,402	4,813,126	2,268,504	15.67	144,767
1985	1,795,188.95	1,178,901	1,317,314	657,394	16.12	40,781
1986	266,272.67	171,566	191,709	101,191	16.57	6,107
1988	27,664.00	17,117	19,127	11,303	17.50	646
1990	290,748.00	172,145	192,356	127,467	18.47	6,901
1991	434,338.64	251,308	280,814	196,959	18.96	10,388
1993	99,842.82	54,968	61,422	48,405	19.98	2,423
1994	10,415,555.81	5,585,342	6,241,107	5,216,004	20.50	254,439
1995	13,919,089.79	7,261,241	8,113,770	7,197,229	21.03	342,236
1997	26,885.45	13,212	14,763	14,811	22.13	669
1998	106,220.70	50,534	56,467	60,376	22.70	2,660
1999	1,831,858.92	842,792	941,743	1,073,302	23.27	46,124
2000	352,584.60	156,495	174,869	212,974	23.86	8,926
2002	1,011,742.70	415,118	463,856	649,061	25.08	25,880
2003	675,359.75	265,399	296,559	446,337	25.71	17,360
2004	654,263.07	245,594	274,429	445,260	26.35	16,898
2005	2,168,297.90	774,570	865,511	1,519,617	27.01	56,261
2006	644,103.13	218,222	243,843	464,670	27.68	16,787
2007	687,644.74	219,926	245,747	510,662	28.37	18,000
2008	4,292,813.54	1,289,132	1,440,487	3,281,608	29.08	112,848
2009	3,138,997.87	880,489	983,866	2,469,032	29.80	82,853
2010	1,343,049.01	349,394	390,416	1,086,938	30.54	35,591
2011	3,803,819.45	911,110	1,018,082	3,166,119	31.29	101,186
2012	1,578,349.20	344,199	384,611	1,351,573	32.07	42,144
2013	818,412.75	160,470	179,310	720,944	32.87	21,933
2014	902,885.82	156,922	175,346	817,828	33.68	24,282
2015	1,827,388.26	275,387	307,720	1,702,407	34.52	49,317
2016	2,171,349.93	276,467	308,926	2,079,559	35.37	58,794
2017	2,137,395.93	220,419	246,298	2,104,838	36.25	58,064
2018	5,750,815.88	450,720	503,638	5,822,259	37.15	156,723
2019	3,164,653.91	167,964	187,684	3,293,435	38.07	86,510
2020	27,756,039.11	931,215	1,040,547	29,491,096	38.78	760,472
2021	1,509,353.56		0	1,660,289	40.00	41,507
	102,254,247.45	28,761,114	32,137,905	80,341,767		2,655,225

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 30.3 2.60

LOUISVILLE GAS AND ELECTRIC COMPANY
COMMON PLANT

ACCOUNT 390.2 STRUCTURES AND IMPROVEMENTS - TRANSPORTATION

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 30-L1						
NET SALVAGE PERCENT.. -5						
1988	263,512.10	155,590	69,778	206,910	13.13	15,759
1991	7,300.00	4,075	1,827	5,838	14.05	416
1995	6,351.19	3,257	1,461	5,208	15.35	339
1998	1,382.80	659	296	1,156	16.39	71
2000	69,090.53	31,146	13,968	58,577	17.12	3,422
2003	18,752.40	7,705	3,455	16,235	18.26	889
2004	33,219.07	13,196	5,918	28,962	18.65	1,553
	399,608.09	215,628	96,703	322,885		22,449

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 14.4 5.62

LOUISVILLE GAS AND ELECTRIC COMPANY
COMMON PLANT

ACCOUNT 390.3 STRUCTURES AND IMPROVEMENTS - STORES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 55-R2.5						
NET SALVAGE PERCENT.. -10						
1948	1,629.73	1,561	1,793			
1960	88,038.56	78,055	96,842			
1961	1,319.26	1,160	1,451			
1962	40,136.62	34,975	44,150			
1963	745.67	644	820			
1964	26,623.88	22,758	29,286			
1965	0.41					
1966	223,999.35	187,532	246,399			
1968	10,756.04	8,801	11,832			
1970	101,963.00	81,366	110,390	1,769	15.10	117
1971	116,433.79	91,680	124,383	3,694	15.63	236
1972	2,977.87	2,312	3,137	139	16.18	9
1973	33,129.08	25,351	34,394	2,048	16.74	122
1974	40,385.23	30,442	41,301	3,123	17.31	180
1975	7,351.00	5,454	7,399	687	17.90	38
1976	30,092.64	21,968	29,804	3,298	18.50	178
1977	39,478.87	28,338	38,446	4,981	19.11	261
1978	64,360.65	45,387	61,577	9,220	19.74	467
1979	85,956.59	59,516	80,746	13,806	20.38	677
1980	29,771.95	20,227	27,442	5,307	21.03	252
1981	47,899.20	31,911	43,294	9,395	21.69	433
1982	218,649.66	142,690	193,588	46,927	22.37	2,098
1983	25,324.52	16,182	21,954	5,903	23.05	256
1984	15,541.72	9,714	13,179	3,917	23.75	165
1985	799.00	488	662	217	24.45	9
1986	4,978,439.94	2,970,117	4,029,570	1,446,714	25.17	57,478
1987	191,999.00	111,781	151,654	59,545	25.89	2,300
1988	361,751.50	205,259	278,476	119,451	26.63	4,486
1989	81,512.94	45,044	61,111	28,553	27.37	1,043
1991	4,550.00	2,376	3,224	1,781	28.89	62
1993	10,683.00	5,248	7,120	4,631	30.44	152
1994	2,090.00	994	1,349	950	31.22	30
1995	92,623.87	42,570	57,755	44,131	32.02	1,378
1996	16,037.20	7,111	9,648	7,993	32.83	243
1997	542,034.43	231,555	314,151	282,087	33.64	8,385
1998	26,320.70	10,812	14,669	14,284	34.46	415
1999	1,196,499.56	471,905	640,235	675,915	35.28	19,159
2001	30,771.17	11,102	15,062	18,786	36.96	508
2002	8,828.80	3,035	4,118	5,594	37.81	148
2006	23,335.76	6,408	8,694	16,975	41.27	411
2009	35,062.67	7,763	10,532	28,037	43.93	638

LOUISVILLE GAS AND ELECTRIC COMPANY
COMMON PLANT

ACCOUNT 390.3 STRUCTURES AND IMPROVEMENTS - STORES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 55-R2.5						
NET SALVAGE PERCENT.. -10						
2010	119,202.74	24,246	32,895	98,228	44.83	2,191
2013	766,511.42	114,206	154,943	688,220	47.55	14,474
2017	146,912.03	11,047	14,987	146,616	51.24	2,861
2018	188,681.70	10,641	14,437	193,113	52.18	3,701
2019	300,140.68	11,344	15,390	314,765	53.11	5,927
2020	131,603.87	3,105	4,213	140,551	53.82	2,612
	10,508,957.27	5,256,181	7,108,502	4,451,351		134,100
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..					33.2	1.28

LOUISVILLE GAS AND ELECTRIC COMPANY
COMMON PLANT

ACCOUNT 390.4 STRUCTURES AND IMPROVEMENTS - SHOPS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 45-R1						
NET SALVAGE PERCENT.. -10						
1900	22,106.14	24,317	24,317			
1906	5,314.00	5,845	5,845			
1939	143.03	148	155	2	2.79	1
1961	294.00	251	262	61	10.03	6
1964	57,176.34	47,226	49,390	13,504	11.21	1,205
1970	39,566.80	30,234	31,619	11,904	13.74	866
1972	731.63	543	568	237	14.64	16
1973	456.06	333	348	154	15.10	10
1980	32,652.53	21,128	22,096	13,822	18.53	746
1981	380.00	241	252	166	19.05	9
1984	4,338.55	2,581	2,699	2,073	20.66	100
1990	760.83	389	407	430	24.08	18
1992	1,262.14	608	636	752	25.28	30
2002	7,771.55	2,532	2,648	5,901	31.67	186
2003	114,332.94	35,382	37,003	88,763	32.34	2,745
2005	81,535.18	22,562	23,596	66,093	33.68	1,962
2007	14,388.56	3,503	3,663	12,164	35.04	347
2009	46,083.39	9,665	10,108	40,584	36.42	1,114
2011	57,039.17	10,025	10,484	52,259	37.81	1,382
2013	176,220.00	24,942	26,085	167,757	39.21	4,278
2014	21,096.37	2,620	2,740	20,466	39.92	513
2019	353,078.49	12,774	13,359	375,027	43.52	8,617
	1,036,727.70	257,849	268,280	872,120		24,151

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 36.1 2.33

LOUISVILLE GAS AND ELECTRIC COMPANY
COMMON PLANT

ACCOUNT 390.6 STRUCTURES AND IMPROVEMENTS - MICROWAVE

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 55-R4						
NET SALVAGE PERCENT.. -5						
1958	3,595.10	3,426	3,775			
1960	10,711.00	10,079	11,247			
1961	3,163.00	2,956	3,321			
1963	370.00	341	388			
1965	3,836.00	3,471	4,028			
1967	1,335.00	1,184	1,386	16	8.53	2
1970	9,240.04	7,912	9,262	440	10.15	43
1985	1,012.66	661	774	289	20.80	14
1987	1,675.72	1,041	1,219	541	22.46	24
1990	506.10	290	339	192	25.03	8
1993	52,453.00	27,327	31,988	23,088	27.71	833
2000	533,507.00	211,340	247,391	312,791	34.25	9,133
2001	3,570.75	1,348	1,578	2,171	35.22	62
2002	68,104.00	24,469	28,643	42,866	36.18	1,185
2005	160,656.37	48,736	57,049	111,640	39.11	2,855
2008	50,133.90	12,385	14,498	38,143	42.06	907
2009	27,234.52	6,213	7,273	21,323	43.05	495
2011	145,795.12	27,750	32,483	120,602	45.03	2,678
2015	22,809.19	2,608	3,053	20,897	49.01	426
	1,099,708.47	393,537	459,695	694,999		18,665

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 37.2 1.70

LOUISVILLE GAS AND ELECTRIC COMPANY
COMMON PLANT

ACCOUNT 391.1 OFFICE FURNITURE AND EQUIPMENT - FURNITURE

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. 20-SQUARE						
NET SALVAGE PERCENT.. 0						
2001	128,093.04	128,093	128,093			
2002	83,335.04	79,168	83,335			
2003	231,329.82	208,197	231,330			
2004	310,207.75	263,677	310,208			
2005	253,803.99	203,043	253,804			
2006	240,714.52	180,536	240,715			
2007	355,854.78	249,098	355,855			
2008	252,241.05	163,957	252,241			
2009	105,131.14	63,079	105,131			
2010	215,754.40	118,665	215,754			
2011	33,112.97	16,556	33,113			
2012	130,866.52	58,890	129,698	1,169	11.00	106
2013	905,434.84	362,174	797,644	107,791	12.00	8,983
2014	464,069.22	162,424	357,719	106,350	13.00	8,181
2015	532,866.39	159,860	352,072	180,794	14.00	12,914
2016	583,664.02	145,916	321,362	262,302	15.00	17,487
2017	915,391.14	183,078	403,207	512,184	16.00	32,012
2018	859,993.01	128,999	284,105	575,888	17.00	33,876
2019	735,834.90	73,583	162,058	573,777	18.00	31,876
2020	709,099.30	44,319	97,607	611,492	18.75	32,613
	8,046,797.84	2,993,312	5,115,051	2,931,747		178,048

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 16.5 2.21

LOUISVILLE GAS AND ELECTRIC COMPANY
COMMON PLANT

ACCOUNT 391.2 OFFICE FURNITURE AND EQUIPMENT - EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. 15-SQUARE						
NET SALVAGE PERCENT.. 0						
2002	135,769.88	135,770	135,770			
2003	91,975.60	91,976	91,976			
2004	73,131.57	73,132	73,132			
2005	98,246.54	98,247	98,247			
2006	45,462.27	45,462	45,462			
2007	135,774.66	126,723	135,775			
2008	102,600.25	88,921	100,125	2,475	2.00	1,238
2010	24,384.81	17,882	20,135	4,250	4.00	1,062
2012	2,659.54	1,596	1,797	863	6.00	144
2013	90,413.02	48,220	54,296	36,117	7.00	5,160
2014	40,536.44	18,917	21,301	19,235	8.00	2,404
2015	20,134.73	8,054	9,069	11,066	9.00	1,230
2016	19,036.71	6,346	7,146	11,891	10.00	1,189
2017	112,503.20	30,001	33,781	78,722	11.00	7,157
2018	103,694.15	20,739	23,352	80,342	12.00	6,695
2019	140,643.46	18,752	21,115	119,528	13.00	9,194
2021	48,022.00			48,022	15.00	3,201
	1,284,988.83	830,738	872,479	412,510		38,674

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 10.7 3.01

LOUISVILLE GAS AND ELECTRIC COMPANY
COMMON PLANT

ACCOUNT 391.3 OFFICE FURNITURE AND EQUIPMENT - COMPUTER EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR	ORIGINAL COST	CALCULATED ACCRUED	ALLOC. BOOK RESERVE	FUTURE BOOK ACCRUALS	REM. LIFE	ANNUAL ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
SURVIVOR CURVE.. 5-SQUARE						
NET SALVAGE PERCENT.. 0						
2016	1,966,280.19	1,966,280	1,966,280			
2017	4,343,630.98	3,474,905	2,549,802	1,793,829	1.00	1,793,829
2018	4,716,637.89	2,829,983	2,076,574	2,640,064	2.00	1,320,032
2019	9,327,479.21	3,730,992	2,737,713	6,589,766	3.00	2,196,589
2020	4,839,629.31	1,209,907	887,801	3,951,828	3.75	1,053,821
2021	662,499.99		0	662,500	5.00	132,500
	25,856,157.57	13,212,067	10,218,170	15,637,988		6,496,771

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 2.4 25.13

LOUISVILLE GAS AND ELECTRIC COMPANY
COMMON PLANT

ACCOUNT 391.31 OFFICE FURNITURE AND EQUIPMENT - PERSONAL COMPUTER

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR	ORIGINAL COST	CALCULATED ACCRUED	ALLOC. BOOK RESERVE	FUTURE BOOK ACCRUALS	REM. LIFE	ANNUAL ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
SURVIVOR CURVE.. 4-SQUARE						
NET SALVAGE PERCENT.. 0						
2017	1,673,248.72	1,673,249	1,673,249			
2018	1,456,810.28	1,092,608	884,360	572,450	1.00	572,450
2019	3,115,246.17	1,557,623	1,260,745	1,854,501	2.00	927,250
2020	1,202,210.67	375,691	304,085	898,126	2.75	326,591
2021	78,834.00		0	78,834	4.00	19,708
	7,526,349.84	4,699,171	4,122,439	3,403,910		1,845,999

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 1.8 24.53

LOUISVILLE GAS AND ELECTRIC COMPANY
COMMON PLANT

ACCOUNT 391.4 OFFICE FURNITURE AND EQUIPMENT - SECURITY EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. 10-SQUARE						
NET SALVAGE PERCENT.. 0						
2006	40,690.82	40,691	40,691			
2007	239,496.27	239,496	239,496			
2008	97,170.99	97,171	97,171			
2010	151,728.76	151,729	151,729			
2011	110,523.31	110,523	110,523			
2013	17,085.70	13,669	13,441	3,645	2.00	1,822
2014	232,553.04	162,787	160,075	72,478	3.00	24,159
2016	10,108.25	5,054	4,970	5,138	5.00	1,028
2019	2,168.79	434	427	1,742	8.00	218
2020	382,282.82	47,785	46,989	335,294	8.75	38,319
	1,283,808.75	869,339	865,512	418,297		65,546

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 6.4 5.11

LOUISVILLE GAS AND ELECTRIC COMPANY
COMMON PLANT

ACCOUNT 392 TRANSPORTATION EQUIPMENT - CARS AND LIGHT TRUCKS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 9-S2.5						
NET SALVAGE PERCENT.. 0						
2017	8,649.60	3,719	2,540	6,110	5.13	1,191
2018	17,386.56	5,718	3,906	13,481	6.04	2,232
2019	23,552.93	5,208	3,557	19,996	7.01	2,852
2020	121,126.04	16,823	11,492	109,634	7.75	14,146
	170,715.13	31,468	21,495	149,220		20,421

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 7.3 11.96

LOUISVILLE GAS AND ELECTRIC COMPANY
COMMON PLANT

ACCOUNT 392.1 TRANSPORTATION EQUIPMENT - HEAVY TRUCKS AND OTHER

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 13-S1						
NET SALVAGE PERCENT.. 0						
2011	112,868.01	64,769	99,867	13,001	5.54	2,347
2012	71,716.02	38,286	59,033	12,683	6.06	2,093
2017	38,030.75	10,707	16,509	21,522	9.34	2,304
2018	36,903.55	8,034	12,387	24,517	10.17	2,411
	259,518.33	121,796	187,796	71,722		9,155

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 7.8 3.53

LOUISVILLE GAS AND ELECTRIC COMPANY
COMMON PLANT

ACCOUNT 392.2 TRANSPORTATION EQUIPMENT - TRAILERS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR	ORIGINAL COST	CALCULATED ACCRUED	ALLOC. BOOK RESERVE	FUTURE BOOK ACCRUALS	REM. LIFE	ANNUAL ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
SURVIVOR CURVE.. IOWA 26-S0						
NET SALVAGE PERCENT.. 0						
2010	28,059.22	8,698	5,421	22,638	17.94	1,262
2017	38,564.45	5,058	3,152	35,412	22.59	1,568
2019	4,823.43	338	211	4,612	24.18	191
	71,447.10	14,094	8,784	62,663		3,021

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 20.7 4.23

LOUISVILLE GAS AND ELECTRIC COMPANY
COMMON PLANT

ACCOUNT 393 STORES EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. 25-SQUARE						
NET SALVAGE PERCENT.. 0						
2009	25,140.50	12,067	11,638	13,502	13.00	1,039
2010	13,234.95	5,823	5,616	7,619	14.00	544
2011	18,326.34	7,331	7,070	11,256	15.00	750
2012	121,083.00	43,590	42,040	79,043	16.00	4,940
2013	107,225.89	34,312	33,092	74,134	17.00	4,361
2014	113,858.46	31,880	30,746	83,112	18.00	4,617
2015	19,238.12	4,617	4,453	14,785	19.00	778
2016	4,257.14	851	821	3,436	20.00	172
2018	228,461.60	27,415	26,440	202,022	22.00	9,183
2019	5,996.21	480	463	5,533	23.00	241
2020	1,237,061.42	61,853	59,653	1,177,408	23.75	49,575
	1,893,883.63	230,219	222,032	1,671,852		76,200

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 21.9 4.02

LOUISVILLE GAS AND ELECTRIC COMPANY
COMMON PLANT

ACCOUNT 394 TOOLS, SHOP AND GARAGE EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. 25-SQUARE						
NET SALVAGE PERCENT.. 0						
1997	66,557.30	63,895	63,857	2,700	1.00	2,700
1998	88,199.73	81,144	81,096	7,104	2.00	3,552
1999	121,348.00	106,786	106,722	14,626	3.00	4,875
2000	315,891.49	265,349	265,191	50,700	4.00	12,675
2001	346,825.04	277,460	277,294	69,531	5.00	13,906
2002	260,877.56	198,267	198,149	62,729	6.00	10,455
2003	1,016,987.43	732,231	731,793	285,194	7.00	40,742
2004	159,776.78	108,648	108,583	51,194	8.00	6,399
2005	103,031.86	65,940	65,901	37,131	9.00	4,126
2006	127,724.69	76,635	76,589	51,136	10.00	5,114
2007	127,136.15	71,196	71,153	55,983	11.00	5,089
2008	3,454.86	1,797	1,796	1,659	12.00	138
2010	89,848.90	39,534	39,510	50,339	14.00	3,596
2011	96,948.10	38,779	38,756	58,192	15.00	3,879
2012	91,264.87	32,855	32,835	58,430	16.00	3,652
2013	55,160.55	17,651	17,641	37,520	17.00	2,207
2014	111,062.87	31,098	31,080	79,983	18.00	4,444
2015	3,342.70	802	802	2,541	19.00	134
2016	110,227.23	22,045	22,032	88,195	20.00	4,410
2017	123,368.72	19,739	19,727	103,642	21.00	4,935
2018	144,052.69	17,286	17,275	126,778	22.00	5,763
2019	203,766.36	16,301	16,291	187,475	23.00	8,151
2020	257,957.65	12,898	12,891	245,067	23.75	10,319
2021	21,383.73		0	21,384	25.00	855
	4,046,195.26	2,298,336	2,296,964	1,749,232		162,116

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 10.8 4.01

LOUISVILLE GAS AND ELECTRIC COMPANY
COMMON PLANT

ACCOUNT 396.1 POWER OPERATED EQUIPMENT - LARGE MACHINERY

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 26-S2						
NET SALVAGE PERCENT.. 0						
1987	20,803.36	17,667	19,715	1,088	3.92	278
1988	24,389.53	20,440	22,810	1,580	4.21	375
1991	54,006.73	43,330	48,354	5,653	5.14	1,100
1994	65,342.35	49,761	55,530	9,812	6.20	1,583
2009	17,605.81	7,659	8,547	9,059	14.69	617
2010	16,830.36	6,790	7,577	9,253	15.51	597
2015	26,965.78	6,171	6,887	20,079	20.05	1,001
2017	199,014.40	30,541	34,082	164,932	22.01	7,494
2018	132,924.30	15,337	17,115	115,809	23.00	5,035
2019	60,354.85	4,642	5,180	55,175	24.00	2,299
2020	72,638.49	3,492	3,897	68,741	24.75	2,777
	690,875.96	205,830	229,694	461,182		23,156

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 19.9 3.35

LOUISVILLE GAS AND ELECTRIC COMPANY
COMMON PLANT

ACCOUNT 396.2 POWER OPERATED EQUIPMENT - OTHER

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR	ORIGINAL COST	CALCULATED ACCRUED	ALLOC. BOOK RESERVE	FUTURE BOOK ACCRUALS	REM. LIFE	ANNUAL ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
SURVIVOR CURVE.. IOWA 24-L2.5						
NET SALVAGE PERCENT.. 0						
1988	14,147.08	10,410	13,148	999	6.34	158
2019	15,250.41	1,265	1,598	13,652	22.01	620
2020	23,000.00	1,198	1,513	21,487	22.75	944
	52,397.49	12,873	16,259	36,138		1,722

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 21.0 3.29

LOUISVILLE GAS AND ELECTRIC COMPANY
COMMON PLANT

ACCOUNT 397 COMMUNICATION EQUIPMENT - MICROWAVE, FIBER AND OTHER

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 20-L2.5						
NET SALVAGE PERCENT.. 0						
1993	51,737.32	38,363	51,737			
1994	458,908.15	335,003	458,908			
1996	107,093.18	75,608	107,093			
1997	319,442.07	221,853	319,442			
1998	165,606.43	113,275	165,606			
1999	75,350.11	50,786	75,350			
2002	2,745,527.18	1,772,238	2,745,527			
2004	300,406.97	187,304	300,407			
2005	1,850,374.74	1,126,878	1,850,375			
2007	430,388.32	245,752	430,388			
2008	777,778.02	425,445	777,778			
2009	859,091.85	445,869	859,092			
2010	882,566.09	430,251	882,566			
2011	548,899.73	248,652	548,900			
2012	607,513.31	252,118	564,030	43,483	11.70	3,716
2013	507,011.53	190,129	425,351	81,661	12.50	6,533
2014	1,023,529.77	340,324	761,362	262,168	13.35	19,638
2015	288,072.86	83,109	185,929	102,144	14.23	7,178
2016	6,485,126.20	1,575,886	3,525,523	2,959,603	15.14	195,482
2017	523,827.81	102,932	230,276	293,552	16.07	18,267
2018	1,507,567.28	223,874	500,844	1,006,723	17.03	59,115
2019	369,107.77	36,726	82,162	286,946	18.01	15,933
2020	507,374.01	31,711	70,943	436,431	18.75	23,276
	21,392,300.70	8,554,086	15,919,589	5,472,712		349,138

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 15.7 1.63

LOUISVILLE GAS AND ELECTRIC COMPANY
COMMON PLANT

ACCOUNT 397.1 COMMUNICATION EQUIPMENT - RADIO AND TELEPHONE

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF JUNE 30, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. 10-SQUARE						
NET SALVAGE PERCENT.. 0						
1986	7,741.11	7,741	7,741			
1991	329.87	330	330			
1994	2,680.51	2,681	2,681			
1995	59,232.90	59,233	59,233			
1996	6,026.30	6,026	6,026			
1997	3.00	3	3			
1999	380,560.16	380,560	380,560			
2000	411,185.55	411,186	411,186			
2001	149,078.15	149,078	149,078			
2002	39,634.92	39,635	39,635			
2003	1,180,207.78	1,180,208	1,180,208			
2004	9,689.11	9,689	9,689			
2005	304,328.51	304,329	304,329			
2006	881,357.34	881,357	881,357			
2007	1,029,803.94	1,029,804	1,029,804			
2010	4,230,214.64	4,230,215	4,230,215			
2011	679,061.08	679,061	679,061			
2012	77,616.12	69,855	63,533	14,083	1.00	14,083
2013	105,221.70	84,177	76,559	28,663	2.00	14,332
2014	231,950.13	162,365	147,670	84,280	3.00	28,093
2015	3,681,372.58	2,208,824	2,008,919	1,672,454	4.00	418,114
2016	128,316.29	64,158	58,352	69,964	5.00	13,993
2017	688,762.64	275,505	250,571	438,192	6.00	73,032
2018	581,802.63	174,541	158,744	423,059	7.00	60,437
2019	2,191,117.75	438,224	398,563	1,792,555	8.00	224,069
2020	3,508,072.70	438,509	398,823	3,109,250	8.75	355,343
2021	4,433,685.57			4,433,686	10.00	443,369
	24,999,052.98	13,287,294	12,932,870	12,066,183		1,644,865

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 7.3 6.58

LOUISVILLE GAS AND ELECTRIC COMPANY

Response to First Request for Information of the
United States Department of Defense and All Other Federal Executive Agencies
Dated January 8, 2021

Case No. 2020-00350

Question No. 20

Responding Witness: John J. Spanos

Q-1-20. Please provide all net salvage and service life data inputs used within Gannett Fleming software that supports the Company's depreciation rates filed as Exhibit JJS-LG&E-2.

A-1-20. See the response to Question No. 4 which sets forth the net salvage and service life data inputs used within the Gannett Fleming software to support the Company's depreciation rates filed as Exhibit JJS-LG&E-2. These are the same inputs as in Exhibit JJS-LG&E-1. See attached for the depreciation calculations based on June 30, 2021 balances.

AccountNu	roupNumb	mpanyNum	nsactionCo	nsactionYe	stallationYe	Amount	AdjustedTY	Comments
31100	0190	0	8	2021	2013	4,932,569.72		
31100	0190	0	8	2021	2014	33,726.75		
31100	0190	0	8	2021	2015	66,384.14		
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31100	0190	0	8	2021	2017	37,976.87		
31100	0190	0	8	2021	2018	235,211.68		
31100	0190	0	8	2021	2020	1,294,731.23		
31100	0211	0	8	2021	1965	11,431.71		
31100	0211	0	8	2021	1972	15,527,403.76		
31100	0211	0	8	2021	1975	218,872.61		
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31100	0211	0	8	2021	1980	19,261.28		
31100	0211	0	8	2021	1981	8,073.16		
31100	0211	0	8	2021	1987	63,301.24		
31100	0211	0	8	2021	1991	3,386.36		
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31100	0211	0	8	2021	2001	98,083.06		
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31100	0211	0	8	2021	2003	741,965.92		
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31100	0211	0	8	2021	2008	272,031.03		
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31100	0221	0	8	2021	2007	5,838.00		
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35140	8	2021	2018	308,026.64
35140	8	2021	2019	612,170.97
35140	8	2021	2020	796,912.22
35140	8	2021	2021	84,987.61
35210	8	2021	1930	3,937.46
35210	8	2021	1959	206,067.42
35210	8	2021	1960	15.43
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35210	8	2021	1964	43,127.71
35210	8	2021	1971	257,345.05
35210	8	2021	1973	292.00
35210	8	2021	1975	30,166.00
35210	8	2021	1982	1,500.00
35210	8	2021	1990	2,005.50
35210	8	2021	1998	1,586.57
35210	8	2021	2020	61,286.08
35220	8	2021	1968	84,535.13
35220	8	2021	1969	112,400.82
35220	8	2021	1970	29,156.24
35220	8	2021	1971	110,767.57
35220	8	2021	1972	38,151.80
35220	8	2021	1975	25,499.84
35230	8	2021	1971	1,067,813.00
35230	8	2021	1977	1,179,520.00
35230	8	2021	1985	7,401,522.00
35240	8	2021	1944	1,713.09
35240	8	2021	1947	6,083.52
35240	8	2021	1948	15,490.36
35240	8	2021	1949	7,541.15

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35240	8	2021	1951	14,017.21
35240	8	2021	1952	24,730.11
35240	8	2021	1953	6,372.44
35240	8	2021	1954	4,955.87
35240	8	2021	1955	18,491.17
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35240	8	2021	1957	21,709.58
35240	8	2021	1958	6,371.95
35240	8	2021	1959	151,402.67
35240	8	2021	1960	27,100.05
35240	8	2021	1961	33,471.62
35240	8	2021	1962	45,710.80
35240	8	2021	1963	46,660.23
35240	8	2021	1964	46,178.66
35240	8	2021	1965	27,644.30
35240	8	2021	1966	27,115.71
35240	8	2021	1967	30,354.86
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35240	8	2021	1972	28,215.15
35240	8	2021	1973	51,820.81
35240	8	2021	1974	25,632.65
35240	8	2021	1975	26,723.75
35240	8	2021	1976	23,415.54
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35240	8	2021	1978	56,910.46
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35240	8	2021	1984	31,018.11
35240	8	2021	1985	71,220.07
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35240	8	2021	2014	515,442.60
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35250	8	2021	1956	10,720.03
35250	8	2021	1957	17,169.06
35250	8	2021	1958	4,493.96
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35250	8	2021	1961	23,857.10
35250	8	2021	1962	40,286.54
35250	8	2021	1963	46,634.65
35250	8	2021	1964	46,892.15
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35250	8	2021	1969	44,156.68
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36700	8	2021	1982	203,227.40
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36700	8	2021	2020	91,611,020.47
36700	8	2021	2021	41,270,647.78
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37422	8	2021	1958	19,774.35
37422	8	2021	1960	4,795.00
37422	8	2021	1962	400.00
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37422	8	2021	1979	4,600.00
37422	8	2021	1990	3,501.23
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37520	8	2021	1920	1,286.00
37520	8	2021	1924	1,047.00
37520	8	2021	1926	3,649.41
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37520	8	2021	1942	153.00
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37520	8	2021	1944	193.00
37520	8	2021	1945	4,247.00
37520	8	2021	1949	1,820.00
37520	8	2021	1950	4,663.00
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37520	8	2021	1957	2,370.00
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37520	8	2021	1965	15,910.59
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37600	8	2021	1949	123,459.05
37600	8	2021	1950	18,196.14
37600	8	2021	1951	230,767.53
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37600	8	2021	1953	4,640.13
37600	8	2021	1954	958,475.45
37600	8	2021	1955	931,452.68
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37900	8	2021	1973	93.23
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LOUISVILLE GAS AND ELECTRIC COMPANY

Response to First Request for Information of the
United States Department of Defense and All Other Federal Executive Agencies
Dated January 8, 2021

Case No. 2020-00350

Question No. 21

Responding Witness: Christopher M. Garrett

Q-1-21. Please provide a detailed narrative explaining how the depreciation rates presented in Exhibit JJS-LG&E-2, affect the revenue requirement proposed in this proceeding. Please identify and provide all other company workpapers and exhibits that would be affected by a change to the Company's proposed depreciation rates, and describe how the exhibits would be changed.

A-1-21. The depreciation rates in Exhibit JJS-LG&E-2 utilizing forecasted capital do not impact the revenue requirement proposed in this proceeding. As discussed in the Direct Testimony of Kent W. Blake, Page 5, lines 11-14, KU and LG&E also considered the impacts of using forecasted capital for the depreciation study and chose to use historic plant in service as the more conservative measure consistent with that used by the Companies in prior rate cases.

LOUISVILLE GAS AND ELECTRIC COMPANY

Response to First Request for Information of the
United States Department of Defense and All Other Federal Executive Agencies
Dated January 8, 2021

Case No. 2020-00350

Question No. 22

Responding Witness: William Steven Seelye

Q-1-22. Please provide native versions, in electronic format with all formulas intact, of all exhibits to the direct testimony of Mr. William Seelye.

A-1-22. See the response and attachments to PSC 1-56.

LOUISVILLE GAS AND ELECTRIC COMPANY

Response to First Request for Information of the
United States Department of Defense and All Other Federal Executive Agencies
Dated January 8, 2021

Case No. 2020-00350

Question No. 23

Responding Witness: William Steven Seelye

Q-1-23. In electronic spreadsheet format with formulas intact, please provide all workpapers supporting Mr. Seelye's direct testimony.

A-1-23. See the response and attachments to PSC 1-56 and 1-57.

LOUISVILLE GAS AND ELECTRIC COMPANY

Response to First Request for Information of the
United States Department of Defense and All Other Federal Executive Agencies
Dated January 8, 2021

Case No. 2020-00350

Question No. 24

Responding Witness: William Steven Seelye

Q-1-24. To the extent not provided, please provide a copy of LG&E's electric class cost of service study in electronic spreadsheet format with all formulas intact – using LG&E's proposed LOLP methodology.

A-1-24. See the attachment to the response to PSC 1-56 named "2020_Att_LGE_PSC_1-56_Exhibit_WSS-2,WSS-30,WSS-32_LGE_Electric_COSS_LOLP.xlsx".

LOUISVILLE GAS AND ELECTRIC COMPANY

Response to First Request for Information of the
United States Department of Defense and All Other Federal Executive Agencies
Dated January 8, 2021

Case No. 2020-00350

Question No. 25

Responding Witness: William Steven Seelye

Q-1-25. To the extent not provided, please provide a copy of LG&E's electric class cost of service study in electronic spreadsheet format with all formulas intact – using the 6CP methodology.

A-1-25. See the attachment to the response to PSC 1-56 named "2020_Att_LGE_PSC_1-56_LGE_COSS_6CP_Alternative.xlsx".

LOUISVILLE GAS AND ELECTRIC COMPANY

Response to First Request for Information of the
United States Department of Defense and All Other Federal Executive Agencies
Dated January 8, 2021

Case No. 2020-00350

Question No. 26

Responding Witness: William Steven Seelye

Q-1-26. To the extent not provided, please provide a copy of LG&E's electric class cost of service study in electronic spreadsheet format with all formulas intact – using the 12CP methodology.

A-1-26. See the attachment to the response to PSC 1-56 named "2020_Att_LGE_PSC_1-56_LGE_COSS_12CP_Alternative.xlsx".

LOUISVILLE GAS AND ELECTRIC COMPANY

Response to First Request for Information of the
United States Department of Defense and All Other Federal Executive Agencies
Dated January 8, 2021

Case No. 2020-00350

Question No. 27

Responding Witness: David S. Sinclair

Q-1-27. Please refer to Mr. Seelye's direct testimony at page 2, lines 13-14. Please provide a detailed explanation as to how LG&E uses LOLP as a key measure to plan its generation resources.

A-1-27. The Companies develop a target reserve margin range that, at the high end, is based on a reliability target reflecting the probability of experiencing an inability to meet load in any hour that is no greater than once in ten years. This process is explained in detail in the Companies' 2018 Integrated Resource Plan, Volume III, "2018 IRP Reserve Margin Analysis." See the response to AG-KIUC 1-6.

LOUISVILLE GAS AND ELECTRIC COMPANY

Response to First Request for Information of the
United States Department of Defense and All Other Federal Executive Agencies
Dated January 8, 2021

Case No. 2020-00350

Question No. 28

Responding Witness: William Steven Seelye

Q-1-28. Please refer to Mr. Seelye's direct testimony at page 2, lines 25-28.

a. Please identify the amount of Environmental Cost Recovery ("ECR") costs collected from each customer class through current rates.

b. Please identify the amount of ECR project costs that will be rolled into base rates for each customer class. To the extent this amount differs from the amount identified above in part a., please provide a detailed explanation supporting the response.

c. Please identify the amount of Gas Line Tracker ("GLT") project costs collected from each customer class through current rates.

d. Please identify the amount of GLT costs that will be rolled into base rates for each customer class. To the extent this amount differs from the amount identified above in part c., please provide a detailed explanation supporting the response.

A-1-28. a-d. See attachment being provided in Excel format which reflects the ECR and GLT costs forecasted to be recovered in current rates before the ECR and GLT project eliminations are considered and the forecasted amount of the ECR and GLT costs that will be transferred for recovery from ECR and GLT to base rates. The difference between these amounts reflects the ECR and GLT costs forecasted to continue to be recovered through the ECR and GLT mechanisms (that is, they relate to ECR and GLT projects the Company is not proposing to eliminate into base rates in this proceeding).

The attachment is being provided in a separate file in Excel format.

LOUISVILLE GAS AND ELECTRIC COMPANY

Response to First Request for Information of the
United States Department of Defense and All Other Federal Executive Agencies
Dated January 8, 2021

Case No. 2020-00350

Question No. 29

Responding Witness: William Steven Seelye

Q-1-29. In electronic spreadsheet format, with all formulas intact, please provide a comparison of the Company's production and transmission allocation factors for each rate class using the LOLP, 6 CP, and 12 CP cost allocation methods.

A-1-29. See attachment being provided in Excel format.

The attachment is being provided in a separate file in Excel format.

LOUISVILLE GAS AND ELECTRIC COMPANY

Response to First Request for Information of the
United States Department of Defense and All Other Federal Executive Agencies
Dated January 8, 2021

Case No. 2020-00350

Question No. 30

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

Q-1-30. If not already provided in response to the question above, please provide all exhibits, tables, figures and supporting workpapers in electronic format with all formulas intact supporting the testimonies of Mr. McKenzie and Mr. Arbough. This is an ongoing request for all subsequent testimonies filed by these witnesses.

A-1-30. See the response and attachments to PSC 1-56 and PSC 1-57. Also, see the response to PSC 2-67 for Mr. McKenzie's workpapers.

LOUISVILLE GAS AND ELECTRIC COMPANY

Response to First Request for Information of the
United States Department of Defense and All Other Federal Executive Agencies
Dated January 8, 2021

Case No. 2020-00350

Question No. 31

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

Q-1-31. 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-1-31. See the response to Question No. 30.

LOUISVILLE GAS AND ELECTRIC COMPANY

Response to First Request for Information of the
United States Department of Defense and All Other Federal Executive Agencies
Dated January 8, 2021

Case No. 2020-00350

Question No. 32

Responding Witness: Adrien M. McKenzie

Q-1-32. Please identify all docket numbers and Orders where the Kentucky Public Service Commission has relied on the low-end outlier test used by the Federal Energy Regulatory Commission ("FERC") to remove individual DCF, CAPM, or Risk Premium estimates of the cost of equity to establish a fair ROE for a regulated electric or gas utility.

A-1-32. Mr. McKenzie did not assert that the Kentucky Public Service Commission ("KPSC") has specifically cited to the test of low-end cost of equity estimates used by the Federal Energy Regulatory Commission ("FERC") and he is not aware of any such orders. In fact, like most state regulatory agencies, the KPSC does not typically endorse specific methodological approaches used to estimate the cost of equity. Rather, state regulatory agencies, including the KPSC, arrive at their determination of a fair ROE by considering the entirety of the evidence presented in each proceeding. Thus, the fact that state regulatory agencies in general, and the KPSC specifically, may not cite specifically to FERC's low-end test does not evidence any disagreement with the economic rationale (discussed and supported at pages 44-48 of Mr. McKenzie's direct testimony) supporting the elimination of illogical low-end cost of equity estimates.

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Case No. 2020-00350

Question No. 33

Responding Witness: Adrien M. McKenzie

Q-1-33. Please identify all docket numbers and Orders where any State utility regulatory Commission has relied on the low-end outlier test used by the FERC to remove individual DCF, CAPM, or Risk Premium estimates of the cost of equity to establish a fair ROE for a regulated electric or gas utility.

A-1-33. See the response to Question No. 32.

LOUISVILLE GAS AND ELECTRIC COMPANY

Response to First Request for Information of the
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Dated January 8, 2021

Case No. 2020-00350

Question No. 34

Responding Witness: Daniel K. Arbough

Q-1-34. Please provide complete copies of all credit reports issued by S&P, Moody's and Fitch Ratings that discuss the outlook for, and current state of, the regulated utility industry.

A-1-34. See attached.

S&P Global
Ratings

RatingsDirect®

ESG Industry Report Card: Regulated Utilities Networks

February 11, 2020

Key Takeaways

- Social risks are the most important ESG credit factor for regulated network utilities and above average compared with other industries. Such risks can be significant because of the importance of regulated networks to local communities and the corresponding regulatory focus on service quality, reliability, and, increasingly, on affordability.
- Environmental risks for network operators are generally average, reflecting the sector's pure infrastructure status with low levels of direct emissions, waste or pollution.
- Electric utilities are sensitive to destructive climate change-induced events, which are however more geographic than sector specific; so are water utilities, particularly if water scarcity leads to heightened regulatory oversight and stricter requirements on leakage or supplies.
- Gas utilities are indirectly exposed to long-term public policies on the role of gas in the energy transition, mitigated by the nature of regulated returns that limit exposure to volumes.

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Analytic Approach

Environmental, social, and governance (ESG) risks and opportunities can affect an entity's capacity to meet its financial commitments in many ways. S&P Global Ratings incorporates these considerations into its ratings methodology and analytics, which enables analysts to factor in short-, medium-, and long-term impacts--both qualitative and quantitative--to multiple steps of their credit analysis. Strong ESG credentials do not necessarily indicate strong creditworthiness (see "The Role Of Environmental, Social, And Governance Credit Factors In Our Ratings Analysis," published Sept. 12, 2019).

Our ESG report cards qualitatively explore the relative exposures (average, below, above average) of sectors to environmental and social credit factors over the short, medium, and long term. For environmental exposures, chart 1 shows a more granular listing of key sectors and (in some cases) subsectors reflecting the qualitative views of our analytical rating teams. This sector comparison is not an input to our credit ratings and not a component of our credit rating methodologies; it is

based on our current qualitative, forward-looking opinion of credit risks across sectors.

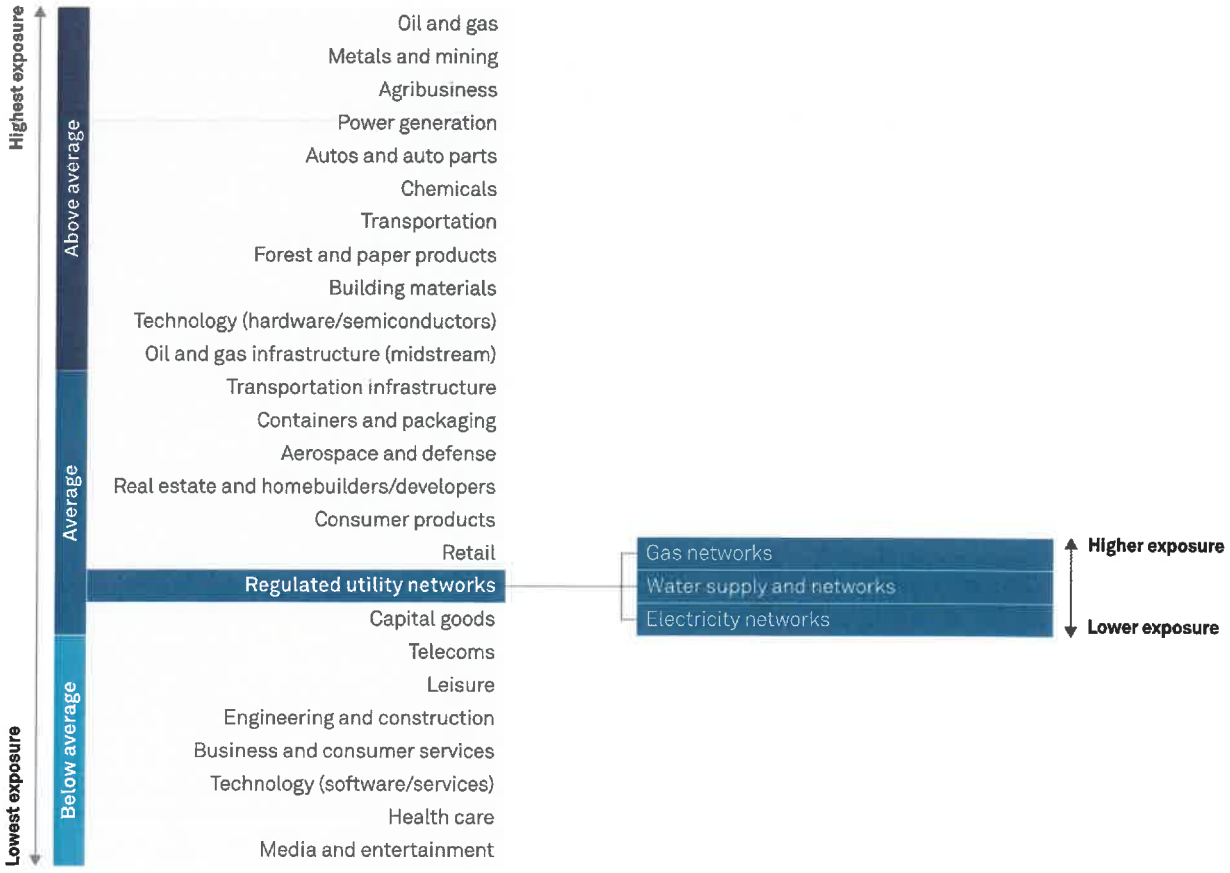
In addition to our sector views, this report card lists ESG insights for individual companies, including how and why ESG factors may have had a more positive or negative influence on an entity's credit quality compared to sector peers or the broader sector. These comparative views of environmental and social risks are qualitative and established by analysts during industry portfolio discussions, with the goal of providing more insight and transparency.

Environmental risks we considered include greenhouse gas (GHG) emissions, including carbon dioxide, pollution, and waste, water and land usage, and natural conditions (physical climate, including extreme and changing weather conditions, though these tend to be more geographic/entity-specific than a sector feature). Social risks include human capital management, safety management, community impacts, and consumer-related impacts from customer service and changing behavior to the extent influenced by environmental, health, human rights, and privacy (but excluding changes resulting from broader demographic, technological, or other disruptive industry trends). Our views on governance are directly embedded in our rating methodology as part of the management and governance assessment score.

Chart 1

Qualitative Sector Listing Of Relative Environmental Exposure: Regulated Utility Networks

Greenhouse gas emissions, waste, pollution, and land use



Source: S&P Global Ratings.

The list of entities covered in this report is not exhaustive. We may provide additional ESG insights in individual company analyses throughout the year as they change or develop, with companies expected to increasingly focus on ESG in their communication and strategy updates.

Environmental Exposure

We view the environmental risks to utility networks as generally moderate credit drivers only, because we assess the sector based on its infrastructure rather than emissions. However, where electric power supply arrangements bind the delivery network to generation supplies with significant emissions, we will attribute the emissions exposure to the electric network. Electric, gas, and water networks each have specific environmental drivers.

Electric networks: The energy transition implies a substantial increase in electrification over the next two decades. As a result, electric network operators will likely invest heavily to accommodate the rising share of renewables and make the grid more decentralized and smart. The key environmental risk factor, however, stems from the recent and more frequent physical climate-change events (e.g. wildfires, storms, hurricanes, and tornadoes).

The actual credit exposure incurred by each utility will depend on the regulatory construct. For example, California's recent catastrophic wildfires have pressured the credit quality of the state's utilities because the regulatory construct doesn't account for the consistent and timely recovery of wildfire costs. This contrasts to Florida, where the utilities have proactively implemented storm-hardening measures and have helped implement a regulatory construct that is well equipped to deal with the timely recovery of catastrophic hurricane costs.

Natural gas networks: These are construed underground and their primary environmental exposure therefore stems from their indirect exposure to fossil fuels, besides the risks of leaks and explosions (see Social Exposure below). Gas is however considered a vital bridge in the energy transition with global demand set to steadily increase over the next two decades. That said, a faster-than-anticipated shift to renewables, and improvements in battery technology, could curb demand for gas. These factors could also incentivize regulators to be less supportive on remuneration and expansionary capital expenditure (capex), as seen recently in Spain for transmission.

Water networks: Environmental risks center on clean water, water usage (i.e. spills and losses), and treatment of wastewater. Each of these tend to be regulatory key performance indicators (KPIs) and thus relevant to credit. We note that repeated poor operating performance can lead to financial penalties, and expensive capital investment mandates, but can also increase the social exposure of an entity as this can lead to a loss of reputation and create difficult relationships with a company's regulator, hindering its negotiation power during a price reset. Exposure to climate change for water utilities is particularly relevant for entities operating in regions with water scarcity, given that drought conditions could affect water supply and increase requirements on water management and leakage.

Social Exposure

We see regulated networks' exposure to social factors as the most important ESG factor and above average, compared to other industry. Related credit risks can be significant, because companies in this segment play an important role within their communities by providing an essential service that must remain affordable and reliable.

Governments and regulators have been increasingly focusing on affordability, and we believe this could translate into further remuneration pressure for regulated networks. This is especially so in countries where bills are already high, and facing upward cost pressures from ongoing high investments in renewables and grid strengthening as part of the energy transition as well as aging infrastructure and changes in regulatory requirements in all sectors. A failure to maintain high-quality standards at an affordable cost for customers, or a system disruption, could trigger local criticism or political backlash.

Employee relationships constitute another important social factor. Incumbent network operators are often large local employers that sometimes have unionized staff. That said, they also have a degree of local government support because they usually significantly contribute to the local property tax base.

Finally, we point to the importance of safety for gas networks in particular as explosions are seldom but can involve significant casualties, and reputational and litigation risk in the case of poor maintenance management. Water contaminants including lead, and overflows of untreated sewage, can pose significant reputational risk for water and wastewater utilities.

ESG Risks In Regulated Utilities (Networks)

Europe, The Middle East, And Africa

Table 1

Company name/Rating/Comments	Analyst name
Enagas S.A. (BBB+/Stable/A-2)	**Massimo Schiavo**
Environmental and social aspects are a comparatively higher risk for gas transmission companies in Spain compared with electricity peers'. This is because gas will play a less important role than before in the nation's upcoming energy policy, reflected in the proposed strong downward revision in remuneration and incentives for gas transmission for the new 2021-2026 regulatory period. Spain targets almost zero carbon-dioxide emissions (on energy and cars) by 2050, which poses a long-term challenge for gas infrastructure companies. That said, we consider that gas will still be crucial to the energy mix for the transition process over the next two decades, bearing in mind the expected phase-out of coal and nuclear in Spain. The company has a good track-record in operating a reliable and safe network, which is key to managing regulatory risk and public opinion. We assess Enagas' management and governance as satisfactory. However, the company is involved in a dispute with the Peruvian government: the latter unilaterally terminated Enagas' concession for the Gasoducto Sur Peruano (GSP) project in 2017. We understand this was triggered by allegations of bribery against Enagas' partner in the project, Brazilian company Odebrecht. Initially, Enagas expected to receive as compensation almost all the net accounting value of the project, equivalent to its investment (about €400 million) in 2020. Now the compensation is expected at year-end 2022 at the earliest.	
E.ON SE (BBB/Stable/A-2)	**Bjoern Schurich**
Since the successful spin-off of its fossil-based generation business (Uniper SE) in 2017 and the ongoing corporate transformation involving the asset swap with RWE Aktiengesellschaft, we see E.ON's environmental and social risk profile as strongly reduced and becoming more comparable to that of other fully regulated network operators. We estimate that about 70% of the EBITDA of the new E.ON will stem from regulated gas and electricity distribution, with only 5% still coming from non-core merchant power generation, i.e. its retained nuclear power plants, which are to be phased out by end-2022. Nuclear waste storage liabilities were successfully transferred to the German federal government against payment to the German Nuclear Waste Disposal Fund in 2017. While E.ON remains responsible for the decommissioning and dismantling of its nuclear plants, we believe liabilities are reasonably predictable (extending over the 15-25 years following each plant closure). New E.ON's capex focus should adapt to Europe's ambitious energy transition targets; maintaining, expanding and "smartening" distribution system networks in its widespread regulated service area. We expect European distribution system operators' (DSOs') role will shift toward building and operating intelligent networks ("smart grids") using modern technology able to utilize local and regional flexibility and sector coupling (power to heat, power to gas, batteries, micro-gas turbines, for example) to sustain security of supply and avoid costs for expanding network at higher voltage levels (see "Industry Top Trends 2020: Utilities-- EMEA Regulated," published Nov. 13, 2019 on RatingsDirect). We view new E.ON as having an advantage in fulfilling these tasks in comparison with smaller regional operators (such as municipalities) thanks to its lower procurement costs and superior procurement capabilities. Since 2018, E.ON has been aligning its sustainability strategy with U.N.'s Sustainable Development Goals, a key step in promoting transparency and comparability. One of the concrete goals is to reduce its absolute CO2 footprint by 30% by 2030 compared with 2016; which E.ON reduced by 17% in 2018 already (scope 1, 2, and 3). In addition, E.ON is working to halve the CO2 intensity of the electricity it sells.	
EP Infrastructure (BBB/Stable/--)	**Renata Gottliebova**
EP IF has higher environmental risks than peers' because its operations include district heating from coal and gas resulting in carbon dioxide discharges. That said, revenue from lignite-related activities is less than 10% of the total group revenues. EP IF is aiming to reduce its emissions by converting coal plants to biomass, gas, or waste-to-energy heating plants. EP IF also focuses on gas transmission, gas and electricity distribution, and gas storage activities in the Czech Republic, Slovakia, and Germany through its subsidiaries. EP IF's exposure to social risks is comparable to that of the industry as we view the regulatory frameworks under which it operates as supportive. The company has a good track record in operating a safe and reliable network, which is key to managing regulatory risk. We assess the company's management and governance as satisfactory thanks to a strong shareholders agreement. This is despite the fact that the group's majority owner--Daniel Kretinsky--is the CEO and chairman, serves on multiple subsidiary boards, and is integral to the group's culture, which represents key-man risk. This is somewhat mitigated by the delegation of key responsibilities to certain senior executives.	
Kraftringen Energi AB (publ) (BBB+/Stable/A-2)	**Daniel Annas**
Kraftringen is a front-runner in the Nordic region in terms of using only fossil-free fuels in its district heating business. Kraftringen has lowered its annual carbon dioxide footprint by 90% since 2007 and reached its fossil-free fuels goal in 2018. Thanks to this, Kraftringen is in our view less exposed to political risks. Swedish politicians are increasing their focus on the major industries that drive carbon dioxide pollution, and have raise taxes on district heating in the past couple of years (other recent proposals to increase taxes on district heating were only related to burning waste, and Kraftringen does not use waste as fuel). The company's shift away from fossil fuels has increased investments, resulting in increased costs for end customers. Although Kraftringen has not increased prices as much as others', its district heating tariffs are now more expensive than the average in Sweden according to "Nils Holgersson Rapporten 2019." This said, Kraftringen	

has not reached their allowed income for regulatory electricity distribution, and therefore have the possibility of transferring under-recovered revenues to the upcoming regulatory period, which is positive for their credit metrics going forward.

Rosseti PJSC (BBB-/Stable/A-3) — **Elena Anankina**

Rosseti's exposure to ESG risks is comparable to that of peers. The group's subsidiaries provide an important transmission and distribution service with a significant social impact. Consequently, the government sometimes limits tariff increases and assigns Rosseti the unprofitable, but socially important, role of a guaranteeing supplier, or mandates investments in politically important projects--such as developing Russia's Far East, or smart meters. This makes Rosseti's regulated business less predictable but also underpins the state's 88% shareholding in Rosseti and the government's heavy involvement in shaping the company's strategy, and creates incentives for government support. From an environmental standpoint, Russia is less focused on renewable development than most European countries are, and as a result has less of a need for network development to support new, potentially volatile, energy sources. We don't expect this to change in the immediate future. Rather, Rosseti's capex plans for digitalization and electrification of new transport infrastructure in remote regions reflect the government's policy of increasing Russia's GDP growth above the currently modest 1.8%.

RTE Reseau de Transport d Electricite (A/ Stable /A-1) — **Claire Mauduit-Le Clercq**

We see RTE's exposure to environmental and social risk as comparable to that of the industry. RTE plays an important role in France's energy transition as it dedicates important capex to integrating renewable sources into the grid. RTE should spend up to €7 billion for the connection of offshore wind parks until 2035, which is about 20% of its total expected investments over the period. This is part of RTE's 2019 network development plan over the next 15 years that still needs to be reviewed by the French energy regulator CRE. We believe that the government's objective, embedded in its 2019-2028 energy program, to reduce France's dependence on nuclear power by 2035 to 50% from 75% while rapidly exiting coal thermal energy, will likely reinforce RTE's prominence in national energy matters. RTE has historically maintained a reliable, safe, and economically viable electricity transmission network, enabling the security of supply across France. This helps the company manage regulatory risk and public opinion, which is important from affordability and social perspectives. RTE continues to invest heavily in network enhancement, maximizing transmission system efficiency, and developing needed interconnection lines (total regulated capex of €1.45 billion in 2018). In addition, the utility has consistently provided high quality standards in its grid management. Governance is key to our rating on RTE. This is because, although EDF owns 50.1 % of the RTE group, we assess the group as operating independently from this main shareholder, notably due to regulatory and legal reasons, and with separate administrative and management teams. The company has had this corporate governance structure for a long time.

SNAM SpA (BBB+/Negative/A-2) — **Massimo Schiavo**

We see Snam's exposure to environmental and social risk as comparable to that of the industry. Notwithstanding the ongoing energy transition, gas will remain an important part of Italy's energy demand (currently about 35%) and a key energy hub for the Mediterranean area. With about €400 million investment in new businesses in the energy transition until 2023, part of €1.4 billion Snamtec program (Tomorrow's Energy Co.), Snam aims to promote gas use in various forms, including liquefied natural gas, compressed natural gas for maritime and ground transportation, energy efficiency with third parties (real estate deep renovation); it also aims to support the evolution of green gas, in particular biomethane and hydrogen (blending H2 up to 10% with studies ongoing on asset readiness and power to gas). The company has a good track record of maintaining a high degree of network quality, security, and safety standards, which is a key part of managing regulatory risk.

Societa Metropolitana Acque Torino SpA (BBB-/Positive/--) — **Pauline Pasquier**

Governance issues resulting from SMAT's shareholder structure constrain the ratings. The major area of governance risks relates to the city of Turin's significant influence over SMAT's strategic directions. The majority shareholder has a track record of taking decisions that could be detrimental to SMAT's credit quality: for example, requesting a special dividend payment in 2016 (not voted by general assembly in 2017), and proposing in 2017 the change of the company's legal status to a public consortium. The board's oversight has somewhat offset this negative influence. Turin can elect three of the five members on SMAT's board. To be passed, general assembly decisions, related to variations among shareholders, need 90% of equity voting rights and the agreement of 60% of the shareholders present, which somewhat reduces the risk of negative intervention. From a social perspective, SMAT's reputation is supported by its good operating track record. Located in the richer northwest region of Italy, Turin's water networks are superior in quality to others' in Italy, with lower water leakage than the country's average. Water quality is in line with standards requested by the regulator for the sector.

Southern Water Services (Finance) Ltd. (Class A: BBB+/Negative/--; Class B: BBB-/Negative/--) — **Gustav Rydevik**

We see Southern Water Services (Finance) (SWSF) as having weaker management and governance score than the sector following a large breach in management over sight leading to the misreporting of environmental leakage figures to the regulator between 2010 and 2017. On June 25, 2019, the UK water regulator Ofwat announced that it had issued SWSF with a £126 million fine on the basis that it had deliberately misled the regulator on the quality of the treated wastewater that was being released into water sources in Southern Water's operating area. We believe that these findings indicate material deficiencies in SWSF's management and governance policies and general risk in the management framework. Furthermore, we believe SWSF's internal controls were inadequate in preventing or identifying alleged illegal behavior as well as license-breaching behavior. In our view, these have an adverse impact on the company's reputation, regulatory risk, its credit metrics, and its overall credit quality at a time of higher political and regulatory risks. We note that SWSF has implemented a comprehensive action plan to prevent further similar events from occurring.

Statnett SF (A+/Stable/A-1) — **Daniel Annas**

We see environmental and social risks for Statnett as moderate and comparable to those of other transmission system operators (TSOs). Stattnet's Norwegian home power market is already close to 100% relying on hydro, which we expect to remain the backbone of the nation's energy supply. Statnett is involved in NordLink and North Sea Link, which are sizeable and complex interconnector projects. This is part of the company's role in ensuring security of supply and balancing the North European system, which is increasingly reliant on volatile renewable generation. Statnett has an excellent track record in terms of project execution. Although, we note that the company's projects are exposed to high-risk environment situations, such as steep mountains and underwater (fjords), it has a good health and safety record, and regularly reviews procedures.

Stockholm Exergi Holding AB (publ) (BBB+/Stable/A-2) — **Daniel Annas**

Environmental risks are more of a credit factor for Stockholm Exergi than for electric network peers. This is because the company's district heating activities consume fuel related to the heat and combined heat and power plants, resulting in carbon dioxide discharge. Stockholm Exergi has reduced its carbon dioxide footprint by about 65% since 2002, mainly thanks to a shift from fossil fuels to biofuels and more efficient technology. Although the company is still one of Stockholm's largest dischargers of carbon dioxide, and emissions increased in 2018 compared with 2017, it intends to phase out coal by the end of 2020 and be environmentally neutral by 2030. These targets have resulted in a significant investment plan in the coming years, for example conversion to renewable fuels in existing and new plants, as well as technology to filter the emissions but also with projects such as bio-energy with carbon capture and storage. We assess Stockholm Exergi's management and governance as satisfactory. The company and its previous main coal supplier were however mentioned in reports of the Swedbank money laundering scandal in 2019. Its main coal supplier had suspected ties to sanctioned individuals, according to Swedish broadcaster SVT's investigation. This could potentially lead to fines or a loss of customers for Stockholm Exergi if the allegations turn out to be true. We currently do not expect this to materially affect our credit rating on Stockholm Exergi.

Tekniska verken i Linkoping AB (A+/Stable/A-1)

We see Swedish multi-utility TvAB as having comparable environmental and social risk to that of industry peers. Its owner, the municipality of Linköping, aims to become carbon-dioxide neutral by 2025. This is reflected in TvAB's recent strategic change to invest in wind generation, and to phase out fossil-based fuels for its CHP plants in the coming years. In our view, TvAB should be able to execute on its strategy without a major impact on its business risk. The strategic change does not affect the regulated business, which accounts for about 80% of EBITDA. TvAB's strategy is to be a resource-efficient company, and to have an attractive services offering for the environmentally aware inhabitants of its region. This should help preserve its social license to operate, while optimizing its regulatory relationship. TvAB ranks well against Swedish peers in both outage and price comparisons. We expect TvAB to be able to maintain its good rankings for district heating, electricity, waste and water services as it transitions way from fossil fuels.

Terna SpA (BBB+/Negative/A-2) — **Massimo Schiavo**

Terna's ESG exposure is comparable to that of peers. As Italy's electricity TSO, Terna has also been an early adopter of significant renewables capacity in its network. We thus believe it benefits from significant expertise in increasingly complex grid management amid Italy's energy transition. Terna intends to invest more than 10% of its domestic capex (€6.2 billion) into innovation and digitalization to fulfill the Italian government's target of reaching 26.8 gigawatts (GW) of solar and 15.7 GW of wind installed capacity by 2025. The company has a good track record of maintaining a safe and reliable electricity transmission network as well as a sound relationship with the regulator, ARERA. From a governance perspective, Terna, like its regulated peers, has historically been subject to political interference attempts via the so-called Robin Hood tax. This proposed one-off 6.5% income surtax was ultimately ruled unconstitutional by the European Court and withdrawn. (Terna is partly owned by the Italian government).

Thames Water Utilities Ltd. (Class A: BBB+/Negative/--; Class B: BBB-/Negative/--) — **Matan Benjamin**

Thames Water has higher exposure to ESG risks than the industry in general. Along with some other water companies in the U.K., it has been under public pressure for underinvesting in aging assets and paying perceived excessive dividends, ultimately underperforming in its key social duty of providing quality water services. The U.K. water regulatory framework incorporates operational guidance for environmental efforts. Despite its substantial proactive measures to improve operating performance, the company has continued to miss several of its regulatory targets. These relate to leakages, below-ground water-asset health, supply interruptions, and security of supply. In this respect, we believe Thames Water's operating performance lags those of other U.K.-regulated water companies. In light of the above, we assess Thames Water's management and governance as fair only and weaker than peers'. Management has however taken some proactive steps. To enhance transparency and in response to ongoing political pressure and negative press coverage, Thames Water has closed its Cayman finance subsidiaries and replaced them with a U.K.-based entity. In addition, the company has strengthened its board's independence, while significantly cutting dividends, mitigating some governance risks.

Transnet SOC Ltd. (BB/Negative/--; zaAA/--/zaA-1+) — **Omega Collocott**

We see Transnet's management and governance as fair, and more exposed to governance factors than domestic peers'. Transnet's former board and executive team have been accused of significant governance failures and irregularities, most notably in procurement. Such charges are being investigated, as well as allegations that certain government officials tasked to oversee Transnet's governance were complicit in the governance procurement irregularities. Furthermore, Transnet's 2018 and 2019 financial statements received audit qualifications (notably related to auditors' inability to confirm accuracy of reporting in relation with legislative requirements, not IFRS) and publication of the 2019 results were delayed, raising the risk of listing-requirement breaches, and broadly sterilizing Transnet's ability to raise public debt in calendar 2019. Consequently, governance risk remains elevated and we continue to monitor possible leadership and motivational challenges stemming from these issues, as well as the trajectory of board effectiveness, internal controls, reporting transparency, and regulatory relationships. These governance deficiencies have not, to date, resulted in a rating action, given that investigations and remediation plans and actions are well advanced and have not resulted in poor operational performance. Environmental

and social considerations for Transnet are broadly in line with those of industry peers, reflecting the company's broadly acceptable service delivery and management of regulatory risk and public opinion, supported by its monopoly position in several markets. Transportation infrastructure providers are seen to have moderate environmental exposure reflecting the indirect exposure to emissions and pollution of the transportation industry itself. From a social perspective, the impact on local communities in relation to lifestyle, congestion, noise, and air quality is being increasingly highlighted, but the critical nature of existing road, airport, and port operations leads us to see these risks as limited for existing operations.

Vodokanal St. Petersburg (BB+/Stable/B) — **Sergei Gorin**

Vodokanal is weaker than peers' on governance. After the St-Petersburg Controlling Chamber concluded the company had included inappropriate costs in tariff calculation, its 2019 tariff increases were curbed at 3.7% and certain top managers were replaced. Our rating also factors in Vodokanal's exposure to politicized decision-making, including caps on tariffs, as well as potential support from the city government, including co-financing of investment projects. From the social and environmental standpoint, Vodokanal is comparable to other water utilities. It's a monopoly business responsible for water supply and water treatment in Russia's second largest city and suburbs. The company therefore invests heavily in the construction of wastewater treatment facilities, Okhtinsky sewage collector, and modernization of the wastewater treatment plant at Severnaya.

Zagrebacki Holding d.o.o. (B+/Stable/--) — **Renata Gottliebova**

Zagrebacki's social exposure is very high compared with peers' based on the group's omnipresence in the city of Zagreb. In our view, Zagrebacki plays an important role to the city of Zagreb by providing essential services in many industries (energy, waste, pharma, real estate, leisure...) that must remain affordable and reliable. We assess management and governance as fair despite strong support from the key shareholder to invest in infrastructure, reflecting the very strong influence of the city in the company's key strategical decisions. Zagrebacki's environmental exposure is comparable to regulated peers with 90% of its EBITDA stems regulated activities (including gas distribution, gas and water supply as well as water and waste treatments).

Ratings as of Feb. 11, 2020. Source: S&P Global Ratings.

North America

Table 2

Company name/Ratings/Comments	Analyst
AltaLink L.P. (A/Stable/--)	**Mayur Deval**
As a transmission-only company, ALP's exposure to environmental risk is quite manageable and in line with that of electric utility network peers. From a social perspective, the provincial Canadian utility has a strong track record of providing safe and reliable electricity transmission services. In addition, the utility implemented a number of rate-relief measures to lower costs for customers amid sluggish economic conditions in Alberta.	
American Water Works Co. Inc. (A/Stable/A-1)	**Sloan Millman**
We view American Water Works as having comparable environmental and social risk as the broader industry for water and wastewater utility services. The company's long track record of providing safe and reliable water services to its customers could enable it to maintain social cohesion, despite steadily increasing rates and charges to the customer. That said, affordability will remain an area that we watch closely. The company is a good steward of the environment and adheres to federal and state water-quality regulations.	
ATCO Ltd. (A-/Stable/--)	**Andrew Ng**
We see ATCO's ESG related exposure as similar to the broader industry. The company is primarily an electric and gas distributor in Alberta. From an environmental perspective, ATCO recently divested all of its fossil-based generation assets in Canada; hence the company's environmental exposure to greenhouse gas emission has reduced significantly. From a social perspective, ATCO, through its regulated subsidiary, has a long history of providing affordable, safe, and reliable gas and electric utility services to its customers, consistent with the broader industry.	
CenterPoint Energy Inc. (BBB+/Stable/A-2)	**Gerrit Jepsen**
CPE's credit quality is more negatively influenced than global peers by environmental factors. This is because of higher inherent risks in natural gas distribution operations and its midstream operations; as well as because of coal-fired power generation exposure. CPE's gas business includes approximately 76,000 miles of distribution mains combined with its gathering, processing, and transportation operations; this exposes it to a number of environmental risk factors (such as decommissioning of former manufactured gas plant sites and the risk of gas leaks). The electric segment further exposes CPE to environmental risk since approximately 1,300 MW of generation capacity is fossil fuel-based and of this about 75% is coal-based. We believe CPE's plan to transition its generation portfolio away from coal and toward natural gas will require significant investment and help lower the risks. On social risk factors, we see CPE as having a track record of providing affordable, safe, and reliable operations, which are critical to maintain robust regulatory relationships. The company has performed in line with the broader industry.	
Consolidated Edison Inc. (A-/Stable/A-2)	**Sloan Millman**
We see social risks as a more material ESG factor for the company than for most peers'. Given Con Ed's position as the electric and gas distribution provider in New York City, events involving its operations tend to receive heightened public scrutiny due to the city's high population density. Aside from this, Con Ed's internal safety and health management systems support its ability to provide safe and reliable service for its customers, despite the complexity associated with its system. Con Ed environmental risk is not materially different from that of peers. While it has some steam-generation operations, the vast majority of the company's operations are in regulated electric and gas transmission and distribution.	
Energir Inc. (A/Stable/--)	**Andrew Ng**
Energir is primarily a gas distributor but also owns an electric regulated transmission and distribution network. We believe Energir's environmental risk is consistent with the broader industry because the company's gas network is fairly new and does not contain cast-iron or bare-steel pipes which raise the risk of explosions. In addition, the company also participates in Quebec's cap-and-trade system (that it shares with California), to reduce its greenhouse gas footprint in the gas distribution operation. From a social perspective, Energir has a history of providing affordable, safe, and reliable gas and electric utility services to its customers, consistent with the broader industry.	
Eversource Energy (A-/Stable/A-2)	**Obioma Ugboaja**
Eversource's exposure to environmental risk in its electric operations is comparable with that of other transmission and distribution (T&D) operators. Even though the company is venturing into building generation assets, these are offshore wind assets that do not have an extensive carbon footprint. Eversource's water utility subsidiary largely depends on the natural resources surrounding its service territory. This requires the group to be good stewards of the environment while adhering to all federal and state water quality regulations. Such stewardship will remain a key mandate for the group, in our view. Eversource is subject to environmental remediation liabilities associated with several manufactured gas plants (MGP) sites. However, the cost of cleanup is estimated to be immaterial and is likely to be recoverable through the regulatory process. In addition, the company's gas operations are exposed to environmental risks in the normal course of business because of the potential for the company to emit methane. We view the company's ongoing infrastructure replacement program, where it spends significant capital to replace aging natural gas lines that may be	

prone to leaks, as supporting its preparedness, should regulations governing methane emissions become restrictive. From a social perspective, we view Eversource's long track record of providing safe and reliable utility services to its customers as a key factor that could enable it to maintain social cohesion going forward, even though affordability of steadily increasing rates and charges to the customer remains an area that we continue to watch closely.

FirstEnergy Corp. (BBB/Stable/--) — **Matt O'Neil**

We view FirstEnergy's environmental risk as only modestly higher than that of pure network peers, given the company's exposure to coal-fired generation assets. Over 90% of the company's assets are transmission and distribution, significantly reducing its exposure to environmental risks. However, about 80% of the company's 3,790 MW of generation capacity is from coal and exposed to heightened risks. While the company has committed to significantly reduce its carbon emissions, this goal is only very long-term, i.e. by 2045.

Fortis Inc. (A-Negative/--) — **Andrew Ng**

While Fortis is primarily engaged in regulated activity, the company is more negatively influenced by environmental factors than pure network peers'. This is because of some exposure to fossil fuel-based generation (5% of assets, through Tucson Electric Power [TEP]). TEP produces most of Fortis' fossil-based generation and associated greenhouse gas (GHG) emissions. In order to reduce Fortis' environmental footprint, TEP is focusing on reducing its GHG emissions by decreasing its reliance on coal generation and replacing it with a mix of efficient natural gas and renewable generation. In 2018, gas and renewable energy represented about 40% of TEP's energy mix while coal represented about 43% (down from 79% in 2014). By 2030, TEP's goal is to have gas and renewable representing about 57% of its retail energy mix with coal representing only about 38%. From a social perspective, we see Fortis as having a history of providing affordable, safe, and reliable gas and electric utility services to its customers, consistent with the broader industry.

Hydro One Ltd. (A-/Stable/--) — **Andrew Ng**

We see the credit quality of Hydro One Ltd. ([HOL] and subsidiary Hydro One Inc.) as more negatively influenced than global peers by its ownership and governance structure, resulting in our assessment of its management and governance as fair only. Specifically, HOL is partly owned by the government of Ontario and the government could potentially exercise legislative power to promote its own interests and priorities above those of other stakeholders. The Ontario government recently passed an amendment to the Ontario Energy Board Act to exclude any compensation paid to HOL's CEO and other senior executives from consumer rates. We view this legislative action as a governance deficiency related to HOL's ownership structure since the Ontario Province exercised its legislative authority to lower electricity rates, consistent with the government's election campaign promises. In our view, the use of this legislative authority to influence HOL's compensation structure for executives undermines the effectiveness of the company's governance structure, and potentially promotes the interests and priorities of the Ontario government above those of other stakeholders. We also note that these events followed the 2018 resignation of HOL's entire previous board of directors. Additional interferences in HOL's business or operating decisions could weaken the company's governance, reflecting severe deficiencies. From a social perspective, HOL has a history of providing affordable, safe and reliable electric utility service to its customers, consistent with the broader industry.

PPL Corp. (A-/Stable/A-2) — **Gerrit Jepsen**

PPL's credit quality is more negatively influenced than global peers by environmental risk factors given that being a Kentucky-based coal generator increases environmental risks of a mostly network based business. Please see LG&E and KU Energy LLC., and Kentucky Utilities Co. for further details.

Toronto Hydro Corp. (A/Stable/--) — **Andrew Ng**

We see Toronto Hydro's ESG related exposure as similar to the broader industry. The company is a pure electric distribution operator. From a social perspective, Toronto Hydro has a history of providing affordable, safe, and reliable electric utility service to its customers, consistent with the broader industry.

Ratings as of Feb. 11, 2020. Source: S&P Global Ratings.

Latin America

Table 3

Company name/Ratings/Comments	Analyst
Companhia de Saneamento Basico do Estado de Sao Paulo (BB-/Stable/--, brAAA/Stable/--)	**Vinicius Ferreira**
We see SABESP as more exposed to environment risks than peers' because of the operational and financial challenges that the Brazilian water utility may face due to extreme climate events. SABESP relies on water availability in its reservoirs to supply its clients. The impact of extreme climate-related events may have critical consequences to the company and the people within its area of influence. For example, in 2014 SABESP's main reservoir was affected by a significant drought that forced the utility to take several measures to control water consumption throughout the state of Sao Paulo, such as reduced water pressure that resulted in water supply stoppage in some areas. SABESP also offered discounts to customers in order to encourage water consumption savings. These events hurt the company's credit metrics at the time. SABESP also needs to adhere to extensive Brazilian federal, state, and municipal laws and regulations that aim to protect human health and the environment.	

Ratings as of Feb. 11, 2020. Source: S&P Global Ratings.

Asia-Pacific

Table 4

Company/Rating/Comment	Analyst
China Southern Power Grid Co. Ltd. (A+/Negative/--)	**Gloria Lu**
We see environment and social risks for CSG as broadly similar to State Grid of China, the other major grid operator in the country. CSG strives to maintain reliable, safe, and efficient grids to serve the economic and social development in the five southern provinces in China, which in total account for 18% of the national population. It has a satisfactory operational track record, and continuously improves the quality of power supply services. CSG plays a significant role in dispatching clean energy from the west to the east. In 2018, it achieved 51.5% electricity generation from non-fossil fuel energy in its service area, much higher than the national average of 29.6%. The company has constructed multiple long-distance ultra-high voltage transmission lines to dispatch surplus hydro and wind power from the less populated areas in the west to load centers in the coastal region. As one of the backbone state-owned companies in China, CSG also undertakes social responsibility through actively participating in the poverty alleviation in the rural areas. In 2018, it invested Chinese renminbi (RMB) 23.7 billion (US$3.4 billion) in poverty alleviation in the electric power industry through building up networks and supplying electricity to the rural or impoverished areas.	
State Grid Corp. of China (A+/Stable/--)	**Apple Li**
SGCC aims to maintain a reliable, safe, and economic network to manage social stability and regulatory risks. As the world's largest power grid operator, SGCC supplies electricity to over 80% of China's population and maintains a satisfactory operational track record. Its environment and social risks are moderate. Managing grid reliability is becoming more challenging with the company's increasing intake of intermittent wind and solar power. SGCC plays a significant role in dispatching renewable energy in China and helping the government achieve its goal of having 20% of primary energy sourced from renewables by 2030. It has constructed multiple long-distance ultra-high voltage transmission lines to dispatch renewable energy to consumption bases in the east. We expect SGCC will continue to spend RMB450 billion-RMB500 billion annually on network construction and upgrades and also undertake critical social responsibility in building up networks and supplying electricity to the rural or impoverished areas in China. The company usually receives government subsidies (RMB15 billion-RMB20 billion annually) to compensate for these costs.	
ETSA Utilities Finance Pty Ltd. (A-/Stable/--)	**Alexander Dunn**
ETSA, the electricity distributor in the state of South Australia, has comparable social risks to its peers. The company manages its stakeholder engagement appropriately, having engaged in customer consultation when developing its draft proposal for the 2020-25 Regulatory Period for the Australian Energy Regulator. The company has also responded to the desire of the community for a wider role for renewable power and distribution by incorporating a third element, "Transitioning to the new energy future," into its strategy.	
SGSP (Australia) Assets Pty Ltd. (A-/Stable/--)	**Sonia Agarwal**
As a predominately energy transmitter and distributor, SGSPAA's environmental and social risks are relatively benign and comparable to network peers. With a footprint across multiple eastern and northern states of Australia, the company's social factors include providing reliable and safe electricity and gas networks in its service area. We believe that the company is well experienced with an established track record.	

Ratings as of Feb. 11, 2020. Source: S&P Global Ratings.

This report does not constitute a rating action.

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North American Regulated Utilities Face Additional Risks Amid Coronavirus Outbreak

March 19, 2020

Key Takeaways

- S&P Global economists' now forecast a global recession this year, with the U.S. expected to post a seasonally adjusted second quarter contraction of about 6% before recovery begins in the second half of the year.
- We believe that the majority of North American regulated utilities are well positioned to handle the immediate impact of COVID-19. However, the pandemic could negatively affect a few outliers and those issuers already facing downside ratings pressure prior to the arrival of the coronavirus.
- Some electric utilities with disproportionate exposure to commercial and industrial class of customers could be vulnerable to reduced sales volumes, absent any regulatory counter mechanisms such as decoupling.
- Utilities with cyclical non-utility businesses could suffer downturns in the cycle.
- Utilities with strict construction schedules related to large-scale projects may find it difficult to meet tight deadlines.
- A sustained COVID-19 pandemic may constrain some utilities' ability to execute on planned equity issuance or weaken access to the capital markets.

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S&P Global Ratings acknowledges a high degree of uncertainty about the rate of spread and peak of the coronavirus outbreak. Some government authorities estimate the pandemic will peak in June or August, and we are using this assumption in assessing the economic and credit implications of the pandemic. We believe measures to contain COVID-19 have pushed the global economy into recession and could cause a surge of defaults among nonfinancial corporate borrowers (see "COVID-19 Macroeconomic Update: The Global Recession Is Here And Now" and "COVID-19 Credit Update: The Sudden Economic Stop Will Bring Intense Credit Pressure," published on March 17). As the situation evolves, we will update our assumptions and estimates accordingly.

As the World Health Organization (WHO) designates the novel COVID-19 disease a global pandemic, and capital market activity indicates heightened volatility, we've looked at how the outbreak could affect the credit quality of North American regulated utilities. This comes as major

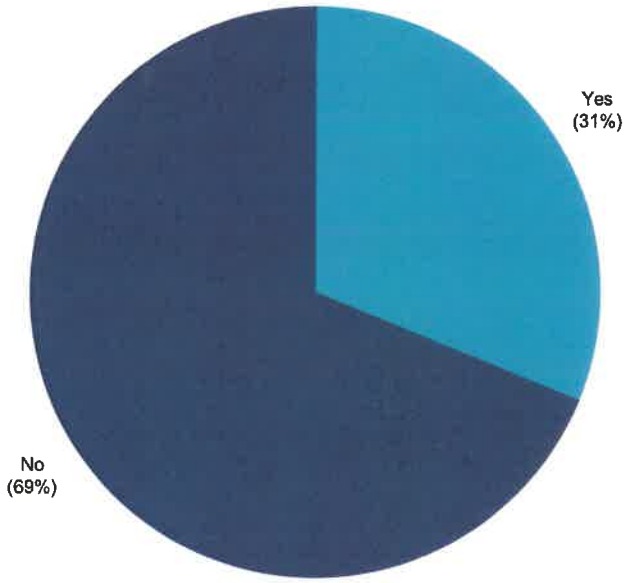
sporting events, concerts, and businesses suspend, cancel, or curtail their activities in response to the outbreak. Our base case now includes a global recession this year, and we believe that the sector would most likely weather its effects. That being said, a prolonged pandemic could result in ratings pressure on a few issuers with limited downside cushion in their ratings or negative outlooks.

Most Regulated Utilities Are Well Positioned To Handle The Immediate Impact

In the near term, utilities will likely see some reduced sales volumes as major sporting events, concerts, and businesses, scale back drastically, compounded even further by social distancing requirements being mandated or recommended by federal and local governments across North America. But we believe that most utilities in the sector are well positioned to deal with this short-term hurdle. First, they provide an essential service to consumers and businesses, most of whom will continue to rely on the steady supply of utility services. This means that most regulated electric, gas and water utilities are likely to be insulated since they mostly provide service to residential customers. In addition, some of these utilities benefit from a regulatory concept known as decoupling. Decoupling is a mechanism that protects utility margins irrespective of sales volume declines, and some North American regulated utilities have used this approach to manage declining sales volumes historically primarily due to conservation (see charts 1 and 2).

Chart 1

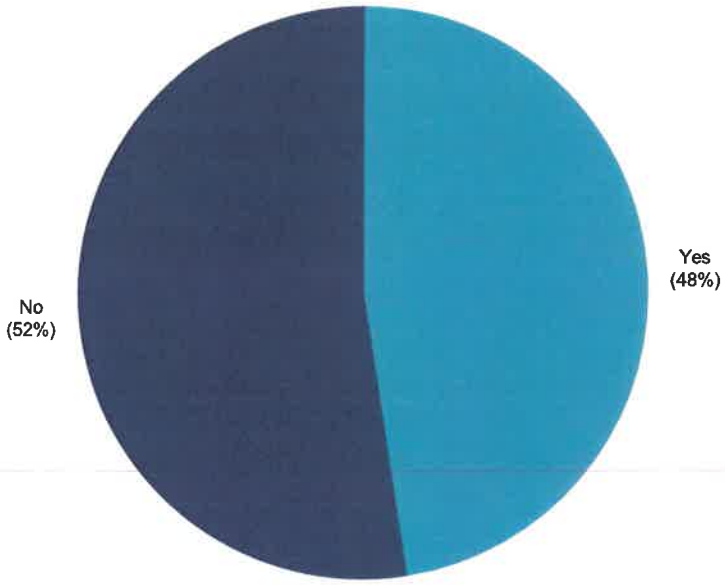
Revenue Decoupling Available To Electric Utilities Across North America



Source: S&P Global Ratings and company data.

Chart 2

Revenue Decoupling Available To Gas Utilities Across North America



Source: S&P Global Ratings and company data.

Some Electric Utilities Could Be Vulnerable To Pandemic Risks Given Limited Downside Cushion

For utilities with negative outlooks or limited cushion in their financial risk profiles, most at risk would be those electric utilities that serve large commercial and industrial customers. Decoupling is not available in every state, and varies between electric and gas utilities (see charts 1 and 2). As such, electric utilities with disproportionately large commercial and industrial customers could be vulnerable, should the COVID-19 outbreak persist beyond our base-case expectations. This reflects our view that electric utilities whose revenues largely depend on commercial and industrial activity could see weaker cash flows if the outbreak persists, heightening regulatory lag, and weakening their ability to earn their authorized returns (see table 1).

Table 1

Select North American Regulated Utilities With High C&I Exposure

Retail Revenues ('000)

Utility name	Residential	Commercial	Industrial	Total	C&I revenues as a % of total retail revenues
ALLETE Inc.	125,339	141,823	465,335	732,497	83%

Table 1

Select North American Regulated Utilities With High C&I Exposure (cont.)

Retail Revenues ('000)

Utility name	Residential	Commercial	Industrial	Total	C&I revenues as a % of total retail revenues
Wheeling Power Co.	51,556	42,123	195,678	289,357	82%
Southwestern Public Service Co.	376,530	424,218	474,205	1,274,953	70%
Northern Indiana Public Service Co.	494,682	507,730	615,169	1,619,793	69%
Mississippi Power Co.	273,058	293,464	320,827	887,349	69%
Otter Tail Power Co.	127,539	211,261	59,267	398,067	68%
Entergy Louisiana LLC	1,235,152	1,002,636	1,455,084	3,692,871	67%
Madison Gas and Electric Co.	143,780	254,525	13,545	411,850	65%
Black Hills Power Inc.	75,319	99,081	32,747	207,147	64%
Northen States Power Co. (Wisc.)	267,919	307,277	155,993	731,189	63%
MidAmerican Energy Co.	695,919	437,020	758,342	1,891,280	63%
Interstate Power and Light Co.	594,530	502,986	507,157	1,604,673	63%
Sierra Pacific Power Co.	276,436	262,688	187,519	726,644	62%
Wisconsin Public Service Corp.	382,776	381,459	239,595	1,003,832	62%
Public Service Co. Of Colorado	1,049,128	1,263,666	416,784	2,737,949	61%
Monongahela Power Co.	430,457	282,024	375,511	1,087,993	60%
Southern Indiana Gas and Electric Co.	218,234	158,617	168,935	545,786	60%
Montana-Dakota Utilities Co.	126,173	149,843	36,081	312,097	60%

C&I--Commercial and Industrial class of customers. Source: U.S. Energy Information Administration (EIA) -Form 861 (data as of 2018), S&P Global Ratings.

Utilities With Cyclical Non-Utility Businesses May See Downturns In These Higher-Risk Areas

S&P Global Ratings economists now forecast a global recession this year, with risks firmly on the downside. In the U.S., this means marginally negative growth in the first quarter, with a seasonally adjusted, annualized contraction of about 6% in the second quarter before recovery begins in the second half of the year. Separately, S&P Global Ratings also lowered all of its West Texas Intermediate (WTI) and Brent Henry crude oil price assumptions, including its Henry Hub natural gas price assumption for 2020-2022 and beyond. The growth prospects for utilities with cyclical non-utility activities are partially tied to macroeconomic factors. Hence, utilities with these higher-risk businesses, including those with exposure to construction services or midstream, may see faster downturns in the cycle in a prolonged outbreak. For those with midstream activities the

credit risks primarily reflect the potential for incremental commodity and volumetric risks, which are largely mitigated through fixed contractual arrangements with third-party counterparties or through hedges (see table 2).

Table 2

Select North American Regulated Utilities With Cyclical Non-Utility Businesses

Utility/rating	Non-utility business	% of non-utility business*	Base-case FFO/debt for 2020	Ratings downside trigger
Southwest Gas Holdings Inc. (BBB+/Negative/--)	Construction Services	25-30%	19-20%	19%
OtterTail Corp. (BBB/Stable/--)	Plastics & Manufacturing	25%	19-20%	20%
MDU Resources (BBB+/Stable/A-2)	Construction Materials & Services	50%	20-23%	15%
CenterPoint Energy Inc. (BBB+/Stable/A-2)	Midstream	15%	14%	13%
OGE Energy Corp. (BBB+/Stable/A-2)	Midstream	20%	21-22%	16%
DTE Energy Co. (BBB+/Stable/A-2)	Midstream	15%	14-15%	13%
Dominion Energy Inc. (BBB+/Stable/A-2)	Midstream	15-20%	15-16%	13%
Sempra Energy (BBB+/Negative/A-2)	Midstream	15%	16%	16%
AltaGas Ltd (BBB-/Stable/--)	Midstream	50%	11-12%	10%

*Compared to total consolidated EBITDA. FFO--Funds from operations. Source: S&P Global Ratings and company data.

Those With Tight Construction Deadlines Face Project Execution Risk

In general, the sector operates with negative discretionary cash flow. This in large part reflects the capital-intensive nature of a sector that spends capital on various projects, such as replacing power generation plants, investing in liquefied natural gas (LNG) facilities, modernizing an aging grid, and investing in technology. For utility holding companies, such as Southern Co., Dominion Energy Inc., and Duke Energy Corp., already beset with delays to key projects, and that face tight deadlines, a persistent viral outbreak heightens project execution risk for certain large scale projects (see table 3).

Table 3

Select N.A. Regulated Utilities Undertaking Large Capital Projects

Utility/rating	Project name	Project type	Expected in-service date
Southern Co. (A-/Negative/A-2)	Alvin W. Vogtle Power Plant Units 3 & 4	Nuclear Power Generation	2021§
Dominion Energy Inc. (BBB+/Stable/A-2)	Atlantic Coast Pipeline (ACP)	Inter-state Gas Pipeline	2021**
Duke Energy Corp. (A-/Stable/A-2)	Atlantic Coast Pipeline (ACP)	Inter-state Gas Pipeline	2021**

§For Unit 3. Unit 4 in-service date-November 2022. **Phase 1: Mechanical completion of ACP project. Source: S&P Global Ratings and company data.

Unrestrained Market Volatility May Challenge Planned Equity Issuance Or Access To Liquidity

Recent turbulence in the equity markets, some of which is linked to COVID-19, suggests that market volatility could continue for some time. We previously noted that utilities are experiencing a general weakening in their financial measures. We expect the sector's average funds from operations (FFO) to debt to be just below 16% for 2020-2021, up from a forecast low of 15.5% for 2019, and down from approximately 18% in 2017. The expected improvement for the 2020-2021 period in part reflects planned equity issuances by some utilities. In 2019, the regulated utilities sector issued over $30 billion in equity, and our current base case assumes equity issuance of approximately $7 billion in 2020. We now believe that market volatility may put a damper on previously planned equity issuance, exposing those with reduced cushion in their financial measures. Moreover, we recently observed a general tightening of the commercial paper (CP) market but utilities now appear to be effectively managing to extend maturities. Investment-grade regulated utilities have historically maintained at least an adequate or better liquidity assessment, largely reflecting access to the capital markets, and ample coverage on their committed revolving credit facilities, some of which is used as back-up for their CP activities. Notwithstanding, given how quickly capital markets can change, this is an area we will continue to monitor closely.

Greatest Risks Are Limited To A Few Outliers With Limited Downside Protection

Overall, the risk of negative rating actions is limited to a few outliers and those with limited cushion at their ratings. We rate over 240 entities across the sector, and the vast majority of North America regulated utilities benefit from credit-supportive regulatory frameworks, have ample liquidity on their committed credit facilities, and can delay the timing of their capital expenditures as conditions change. As such, we do not expect to see a widespread weakening of credit quality for the sector because of COVID-19. That being said, the virus' outbreak presents some uncertainty, and we could see selected rating actions as we continue to monitor developments. In the end, our assessment of the impact of COVID-19 on the sector's credit quality may hinge on three key areas, namely, continued access to the capital markets for funding and liquidity needs, robust regulatory mechanisms to mitigate potential declines in sales volumes, and for those with tight construction schedules, sufficient protocols and flexibility to adjust work sequencing while adhering to strict deadlines.

This report does not constitute a rating action.

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COVID-19: The Outlook For North American Regulated Utilities Turns Negative

April 2, 2020

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Key Takeaways

- We are revising our assessment of the North America regulated utility industry to negative from stable.
- We expect that the utility industry will remain a high-credit-quality investment-grade industry.
- We expect that the industry's median rating, which is 'A-', could weaken to the 'BBB+' level.
- Prior to the coronavirus outbreak in North America about 25% of the utilities had a negative outlook or ratings that were on CreditWatch with negative implications.
- Additionally, many utilities with a stable outlook have minimal financial cushion at the current rating level.
- We expect COVID-19 will weaken the industry's 2020 funds from operations (FFO) to debt by about 100 basis points.

S&P Global Ratings acknowledges a high degree of uncertainty about the rate of spread and peak of the coronavirus outbreak. Some government authorities estimate the pandemic will peak about midyear, and we are using this assumption in assessing the economic and credit implications. We believe the measures adopted to contain COVID-19 have pushed the global economy into recession (see our macroeconomic and credit updates here: www.spglobal.com/ratings). As the situation evolves, we will update our assumptions and estimates accordingly.

S&P Global Ratings is revising downward its assessment of the North America utility industry to negative from stable. The North America utility industry consists of about 250 water, gas, and electric utilities. While we expect the sector to remain an investment-grade industry, we nevertheless project a modest weakening of credit quality within the industry. Credit quality had been gradually weakening prior to the COVID-19 outbreak with about 25% of companies on negative outlook or with ratings on CreditWatch with negative implications. We view COVID-19 as a source of incremental pressure and expect that the recession will lead to an increasing number of downgrades and negative outlooks. Currently, the median rating within the industry is 'A-' and over the next 12 months, we expect that the industry median could move to 'BBB+'.

Credit Quality Was Weakening Even Before COVID-19

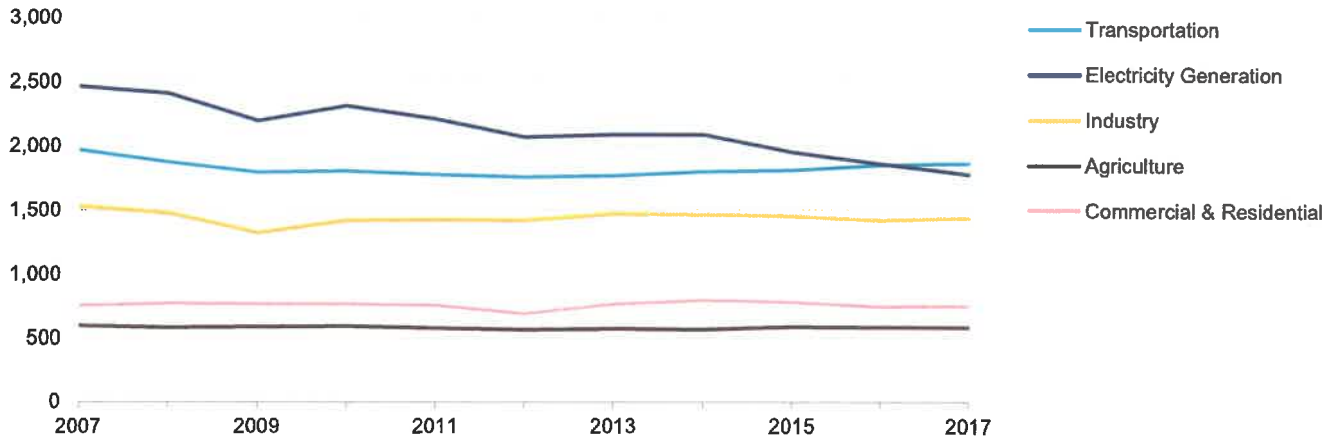
The North America regulated utility industry's credit quality was already weakening prior to COVID-19. This reflected companies' more consistent ability to manage credit measures closer to the downgrade threshold, leaving very minimal financial cushion at the current rating level. We generally view the industry's cash flows as more predictable and steady than most other corporate industries. Even so, unless a management team can proactively implement corrective actions, a utility with minimal financial cushion at the current rating coupled with an unexpected material event, typically results in a negative outlook or a downgrade.

The industry has faced many unexpected events and credit obstacles over the past two years. Some of these include safety (NiSource Inc.), wildfires (PG&E Corp., Edison International, and Sempra Energy), large capital projects (Southern Co., SCANA Corp., Eversource Energy, Duke Energy Corp., and Dominion Energy Inc.), utility acquisition (Fortis Inc., Emera Inc., ENMAX Corp., and NextEra Energy Inc.), and nonutility acquisitions (DTE Energy Co.). Each of these instances have either significantly reduced the prior cushion at the current rating level, triggered negative outlooks, or downgrades.

Also pressuring the industry's credit quality is the critical focus on environmental, social, and governance (ESG) factors. Over the past decade, the industry has done an outstanding job to significantly reduce its greenhouse gas emissions and reduce its reliance on coal-fired generation.

Chart 1

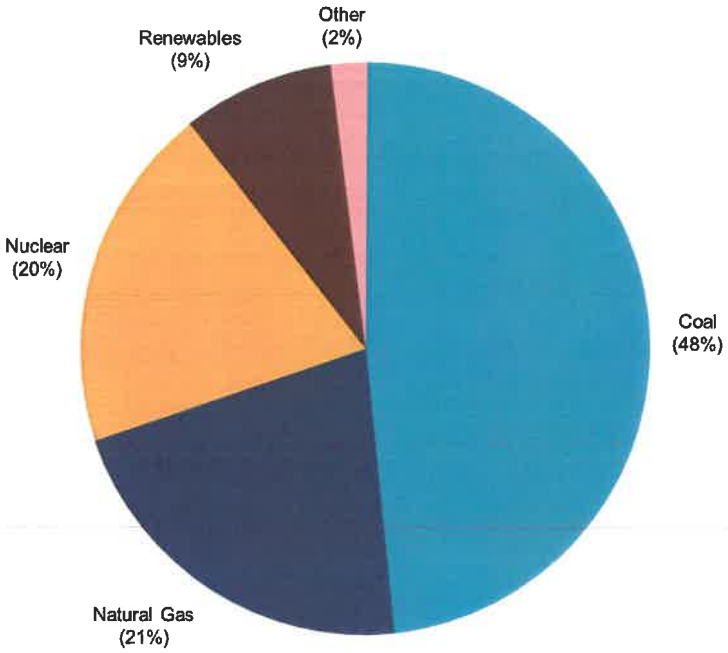
Total U.S. Greenhouse Gas Emissions By Economic Sector From 2007-2017
Million metric tons of CO2 equivalents



Source: U.S. Energy Information Administration.

Chart 2

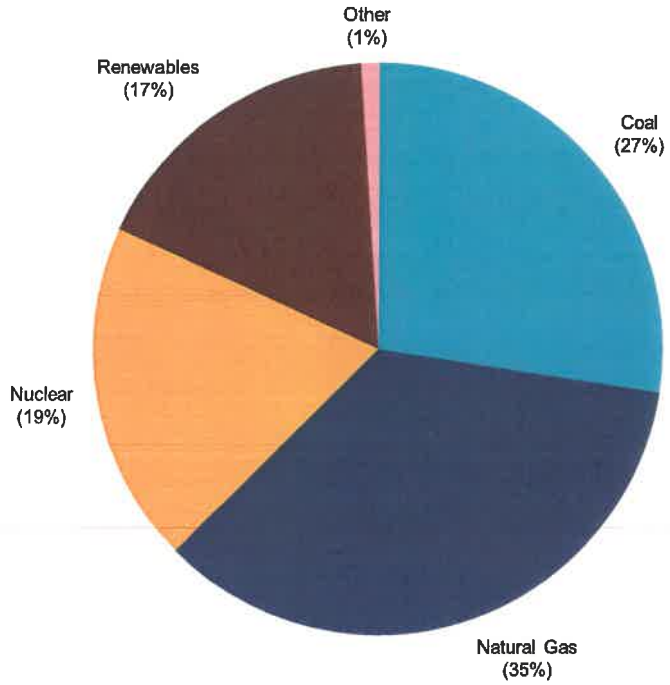
U.S. 2008 Generation Mix



Source: U.S. Energy Information Administration.

Chart 3

U.S. 2018 Generation Mix



Source: U.S. Energy Information Administration.

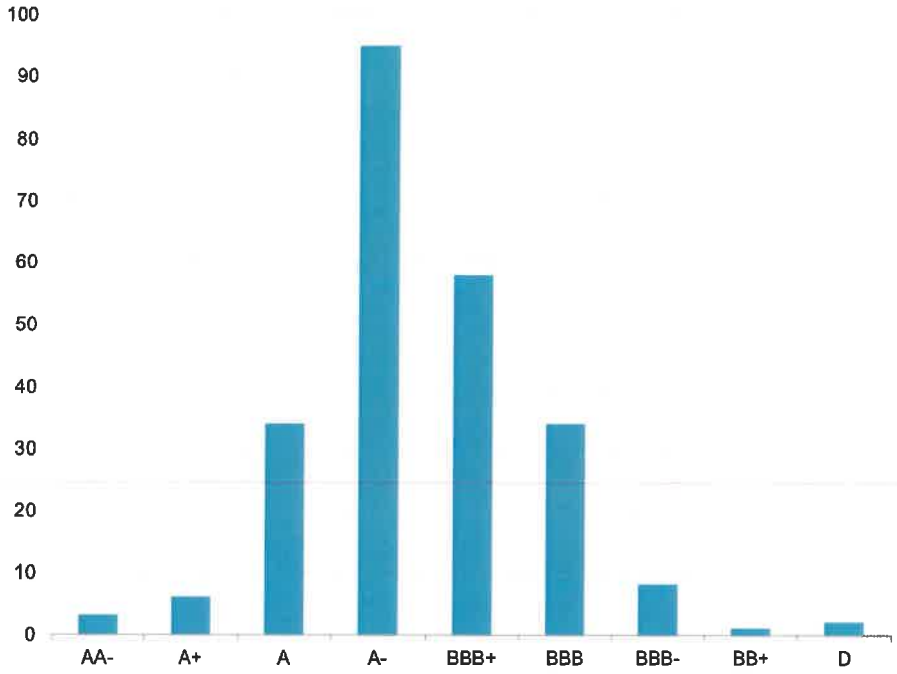
However, there are individual companies such as American Electric Power Co. Inc., Ameren Corp., and Evergy Inc. that despite having long-term plans to reduce their reliance on coal-fired generation, will continue to rely heavily on that fuel source for the next decade, possibly pressuring credit quality.

Rating Upgrades And Downgrades

Over the past decade, there have been generally more upgrades than downgrades in the sector. This has strengthened the utilities' credit quality since the financial recession and currently, the median rating within the industry is 'A-'.

Chart 4

North American Regulated Utilities Ratings Distribution 2019

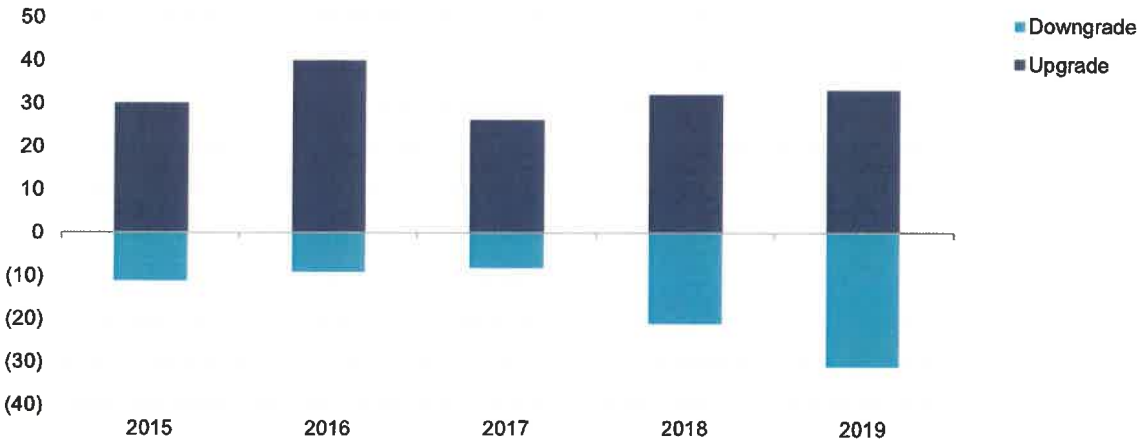


Source: S&P Global Ratings.

When analyzing our rating upgrades and downgrades in the sector for 2019, even prior to COVID-19, we note a weakening of credit quality.

Chart 5

North American Regulated Utilities Upgrades And Downgrades



Source: S&P Global Ratings.

While 2019 may initially appear to be similar to prior years with upgrades outpacing downgrades at 33 to 31, the underlying analysis tells a different story. In 2019, about 60% of the upgrades were attributed to S&P Global Ratings' revised group rating methodology criteria. Under the revised criteria, we placed more emphasis on the regulation of a utility allowing for a subsidiary with effective regulation and with a stand-alone credit profile that is higher than its group to potentially be rated higher. Absent the revised criteria, downgrades would have outpaced upgrades by 30 to 13 in 2019. This is a clear indication that even before COVID-19, the credit quality of the North America regulated utility sector had weakened.

Operating With Minimal Financial Cushion

While many companies with a negative outlook such as Puget Energy Inc. have minimal financial cushion at their current rating level, many others with a stable outlook also have minimal financial cushion at their current rating level. Companies with a stable outlook and minimal financial cushion include Exelon Corp., ALLETE Inc., American Water Works Co. Inc., Edison International, AVANGRID Inc., DPL Inc., CenterPoint Energy Inc., and Madison Gas & Electric Co. As the financial effects of COVID-19 continue to take hold, we expect that even companies with stable outlooks may experience ratings downward pressure. This is another reason that underscores our assessment that the industry outlook has turned negative.

How COVID-19 May Affect The Sector

In general, we assume that the U.S. will experience more than a 12% contraction in GDP during the second quarter and estimate the pandemic will peak between June and August (Global Macroeconomic Update, March 24: A Massive Hit To World Economic Growth, March 24, 2020).

For the North America utility industry, we expect that COVID-19 will reduce the commercial and

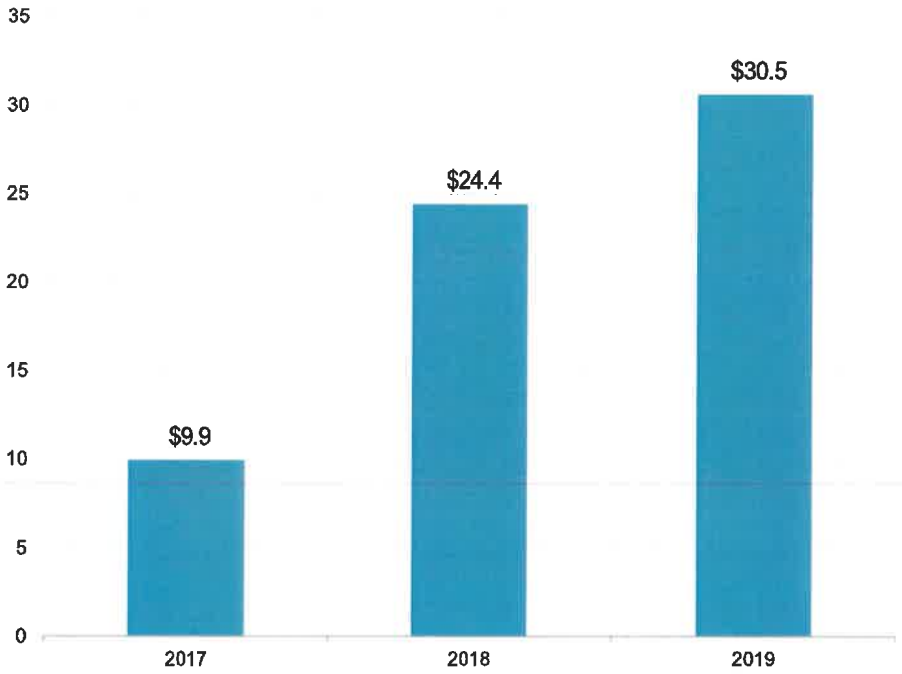
industrial (C&I) usage (North American Regulated Utilities Face Additional Risks Amid Coronavirus Outbreak, March 19, 2020). While some utilities will be able to offset some of the lower C&I usage through various regulatory mechanisms that include decoupling of revenues mechanisms and formula rates, many others will see a weakening of sales. Furthermore, as the recession continues to take hold, we expect bad debt expense will increase as it becomes increasingly more difficult for customers to pay their bills. While many utilities can defer these costs for future recovery, as these balances grow, historically we have seen incidents where utilities negotiate with their commission's to write off some of these costs as part of a larger agreement. Overall, we expect that these effects will result in a weakening of credit measures.

On a positive note, the industry continues to exhibit adequate liquidity and access to the debt markets, despite uneven performance of the commercial paper market for tier 2 issuers. The industry is benefiting from proactive risk management of establishing large credit facilities, having good access to additional liquidity through new term loans from banks, and public issuance of utility debt. These positive developments contrast to the last financial recession, when many utilities fully drew on their available credit lines and access to the banks or to the public debt market was effectively shut for many weeks.

Yet availability to the equity markets remains extraordinarily challenging. In 2019, the industry issued more than $30 billion in equity to preserve credit quality and heading into 2020 many companies within the industry assumed equity issuances as part of their financing plans. Given the industry's negative discretionary cash flow because of its high capital spending and lack of access to the equity markets, we expect that this will also lead to a weakening of credit measures.

Chart 6

North American Regulated Utilities Equity Issuance In Billions



Source: S&P Global Ratings.

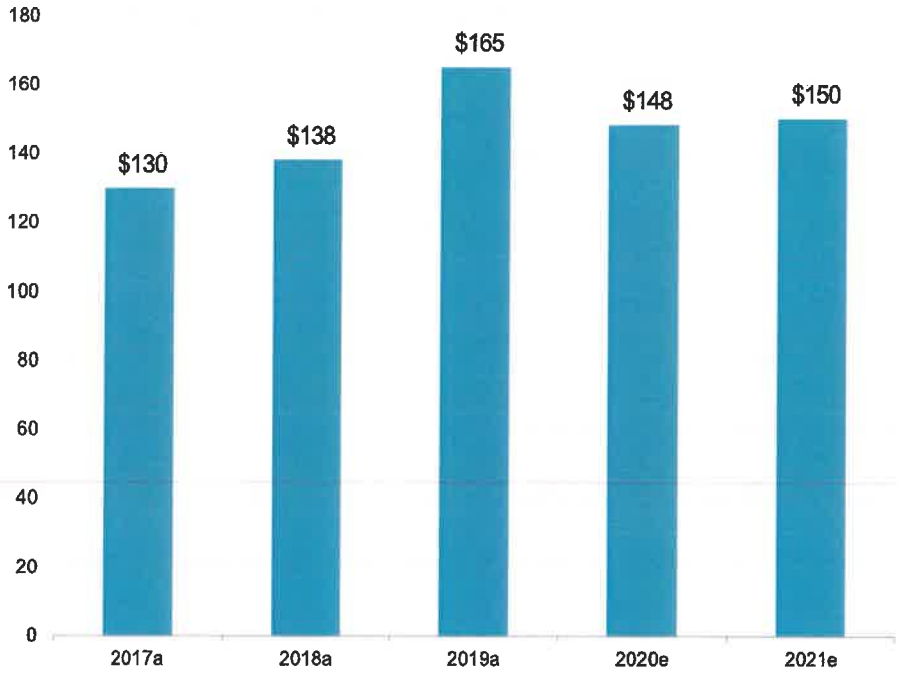
Another area of concern are utilities that rely to various degrees on nonutility businesses that have commodity exposure (S&P Global Ratings Cuts WTI And Brent Crude Oil Price Assumptions Amid Continued Near-Term Pressure, March 19, 2020). These include OGE Energy Corp., CenterPoint Energy Inc., DTE Energy Co., Dominion Energy Inc., Public Service Enterprise Group Inc., NextEra Energy Inc., and Exelon Corp. While many of them are well hedged in the near term, volumetric risk and a longer-term weakening of commodity prices could have a material effect on their credit measures. Overall, assuming that the effects of COVID-19 is only temporary, we would expect that the industry's 2020 FFO to debt will weaken by about 100 basis points, consistent with our revised negative outlook for the industry.

The Industry Has Levers

Depending on the severity of the recession, the industry has important levers that could mitigate some of the risks. This includes reducing capital spending and dividends. Currently, we estimate that 2020 capital spending will approximate $150 billion.

Chart 7

North American Regulated Utilities Capital Expenditures In Billions



a--actual. e--estimate. Source: S&P Global Ratings.

Based on our conversations with the companies within the industry there is a wide range as to how deeply a utility can reduce its capital spending and still maintain safe and reliable services. Some utilities can only reduce capital spending by as little as 15%, others by as much as 60%. Our analysis indicates that the majority of utilities could reduce their capital spending on a temporary basis by about 40% and maintain safe operations. Should the recession prolong, we would expect that the industry would generally first reduce capital spending and only afterward cut dividends. There is precedent that during times of high financial stress, utilities have reduced their dividends and we would expect that the industry, if necessary, would use this lever, acting prudently to preserve credit quality.

Credit quality of the North America regulated utility industry was already weakening prior to COVID-19. We believe that incremental challenges that the industry will face from this recession exacerbates financial pressure and underpins our revised negative outlook for the industry. However, we also expect that this industry's credit quality will continue to outperform most other corporate industries despite these challenges. Furthermore, we expect that the utilities will use the levers available to them to reduce credit risks and limit the financial impact from COVID-19. Overall, while we expect a weakening to the industry's credit quality, we continue to firmly believe that this industry will remain a high-quality, investment-grade industry.

This report does not constitute a rating action.

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An Old Age Problem? While North American Regulated Utilities' Credit Measures Could Dip On Pension Underfunding, Cost Recovery Ability Supports Credit Quality

April 20, 2020

Key Takeaways

- We anticipate a weakening in the North American regulated utility industry's funds from operations (FFO) to debt by about 50 basis points due to postretirement fund investment losses reflecting recent market returns, potentially lower postretirement contributions, and a lower discount rate when valuing postretirement benefit obligations (PRBOs).
- However, on a qualitative basis, we fully expect these companies will effectively manage their regulatory risk and recover postretirement costs through the regulatory process over the long term.
- As such, we do not anticipate that any weakening in credit measures over the next year due to further pension underfunding will directly lead to an erosion in credit quality.
- Over the past decade, the industry has steadily improved its postretirement funding levels, primarily reflecting utility contributions and solid market returns, providing some flexibility for the current economic downturn.

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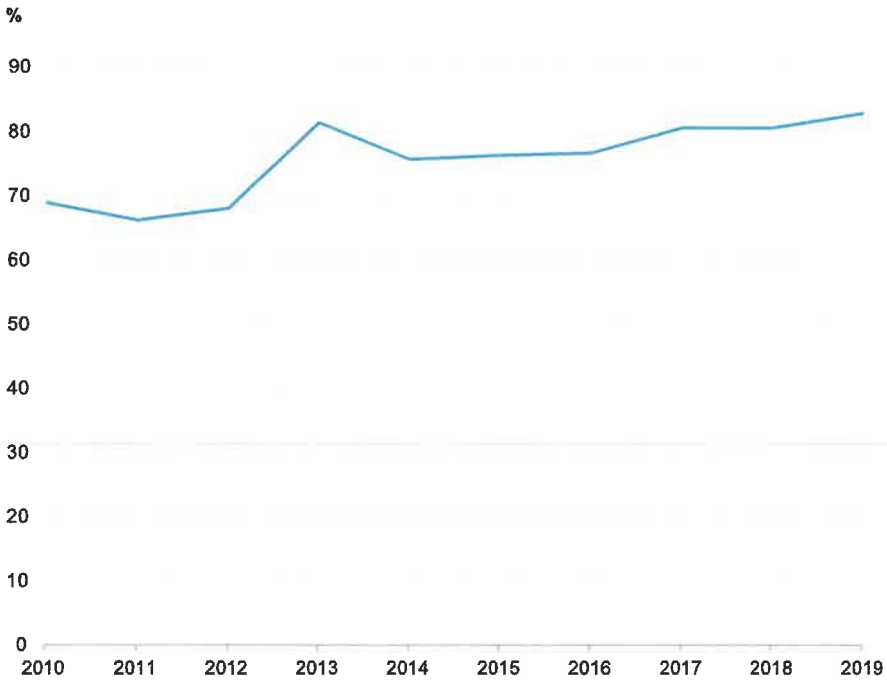
Many utilities are proactively managing the risks of an aging workforce. Associated with this risk is the level of funding for PRBOs. Over the past decade, funding levels have gradually improved, reflecting company contributions, market returns, and benefit modifications. At year-end 2019, the industry's net PRBOs were manageable, with average funded levels greater than 80%, which provides some flexibility for short-term asset value declines and adverse liability revaluations, such as what we'll likely see during this economic downturn.

S&P Global Ratings acknowledges a high degree of uncertainty about the rate of spread and peak of the coronavirus outbreak. Some government authorities estimate the pandemic will peak about midyear, and we are using this assumption in assessing the economic and credit implications. We believe the measures adopted to contain COVID-19 have pushed the global economy into recession (see our macroeconomic and credit updates here: www.spglobal.com/ratings). As the

situation evolves, we will update our assumptions and estimates accordingly.

Chart 1

North American Regulated Utilities' Approximate Average Postretirement Obligation Funding Levels



Source: S&P Global Ratings and company data.

As PRBOs represent a future call on cash that provide no future offsetting operating benefit for corporations, S&P Global Ratings increases its adjusted debt figures for corporate entities for the underfunded PRBO net of tax benefits. Some of the critical assumptions we use in determining the underfunded level include asset returns, company contributions, and discount rates.

S&P Global Ratings PRBO Debt Adjustment

(Gross Pension Liability + Gross OPEB Liability – Pension Plan Assets – OPEB Plan Assets) X (1 – Tax Rate)*

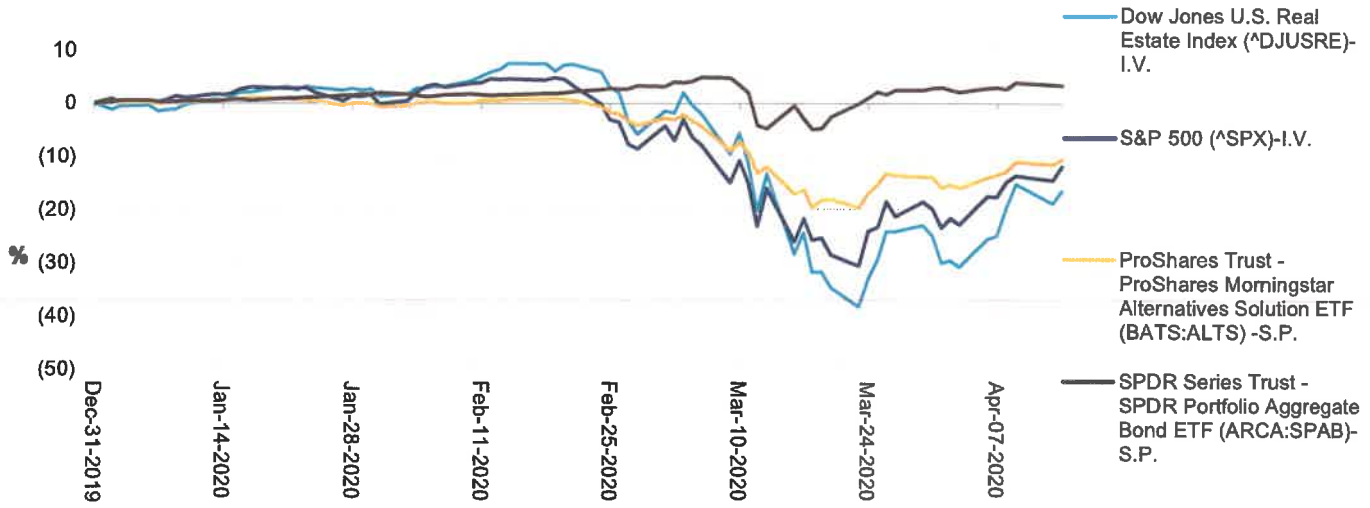
*We do not make this adjustment if plan assets are greater than plan liabilities.
OPEB—Other postemployment benefits.

Currently, S&P Global Ratings is projecting a 12.7% decline in the S&P 500 for 2020 (An Already Historic U.S. Downturn Now Looks Even Worse, April 16, 2020). As COVID-19 has contributed to broader market turbulence during the early part of 2020, we expect that lower asset valuations and a lower discount rate will cause us to increase our PRBO debt adjustment for the utility

industry, leading to weaker credit measures. For our analysis, because a significant portion of postretirement assets are invested in fixed income, we project that the industry's 2020 postretirement assets have declined by only about 5%, using current market returns through early April. Our analysis is based on 2019 data for 90 publically disclosed utility companies, which, on average, had an allocation for their postretirement funds to equity securities (40%), fixed income securities (38%), real estate (2%), and other alternative assets (20%).

Chart 2

Asset Performance Through April 14, 2020

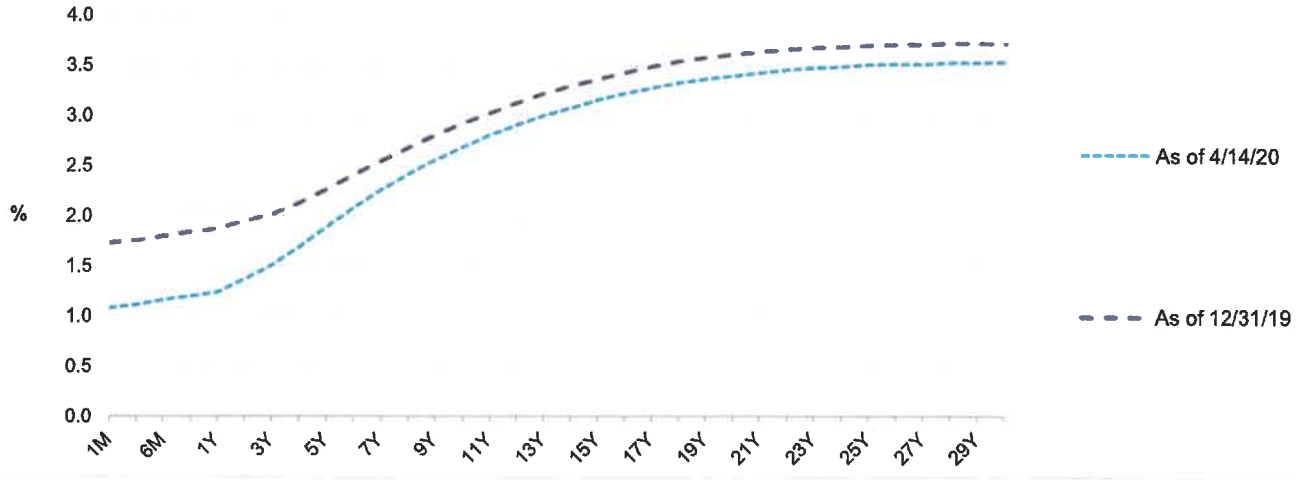


I.V.--Index value. S.P.--Share pricing. Source: S&P Global Ratings and company data.

We also expect higher PRBOs because of a lower assumed discount rate used to determine the obligations. The use of a lower discount rate increases PRBOs on the balance sheet. As a result, our adjusted debt for corporates rises, thus weakening credit measures. High-investment grade corporate bond yield curves, which are often used as a proxy for utility companies when determining the discount rate of their PRBOs, have moved downward in 2020. This is also consistent with our projection for 10-year treasury yields to end 2020 at 1.1% (An Already Historic U.S. Downturn Now Looks Even Worse, April 16, 2020), which is lower than the 1.8% yield at year-end 2019. Using the current change in the 'AA' corporate bond yield curve from year-end 2019 as a proxy, we estimate that the discount rates used to value many of the postretirement obligations could fall by 0.25%. Based on public disclosures, we estimate, that a 0.25% decline in discount rates corresponds to about a 3% increase in gross PRBOs.

Chart 3

'AA' Corporate Bonds All-In Yield Moving Average



M--Month. Y--Year. Source: S&P Global Ratings.

When compounding the impacts of declining asset values and lower discount rates (assuming ongoing service and interest costs and potentially lower contributions in 2020), we estimate that net postretirement obligations could increase by about 100% and that PRBO funding ratios for utilities could decline by an average of about 10%. Based on our analysis, we expect that the North American regulated utility industry's FFO to debt will weaken by about 50 basis points. However, we do not expect a uniform weakening of credit measures. For about two-thirds of the industry where PRBOs do not represent a material portion of total adjusted debt, we expect that FFO to debt will only deteriorate by about 30 basis points. We expect that the credit measures for utilities that have pension liabilities representing a higher percentage of total adjusted debt will be most negatively affected.

The 20 North American Utilities With The Largest Postretirement Obligations As A Proportion Of Total Adjusted Debt

Company	PRBO as a percentage of total adjusted debt (2018)	Net PRBO (mil. US$)*
Ontario Power Generation Inc.	41.50%	5,219
Connecticut Natural Gas Corp.	29.30%	103
The United Illuminating Co.	19.40%	261
Unitil Corp.	16.80%	143
Otter Tail Corp.	16.50%	170
Southern Connecticut Gas Co.	16.50%	74
Oncor Electric Delivery Co. LLC	16.10%	1,764
IDACORP Inc.	15.70%	525

The 20 North American Utilities With The Largest Postretirement Obligations As A Proportion Of Total Adjusted Debt (cont.)

Company	PRBO as a percentage of total adjusted debt (2018)	Net PRBO (mil. US$)*
Hawaiian Electric Industries Inc.	15.10%	527
New York State Electric & Gas Corp.	14.50%	271
Commonwealth Edison Co.	14.30%	1,979
Southwest Gas Corp.	13.70%	425
Exelon Corp.	13.30%	6,395
Central Maine Power Co.	12.30%	192
Cleco Power LLC	12.10%	275
Southwest Gas Holdings Inc.	12.00%	425
Rochester Gas & Electric Corp.	11.50%	175
Avangrid Inc.	11.20%	1,107
Evergy Metro Inc.	11.10%	487
Baltimore Gas & Electric Co.	10.60%	446

Note: Companies only included if the debt adjustment had a direct impact on the rating, i.e., noninsulated subsidiaries were excluded. *Latest available data as per S&P Global Ratings. PRBO--Postretirement benefit Obligations. Source: S&P Global Ratings and company data.

Effect On Credit Quality In 2020

We expect that the current recession and changes to key pension assumptions will result in modestly weaker financial measures for the North America regulated utility industry. However, we don't expect this will directly lead to a deterioration of the industry's credit quality though it may add incremental pressure to issuers that are already under strain from weak metrics. Still, most companies that have large postretirement obligations as a proportion of total adjusted debt--whose credit measures will likely be most affected by these changes--will not experience a material weakening of credit quality. On a qualitative basis, we assume that utilities will continue to fully recover pension costs and obligations through their ratemaking process. This is based on decades of almost full recovery of such costs with very few exceptions over this timeframe. We also note the North America regulated utility industry's long history of effectively managing regulatory risk. As such, we expect no direct deterioration in credit quality due to pension underfunding over the next year, despite an expected modest weakening to the industry's credit measures in 2020.

This report does not constitute a rating action.

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North American Regulated Utilities Face Tough Financial Policy Tradeoffs To Avoid Ratings Pressure Amid The COVID-19 Pandemic

May 11, 2020

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Key Takeaways

- Some North American regulated utilities are negatively affected by weaker economic conditions related to COVID-19 and are facing unexpected incremental pressure on ratings.
- Even before the current downturn and COVID-19, a confluence of factors, including the adverse impacts of tax reform, historically high capital spending, and associated increased debt, resulted in little cushion in ratings for unexpected operating challenges.
- We expect most utilities will be allowed to account for and defer the costs associated with COVID-19 through existing regulatory mechanisms or future rate cases, although the timing and extent of these protections adds uncertainty to already stretched financial profiles.
- With this as a backdrop, individual companies' financial policies may be tested, as some risk jeopardizing ratings that provide efficient access to capital that feeds this sector.
- We believe that most management teams remain mindful of the benefits of maintaining credit quality and limiting risk, and that they will take countermeasures to offset financial profile weakness.
- Tough tradeoffs may have to be considered to forestall potential downgrades and we think most companies will have some ability to influence better outcomes, even in a pandemic.

As many sectors face unprecedented disruption related to demand contraction and turbulent credit markets, our utility analysts are actively engaging with the companies we rate to discuss potential challenges utility management teams face. While utilities are not immune from the effects of the sudden deterioration of economic activity, they generally are well-positioned to ride out short-term demand shocks, including those associated with COVID-19. Utility companies operating in the U.S. and Canada benefit from some of the most credit-supportive business models of any issuers rated by S&P Global Ratings. A well-run utility will typically earn a fair return

on invested capital, and recover all of its costs, including debt service, thanks to the prevalence of cost-of-service rate-making and durable regulatory frameworks. These companies benefit from strong barriers to entry in the form of regulation over a service territory that effectively grants the utility monopoly status. Threats from competitors and substitute products are limited and utilities have demonstrated an ability to manage recent hurdles such as distributed generation and climate change. Still, weaker economic conditions related to COVID-19 have affected some utilities and as the realities of lost revenue comes into focus, we find they are facing unexpected incremental pressure on ratings.

S&P Global Ratings acknowledges a high degree of uncertainty about the rate of spread and peak of the coronavirus outbreak. Some government authorities estimate the pandemic will peak about midyear, and we are using this assumption in assessing the economic and credit implications. We believe the measures adopted to contain COVID-19 have pushed the global economy into recession (see our macroeconomic and credit updates here: www.spglobal.com/ratings). As the situation evolves, we will update our assumptions and estimates accordingly.

Despite Favorable Regulation, Management's Aggressiveness Leaves Little Room For Unexpected Setbacks

Most utility companies will be able to manage the impacts of COVID-19, as existing recovery mechanisms and rate proceedings will allow management teams to recapture lost cash flow with little disruption to financial risk profiles. Bad debts from mandated and voluntary policies not to cut power to vulnerable ratepayers will add to utility pressures, but we expect that utilities will collect most of this through rate cases and the creation of deferred regulatory assets. Given this type of stability in the face of economic downturns, our ratings on regulated utility companies are among the highest in our Corporate and Infrastructure Ratings practices, and we take fewer adverse rating actions in the sector in times of economic turmoil. Of course, utility companies face credit risks, but they are usually not in the form of demand shocks that so often plague typical industrial companies. More often, downgrades result from poorly executed strategic plans, stretched financial profiles from expansion, adverse regulatory rulings, or pressure from operational stumbles.

We certainly do not contend that demand does not matter to utility credit risk: it can at the margin. However, we do not see the pronounced swings in demand typical of more cyclical companies. The extent to which reduced demand prompts ratings actions, which does not occur often, depends on the individual utility and its management of regulatory risk. The relative stability of demand during a recession reflects the essential nature of the commodities provided and the fact that residential customers typically account for the majority of sales. Industrial and commercial demand can vary more, but the picture remains relatively predictable overall. What really differentiates utilities during severe downturns is the consistency and transparency of regulation, which can protect utility top lines. Regulation around the U.S. and Canada varies widely but many regulators have provided support to utilities from demand shortfalls related to conservation or weather, in the form of mechanisms that decouple revenue from sales, formula rate-making, or through other regulatory processes that enable utilities to defer costs for future recovery. In fact, it is because of conservation and the need to manage their businesses without volumetric growth for the last decade that the industry benefits from many favorable regulatory mechanisms. With respect to the current situation, we expect most utilities will be allowed to defer and collect the costs associated with COVID-19 through existing regulatory protections or future rate cases, although the timing and extent of these protections adds uncertainty to already stretched financial profiles.

Table 1

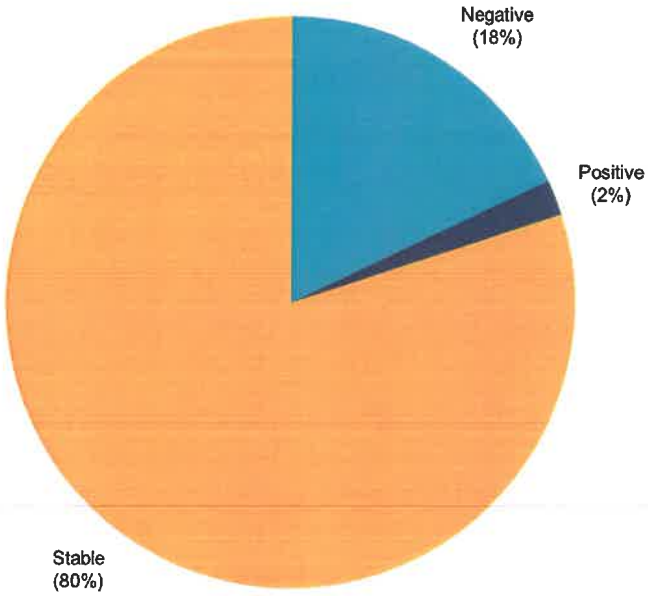
COVID-19 Cost Recovery Provisions

Deferral	Customer payment plan	Pending	Other
Alaska	Colorado	Arizona	Georgia
Arkansas	New Hampshire	Illinois	Texas-PUC
California	North Carolina	Kentucky	
Connecticut	Ohio	Pennsylvania	
Dist. Of Columbia	Rhode Island	Virginia	
Georgia		Wisconsin	
Idaho			
Maryland			
Texas-PUC			
Wyoming			

As of April 20, 2020. Deferral = Costs and/or lost revenues may be deferred for future recovery. Customer payment plan = Lost revenue associated with suspension moratorium to be recovered from individual customer over time. Pending = Proceeding underway/legislation pending to determine cost recovery. Georgia--Lost revenue associated with suspension moratorium proposed to be recovered through existing rate plan for one utility. Texas--PUC-costs or lost revenues may be deferred for future recovery for utilities; interim funding mechanism in place for retail electric providers. Source: Regulatory Research Associates, a group within S&P Global Market Intelligence.

This added uncertainty is really the focal point for our analyses as we update our models for 2020-2022 to reflect the severe U.S. recession in the second quarter of 2020 and a recovery in the second half of the year. As we've noted, many utilities already face rating pressure due to a confluence of factors, including the adverse impacts of tax reform of 2019, historically high capital spending of about $150 billion per year, and associated increased debt levels. These factors have resulted in an unusually high percentage of negative outlooks for the sector. As of March 31, 2020, the percentage of issuers with negative outlooks was near 20% (reduced from 25% in late 2019).

North American Regulated Utilities--Outlook Distribution



As of March 31, 2020. Source: S&P Global Ratings.

Complicating matters is that capital markets will likely remain choppy. The sector's heightened reliance on high equity offerings last year could be constrained due to COVID-19 and new debt issuance has surged in recent weeks as utilities placed historically high levels of additional debt for refinancing and liquidity purposes. The good news is that the debt markets have absorbed new investment-grade issuances, which alleviates immediate concerns about liquidity. The not-so-good news is that this may weigh on some balance sheets and stretched financial profiles. In the end, these issues may test individual companies' financial policies and reveal the amount of risk they are willing to carry without compromising the sector's efficient access to capital.

Stability May Have Set A Financial Policy Trap For Some Companies

The essential nature of utility services, including electric, natural gas, and water, and the strength of the regulatory frameworks across North America breeds a level of confidence that enables utility management teams to dial-in risk management in most business environments. They are accustomed to running with negative free cash, and many have adopted policies that target a level of financial leverage that is just above the downgrade thresholds we communicate in our research reports. Under normal conditions, this is manageable, and the stability of these businesses enables companies to do that with a high degree of success. However, the incremental challenges brought to bear during this pandemic have already tested the prudence of stretching the financial profile as a consistent business policy. Leverage enables companies to grow and realize attractive

returns as long as it is managed to optimal levels. The uncertainties related to COVID-19 have come on quickly, primarily from the commercial and industrial customers facing unprecedented business shocks, high unemployment, and from the downturn in nonregulated activities such as midstream energy and other services. Other pressure in the form of regulatory risk on the timing and extent of recovery related to COVID-19 costs such as bad debts, and swelling pension exposures add to the mix. For a few stretched issuers, the incremental challenges have already resulted in rating actions. For others, financial policy priorities may need reevaluation to solidify financial profiles and avoid credit deterioration, while many others will ride out the current downturn.

Some Utilities Have Limited Financial Cushion To Downside Triggers

Given the above, we believe that ratings pressure will remain to the downside through the 2020-2021 timeframe. The current high proportion of negative outlooks highlights that downside risks outweigh upside potential and a review of our existing projections for these companies only heightens concerns. A review of our projections for rated utility holding companies across the sector reflects the reality that tight cushions to downside triggers will likely persist. This sets the stage for downgrades to outpace upgrades for the near future, possibly lowering the median rating into the 'BBB' category for the first time in years. For many companies we rate, the forecast funds from operations (FFO) to debt ratio for the 2020-21 period is expected to reflect limited cushion above the downside trigger set in our published research. While that certainly does not mean that all of these companies will face downgrades, because some will begin to recover post-recession and others will take steps to address temporary weakness, it does highlight a tightening level of financial performance in an uncertain economic environment. With that said, we believe that management teams generally remain mindful of the benefits of maintaining stable credit quality and managing risk, and will take countermeasures to offset financial profile weakness.

Options Abound For Utilities, But Many Involve Unattractive Tradeoffs

Fortunately, most utility management teams have the ability to pull levers to target financial outcomes. While this is true in any sector, utilities' operating stability supports a greater degree of precision when managing financial risk against other stakeholder objectives. The capacity and willingness to take actions to offset the negative impacts of the current business environment will vary from company to company. So what options are available and at what costs? They include a range of choices including debt issuance (which may pressure credit measures) to reducing dividends and share repurchases (which may hurt share prices). We've highlighted some of the actions available to utility management teams and the costs associated with each (see table 2).

Table 2

Select Actions Regulated Utilities Could Take To Mitigate Operating Challenges

Action	Credit impact	Tradeoff/Costs
Proactive debt issuance	Alleviates immediate liquidity and refinancing concerns, no impact to FFO.	May pressure financial metrics.
Reduce operating and maintenance costs	Can help maintain financial performance including FFO/debt, offsetting lost revenue and bad debt.	If prolonged, may erode operational capabilities.
Reduce capital spending	Reduces free cash flow deficit and preserves cash but no impact on FFO/debt.	May delay key projects or growth plans.
Equity or hybrid capital issuance	Can immediately improve credit metrics to offset FFO shortfall.	Capital markets may limit access, dilution risk.

Table 2

Select Actions Regulated Utilities Could Take To Mitigate Operating Challenges (cont.)

Action	Credit impact	Tradeoff/Costs
Effective regulatory management	Can result in recovery of lost revenue and higher bad debt expense related to COVID-19.	Deferred recovery takes time to mitigate impact to metrics.
Reduce dividends and share repurchases	Reduced discretionary cash flow deficit, preserves cash, no impact to FFO.	Negatively affects share price.

FFO--Funds from operations. Source: S&P Global Ratings.

These steps are part of any utility's toolkit in seeking to secure an optimal capital structure for its business, but the COVID-19 recession is likely to add some urgency to reconsider alternatives. Others may even learn from the crisis, reassess their financial policy targets, and decide to sacrifice some growth or profit potential for the long-range benefit of preserving financial cushions necessary to support credit quality.

Utilities Seek Best Outcomes In A Down Economy--And Look Forward To Better Times

As COVID-19 sets the stage for a challenging year for utility sector credit quality, we remain reasonably optimistic that management teams will commit to credit quality to limit negative rating actions. Fortunately, for utilities, options remain available and most regulators are likely to support recovery of bad debts and lost revenues in one form or another. The painful reality is that COVID-19 came at a bad time for everyone, including utilities that already faced more potential ratings actions then is typical. For the most strained issuers, or those that may not fare as well in front of regulators vis-à-vis COVID-19 costs, this is where the rubber will hit the road in terms of evaluating financial policy priorities. Companies will have to consider tough tradeoffs, and some may even need to take proactive steps to forestall rating downgrades. The good news is that most utilities have some ability to influence that outcome because the demand for utility services is relatively stable, even in a pandemic.

This report does not constitute a rating action.

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Regulatory Responses To COVID-19 Are Key To Utilities' Credit Prospects

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Key Takeaways

- Many state and provincial governments in North America have instituted mandatory moratoriums on shutting off customers during the COVID-19 pandemic.
- Utilities may experience material hits to cash flow in coming quarters unless credit supportive measures are taken.
- Utilities will be tested to maintain liquidity and operating cash flow to support credit quality.
- Regulatory jurisdictions will be tested to find creative and supportive ways to bolster the credit quality of their utilities.
- Widening gaps in cost recovery could impact utilities.

The COVID-19 pandemic has created an unprecedented level of uncertainty and regulatory action in North America. Throughout the United States and Canada, many state and provincial governments have instituted mandatory moratoriums on utilities shutting off customers, or they have worked together to institute voluntary moratoriums during the COVID-19 pandemic. These moratoriums, along with any lost revenues due to the economic impact of COVID-19 pandemic and the potential incurrence of higher operating expenses, may weaken financial measures of utilities. S&P Global Ratings has been monitoring these actions and their impact on credit quality of U.S. and Canadian regulated utilities.

North American Moratoriums

The maps below indicate the states and provinces that have instituted mandatory and voluntary moratoriums. A few states have multiple regulators that utilize both voluntary and mandatory moratoriums.

Chart 1

United States Jurisdiction Service Moratoriums Enacted
As of May 18, 2020

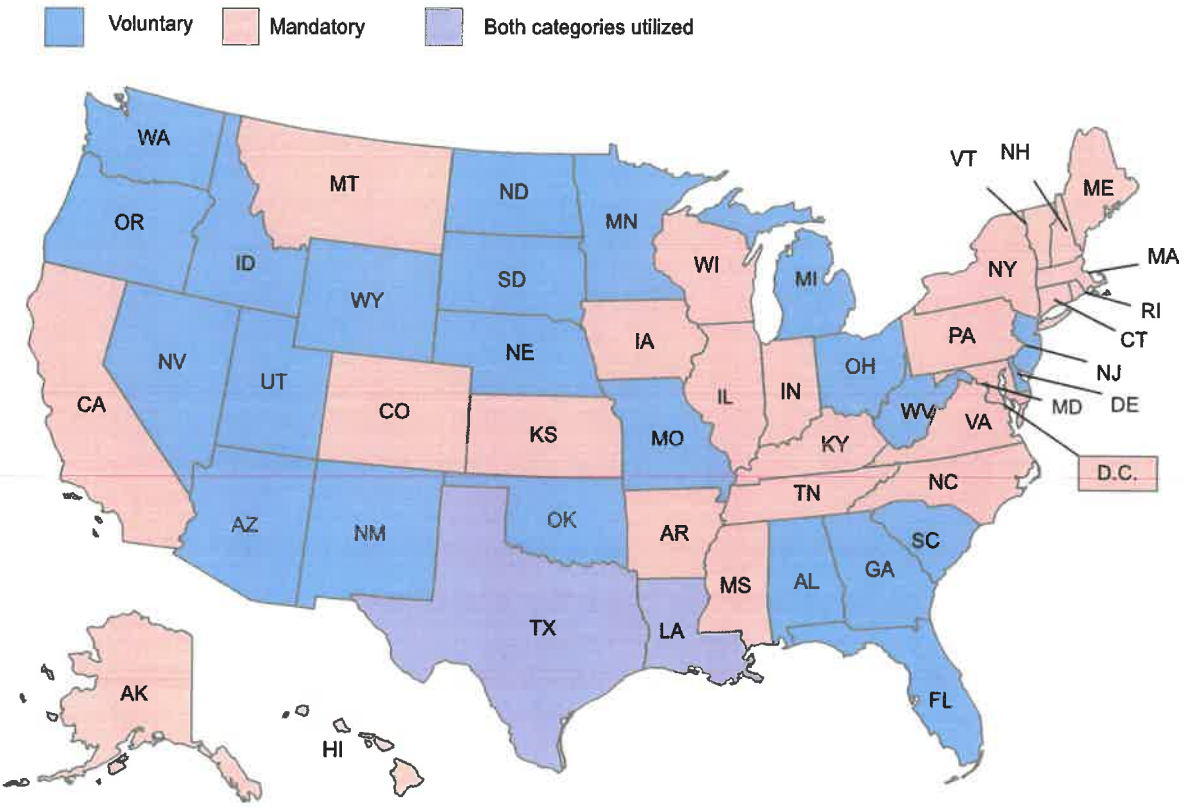
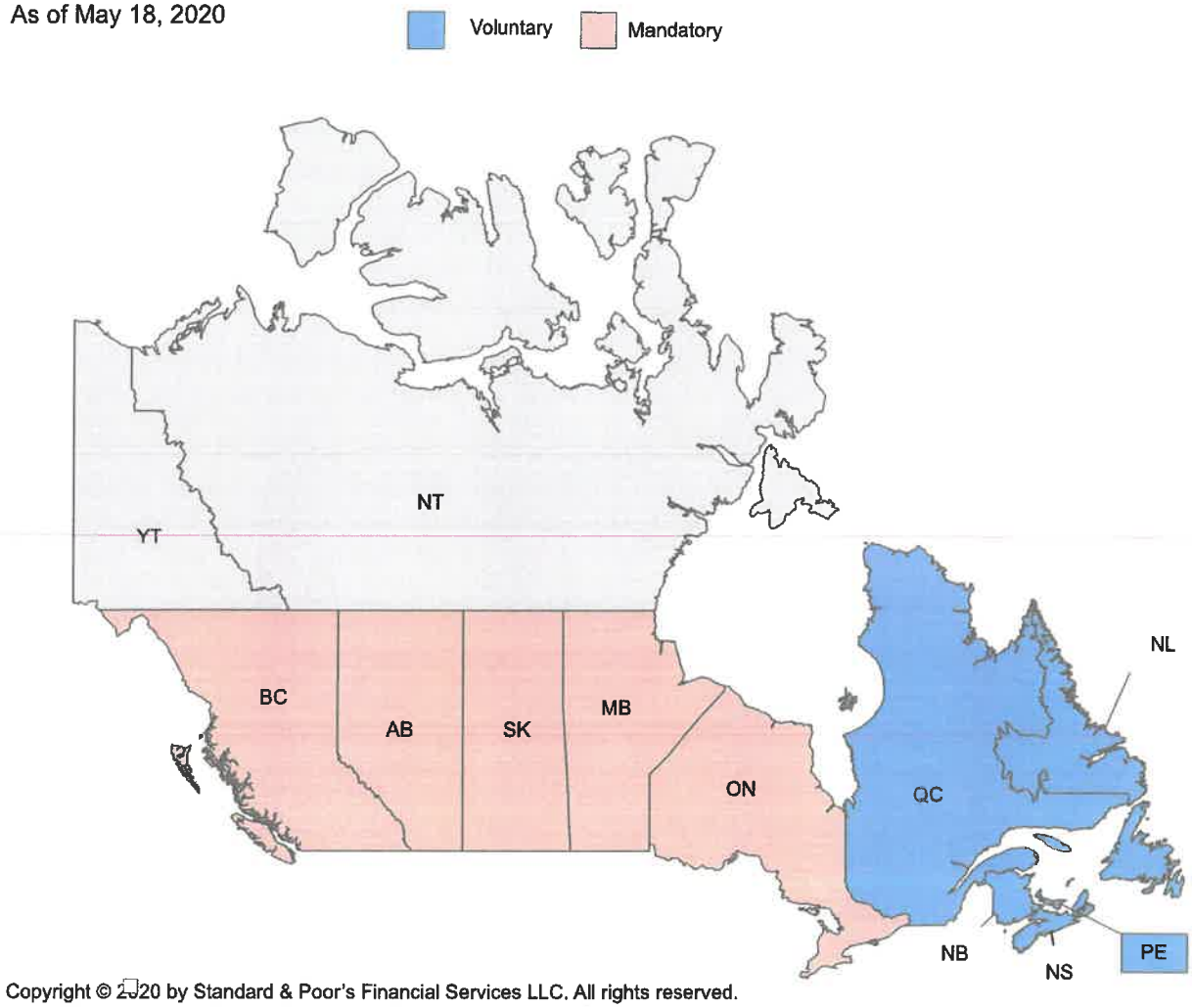


Chart 2

Canadian Jurisdiction Service Moratoriums Enacted

As of May 18, 2020



Regulatory Responses & Credit Implications

While no jurisdiction's response is exactly the same, we have identified several broad categories of response. Jurisdictions and regulatory commissions have authorized utilities to:

- Defer costs for future recovery;
- Enter into payment arrangements with customers;
- Enter into bill mitigation measures, such as the acceleration of refunds for fuel costs; and
- Seek rate recovery through various mechanisms such as rate surcharges, future rate cases, or formula rate plans.

Deferrals

One of the main responses we've seen from commissions are the authorization of utilities to accrue COVID-19-related costs and defer them for future prudence reviews and rate recovery for both residential and nonresidential customers.

Residential

The Arkansas Public Service Commission authorized the utilities to establish regulatory assets to record costs resulting from the suspension of disconnections. In future proceedings, the commission will consider whether each utility's request for recovery of these regulatory assets is reasonable and necessary. We expect Entergy Corp. utility Entergy Arkansas LLC to file a formula rate plan in the summer of 2020, and that revenue changes and costs from COVID-19 should be captured in the new rates that take effect at the beginning of 2021.

On March 4, California Gov. Gavin Newsom declared a statewide emergency due to the COVID-19 outbreak. As a result, Edison International subsidiary Southern California Edison Co. (SCE) suspended all disconnections for nonpayment, waived late fees and deposits, and implemented flexible payment plans upon request for all residential and nonresidential customers. SCE is among the many investor-owned utilities that have suspended customer service disconnects for nonpayment during the pandemic. SCE's electric rate case request to institute interim rates this summer is being challenged by interveners with claims that the increase would be counterproductive amid the COVID-19 pandemic. Absent the interim rate increase, SCE indicated it will experience a "significant lag for cost recovery...expenses incurred to protect current customers."

In Mississippi, "The [Mississippi] Commission acknowledges that the protective measures for customers and utility employees could pose a financial strain on the utilities subject to its rate regulation and that such utilities should be provided regulatory certainty by authorizing the use of an accounting mechanism and a subsequent process through which they may seek future recovery of costs or expenses resulting from such measures, and hereby enters this order to mitigate the financial impacts of such actions." Entergy Corp. subsidiary Entergy Mississippi LLC has a pending formula rate plan that has a 2020 test period, resulting in timely rate recovery of costs when new rates take effect mid-year.

As mandated by the Alberta government in Canada, electricity providers (both competitive and regulated) are absorbing the costs for nonpaying customers for 90 days until June 18, 2020. The utility payment deferral program allows residential customers to defer electricity and natural gas bill payments regardless of the service provider.

Some jurisdictions in Canada have determined that residential and small business customers can stop paying for up to 90 days. On March 19, 2020, the Ontario government extended its winter ban on residential disconnections through July 31, 2020. The extension also applies to small businesses. Ontario local distribution utilities cannot disconnect these customers for nonpayment. Residential and small business customers on time-of-use pricing are paying 10.1 cents per kilowatt hour (kWh), the off-peak price, throughout the day and until June 1, 2020. The government indicated that order would be in place for 45 days. The Ontario province is paying generators for the loss of peak pricing. Paying for generation while not collecting from ratepayers could cause a cash flow squeeze--the local distribution companies (LDCs) continue to pay the Independent Electricity System Operator (IESO) for generation and transmission while customers may not be paying the monthly invoices. How LDCs account for losses in future rate recovery has

yet to be defined.

Nonresidential

Larger customers typically have energy charges based on consumption and demand charges that are paid even if consumption declines. Demand charges may reset more frequently; therefore, if consumption by a larger customer has dropped due to COVID-19 shutdowns, cash flow from the customer could be reduced as compared to previous periods. In North Carolina, an intervener requested that the North Carolina Utilities Commission (NCUC) suspend minimum demand charges for commercial and industrial customers during the COVID-19 crisis. The commission is reviewing the filing. If they were to accept it, utilities could lose operating cash flow until the pandemic has passed. Duke Energy Corp. subsidiary Duke Energy North Carolina, among other utilities, has petitioned the NCUC against deferring industrial demand charges. This move is indicative of the NCUC not just looking at the COVID-19 impact to residential customers but also actively considering the interests of companies in the industrial segment. That being said, a deferral of demand charges could cut down once-thought-to-be-fixed cash flows for utilities and potentially weaken their stand-alone cash flows.

Credit Implication of Cost Deferrals. Without an additional and explicit timeline of recovery, deferrals represent a less credit-supportive regulatory response, despite any good will created with customers or their jurisdictional authority. This is due to a combination of the immediate near-term impact and the prolonged uncertainty of future recovery. Once costs are deferred, utilities may face an immediate reduction to operating cash flow in the near term, which may bring them close to or below their outlook downgrade threshold. Compounded with the increased uncertainty of when the utility will recover any deferred costs, this method--without any explicit notion of when costs will be recovered from their jurisdictional authority--has the potential to increase the risk the utility takes on more than any other response.

Payment Arrangements

The next category of response we've identified is situated around payment arrangements that utilities created for their customers. These allow utilities to resolve payments proactively instead of deferring them for future recovery, as well as interact directly with customers through an agreed-upon payment schedule or payment assistance program.

An example of this response can be seen in North Carolina. On March 19, an order issued by the NCUC, with respect to the moratorium on service terminations during the COVID-19 state of emergency, states: "At the end of the State of Emergency, customers having arrearages accrued during the State of Emergency shall be provided the opportunity to make a reasonable payment arrangement over no less than a six month period and shall not be charged any late fees for late payment for arrearages accrued during the State of Emergency. No provision in this Order shall be construed as relieving a customer of their obligation to pay bills for receipt of any utility service covered by this Order." This order removes additional uncertainty in terms of recovery for utilities as it allows the applicable utilities to plan and coordinate with customers, contrasted with the need to go through additional NCUC proceedings (although they still may be necessary).

As opposed to direct agreements between utilities and their customers to address arrearages, some jurisdictions have leaned upon federally funded programs to stave off the effect of the COVID-19 outbreak on the customer bill. The Colorado governor's March 5, 2020, order placed a moratorium on service disconnections. The Colorado Public Utilities Commission was directed to

work with all public utilities to develop and provide payment assistance programs to aid customers. Since the initial orders, utilities including Black Hills Corp. utility Black Hills Energy, Xcel Energy Inc.'s utility Public Service Co. of Colorado, and Atmos Energy Corp. have made efforts to set up payments for low-income customers during the state of emergency through the Colorado Low-income Energy Assistance Program (LEAP), a federally funded state-supervised, county-administered system. To the south, the Arizona Corporation Commission has urged utility customers to work with their utility providers, such as Pinnacle West Capital Corp. subsidiary Arizona Public Service Co., and take advantage of payment assistance programs like the Low-Income Home Energy Assistance Program (LIHEAP) as costs have not formally been deferred. While not isolated to just Colorado and Arizona, the response in these states is reflective of the heightened coordination of commissions and utilities with their customers through federal, state, and local programs to alleviate financial hardships and allow for the recovery energy costs.

Credit Implication of Payment Arrangements. As compared to deferrals without any cost recovery timing, payment arrangements provide greater certainty regarding the timing of cost recovery for utilities. Regardless of greater certainty, the utility may still face a reduced operating cash flow as these payment arrangements may not come into effect until after the COIVD-19 state of emergencies. Therefore, the utility may still face the same short-term immediate impact deferrals.

Bill Mitigation

In many of the jurisdictions in which payment arrangements are utilized, the onus of a payment solution is placed on the consumer to contact their utilities and payment assistance programs to reduce their energy bills. Even if these payment arrangements are made, there is a degree of lag between when utilities will start receiving payment, causing a lapse in recovery. Other jurisdictions have chosen to take more proactive roles in reducing customer bills through bill mitigation actions during the COVID-19 outbreak. While there could still be a lag in payment, these actions make customer bills more affordable, which we believe increases the probability of the ultimate cost recovery through rates.

An example of this occurred in Washington. As part of an authorized electric rate increase of about $29 million for utility Avista Corp., the Washington Utilities and Transportation Commission (WUTC) wanted to ease the financial impact on electric and gas customers during the COVID-19 pandemic, and fast-tracked customer rate refunds. The WUTC expects to mitigate the authorized rate increase and achieve a roughly net-zero impact on electric customers in the first year of the new rates. The refund largely consists of a rebate of energy costs through the company's energy recovery mechanism.

A similar approach was also taken in Florida, where the commission allows for the issuance of a bill credit for the state's four largest utilities. Approved by the Florida Public Service Commission in April, customers of Florida Power & Light Co., Duke Energy Florida LLC, and Gulf Power Co. will receive a one-time bill reduction in May to reflect over collection of fuel and capacity cost recovery factors. Tampa Electric Co.'s approved proposal will pass fuel-cost savings to customers from June through August, with smaller monthly savings through December. The credits reduce customer bills, which mitigates customers' financial hardships during the COVID-19 pandemic.

Credit Implication of Bill Mitigation Bill mitigation provides utilities the ability to collect payment in the near term and while retaining the ability to set up payment arrangements with customers to collect in the long term. While this response does not completely remove uncertainty around the collection of costs, it takes a meaningful step to mitigate risk for the utility while ensuring the

customer is benefiting as well.

Table 1

North American Jurisdictional Responses

As of May 14, 2020

Collecting Costs / Deferral	Customer Payment Arrangements	Pending
Alaska	Alabama	Arizona
Alberta	Alberta	Delaware
Arkansas	Colorado	Idaho
British Columbia	Florida *	Illinois
California	Indiana	Kansas
Connecticut	Montana	Kentucky
District of Columbia	New Foundland & Labrador *	Louisiana
Georgia	New Hampshire	Maine
Hawaii	New Jersey	Massachusetts
Idaho	North Carolina	Michigan
Iowa	Ohio	Minnesota
Kansas	Prince Edward Island	Missouri
Maryland	Quebec	Nebraska
Michigan	Rhode Island	New Mexico
Minnesota	Saskatchewan *	Pennsylvania
Mississippi	South Carolina	Utah
Nebraska	South Dakota	Virginia
Nevada	Washington *	West Virginia
Oklahoma		Wisconsin
Ontario		
South Carolina		
Wyoming		

*** States have a bill credit program in place that will ultimately reduce customer bill but payment arrangement will still have to be made with reduced bill.**

Options Of Regulatory Recovery

Options of rate recovery for COVID-19 costs by utilities can include rate cases and various rate riders.

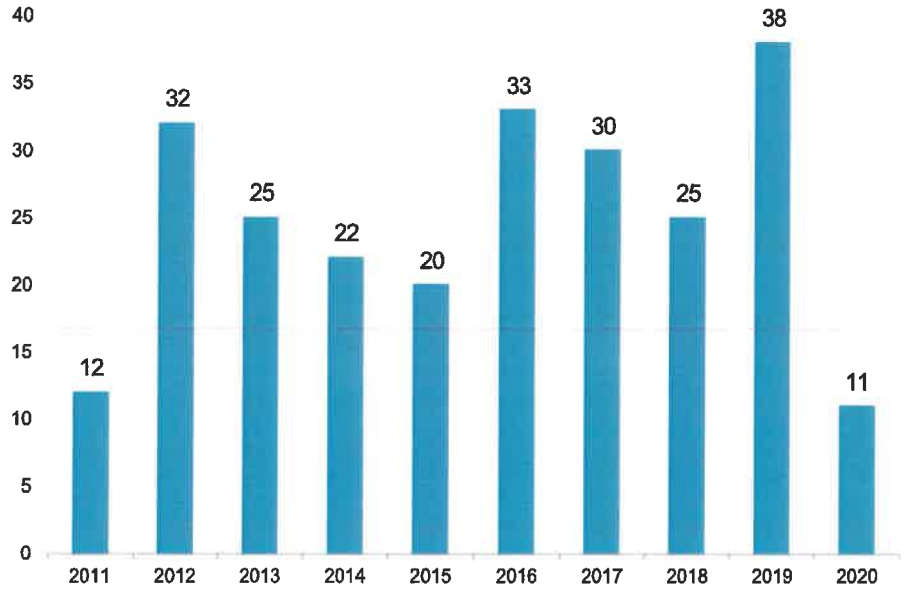
Rate Cases

Recovery could be addressed through a rate case, although our data suggests that many utilities are reluctant to file new rate cases during this period of hardship for rate payers (see RRA chart below). Still, there are several rate cases underway. For example, Columbia Gas of Pennsylvania Inc., a subsidiary of NiSource Inc., filed for a rate increase that should capture the impact of

COVID-19 when new rates go into effect later in 2020. Ameren Corp. subsidiary Ameren Illinois Co. recently filed a gas rate case in Illinois that will reflect a projected test period and will likely include the impact of COVID-19 on the utility's test period revenues.

Chart 3

2011-2020 Rate Case Filings
March 13-May 8



As of May 11, 2020. Source: Regulatory Research Associates, a group within S&P Global Market Intelligence.

For electric, Ameren Illinois has a formula rate plan that is updated periodically. The utility has been submitting annual filings for its formula rate plan based on a test period composed of the previous calendar year. Therefore, in a 2021 filing, we would expect COVID-19-related costs to be incorporated within a test period of calendar 2020. Another recovery option could be through decoupling mechanisms whereby revenues are reset; this could capture the weaker cash flows from bad debt expense and reduced revenues from COVID-19 inactivity.

In addition to the requested rate increase, Columbia Gas of Pennsylvania wants to implement a revenue normalization adjustment, or RNA, that would allow the gas utility to adjust rates for changes in revenue for reasons such as customer participation in energy conservation programs and overall economic conditions. The company is also proposing to increase the fixed monthly customer charges for residential and small commercial customers to allow a greater proportion of fixed costs to be recovered through these fixed charges. Mechanisms such as these will further decouple the utility's revenue from weak economic activity and customer conservation.

To alleviate the impact of COVID-19 on ratepayers, utilities could seek to remain out of or delay rate case proceedings. For example, Wisconsin Power & Light Co. recently proposed not to submit its expected rate review that Wisconsin utilities typically file every two years with the state

commission. Duke Energy Kentucky Inc. notified the Kentucky commission in March that the company was "keenly aware" of the "great strain upon government agencies at the federal, state, and local levels," and would therefore "avoid placing further burdens upon the commission, and to help customers who are affected by present circumstances, by delaying the potential effective date of new rates in the company's pending electric rate case" before the month of May. This allowed an additional month before new rate as the decision was expected April 2. Under these actions, rates would remain largely in line with current levels, mitigating utility costs to ratepayers during the pandemic. Utilities may seek such an approach if they can maintain financial measures while remaining out of rate cases for an extended period.

Credit Implications of Rate Cases. Rate cases may prove effective at recovering lost revenue or COVID-19 costs but are likely to take months or years to complete, thereby exposing the utilities to lag. We also note that very few utilities are filing rate cases in the current environment and opting to suspend and even forgo review this year.

Rider Recovery

Some jurisdictions have bad debt expense riders, or something similar, that provide more timely cost recovery. In Illinois, gas distribution companies are authorized to recover uncollectible debt expense through a surcharge. Multiple gas utilities, including Ameren Illinois Co., Southern Co. subsidiary Northern Illinois Gas Co., and Exelon Corp. utility Commonwealth Edison Co. use rate riders to recover this cost. The rider provides for cost recovery or refund of uncollectible expense based on the difference between actual uncollectible write-offs and the amounts recovered in current base rates.

A recent Georgia commission rate case authorized Southern Co. subsidiary Georgia Power Co. to defer all lost revenue and increased costs associated with COVID-19. In contrast, gas utility Atlanta Gas Light Co. (AGL) and the Georgia commission staff have proposed a revenue true-up process within the Georgia Rate Adjustment Mechanism. The mechanism was initially approved in 2017. In addition, AGL uses a modified straight-fixed-variable rate design that enables the company to recover non-gas costs throughout the year, consistent with the incurrence of these costs, essentially eliminating the need for a revenue decoupling mechanism.

Texas regulators took a different approach for electric utilities within the Electric Reliability Council of Texas (ERCOT). For residential electricity customers that have retail choice of electricity providers and are in danger of disconnection, late fees will be suspended and deferred payment plans will be offered. A COVID-19 Electricity Relief Program has been established with $15 million from ERCOT. This fund will reimburse retail electricity providers (REPs) for unpaid energy charges and transmission and distribution utilities (TDUs) for unpaid delivery charges of customers certified as experiencing COVID-19-related hardship and not disconnected. This would pertain to CenterPoint Energy Houston Electric LLC, Oncor Electric Delivery Co. LLC, and AEP Texas Inc. ERCOT and each TDU will enter into an interest-free loan associated with the COVID-19 Electricity Relief Program. TDUs will establish rate riders in which all customer classes will pay a 33 cent per megawatt hour charge to reimburse REPs for unpaid energy charges and TDUs for unpaid delivery charges, and to repay ERCOT's initial contribution. The riders will stay in effect until the TDUs have been reimbursed and ERCOT has been repaid.

Water utilities and vertically-integrated electric utilities outside ERCOT, such as Entergy Texas Inc., El Paso Electric Co., Southwestern Public Service Co., and Southwestern Electric Power Co., may not charge late fees or disconnect customers for nonpayment during the COVID-19 pandemic.

Credit Implications of Rider Recovery. Regulatory responsiveness through rate riders may prove more effective at recovering lost revenue or COVID-19 costs as they may provide for stronger cash flow and reduced uncertainty around ultimate recovery, and may strengthen a utility's credit quality. Rate recovery through riders may efficiently adjust rates for the impact of COVID-19 on the company, bolstering revenues and cash flow to the benefit of creditors.

Impact To Credit Quality From COVID-19 On U.S. And Canadian Utilities

The effects on credit quality from the COVID-19 pandemic and regulatory responses have been occurring in real time across the industry. These effects include weakening of operating cash flow and capital structures, access to liquidity, and alterations in capital spending plans.

Weaker Operating Cash Flow

Utilities that had weaker financial measures, possibly close to the downgrade triggers in their rating outlook, could see financial measures further degrade due to COVID-19. Without improved operating cash flow or any strengthening of the balance sheet, we could revise the outlook or change the ratings. Rebalancing a capital structure could be challenging, particularly for those with weakened operating cash flow, because issuing equity in times of financial stress can be especially difficult.

Looking ahead, several companies have assumed equity issuance as part of their 2020 plans, given the industry's high capital spending that we estimate at about $150 billion. While the capital markets remained mostly accessible to the industry during the first two months of 2020, we anticipate a significant decline in equity issuances over the remainder of 2020 given the level of uncertainty surrounding COVID-19. When combined with our expectation of reduced volumetric sales, increased bad debt expense, and delayed rate case filings, the industry could experience a weakening of credit measures. Given that many companies are already strategically operating with minimal financial cushion at current rating levels, weaker financial measures could lead to downgrades (See "COVID-19: While Most Of The U.S. Is Shut Down, Utilities Are Open For Business," May 4, 2020).

For the most strained issuers, or those that may not fare as well in front of regulators vis-à-vis COVID-19 costs, this is where the rubber will hit the road in terms of evaluating financial policy priorities. Companies will have to consider tough tradeoffs, and some may even need to take proactive steps to forestall downgrades (see "North American Regulated Utilities Face Tough Financial Policy Tradeoffs To Avoid Ratings Pressure Amid The COVID-19 Pandemic," May 11, 2020).

Liquidity

Operating cash flow will decline and operating income will be squeezed as revenues erode, while costs of goods sold and operating expenses continue to be incurred. This will make liquidity critical to cover expenses. Despite the challenges associated with the economic downturn, the utility industry has preserved its investment-grade profile and maintained adequate liquidity in part by securing multiyear revolving credit facilities that are sized to sufficiently cover cash needs over a 12-month period. Also, as commercial paper interest rates spike to levels last seen during the 2008 financial crisis, we saw many utilities enter into 364-day term loans to lock-in liquidity at reasonable rates. We view this as allowing the industry to circumvent the volatile commercial paper markets, strengthening the industry's near-term liquidity position.

Greater Uncertainty Could Drive Capital Expenditure Changes

The combination of weaker operating cash flow and uncertainty could result in lower capital spending and delays in projects spread out over a longer period. An example is CenterPoint Energy Inc., which, in response to a large distribution cut from its investment in a midstream energy company Enable Midstream Partners LP, lowered 2020 capital spending $300 million. Enable Midstream cut its distributions after oil and gas prices dropped. In its first-quarter 2020 earnings call, American Electric Power Co. Inc. lowered 2020 capital spending by $500 million following lower revenue due to warmer-than-normal weather. Less capital spending should free up cash to partly offset expected revenue loss. Although Unitil Corp. is continuing its capital spending program, it stated in its first-quarter 2020 earnings call that COVID-19 had the potential to cut revenues by about $400,000 for every 1% drop in power usage in its operations. The company can offset these losses and increase cash if it can reduce capital spending.

Moreover, a major target of capital spending in the utility sector, clean and renewable energy projects (such as the offshore wind projects that Eversource Energy, Dominion Energy Inc., and AVANGRID Inc. are engaged in), could see forms of delay in construction and operation. AVANGRID recently stated on its 2020 first quarter earnings call that while its offshore wind project is slated to be operable on time, the company has experienced a number of force majeure events from suppliers due to COVID-19, a trend that may affect other offshore wind project providers. In order to maintain credit quality, utilities with similar projects may need to adjust capital investment to preserve assets while ensuring adequate liquidity.

That being said, despite the effect of the COVID-19 pandemic, several jurisdictions have pushed to ensure the trajectory of their clean energy goals. In April, the New York Public Service Commission authorized the New York State Energy Research and Development Authority to procure at least an additional 1,000 megawatts of offshore wind energy in 2020. In the same month, the Virginia legislature passed the Clean Energy Economy Act, mandating that by 2045 100% of the power supplied by any competitive retail electric provider, including Dominion Energy Inc. subsidiary Virginia Electric & Power Co., must be sourced from renewable and carbon-free resources. The aggressive standards for clean energy goals in these jurisdictions and others around the country may provide enough incentive for utilities to continue to advance such projects.

This report does not constitute a rating action.

S&P Global Ratings

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U.S. And Canadian Utility Regulatory Updates And Insights: June 2020

June 8, 2020

Key Takeaways

- S&P Global Ratings periodically assesses each regulatory jurisdiction in the U.S. and Canada with a rated utility or where a rated entity operates.
- These assessments--with categories from "credit supportive" to "most credit supportive"--provide information for reference in determining the regulatory risk of a regulated utility or holding company with more than one utility. We made no changes since our last report, but examine developments in several jurisdictions.
- We base our analysis on quantitative and qualitative factors, focusing on regulatory stability, tariff-setting procedures and design, financial stability, and regulatory independence and insulation.
- The presence of utility regulation, no matter where in the spectrum of our assessments, strengthens the business risk profile and generally supports utility ratings.

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S&P Global Ratings conducts periodic assessments of each regulatory jurisdiction in the U.S. and Canada where a rated utility operates as a reference when determining a utility's regulatory advantage or regulatory risk. Regulatory advantage is a heavily weighted factor in our analysis of a regulated utility's business risk profile.

Our analysis covers quantitative and qualitative factors, focusing on regulatory stability, tariff-setting procedures and design, financial stability, and regulatory independence and insulation. (See "Key Credit Factors For The Regulated Utilities Industry," published Nov. 19, 2013, for more details on each category.)

Sorting Through Regulatory Jurisdictions In The U.S. And Canada

We updated our assessments of regulatory jurisdictions since our commentary "U.S. And Canadian Regulatory Jurisdiction Updates And Insights: November 2019," published Nov. 4, 2019. Our assessments of U.S. jurisdictions' and Canadian provinces' approaches to regulation over the past several months are unchanged. Here, we provide our current snapshot of each regulatory jurisdiction (Table 1, Charts 1 and 2). We group the jurisdictions by the quantitative and qualitative

factors and collective opinions expressed in the regulatory advantage determinations made in rating committees for the approximately 225 U.S. and 30 Canadian utilities we rate.

The categories indicate an important point regarding utility regulation and its effect on ratings: They are denoted credit supportive to one degree or another, as all utility regulation sustains credit quality when compared with corporate and infrastructure ratings. The presence of regulators, no matter where in the spectrum of our assessments, reduces business risk and generally supports utility ratings. We describe all these jurisdictions in a range from credit supportive to most credit supportive, and these vary only in degree rather than in kind.

Assessing U.S. And Canadian Regulatory Jurisdictions

Table 1

Regulatory Jurisdictions For Utilities Among U.S. States And Canadian Provinces

Credit supportive	More credit supportive	Very credit supportive	Highly credit supportive	Most credit supportive
Hawaii	Alaska	Connecticut	Arkansas	Alabama
Mississippi	Arizona	Delaware	Georgia	Alberta
New Mexico	California	Idaho	Indiana	British Columbia
Prince Edward Island	District of Columbia	Illinois	Kansas	Colorado
	Maryland	Missouri	Louisiana	FERC (electric)
	Montana	Nebraska	Maine	Florida
	New Jersey	Nevada	Massachusetts	Iowa
	Oklahoma	New Orleans	Minnesota	Kentucky
	South Carolina	New York	New Hampshire	Michigan
	Washington	Ohio	Newfoundland & Labrador	North Carolina
		Rhode Island	North Dakota	Nova Scotia
		South Dakota	Oregon	Ontario
		Texas	Pennsylvania	Quebec
		Vermont	Tennessee	Wisconsin
		West Virginia	Texas RRC	
		Wyoming	Utah	
			Virginia	

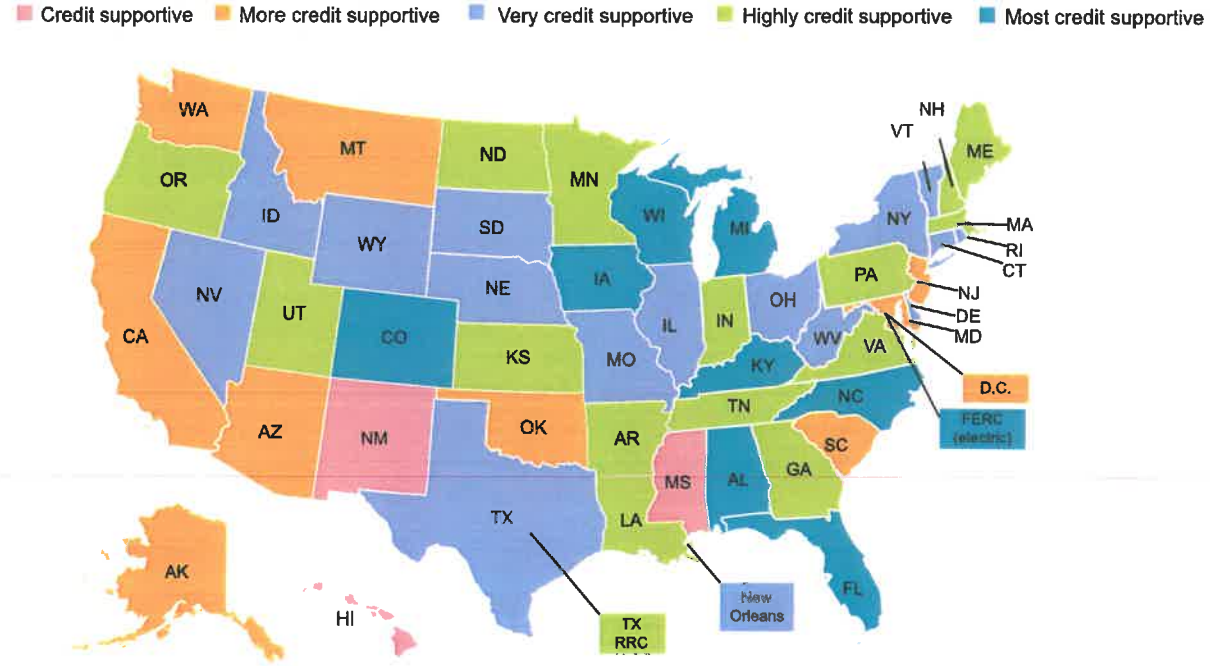
FERC--U.S. Federal Energy Regulatory Commission. RRC--Railroad Commission of Texas.

Mapping Regulatory Jurisdictions

For jurisdictions assessed in these maps (Charts 1 and 2), colors delineate our assessments of credit supportiveness. (We do not have assessments on some Canadian provinces where we don't rate any utilities.) The assessments offer some scale and detail in our thinking regarding the rules and implementation of regulation. Often they simply designate a stable jurisdiction slightly better or worse than its closest peers in credit quality.

Chart 1

Regulatory Assessment By State



FERC—Federal Energy Regulatory Commission. RRC—Railroad Commission of Texas. Data as of June 2020.

Chart 2

Regulatory Assessment By Canadian Province/Territory

Notable Topics Throughout North America

Although our biannual review found no material events that would change a jurisdictional assessment amid the COVID-19 pandemic, there have been an unprecedented number of regulatory actions with respect to cost recovery and bad debt collection moratoriums ("Regulatory Responses To COVID-19 Are Key To Utilities' Credit Prospects", published May 20, 2020). In

addition, other notable developments have occurred in several jurisdictions.

Alberta

Compared to our assessment in November, the Alberta regulatory construct is weakening as regulatory lag has not improved. In addition, utilities are continually exposed to the risk of absorbing the undepreciated capital cost of stranded assets due to extraordinary retirement. Furthermore, the recent regulatory decision by the Alberta Utilities Commission regarding the Alberta Electric System Operator's customer contribution policy, under which requiring distribution operators to transfer transmission related investments to transmission operators at net book value, somewhat calls into question the regulatory framework's consistency.

FERC Electric

Recent U.S. Federal Energy Regulatory Commission (FERC) rulings on Midcontinent Independent System Operator (MISO) transmission owners' authorized return on equity (ROE) indicate inconsistency in how ROE decisions could be applied toward New England transmission owners' ROEs. Specifically, in late 2018, FERC proposed using a new ROE calculation method that focused on four factors. However, in late 2019, FERC did not use that methodology to establish the new ROE for MISO transmission owners, instead using a method that relied on two factors. Furthermore, FERC further revised the methodology in May 2020 by adding a third approach to calculate transmission owner ROEs. It was marginally favorable for MISO transmission owners compared to the two-factor approach, but resulted in a slight base ROE reduction.

Although there are inconsistencies regarding ROEs for electric transmission owners, we continue to consider FERC regulation toward electric transmission as one of the most credit supportive.

Hawaii

The state is undergoing regulatory reform, and the Hawaii Public Utilities Commission (HPUC) is proceeding with a performance-based regulation (PBR) framework. HPUC plans to finalize the implementation details by the end of 2020. The proposal includes a five-year rate plan with an indexed annual revenue adjustment mechanism, coupled with existing capital recovery mechanisms in between rate cases. We expect this will improve the timeliness of both capital and operating cost recovery for utilities that could lead to improved profitability.

In addition, an earnings-sharing mechanism (ESM) and various performance incentive mechanisms (PIMs) are included. The proposed ESM shares excess earnings with customers and protects the utilities from extreme financial shortfalls. PIMs may provide potential earnings to a utility should it meet certain performance targets. Overall, we expect the new PBR framework will lead to more regulatory predictability and cash flow stability for utilities in Hawaii, including Hawaiian Electric Industries Inc.

Massachusetts

Due to the state regulatory commission's recent rate decision for utility Massachusetts Electric Co. in late 2019, we believe the regulatory environment is gradually improving. The Mass Electric rate case decision was the second major case that included a PBR mechanism, the first being NSTAR Electric Co. Such mechanisms provide for a more predictable formulaic rate setting construct that accounts for utilities' capital and operational spending, inflation over a five-year

period, and a decoupling mechanism that provides downside protection irrespective of sales volume declines.

NSTAR Gas Co. recently filed for a similar PBR mechanism in their gas distribution rate case, and we are monitoring this development. Overall, even with our view of gradual improvement, we believe there could be regulatory lag since the state uses historical test years when setting rates.

Mississippi

We continue to monitor the pending regulatory commission decision on Mississippi Power Co.'s (MPC) reserve margin plan (RMP), a request by the regulator to develop alternatives to lower its reserve margin. This plan could accelerate retirements for some of MPC's coal-fired power plants by 2022. We continue to monitor this proceeding to determine how the rate recovery of remaining book value of retired assets will be addressed.

Nevada

Following a legislative initiative in 2019, the Public Utilities Commission of Nevada (PUCN) initiated a proceeding and has conducted workshops regarding the options around alternative ratemaking plans that could include formula rates, decoupling, earnings sharing, and multiyear rate plans. In April 2020, PUCN released the first report that outlines efforts regarding potential alternative ratemaking mechanisms for Nevada's electric utilities. Ultimately a draft proposal may be issued in 2021 with regulations adopted after reviewing feedback from workshop participants. PUCN is evaluating whether alternative ratemaking would provide better incentives than traditional cost-of-service ratemaking for NV Energy Inc.'s regulated utilities, Nevada Power Co. and Sierra Pacific Power Co. This is to achieve state policy goals for lower carbon emissions, renewable energy, energy efficiency, and electric vehicle adoption while keeping costs down.

Also, the commission is examining whether alternative rates such as flexible pricing options for customer classes will capture utilities' cost of doing business and support financial stability while assuring the delivery of safe and reliable electricity at a reasonable cost. The final determination is expected in 2021, and we will continue to monitor developments.

New York

Political attention toward utilities in the state was somewhat heightened during the past year following a blackout in summer 2019 in Consolidated Edison Inc.'s (Con Ed) service territory. In addition, Con Ed's and National Grid North America's (NGNA) implementation of gas distribution moratoriums to manage gas supply issues in the region added to the regulatory uncertainty. The moratoriums led to a letter in late 2019 from Gov. Andrew Cuomo indicating the state would move to revoke NGNA's certificate to operate its downstate gas franchise in response to NGNA's management of the gas supply issues in its service territory.

NGNA subsequently agreed to pay $36 million to compensate customers affected by its moratorium and support other energy conservation measures and projects, all of which reduced regulatory uncertainty. However, regulatory risk is still likely to persist because gas supply constraints remain a key issue for gas utilities in the state.

Con Ed has faced political pushback for some of its actions, including on the gas supply moratorium and summer 2019 blackout, but has avoided formal reprimands. This somewhat limits its regulatory and political risks. Despite the negative political attention, Con Ed achieved a

somewhat constructive rate case decision from the New York State Public Service Commission (NYSPSC), including on a multiyear rate plan for its electric and gas operations at Consolidated Edison Co. of New York Inc. for rate increases totaling nearly $1.2 billion over three years beginning in 2020. While the multiyear rate plan provides some cash flow predictability, under this plan the authorized return on equity is 8.8%, lower than what is typical for peers.

New Mexico

In 2019, the state passed the Energy Transition Act (ETA) to eliminate carbon emissions by 2045 from electric utilities with interim targets. We believe this provides credit support to the retirement of fossil-fuel generation in the state. PNM Resources Inc. subsequently sought approval to close units at the San Juan coal-fired plant and securitize the plant abandonment costs. In early 2020, a New Mexico Supreme Court ruling confirmed the applicability of the ETA to PNM's plan and replacement power project. The commission is reviewing different options of the proposed replacement project.

An initiative is expected to be included on the state's 2020 general election ballot that, if approved, would require Public Regulation Commission members to be appointed. The constitutional amendment would change the PRC from a five-person elected body to a three-person agency, with members chosen by the governor from a list of candidates compiled by a nominating committee, beginning in 2023.

North Carolina

While some developments suggest possible improvement to regulatory risks, other issues remain unresolved. Specifically, passage of Senate Bill 559, a storm securitization measure, permits recovery for certain storm recovery costs. Duke Energy Corp. utilities Duke Energy Carolinas LLC and Duke Energy Progress LLC can use a new financing measure to recover restoration costs incurred after several storms and hurricanes in 2018. We consider this favorable for credit quality. Separately, in 2019, Duke Energy settled with the North Carolina Department of Environmental Quality and certain community groups to excavate seven of the nine remaining coal ash basins in North Carolina and partly excavate the other two. Although this reduces legal uncertainty associated with the company's ash pond closure strategy, cost recovery for coal ash costs is still pending, which indicates some regulatory uncertainty.

Texas

We have not revised our regulatory jurisdiction assessment on the Public Utilities Commission of Texas (PUCT), which we consider to be very credit supportive. But we believe recent orders related to COVID-19 in addition to noteworthy trends stemming from recent rate proceedings require a comment.

In March 2020, PUCT issued orders related to COVID-19, suspending utility service disconnections for nonpayment and creating the COVID-19 Electricity Relief Program. We find this program to be constructive from a credit standpoint, specifically as it relates to the recoverability of unexpected costs arising from customer nonpayment due to the pandemic. We believe PUCT's action to be more proactive and demonstrates a commitment to credit quality compared to responses from other jurisdictions that relied only on deferrals of these costs as regulatory assets.

In multiple recent rate case decisions, PUCT approved more-leveraged hypothetical capital structures that reflect an equity ratio of 42.5%. This differs from previous trends when PUCT

approved equity ratios of 45%. We believe these actions could weaken credit quality as utilities manage equity ratios down to this lower level, possibly weakening financial measures without offsetting adjustments.

Virginia

The Virginia Clean Economy Act passed in March 2020, which requires electric utilities to supply 100% of electricity from renewable sources by 2050. Intermediate targets are also set for utilities, including Virginia Electric & Power Co. and Appalachian Power Co., that require 30% of power to be supplied from renewables by 2030 and to close all carbon-emitting power plants by 2045 and 2050, respectively. The Grid Transformation and Security Act passed in 2018 allows utilities to rate-base large renewable projects. However, certain key risks remain, including concerns on the leveled cost of energy provided by new offshore wind projects, even though lawmakers have been historically supportive to the utilities' effort to expand wind capacity. The Clean Economy Act also grants the Virginia State Corporation Commission more oversight over major projects, including the 2.6-gigawatt offshore wind project with construction slated to start in 2024. Some risks may arise due to potential cost overruns or project delays, which could create pressure on the timely cost recovery and ratepayer affordability. We are closely monitoring the 12-megawatt pilot project, which may complete construction this summer.

Renewable Portfolio Standard And Clean Energy Standards

State-level clean and renewable energy standards greatly influence the overall strategic direction and growth investments of North American regulated utilities. Regulatory support through timely cost recovery helps support credit quality and facilitate the energy transition. A number of states are passing or proposing legislation that would require utilities to further scale back carbon emissions from power plants and utilize a greater percentage of renewable energy generation. Today, 31 states have a mandatory renewable portfolio standard (RPS), and seven have a voluntary renewable energy standard target.

The most recent state to adopt a mandatory RPS target is Virginia, which as of 2020 requires investor-owned utilities to achieve 100% renewable generation by either 2045 or 2050, depending on the entity, and a certain amount from solar and wind sources. Other states are revising their targets or passing additional legislation. Washington passed a bill to achieve net-zero carbon emissions by 2050. Maine requires state greenhouse gas emissions to be below 1990 levels by at least 45% by 2030 and at least 80% by 2050. Iowa, New Mexico, and Maryland have either passed or proposed legislation that would curb emissions and require more clean energy sources.

We will continue to monitor these developments for any impact.

Related Research

- Regulatory Responses To COVID-19 Are Key To Utilities' Credit Prospects, May 20, 2020
- U.S. And Canadian Regulatory Jurisdiction Updates And Insights: November 2019, Nov. 4, 2019
- Key Credit Factors For The Regulated Utilities Industry, Nov. 19, 2013

This report does not constitute a rating action.

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Industry Top Trends Update

Regulated Utilities

Credit quality is on a downward trajectory

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What's changed post-COVID?

Weaker financial measures. We expect the industry's funds from operations to debt will weaken by about 100 basis points in 2020 from COVID-related lower commercial and industrial load, higher bad debt expense, lack of consistent access to the equity markets, delayed rate case filings, and underfunded pensions.

Minimal financial cushion. Credit quality was already weak heading into 2020, with about 25% of the industry's outlooks on negative. This reflected tax reform, record capital spending, and the increasing number of utilities that are strategically managing their credit measures closer to the downgrade threshold.

The industry remains investment-grade. For the year to date, there have been seven downgrades and only one upgrade, which is a departure from prior years when upgrades consistently outpaced downgrades. However, we expect only a modest weakening to the industry's overall credit quality.

What is the likely path to recovery?

Regulatory deferral mechanisms. Utilities are either volunteering or have been mandated not to shut off service for nonpaying customers, and many regulators are approving the deferral of COVID-related costs for future recovery.

Operating and maintenance costs. Permanent cost reductions are being realized through the increasing use of technology and a shrinking real-estate footprint.

Capital spending and dividend levers. The industry consistently operates with annual capital spending of about $150 billion and dividends of about $35 billion. Under financial stress, a utility could pull either of these levers to temporarily restore its credit measures.

What are the key risks around the baseline?

Wildfires. The early Western U.S. 2020 wildfires and the below-average 2020 rainfall in California could potentially signal a longer wildfire season, which, in our view, could increase the possibility of a catastrophic wildfire. COVID presents additional risks because it could challenge emergency response time.

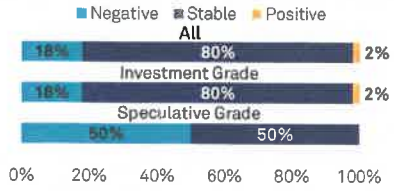
Environmental risks. The cancelation of the Atlantic Coast Pipeline is the latest demonstration that customers want carbon-free energy. High carbon-emitting utilities may need to accelerate the transformation of their generation fleet.

Safe operations. Utilities that cause gas explosions, electrical blackouts, wildfires, water contamination, service interruptions, or have high greenhouse gas emissions are facing increasing political and regulatory scrutiny.

Latest Related Research

- North American Regulated Utilities Face Tough Financial Policy Tradeoffs To Avoid Ratings Pressure Amid The COVID-19 Pandemic, May 11, 2020
- COVID-19: While Most Of The U.S. Is Shut Down, Utilities Are Open For Business, May 4, 2020
- An Old Age Problem? While North American Regulated Utilities' Credit Measures Could Dip On Pension Underfunding, Cost Recovery Ability Supports Credit Quality, April 20, 2020
- COVID-19: The Outlook For North American Regulated Utilities Turns Negative, April 2, 2020

Outlook Distribution



Ratings Statistics (YTD)

	IG	SG	All
Ratings	280	4	284
Downgrades	7	0	7
Upgrades	1	0	1

Ratings data as of end-June, 2020

COVID-19 Heat Map

Utilities	
COVID-19, Recession, and O&G Impact	Low
Potential Negative Long-Term Industry Disruption	--

2020 Estimates v. 2019

Revenue Decline	EBITDA Decline	Incremental Borrowings
5% to 10%	0% to 10%	<5%

2021 Estimates v. 2019

Revenue Decline	EBITDA Decline
≥2019	≥2019

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U.S. Regulated Utilities' Credit Metrics Could Strengthen Under Proposed Biden Tax Plan

October 29, 2020

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Key Takeaways

- The espoused tax plan of U.S. Democratic presidential candidate Joe Biden would likely improve the U.S. regulated utility industry's financial measures if implemented.
- The key element of the tax plan that could potentially benefit the utility industry over our outlook period (over the next two years) is the proposal to increase the corporate tax rate to 28% from 21%.
- While details of Biden's tax plan are currently limited, we expect that under the promoted proposals the utility industry's funds from operations (FFO) to debt would improve by about 100 basis points.
- Because the Biden tax plan would likely result in higher customer bills, reception by utility regulators is a key risk that utilities must effectively manage.

Though most U.S. corporations financially benefited from the Tax Cuts and Jobs Act of 2017 (TCJA), which enhanced cash flow by lowering the corporate tax rate to 21% from 35%, many U.S. regulated utilities saw their credit measures weaken. This is because utilities fully recover their income tax expense from customers, and the reduced tax rate led to a decline in FFO. A further reduction in the industry's FFO reflected increased cash taxes paid, as utilities lost the ability to accelerate the deductibility of capital expenditures beyond typical modified accelerated cost recovery system (MACRS) depreciation. Collectively, these changes to the tax code weakened the utility industry's FFO to debt by about 200 basis points (bps).

Table 1

The Influence Of TCJA Provisions On U.S. Regulated Utilities And Holding Companies

Tax provision	Benefit or burden	Effect
Lower corporate tax rate	Burden	For utilities, revenue requirement was reduced. The benefit of a lower rate was passed onto ratepayers. Holding companies then lost the cash flow from differences between the statutory rate and their effective rate.
Loss of accelerated deductibility of capital expenditures	Burden	Utilities lost the opportunity to gain cash flow from tax-based stimulus. The effect on holding companies depended on their mix of utility and nonutility operations.

Table 1

The Influence Of TCJA Provisions On U.S. Regulated Utilities And Holding Companies (cont.)

Tax provision	Benefit or burden	Effect
No Alternative Minimum Tax (AMT)	Benefit	Utilities and holding companies didn't have to use their net operating loss carryforwards or tax credits to offset an AMT.

Source: S&P Global Ratings.

U.S. Democratic presidential candidate Joe Biden has proposed to roll back some of the provisions of the TCJA and highlighted the extension of renewable energy tax credits as a key agenda item. Based on what we know so far, the main proposals under the Biden tax plan most applicable for regulated utilities would include:

- An increase in the statutory corporate tax rate to 28% from 21%;
- A 15% minimum tax on book income of companies reporting net income greater than $100 million; and
- Possible extensions of renewable energy tax credits, particularly for solar investments.

Table 2

Impact Of Key Biden Corporate Tax Proposals On Regulated Utilities And Holding Companies

Tax proposal	Benefit or burden	Effect
Increased corporate tax rate	Benefit	Revenue requirements could be increased and utilities will gain cash flow, lowering the difference between the statutory and effective tax rate.
Reinstatement of AMT	Burden	Companies' minimum taxes would be increased, which could lead to a reduction in NOL and tax credit carryforwards.
Extension of Renewable Energy Tax Credits	Benefit	Utilities could benefit from the opportunity to gain cash flow from tax-based stimulus.

NOL--Net operating loss. Source: S&P Global Ratings.

How Increased Tax Rates Will Affect Utilities

Overall, we view the tax policy proposals outlined under Biden's tax plan as potentially beneficial for the utility industry's credit metrics, depending on the tax position of each company. Of the proposals, the flow through of the increased tax rate to customers could be the most significant change for utilities because it could materially increase FFO. Because of the higher tax rate, we expect cash taxes paid by regulated utilities to also increase; however, we expect utilities will offset this by using various tax credits and NOLs. For the utility industry, we expect FFO to debt to increase by about 100 basis points.

Table 3

Estimated Financial Impact For Utilities Of An Increase In The Corporate Tax Rate

S&P Global Ratings-adjusted metric	Net impact For credit metrics
EBITDA and FFO	Positive
Cash taxes	Negative
Post-retirement benefit obligations*	Positive
Asset retirement obligations*	Positive

*We are holding all other factors for post-retirement benefits obligations (PRBOs) and asset retirement obligations (AROs) constant. S&P Global Ratings tax-adjusts PRBOs and AROs when adding them to its adjusted debt figures, so an increase in the effective tax rate would lower these adjustments holding other factors, such as anticipated investment returns on plan assets, constant. Source: S&P Global Ratings.

Tax Credits And The AMT

The Biden proposal seeks to reinstate the corporate AMT at a rate of 15% of book income for companies with net income greater than $100 million, which could increase the taxable income for many utilities. However, we believe the full effects of such a proposal are difficult to fully determine. Many utilities have significant net operating loss and tax credit carryforward positions, and heavy investments in renewable energy capital projects that are eligible for production and investment tax credits. We expect that many utilities will continue to benefit from these tax deductions/credits, keeping them in tax-advantaged positions over our ratings outlook period even if the AMT is reinstated to 15%.

Table 4

Select Companies' Alternative Minimum Tax Based On Year-End 2019

	FY 2019 earnings before tax (A)	Net income FY 2019	Current federal taxes FY 2019 (B)	Taxes at 15% of earnings before tax FY 2019 (C) = A x 15%	Estimated AMT payable (D) = C - B	Estimated deferred tax assets related to federal tax credits and NOL carryforwards FY 2019	Estimated net AMT payable after tax credit and NOL carryforwards
Mil. $							
Duke Energy Corp.	4,097	3,748	(299)	615	914	3,622	0
Southern Co.	6,527	4,739	156	979	823	1,751	0
Exelon Corp.	3,802	2,936	85	570	485	891	0
Dominion Energy Inc.	1,727	1,358	32	259	227	1,374	0
American Electric Power Co. Inc.	1,907	1,921	(7)	286	293	247	46
Sempra Energy	2,313	2,197	0	347	347	1,787	0
PPL Corp.	2,155	1,746	(10)	323	333	707	0
Consolidated Edison Inc.	1,736	1,343	0	260	260	904	0
FirstEnergy Corp.	1,117	912	(16)	168	184	450	0

Table 4

Select Companies' Alternative Minimum Tax Based On Year-End 2019 (cont.)

	FY 2019 earnings before tax (A)	Net income FY 2019	Current federal taxes FY 2019 (B)	Taxes at 15% of earnings before tax FY 2019 (C) = A x 15%	Estimated AMT payable (D) = C - B	Estimated deferred tax assets related to federal tax credits and NOL carryforwards FY 2019	Estimated net AMT payable after tax credit and NOL carryforwards
Xcel Energy Inc.	1,500	1,372	(16)	225	241	639	0
DTE Energy Co.	1,324	1,169	(184)	199	383	1,437	0
Eversource Energy	1,190	909	57	179	122	4	117
Evergy Inc.	783	670	(40)	117	157	549	0
Ameren Corp.	1,016	828	(4)	152	156	25	131
American Water Works Co. Inc.	833	621	0	125	125	141	0
NiSource Inc.	507	383	0	76	76	659	0
Alliant Energy Corp.	626	557	(7)	94	100	416	0

To determine taxes at 15% of earnings at FY 2019 we multiply FY 2019 earnings before tax by 15%. To determine AMT payable we subtract current federal taxes FY 2019 from taxes at 15% of earnings before taxes FY 2019. NOL--Net operating loss. Source: S&P Global Ratings.

It All Hinges On Utilities' Management of Regulatory Risk

We expect that an increase to the U.S. corporate tax rate will likely result in a higher customer bill. This could complicate regulators' decisions, potentially affecting a utility's longer-term ability to effectively manage regulatory risk. Should the Biden tax plan be implemented, utilities would have to work effectively with their regulators to avoid overburdening the customer bill. This is especially true in the current economic environment that has been so constrained by COVID-19.

This report does not constitute a rating action.

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Updates And Insights On Regulatory Jurisdictions Shaping Policies For North American Utilities--November 2020

November 9, 2020

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Key Takeaways

- S&P Global Ratings periodically assesses each regulatory jurisdiction in the U.S. and Canada with a rated utility or where a rated entity operates.
- These assessments--with categories from "credit supportive" to "most credit supportive"--provide information for reference in determining the regulatory risk of a regulated utility or holding company with more than one utility. Since our last report, we have changed two jurisdictions and have examined developments in numerous jurisdictions.
- We base our analysis on quantitative and qualitative factors, focusing on regulatory stability, tariff-setting procedures and design, financial stability, and regulatory independence and insulation.
- The presence of utility regulation, no matter where in the continuum of our assessments, strengthens the business risk profile and generally supports utility ratings.

S&P Global Ratings conducts periodic assessments of each regulatory jurisdiction in the U.S. and Canada where a rated utility operates. This information provides a reference when determining a utility's regulatory advantage or regulatory risk. Regulatory advantage is a heavily weighted factor in our analysis of a regulated utility's business risk profile.

Our analysis covers quantitative and qualitative factors, focusing on regulatory stability, tariff-setting procedures and design, financial stability, and regulatory independence and insulation. (See "Key Credit Factors For The Regulated Utilities Industry," published Nov. 19, 2013, for more details on each category.)

Sorting Through Regulatory Jurisdictions In The U.S. And Canada

We updated our assessments of regulatory jurisdictions since our commentary "U.S. And Canadian Utility Regulatory Updates And Insights: June 2020," published June 8, 2020. Below, we

provide our current snapshot of each regulatory jurisdiction. We group the jurisdictions by the quantitative and qualitative factors and collective opinions expressed in the regulatory advantage determinations made in rating committees for the approximately 225 U.S. and 30 Canadian utilities we rate.

The categories indicate an important starting point regarding utility regulation and its effect on ratings: they are credit supportive to one degree or another, as all utility regulation sustains credit quality when compared with other corporate and infrastructure ratings. The presence of regulators, no matter where in the spectrum of our assessments, reduces business risk and generally supports utility ratings. We therefore designate all of these jurisdictions in a range from credit supportive to most credit supportive, and these vary only in degree rather than in kind.

Assessing U.S. And Canadian Regulatory Jurisdictions

Regulatory Jurisdictions For Utilities Among U.S. States & Canadian Provinces

Credit supportive (Adequate)	More credit supportive (Strong/Adequate)	Very credit supportive (Strong/Adequate)	Highly credit supportive (Strong/Adequate)	Most credit supportive (Strong)
Hawaii	Alaska	Connecticut	Alberta¶	Alabama
New Mexico	Arizona	Delaware	Arkansas	British Columbia
Prince Edward Island	California	Idaho	Georgia	Colorado
	District of Columbia	Illinois	Indiana	FERC (Electric)
	Maryland	Missouri	Kansas	Florida
	Mississippi*	Nebraska	Louisiana	Iowa
	Montana	Nevada	Maine	Kentucky
	New Jersey	New Orleans	Massachusetts	Michigan
	Oklahoma	New York	Minnesota	North Carolina
	South Carolina	Ohio	New Hampshire	Nova Scotia
	Washington	Rhode Island	Newfoundland & Labrador	Ontario
		South Dakota	North Dakota	Quebec
		Texas	Oregon	Wisconsin
		Vermont	Pennsylvania	
		West Virginia	Tennessee	
		Wyoming	Texas RRC	
			Utah	
			Virginia	

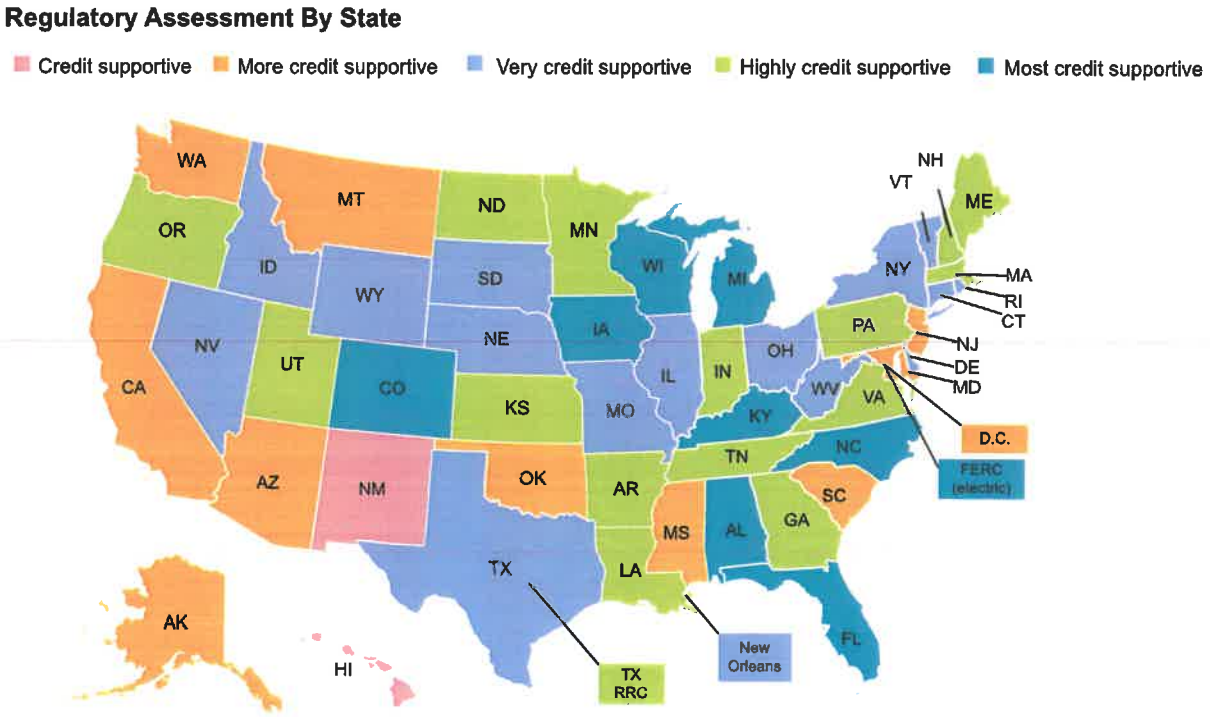
* Assessment raised. ¶ Assessment lowered

Mapping Regulatory Jurisdictions

For jurisdictions assessed in these maps (Charts 1 and 2), colors delineate our assessments of credit supportiveness. (We do not have assessments on Canadian provinces where we do not have

utility ratings.) The assessments offer some scale and detail in our thinking regarding the rules and implementation of regulation. Often they simply designate a stable jurisdiction slightly better or worse than its closest peers in credit quality.

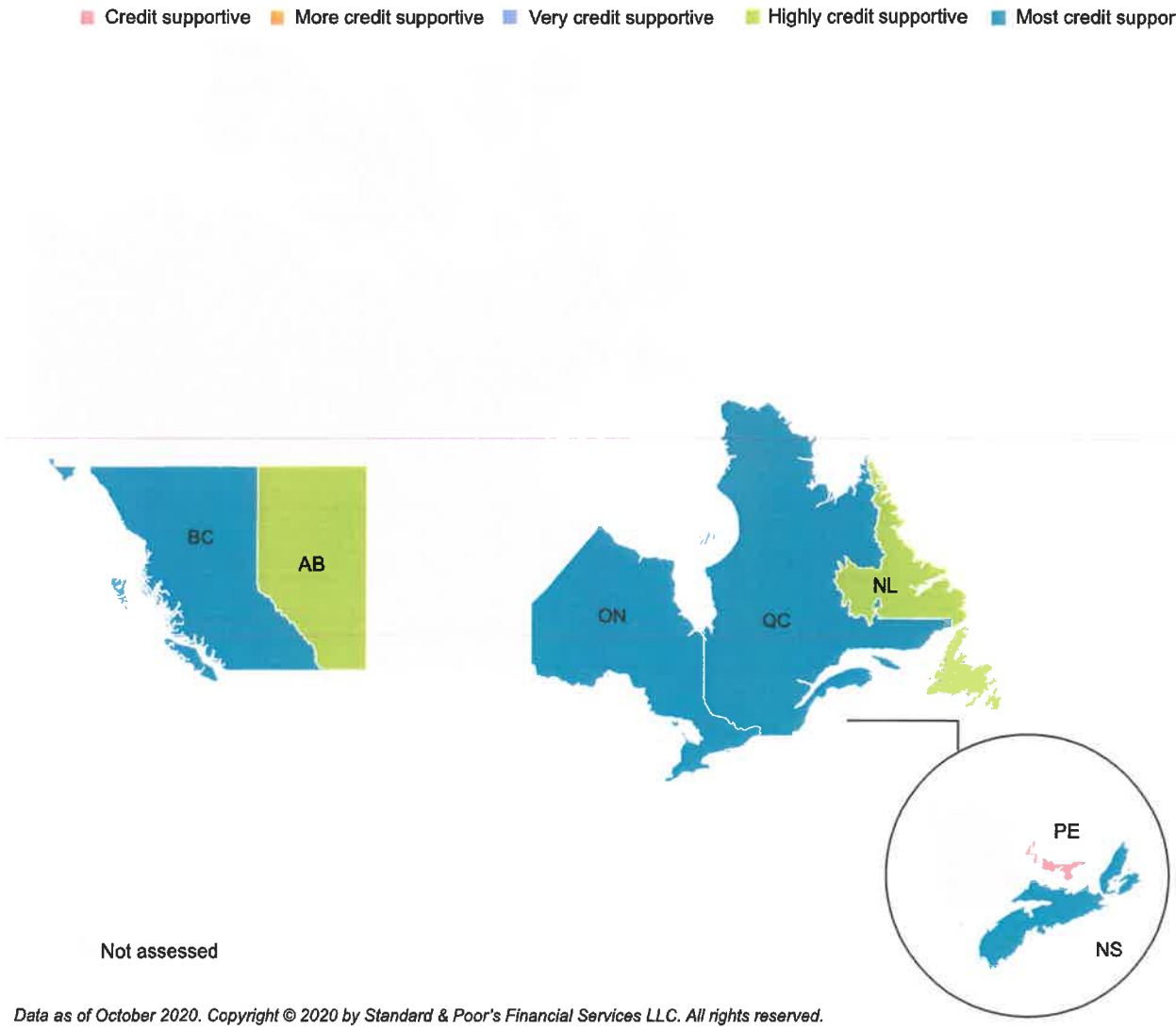
Chart 1



Data as of October 2020. Copyright © 2020 by Standard & Poor's Financial Services LLC. All rights reserved.

Chart 2

Regulatory Assessment By Canadian Province/Territory



Recent Regulatory Assessment Revisions

We periodically evaluate regulatory jurisdictions and may discern a shift in support of credit quality. Based on our most recent evaluation, the following jurisdictions have shifted their credit supportiveness.

Alberta: We revised our regulatory jurisdiction assessment on Alberta to "highly credit supportive" from "most credit supportive" reflecting our view that the Alberta regulatory construct has weakened over the past few years. Specifically, utilities in Alberta are continually exposed to the risk of absorbing the undepreciated capital cost of stranded assets due to extraordinary retirements. While this issue remains ongoing, it suggests the risk that prudently incurred capital costs by utilities may not always be recovered. In addition, we observe that Alberta authorizes some of the lowest returns on equity and equity capitalization ratios compared to other jurisdictions across North America. Furthermore, some recent decisions from the Alberta Utilities Commission (AUC) have resulted in regulatory lag for the utilities involved. Nonetheless, there are signs that the regulatory environment could stabilize and potentially improve. Since the appointment of a new interim AUC chair in June 2020, key issues such as the generic cost of capital for 2021 were resolved quickly compared to historic timelines. Furthermore, the AUC recently accepted most of the recommendations from an independent expert report and has proposed an action plan to improve efficiency and reduce regulatory lag for regulated utilities. We will continue to monitor the AUC's progress and development on this front.

Mississippi: We revised our regulatory jurisdiction assessment on Mississippi to "more credit supportive" from "credit supportive" reflecting our view that the regulatory environment in the state is stabilizing after a period of uncertainty in the years following the cancellation of Mississippi Power Co.'s (MPC's) Kemper Energy Facility. In our view, the addition of two newly elected commissioners has not resulted in any regulatory actions or decisions that are detrimental for credit quality. We view the regulatory issues related to Kemper as mostly resolved. In addition, recent decisions suggest that the regulatory environment is more credit supportive. We view the Mississippi Public Service Commission's (MPSC's) March 2020 approval of MPC's base rate case as constructive. Specifically, we view the higher authorized equity capitalization ratio increase (to 55% from 53% by the end of 2020) as favorable for the company's credit quality. The continuation of the performance evaluation plan in the state supports our view of the tariff-setting construct. Moreover, we view the MPSC response for its utilities related to COVID-19 as supportive for credit quality. Partially offsetting these positives is the pending regulatory commission decision on MPC's reserve margin plan (RMP). In December 2019, MPC updated its proposed RMP originally filed in August 2018, and includes a proposed a four-year acceleration of the retirement of Plant Greene County Units 1 and 2 to the third quarter 2021 and the third quarter 2022. Overall, while we continue to monitor this development, we view the stability of the regulatory environment and potential improvement to the regulatory compact as more credit supportive.

No Assessment Revisions, But Notable Developments And Topics Throughout North America

Arizona: Arizona's level for renewable energy was last set in 2006 with a target of 15% renewables by 2025, which is below other states in the west. However, the Arizona Corporation Commission (ACC) proposed in the summer of 2020 a 100% carbon-free Clean Energy Standard by 2050. Utilities serving the state, including Arizona Public Service and Tucson Electric Power, have proposed clean energy targets of 100% by 2050 and 70% by 2035, respectively. In late October, the ACC approved a plan for a 100% reduction in carbon-based emissions by 2050 with interim goals of a 50% cut by 2032 and 75% reduction by 2040. Utilities and other interest groups have been involved in the discussion. We are monitoring the implementation and potential regulatory

impact stemming from this clean energy standard.

California: In 2020, the California Public Utilities Commission (CPUC) issued a final decision implementing a four-year general rate case (GRC) cycle for California investor-owned utilities, directing the utilities to file a petition for modification to revise their 2019 GRCs to add two additional attrition years, resulting in a transitional five-year GRC period (2019-2023). Separately, California governor Newsom signed into law AB 913 in September, authorizing the CPUC to approve the securitization of revenue shortfalls associated with the economic effects of the COVID-19 pandemic. Overall, we view these developments as favorable for credit quality. Other developments we continue monitor include the recent blackouts that occurred across the state in the summer, some of which may have derived from extreme heat conditions.

Connecticut: In November 2020, the Public Utilities Regulatory Authority (PURA) of Connecticut preliminarily found that the current method of approving rate adjustments based on forecasted data on a biannual basis is not in the public interest. As such, PURA will perform a prudence review of any proposed rate adjustments on several rider components for Connecticut Light & Power Co. (CL&P) during the annual rate adjustment mechanism proceeding using actual costs and revenues rather than relying on projected expenses and forecasted sales and other revenues. This finding is pending and subject to a final order, which could be different from what is currently proposed. In addition, in July, regulators announced that they would investigate and temporarily suspend CL&P's rate adjustment increase, following calls to do so by legislators and ratepayers in the state. We think this investigation may have been driven in part by the prospect of higher customer bills coinciding with the COVID-19 pandemic.

Separately, a new law increases potential penalties for utilities in the state for inadequate storm response. Though this legislation places more scrutiny on utilities, it is not dissimilar from other storm-response-related fines leveled on utilities in other jurisdictions. We continue to monitor these developments, and may revise our view of the state's overall credit supportiveness if the outcome is detrimental for credit quality or the risk of political intervention in the state is persistent.

District of Columbia (D.C.): We continue to monitor Potomac Electric Power Co.'s regulatory proceeding in a first-ever multiyear rate plan the utility filed in 2019. The multiyear rate plan is the first filing of its kind in D.C. Currently, D.C.'s tariff-setting is based on historical test years that can add to regulatory lag. We continue to monitor this proceeding to determine how the alternative ratemaking mechanisms are applied and how they will affect the utilities operating there. We expect this will improve utilities' timeliness of capital and operating cost recovery.

Hawaii The state is undergoing regulatory reform, and the Hawaii Public Utilities Commission (HPUC) is proceeding with a performance-based regulation framework. The proposed framework includes a five-year rate plan with an indexed annual revenue adjustment mechanism, coupled with existing capital recovery mechanisms in between rate cases. We expect this will lead to more cash flow stability and predictability, and will most likely improve the timeliness of both capital and operating cost recovery for utilities in Hawaii, including Hawaiian Electric Industries Inc. We continue to monitor this development and expect HPUC to reveal the implementation details by the HPUC by end of 2020.

Illinois: Illinois electric utilities have been operating under a performance-based formula ratemaking construct that expires in 2022. Under this construct, utilities have updated rates annually based on formula-driven return on equity. Illinois House Bill 5673 and Senate Bill 3977

propose to extend this ratemaking construct. Although we are uncertain if there will be an extension, we continue to monitor the legislative process.

Kansas: Evergy Inc. has concluded it will pursue a Sustainability Transformation Plan that should result in greater capital spending. With the concern of high customer rates at center stage, the Kansas Corporation Commission (KCC) opened an investigation into the company's plan that includes $3.7 billion of capital spending in the state. Over the next several months we anticipate stakeholders will opine on the plan's reasonableness, including the implications for customer rates and its consistency with agreements reached in a 2018 merger. Evergy has stated that pre-approval of the spending plan is not required under statute or current regulation; however, the spending will be subject to a prudence review when the company files its next base rate proceeding. This investigation comes as Evergy's utilities intend to file their triennial integrated resource plans in the state seeking KCC approval of generation spending. We anticipate conversations regarding both topics to overlap and extend through 2021.

Maryland We continue to monitor Baltimore Gas & Electric Co.'s pending regulatory proceeding filed in May 2020 requesting a first-ever multiyear rate plan. Currently, Maryland tariff-setting is based on historical test years that can add to regulatory lag. We continue to monitor this proceeding to determine how the alternative ratemaking mechanisms are applied and how they would affect those utilities using such a mechanism. We expect this will improve utilities' timeliness of capital and operating cost recovery.

Missouri: Evergy Inc. will pursue a Sustainability Transformation Plan that should result in greater capital spending. The Missouri Public Service Commission (MPSC) subsequently opened an investigation into the company's plan that includes $3.3 billion of capital spending in Missouri. Of this amount, Evergy expects over $2.9 billion of state spending to qualify for the recently implemented Plant in Service Accounting, which authorizes the deferral of depreciation expense and return associated with 85% of qualifying rate base additions between rate cases that would otherwise not be immediately captured in rates. While Evergy has stated that pre-approval of the spending is not required, the spending will be subject to a prudence review when the company files its next base rate proceeding. In the interim, the investigation will allow intervenors the opportunity to comment regarding this five-year capital plan, particularly as to how the plan compares with agreements reach in a 2018 merger. This investigation will take place as Evergy's utilities file their triennial integrated resource plans in the state seeking MPSC approval of its projected generation spending plan. The proceedings should continue into 2021.

Nevada: On Nov. 3, voters passed the second of two votes on a ballot initiative that requires Nevada electric utilities source 50% of generation from renewable energy by 2030. The governor had signed into law Senate Bill 358 in 2019, which would also require utilities to derive 50% of electricity from renewable sources by 2030, and target 100% carbon-free resources by 2050; however, this ballot initiative would slightly alter the yearly incremental increases between 2020 and 2024 and, as a constitutional amendment, could be repealed. Although we believe Nevada electric utilities will be able to meet this new generation requirement, we believe ballot initiatives indicates heightened politicization of utility policies in the state, including around long-term energy generation planning. This creates some uncertainty about investing in the state's utilities in the long run and make utility-related issues such as electricity generation part of the political process.

New Mexico: A 2020 general election ballot initiative to select the commissioners of the New Mexico Public Regulation Commission (PRC) through appointments and not elections passed. Beginning 2023, PRC commissioners will be nominated by the governor from a list of candidates compiled by a nominating committee, followed by state Senate confirmation. Our view is it's generally more credit-supportive for utilities when the regulatory commission is independent from the political process. We will continue to monitor the situation.

New York Over the past year or so, there has been heightened political scrutiny of issues such as the temporary gas moratoriums by Consolidated Edison and National Grid, as well as the storm responses of many of the utilities in the state. This scrutiny has increased as Governor Cuomo has introduced legislation to facilitate, expedite, and clarify the process for a utility to lose its franchise. We will continue to monitor developments surrounding this heightened political scrutiny to determine whether or not it could negatively impact credit quality of utilities in the state.

North Carolina The 2019 addition of three new commissioners to the North Carolina Utility Commission (NCUC) could add some regulatory uncertainty for utilities in the state. Specifically, the NCUC's recent decision on coal ash cost recovery for Dominion Energy operating in North Carolina, in which the commission authorized recovery for coal ash costs over 10 years, but without a rate of return on the unamortized balance. This indicates a change from past regulatory decisions, and potentially sets a precedent for future commission orders related to coal ash cost recovery in the state, including for utilities such as Duke Energy Carolinas LLC (DEC) and Duke Energy Progress LLC (DEP), where rate cases remain pending. Partially offsetting is the 2019 passage of Senate Bill 559, a storm securitization measure that permits recovery for certain storm recovery costs. DEC and DEP can use a new financing measure to recover restoration costs incurred after several storms and hurricanes in 2018. In October 2020, DEC and DEP filed to securitize storm costs of about $231 million and $748 million, respectively. Given the significance of coal ash costs in our assessment of credit risk, we will continue to monitor this development, and may revise our view of this jurisdiction if we conclude that the regulatory construct has weakened.

Ohio We continue to monitor the investigations into FirstEnergy Corp. and the potential for future regulatory ramifications. The Public Utilities Commission of Ohio (PUCO) has initiated an audit of FirstEnergy's compliance with Ohio's corporate separation regulations regarding the company's separation practices from Nov. 1, 2016, to Oct. 31, 2020. This time frame spans the separation of FirstEnergy and its former subsidiary, FirstEnergy Solutions, now known as Energy Harbor. This also includes the time period related to the passage of nuclear subsidy bill House Bill 6. Also, in September 2020, the PUCO opened a separate proceeding to review the political and charitable spending by FirstEnergy's utilities in support of House Bill 6 and against a referendum effort. Both investigations may inhibit the passage of any utility-related legislation for the foreseeable future.

South Carolina The South Carolina Legislature voted in September 2020 to evaluate potential electricity reform measures, which could result in a restructuring of the state's energy market and lead to fundamental changes to the way regulated utilities operate in the state. We expect the committee to evaluate the current structure--in which vertically integrated utilities provide electric distribution and transmission services--and consider potential reforms, including whether to establish a southeastern regional transmission organization (RTO) or join an existing RTO. We also expect the committee to consider implementing partial or full retail competition that, if enacted, would require vertically integrated utilities to divest their generation or transmission

assets, and potentially allow for community choice aggregation. While our assessment of South Carolina is unchanged, we will continue to monitor these developments.

Renewable Portfolio And Clean Energy Standards

State-level clean and renewable energy standards greatly influence the overall strategic direction and growth investments of North American regulated utilities. Regulatory support through timely cost recovery helps support credit quality and facilitate the energy transition. A number of states have either proposed or passed legislation requiring utilities to reduce their carbon emissions and utilize a greater percentage of renewable energy generation. Over 30 states have adopted a mandatory renewable portfolio standard (RPS) target requiring investor-owned utilities to achieve 100% renewable generation by 2045 or 2050, depending on the entity.

States that had either proposed or passed legislation in early 2020 that would either directly reduce emissions or increase renewables include Arizona, Delaware, Iowa, New Mexico, Massachusetts, Maryland, and Rhode Island. Along with RPS standards, investor-owned utilities are continuing to work towards meeting their own targets in both states with and without a mandatory RPS. Dominion aims to achieve net-zero greenhouse gas emissions by 2050. Southern Co. plans to reduce its carbon emissions by 50% by 2030 from its 2007 levels and achieve net-zero carbon emissions by 2050. Duke Energy also plans to reduce its carbon emissions; specifically, it aims to reduce emissions from electricity generation by at least 50% by 2030 from its 2005 levels and achieve net-zero emissions by 2050.

We will continue to monitor these developments and their potential impact on credit quality.

Related Research

- U.S. And Canadian Utility Regulatory Updates And Insights: June 2020, June 8, 2020
- Key Credit Factors For The Regulated Utilities Industry, Nov. 19, 2013

This report does not constitute a rating action.

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S&P Global
Ratings

Industry Top Trends 2021

North America Regulated Utilities

An Industry With A Negative Outlook Despite Its Predictable Cash Flows

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What's changed?

Governance risks. Uncharacteristically, in 2020 the industry experienced a number of high profile governance-related issues stemming from bribery allegations.

COVID. Despite the many potential COVID-19-related risks, the industry was able to offset many of the risks and generally performed well throughout the pandemic.

Key transitions are accelerating. Strategic M&A deals will drive further consolidation, while capital spending will be fueled by transitioning to a lower carbon footprint and asset hardening.

What are the key assumptions for 2021?

Negative discretionary cash flow. The industry's high capital spending and dividends account for about $180 billion, necessitating consistent access to the capital markets at a reasonable price.

No change to the corporate tax rate. While not in our base case, should Democrats take hold of a majority of the U.S. Senate, a higher corporate tax rate is likely, improving the industry's funds from operations to debt by about 100 basis points.

Greenhouse gas (GHG) emissions will further decline. Although the industry reduced its GHG emissions by about 25% over the past decade, given the renewable investments, we expect a subsequent 40% reduction over the next decade.

What are the key risks around the baseline?

Environmental risks. Despite its significant carbon emission reductions, the industry is still the number two GHG emitter and further progress is necessary. This necessitates managing regulatory risk while managing the customer bill.

Financial Cushion. Many companies in the industry continue to strategically operate with very minimal financial cushion, maintaining financial measures that are just above their downgrade threshold.

Regulatory risks. During 2019, regulatory lag increased highlighted by rate case filing postponements, delayed rate case orders, and lower than expected rate case outcomes because of COVID and the economic recession.

Ratings trends and outlook

North America Regulated Utilities

Chart 1

Ratings distribution

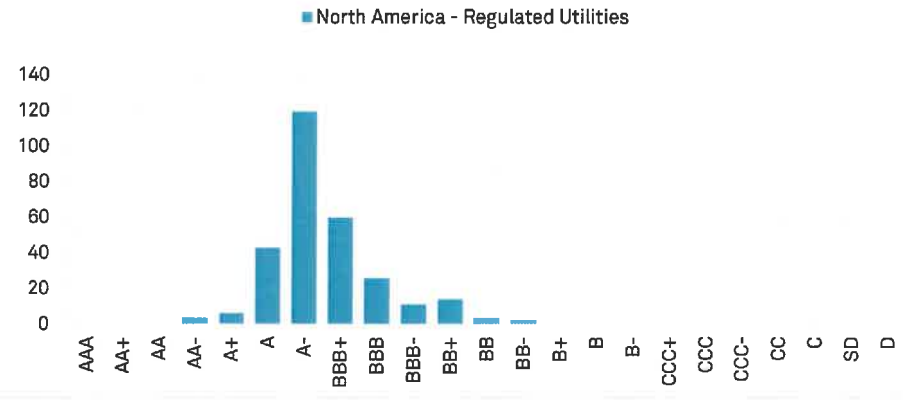


Chart 2

Ratings outlooks

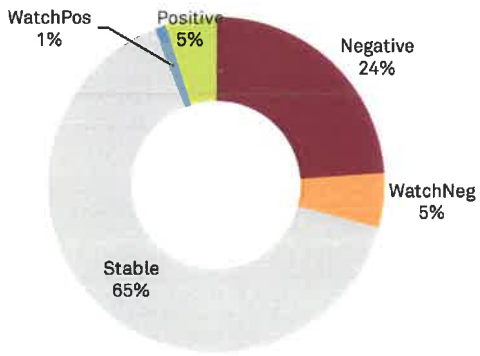
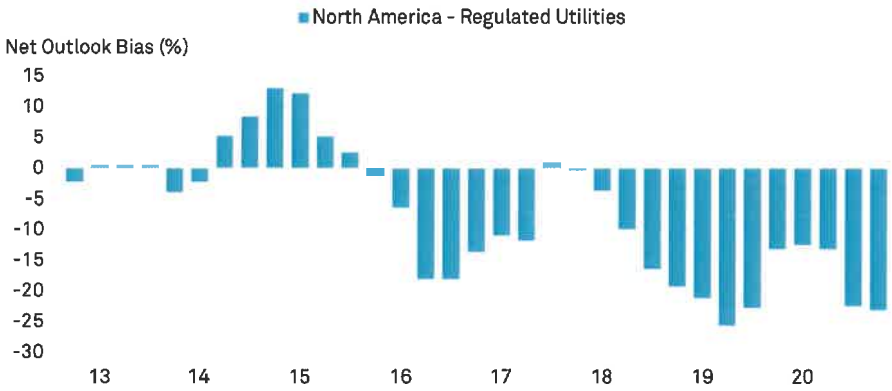


Chart 3

Ratings outlook net bias



Source: S&P Global Ratings. Ratings data measured at quarter end. Data for Q4 2020 is end October, 2020

Industry credit metrics

North America Regulated Utilities

Chart 4

Debt / EBITDA (median, adjusted)

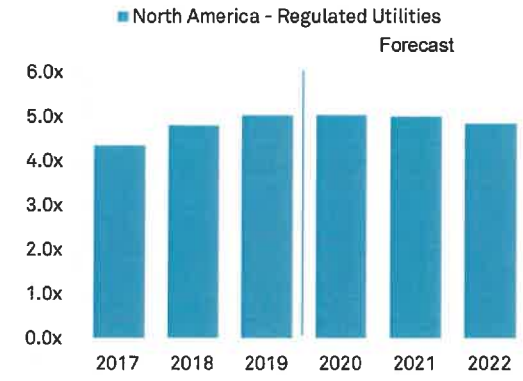


Chart 5

FFO / Debt (median, adjusted)

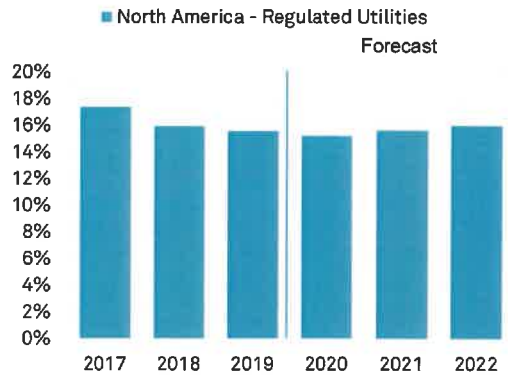


Chart 6

Cash flow and primary uses

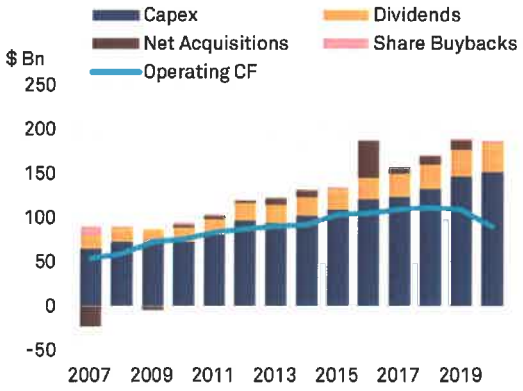
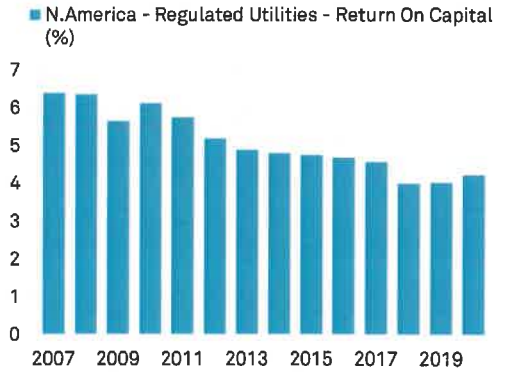


Chart 7

Return on capital employed



Source: S&P Global Ratings, S&P Global Market Intelligence. Most recent (2020) cash flow and ROCE figures are using last twelve months (LTM) data. All non-forecast figures are converted into U.S. Dollars using historic exchange rates. Forecasts are converted at the last financial year-end spot rate. FFO—Funds from operations.

Shape of recovery

Table 1

Sector Outlook Heatmap

	Sensitivities and Structural Factors			Shape Of Recovery			
	COVID-19 Sensitivity	Impact If No Vaccine in 2021	Long-Term Impact On Business Risk Profile	Revenue Decline – 2021 vs 2019	EBITDA Decline – 2021 vs 2019	Revenue Recovery To 2019 Levels	Credit Metric Recovery To 2019 Levels
Utilities							
Asia-Pacific	Low	Low	Neutral	>=2019	>=2019	2021	2021
Europe	Low	Low	Neutral	>=2019	>=2019	2021	2022
Latin America	Moderate	Moderate	Neutral	>=2019	>=2019	2021	2021
North America	Low	Low	Neutral	>=2019	>=2019	2021	2022

Source: S&P Global Ratings.

S&P Global Ratings believes there remains a high degree of uncertainty about the evolution of the coronavirus pandemic. Reports that at least one experimental vaccine is highly effective and might gain initial approval by the end of the year are promising, but this is merely the first step toward a return to social and economic normality; equally critical is the widespread availability of effective immunization, which could come by the middle of next year. We use this assumption in assessing the economic and credit implications associated with the pandemic (see our research here: www.spglobal.com/ratings). As the situation evolves, we will update our assumptions and estimates accordingly.

This report does not constitute a ratings action.

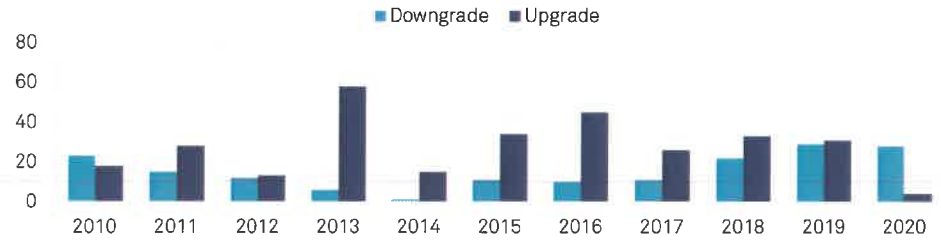
Industry outlook

Ratings trends and outlook

The industry's rating trends and outlook are negative. About 30% of North American regulated utilities either have a negative outlook or are on CreditWatch with negative implications. For the first time in a decade we expect downgrades will outpace upgrades by about 7 to 1 (see chart 8). The high percentage of negative outlooks reflect relatively weak financial measures driven by high capital spending and the effects of various Environmental, Social, and Governance (ESG) factors.

Chart 8

North America regulated utilities upgrades and downgrades



Source: S&P Global Ratings

Main assumptions about 2021 and beyond

1. Robust capital spending

The industry's capital spending has been steadily growing over the past decade. We expect 2021 capital spending at about $150 billion for critical infrastructure projects including system hardening and upgrades, technology, renewable energy, batteries, and other carbon-emission reductions. We expect that over the next decade renewables in the U.S. will triple, displacing much of the remaining coal-fired generation.

2. COVID-19 will subdue electric deliveries to commercial customers

Over the past decade, because of conservation, the industry has experienced flat to negative electric deliveries. Accordingly, the industry has worked with regulators to mitigate the potential negative financial effects of conservation. This includes implementing formula rates, forward-looking test years, and decoupling. Another risk regarding the lack of volumetric growth is the effect COVID-19 has had on commercial customers. During 2020, electricity sales to commercial customers decreased by about 8% and this decrease could continue through much of 2021. We expect the industry will work with regulators to offset at least some of the financial effects of these lower electric deliveries. Absent regulatory recovery, financial measures would modestly weaken.

3. Strategic focus on a simpler business model

The industry has recently seen companies either announce or complete a sale, separation, or evaluate strategic alternatives for their non-utility businesses. Because of our generally favorable assessment of the low-risk regulated utility industry, we tend to assess these decisions as improving business risk. However, in many instances credit quality does not improve because the new stand-alone utility is more leveraged, weakening financial measures, and thereby offsetting the improved business risk.

The industry has managed most of its coronavirus-related risks. It offset some of its lower commercial and industrial deliveries as a result of COIVID with higher residential deliveries. It worked with regulators to defer much of the COVID-related costs for future recovery. These actions, in conjunction with the industry's generally consistent access to the capital markets, offset much of the potential risks stemming from the pandemic.

One of the enduring effects of COVID-19 was regulatory lag. The industry experienced delayed rate case filings, delayed rate case orders, and weaker-than-expected rate case outcomes. As the pandemic ends (which could happen in mid-2021) and the economy improves, we expect the industry's management of regulatory risk will improve. This includes timely rate case filings and rate case orders, decreasing the regulatory lag.

For 2021, we expect volumetric growth will continue to be constrained, reflecting conservation and lower commercial electricity use related to COVID-19. Under our base case, the industry will continue to work with regulators to offset these potential risks.

We expect that over the next decade U.S. utility investments in renewable energy will triple to about 30% from approximately 10% today. In the U.S., one of the newer areas of renewable energy is offshore wind. We believe utility investments in U.S. offshore wind will significantly grow and may lead to the installation of as much as 14 gigawatts of offshore wind capacity by 2030. This would equate to more than three quarters of all the offshore capacity installed in Europe, which has been developing and installing offshore wind projects for the past three-decades. The potential growth is primarily driven by regulatory policies in states along the East Coast looking to meet renewable and clean energy targets.

Currently in the U.S. there is only one online offshore windfarm (Block Island Wind), but companies such as Avangrid, Eversource, Public Service Enterprise Group, and Dominion Energy could all have projects online by 2023. In general, we view offshore wind as having higher risk than traditional onshore wind projects due to generally higher costs, complexity to build, possible siting and permit delays, supply chain risks, and higher operational risks. However, the long-term contracted nature of these projects with other utilities could mitigate some of the aforementioned risks.

Credit metrics and financial policy

Over the last few years the industry's financial measures have weakened. This reflects a combination of tax reform, rising capital spending, regulatory lag, and lower authorized return on equity. The industry's return on capital was about 6% a decade ago and today is closer to 4%. More recently, we have seen instances where not only is the authorized return on equity (ROE) lowered but also the equity ratio is lowered. These results have weakened the industry's financial measures, pressuring credit quality.

Key risks or opportunities around the baseline

1. Operation and maintenance (O&M) cost reductions

The industry is pursuing multiple paths to reduce O&M costs, incorporating technology, productivity gains, and reducing its real estate footprint. While the reduction of these costs is ultimately passed back to ratepayers, lower O&M costs reduces the customer bill, supporting the industry's ability to maintain its robust capital spending programs while mitigating rate implications.

2. Effective management of regulatory risk

Managing regulatory risk is one of the most important elements for maintaining credit quality, which is often challenging because of regulators' concern regarding the impact to the customer bill. However, this may prove even more difficult should the economy remain weak and the pandemic persist for longer than expected. As the industry continues to invest in renewable energy, recovering these investments (while often simultaneously recovering an earlier-than-expected retirement of a coal generating facility) may be difficult. Rising interest rates, higher inflation, or a higher corporate tax rate all of which would increase the customer bill, could make it more challenging for the industry to effectively manage regulatory risk. Similarly, timely recovery of other large environmental costs, such as coal ash, further complicates the matter. All of these simultaneous challenges will pressure the industry's ability to effectively manage regulatory risk.

3. Environmental, Social, and Governance (ESG) risks

Part of the industry's 2020 weakening of credit quality is directly attributed to ESG risks. The industry continues to face environmental hazards, including West Coast wildfires, Southeastern hurricanes, and continued exposure to carbon-based emissions. Social risks in the wake of COVID-19, including delayed rate case filings, delayed rate case orders, and lower-than-expected rate case outcomes have, in certain instances, contributed to somewhat weaker financial measures. Lastly, the industry faced high-profile governance issues in 2020 based on bribery allegations. The subsequent investigations in Ohio and Illinois revealed a lack of sufficient internal controls, and violations of company policies and code of conduct. The industry regularly interacts with policymakers and lobbies on behalf of various laws and regulatory constructs to advance its interests. Should the governance issues become more widespread, confidence in the utility industry would likely weaken, pressuring credit quality.

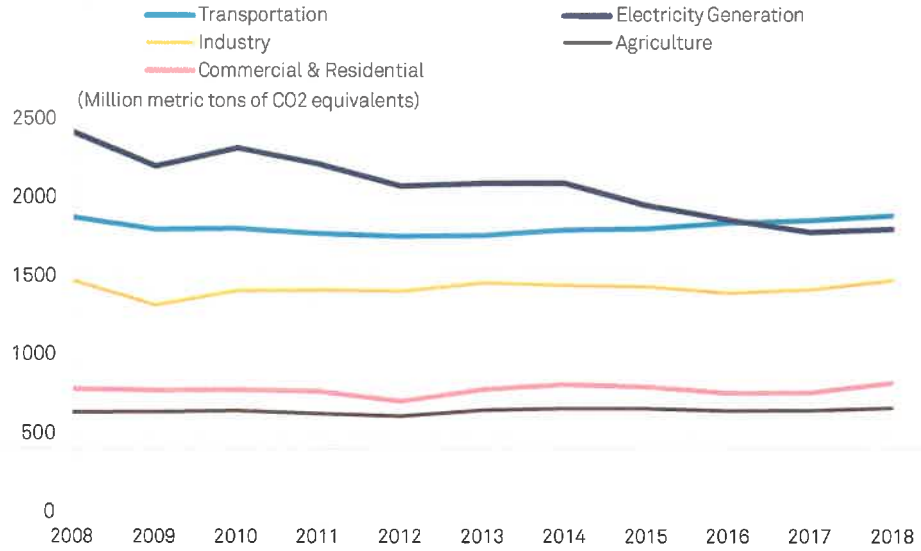
Managing the customer bill is always an important aspect of managing regulatory risk but today it is even more so given the pandemic and the effects it has had on the economy. The utility industry has benefited over the past decade from lower-cost shale gas and historically low interest rates. However, as capital spending continues to drive up the customer bill, the industry must find savings elsewhere—from fuel, technology, and process improvements—so as not to overburden the customer. Typically a utility that is increasing capital spending by $1 would have to identify costs savings of 10-20 cents to avoid increasing the customer bill once rate recovery is sought for the new investments.

Environmental risks are elevated for the industry. Over the past decade it has made strides in reducing its reliance on coal fired generation and its associated level of carbon-based emissions. The industry is no longer the number one North America emitter of carbon-based pollutants (see chart 9). Still, about 30% of electric utilities rely on coal-fired generation that comprises at least 50% of their electricity production. Additionally, about two-thirds of those utilities rely on coal-fired generation for more than 70% of their total generation. Investors are increasingly focused on environmental issues and we

expect the industry will continue to decrease carbon-based emissions by using more renewables and batteries.

Chart 9

GHG emissions by U.S. economic sector



Source: U.S. Environmental Protection Agency.

Western U.S. states faced unprecedented wildfire activity in 2020. In our view, this was indicative of an environment that is more susceptible to frequent and more severe wildfires. Still, California's investor-owned electric utilities have not caused a catastrophic wildfire in 2020. This, and the recent northern California rainfall, is supportive of credit quality. While wildfires remain operationally challenging for California's utilities, we believe the benefit of the wildfire fund created through SB 1054 adds sufficient financial credit enhancements to protect utilities' credit quality over the next several years, absent near-term catastrophic wildfires.

Higher coal ash costs may be a rising risk for a few electric utilities. Coal ash is a byproduct of burning coal. While the industry, in general, has managed this risk, in some cases this risk is escalating.

We believe natural gas will serve as a bridge fuel and do not expect it to expand at the rate experienced over the past decade. As such, as coal plants continue to close, we expect the electricity output will primarily be replaced with renewables and batteries. Despite the utility industry's already reducing its GHG emissions by about 25% over the past decade, we expect it will further reduce its GHG emissions by an incremental 40% over the next decade.

Related Research

- Updates And Insights On Regulatory Jurisdictions Shaping Policies For North American Utilities--November 2020, Nov. 9, 2020
- U.S. Regulated Utilities' Credit Metrics Could Strengthen Under Proposed Biden Tax Plan, Oct.29, 2020
- How Diverging Energy Policies In The U.S. Presidential Election May Affect Credit Quality, Oct. 23, 2020
- Recent Cases In Ohio And Illinois Underscore The Importance Of Effective Governance For North American Regulated Utilities, Oct. 23, 2020
- The Energy Transition: COVID-19 Undermines The Role Of Gas As A Bridge Fuel, Sept. 24, 2020
- North American Regulated Utilities Face Tough Financial Policy Tradeoffs To Avoid Ratings Pressure Amid The COVID-19 Pandemic, May 11, 2020
- COVID-19: While Most Of The U.S. Is Shut Down, Utilities Are Open For Business, May 4, 2020
- COVID-19: The Outlook For North American Regulated Utilities Turns Negative, April 2, 2020
- North American Regulated Utilities Face Additional Risks Amid Coronavirus Outbreak, March 19, 2020
- ESG Industry Report Card: Regulated Utilities Networks, Feb. 11, 2020
- Environmental, Social and Governance: ESG Industry Report Card: Power Generation, Feb. 11, 2020

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INFRASTRUCTURE AND PROJECT FINANCE

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SECTOR COMMENT
6 April 2020

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Asia Pacific	852-3551-3077
Japan	81-3-5408-4100
EMEA	44-20-7772-5454

Regulated Electric, Gas and Water Utilities – US

Coronavirus outbreak delays rate cases, but regulatory support remains intact

The coronavirus (COVID-19) pandemic is creating logistical and social challenges for US regulated utility rate case proceedings. Electric, gas and water utilities will likely see the schedules associated with 2020 rate case proceedings postponed or delayed. In addition, we will likely see the schedules of other regulatory proceedings, open meetings, investigations or other open dockets pushed back. For many utilities, the timely conclusion of a rate case is important for earnings and cash flow, which helps fund operations, capital investing and dividends to shareholders.

When considering the short-term credit implications of coronavirus-related regulatory delays, we will view any modest weakening in financial metrics as temporary and not detrimental to long-term credit quality, unless it is accompanied by a more contentious regulatory or political environment. We will continue to expect utilities to make proactive financial policy adjustments if the dip is material, or appears likely to remain for an extended period of time. For now, we expect state regulatory commissions to continue to provide a broad suite of timely cost recovery mechanisms and to address current challenges like lost revenue and incremental expenses. As a result, we think the overall relationship with the sector remains supportive.

Still, the prospects for political intervention in the rate-making process will rise and will likely be credit positive for the sector. We think state legislatures and governors will look to provide regulators with additional flexibility to reduce their docket backlog. Utility rate proceedings are complex, time-consuming and require public hearings, making them difficult to process in a remote environment. So changes need to be codified. There is also the possibility that broader political intervention becomes credit negative, since social risks will rise as high unemployment levels make rate increases less politically palatable. (See the National Association of Regulatory Utility Commissioners' State Response Tracker.)

The New York Public Service Commission has already approved multiple revenue deferral orders, allowing Niagara Mohawk Power Corporation (A3 stable) to delay about $110 million in electric and gas revenue increases by three months to 1 July 2020 and American Water Works Company Inc. (AWK, Baa1 stable) subsidiary New York American Water Company to defer a roughly $4 million revenue increase by five months to 1 September 2020. (AWK expects to complete the planned sale of its New York subsidiary to Algonquin Power & Utilities Corp. subsidiary Liberty Utilities in the second half of this year.)

Along similar lines, Avangrid Inc. (Baa1 negative) subsidiaries New York State Electric & Gas Corporation (A3 stable) and Rochester Gas & Electric Corporation (A3 stable) are seeking suspension of their electric and gas cases through 13 September 2020. We note that all of these filings were proposed by the utilities, as they try to do their part in reducing any near-term financial burdens on customers during the critical months of the COVID-19 pandemic. Furthermore, National Grid Plc (Baa1 stable) subsidiaries KeySpan Gas East Corporation (A3 negative) and The Brooklyn Union Gas Company (A3 negative) had their rate cases extended to 1 August 2020 in January, following the fourth one-month extension being granted (we now expect the order to come in July). Several other companies across the US have made similar requests of their respective regulators.

Rate case delays that help stakeholders are not new for the sector. We see these regulatory delays as a social benefit and view the actions as prudent corporate governance. Over the long-term, these actions often enhance financial strategy, risk management and customer relations.

We will generally try to see through one- or two-year drags on financial metrics due to these delays. We assume that the pandemic will be contained by then, that economic activity will recover and that the rate increases will eventually be approved, including some of the lost revenues associated with the delay. However, if the US economic downturn were to be protracted, it could have negative credit implications for certain utilities, such as those that have been operating with leverage that we had already considered high before the outbreak.

Exhibit 1

Utilities with rate cases that were expected to be completed in 2020 or the first quarter of 2021

Rate filing data as of 31 March 2020 and (CFO pre-WC)/debt as of year-end 2019 or available LTM

State	Company	Rating	Outlook	Expected Decision Date	Original Revenue Request ($M)	Revenue Requested / Total Rev of Utility	Revenue Requested / Total Rev of Parent	Utility CFO Pre-WC / Debt	Utility Downgrade Trigger
MI	DTE Gas Company	A3	Stable	Sep-20	$ 203.8	13.7%	1.6%	15.7%	15%
NJ	South Jersey Gas Company	A3	Negative	Dec-20	$ 75.3	13.2%	4.6%	11.1%	15%
IN	Duke Energy Indiana, LLC.	A2	Stable	Apr-20	$ 394.6	13.1%	1.6%	23.1%	22%
CA	Southern California Edison Company	Baa2	Stable	Dec-20	$ 1,319.4	10.7%	10.7%	(2.1%)	15%
NJ	Jersey Central Power & Light Company	Baa1	Rating(s) Under Review	Nov-20	$ 186.9	10.2%	1.7%	23.2%	17%
NY	New York State Electric and Gas Corporation	A3	Stable	Jul-20	$ 162.7	10.2%	2.6%	19.9%	18%
NC	Duke Energy Progress, LLC	A2	Stable	May-20	$ 586.0	9.8%	2.3%	22.4%	20%
OR	Northwest Natural Gas Company	Baa1	Stable	Oct-20	$ 71.4	9.7%	9.7%	18.3%	14%
KY	Duke Energy Kentucky, Inc.	Baa1	Stable	Apr-20	$ 45.6	9.5%	0.2%	17.2%	15%
NY	Brooklyn Union Gas Company, The	A3	Negative	May-20	$ 179.8	9.4%	1.4%	8.6%	17%
LA	Cleco Power LLC	A3	Stable	N/A	$ 109.6	9.4%	6.7%	20.3%	20%
AZ	Tucson Electric Power Company	A3	Stable	May-20	$ 114.9	8.1%	1.7%	22.6%	22%
TX	Southwestern Public Service Company	Baa2	Stable	Sep-20	$ 136.5	7.5%	1.2%	18.1%	18%
PA	UGI Utilities, Inc.	A2	Stable	Oct-20	$ 74.6	7.1%		20.8%	20%
DC	Potomac Electric Power Company	Baa1	Stable	Oct-20	$ 157.9	7.0%	0.5%	18.8%	14%
AZ	Southwest Gas Corporation	A3	Negative	May-20	$ 93.3	6.8%	3.0%	14.6%	17%
MI	DTE Electric Company	A2	Stable	May-20	$ 343.2	6.6%	2.7%	21.1%	20%
NH	Public Service Company of New Hampshire	A3	Stable	May-20	$ 69.3	6.5%	0.8%	14.5%	18%
NC	Duke Energy Carolinas, LLC	A1	Stable	Apr-20	$ 464.7	6.3%	1.9%	25.9%	25%
MN	ALLETE, Inc.	Baa1	Stable	Dec-20	$ 65.9	5.3%	5.3%	18.6%	19%
NY	Rochester Gas & Electric Corporation	A3	Stable	Jul-20	$ 38.7	4.2%	0.6%	18.2%	17%
WA	Puget Sound Energy, Inc.	Baa1	Stable	May-20	$ 138.4	4.1%	4.1%	15.1%	20%
IL	Ameren Illinois Company	A3	Stable	Jan-21	$ 102.0	4.0%	1.7%	25.3%	19%

Revenue requests represent the original filing and do not reflect settlement amounts or revised filing requests, which we expect to occur on a case-by-case basis.
Sources: Standard & Poor's Global Market Intelligence and Moody's Investors Service

Exhibit 2

Utilities with rate cases that were expected to be completed in 2020 or the first quarter of 2021

Rate filing data as of 31 March 2020 and (CFO pre-WC)/debt as of year-end 2019 or available LTM

State	Company	Rating	Outlook	Expected Decision Date	Original Revenue Request ($M)	Revenue Requested / Total Rev of Utility	Revenue Requested / Total Rev of Parent	Utility CFO Pre-WC / Debt	Utility Downgrade Trigger
ME	Northern Utilities, Inc.	Baa1	Stable	Mar-20	$ 7.1	4.0%	1.6%	23.0%	17%
MO	Empire District Electric Company (The)	Baa1	Stable	Jun-20	$ 26.5	4.0%		25.2%	17%
MI	Consumers Energy Company	Aa3	Stable	Oct-20	$ 244.7	3.8%	3.6%	20.1%	20%
MI	Consumers Energy Company	Aa3	Stable	Dec-20	$ 244.4	3.8%	3.6%	20.1%	20%
CO	Public Service Company of Colorado	A3	Stable	Sep-20	$ 144.5	3.4%	1.3%	22.1%	20%
NY	KeySpan Gas East Corporation	A3	Negative	May-20	$ 38.8	3.1%	0.3%	16.1%	17%
HI	Hawaiian Electric Company, Inc.	Baa2	Positive	N/A	$ 77.6	3.0%	2.7%	21.4%	15%
DC	Washington Gas Light Company	A3	Stable	Dec-20	$ 35.2	2.6%	1.4%	15.4%	18%
NV	Southwest Gas Corporation	A3	Negative	Aug-20	$ 35.2	2.6%	1.1%	14.6%	17%
NM	Southwestern Public Service Company	Baa2	Stable	Apr-20	$ 46.6	2.6%	0.4%	18.1%	18%
MA	Fitchburg Gas & Electric Light Company	Baa1	Stable	Oct-20	$ 2.7	2.5%	0.6%	23.1%	17%
AZ	Arizona Public Service Company	A2	Negative	Dec-20	$ 68.6	2.0%	2.0%	23.4%	22%
WA	Puget Sound Energy, Inc.	Baa1	Stable	May-20	$ 65.5	1.9%	1.9%	15.1%	20%
DE	Delmarva Power & Light Company	Baa1	Stable	Oct-20	$ 24.3	1.9%	0.1%	17.2%	15%
OR	PacifiCorp	A3	Stable	Dec-20	$ 78.0	1.5%	0.4%	18.4%	20%
MD	Delmarva Power & Light Company	Baa1	Stable	Jul-20	$ 17.3	1.3%	0.1%	17.2%	15%
DE	Delmarva Power & Light Company	Baa1	Stable	Sep-20	$ 14.6	1.1%	0.0%	17.2%	15%
MN	CenterPoint Energy Resources Corp.	Baa1	Positive	Nov-20	$ 62.0	0.9%	0.5%	18.7%	17%
VA	Kentucky Utilities Co.	A3	Stable	Apr-20	$ 12.7	0.7%	0.2%	23.1%	20%
OR	Avista Corp.	Baa2	Stable	Dec-20	$ 6.8	0.5%	0.5%	15.0%	14%
CA	Southwest Gas Corporation	A3	Negative	Feb-21	$ 6.8	0.5%	0.2%	14.6%	17%
WY	Questar Gas Company	A3	Stable	Sep-20	$ 3.5	0.4%	0.0%	22.1%	16%
CA	Southwest Gas Corporation	A3	Negative	Feb-21	$ 4.5	0.3%	0.1%	14.6%	17%
NY	New York State Electric and Gas Corporation	A3	Stable	Jul-20	$ 4.1	0.3%	0.1%	19.9%	19%
NV	Southwest Gas Corporation	A3	Negative	Aug-20	$ 3.1	0.2%	0.1%	14.6%	17%
WY	PacifiCorp	A3	Stable	Jan-21	$ 7.1	0.1%	0.0%	18.4%	20%
CA	Southwest Gas Corporation	A3	Negative	Feb-21	$ 1.5	0.1%	0.0%	14.6%	17%
WA	PacifiCorp	A3	Stable	Nov-20	$ 3.1	0.1%	0.0%	18.4%	20%
OK	CenterPoint Energy Resources Corp.	Baa1	Positive	Jun-20	$ 2.0	0.0%	0.0%	18.7%	17%
NY	Rochester Gas & Electric Corporation	A3	Stable	Jul-20	$ (1.8)	(0.2%)	(0.0%)	18.2%	19%

Revenue requests represent the original filing and do not reflect settlement amounts or revised filing requests, which we expect to occur on a case-by-case basis.
Source: Standard & Poor's Global Market Intelligence and Moody's Investors Service

Moody's related publications

Sector Comments

- Regulated Electric and Gas Utilities – US: FAQ on credit implications of the coronavirus outbreak, March 2020
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- Regulated electric and gas utilities - North America: Free cash flow and capital allocation: external capital needs to decline in 2019, August 2019
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- Regulated water utilities - US: M&A expands to cross-sector deals, with mixed credit implications for acquirers, March 2019
- Regulated Utilities and Power - US: PG&E bankruptcy highlights environmental, social and governance risks in California, February 2019

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- Global Macro Outlook 2020-21 (March 25, 2020 Update): The coronavirus will cause unprecedented shock to the global economy, March 2020
- Regulated electric and gas utilities – US: 2020 outlook moves to stable on supportive regulation, weaker but steady credit metrics, November 2019

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Regulated Electric and Gas Utilities – US

Coronavirus-fueled rise in unemployment will limit consumer tolerance for rate hikes

Higher unemployment rates triggered by the economic slowdown from the coronavirus (COVID-19) outbreak will create a more challenging environment for US regulated utilities looking to increase their revenues through rate hikes. For most residential consumers, utility bills are still relatively low compared to other monthly bills, such as for rent or phone service. But we think most proposals to increase rates during this period of economic distress will be met with greater regulatory scrutiny. A likely outcome is that rate increases will be either delayed or spread out over a longer period of time.

The rising jobless rate and temporary furloughs will also increase the number of customers who are unable to pay their monthly bills in the near-term. Given the unprecedented number of Americans that applied for unemployment benefits in March, the US unemployment rate rose to 4.4% in March from 3.8% in February and will remain high until shuttered businesses and factories begin to reopen. The duration of this period of high unemployment will largely determine the degree to which bad debt expense (through unpaid monthly bills) will limit utility cash flow.

For now, we still see utilities maintaining supportive regulatory relationships, which we view as a core competency. As a result, we expect utilities to be proactive in trying to find ways to avoid significant increases in customer bills. For those utilities with service territories with high unemployment, it may become more difficult for regulators to authorize increases in utility revenue, especially in regions where temporarily closed businesses may struggle to return to full operation.

During the past decade when the US was in the midst of a record-long economic expansion, regulated utilities were able to pass through small but steady electricity rate increases to consumers. From 2008 to 2018, the average price of electricity increased by 2.07 cents per kilowatt hour, reflecting a compound annual growth rate (CAGR) of 1.7%, while the average monthly residential bill grew by about $16.00, for a CAGR of 1.5%. During the same period, the median US household income strengthened at a higher CAGR of 2.0%.

An examination of average electricity bills and disposable income levels by state shows that residential electric bills have remained affordable in most states despite steady increases. As shown in Exhibit 1, the average annual bill ranged from 1.7% (District of Columbia) to 4.8% (Mississippi) of annual per capita disposable personal income, with a national average of 3.0%. If the US economy enters into a recession, the tolerance for rate increases will likely weaken, varying by state and by the economic conditions prevalent in the local market.

In such a recessionary environment, we expect to see a heightened regulatory focus on affordability, which will delay rate increases.

During periods of economic weakness, there is an inflection point at which consumers will begin to object to higher electricity rates, as we noted in our July 2009 Industry Outlook report on the US regulated utility sector, published during the last recession. Identifying this inflection point is difficult. But if a prolonged period of high unemployment were to result in a sustained decline in disposable income, proposals for new rate increases could spark significant political pushback.

The COVID-19 pandemic has presented regulated utilities with unique challenges stemming from social distancing mandates, such as an increase in postponed or delayed rate case proceedings, which will affect earnings and cash flow in 2020 (see "Regulated Electric, Gas and Water Utilities – US: Coronavirus outbreak delays rate cases, but regulatory support remains intact"). However, because the regulatory environment has been supportive in recent years, we expect utilities to work with the regulators over the next year to structure rate plans that are acceptable to both the utility and customer base.

Exhibit 1

Electric bills account for an average 3.0% of disposable personal income

Data on US household income, per capita disposable income, electric bills and unemployment levels by state

Source	US Census	BEA	EIA	EIA2	Moody's	BLS
State	2018 Annual Median Household Income	2018 Annual Per Capita Disposable Personal Income	2018 Average Price (cents/kWh)	Average Monthly Bill ($)	Average Annual Bill as % of Disposable Income	Unemployment Rate (March 2020)
Mississippi	44,717	34,817	11.12	138.63	4.8%	5.3%
Alabama	49,861	38,217	12.18	150.54	4.7%	3.5%
South Carolina	52,306	39,401	12.44	144.20	4.4%	2.6%
West Virginia	44,097	37,092	11.18	126.70	4.1%	6.1%
Hawaii	80,212	49,483	32.47	168.13	4.1%	2.6%
Arizona	59,246	40,031	12.77	131.31	3.9%	5.5%
Kentucky	50,247	38,137	10.60	123.57	3.9%	5.8%
Tennessee	52,375	42,912	10.71	137.35	3.8%	3.5%
Georgia	58,756	41,611	11.47	131.05	3.8%	4.2%
North Carolina	53,855	41,057	11.09	125.17	3.7%	4.4%
Missouri	54,478	42,681	11.34	126.79	3.6%	4.5%
Louisiana	47,905	42,058	9.59	122.86	3.5%	6.9%
Indiana	55,746	42,360	12.26	123.39	3.5%	3.2%
Arkansas	47,062	39,224	9.81	113.36	3.5%	4.8%
Texas	60,629	46,021	11.20	131.63	3.4%	4.7%
Florida	55,462	45,390	11.54	128.10	3.4%	4.3%
Oklahoma	51,924	42,038	10.30	117.28	3.3%	3.1%
Kansas	58,218	46,060	13.35	124.68	3.2%	3.1%
Virginia	72,577	50,725	11.73	136.59	3.2%	3.3%
Delaware	64,805	46,487	12.53	122.43	3.2%	5.1%
Ohio	56,111	43,628	12.56	114.80	3.2%	5.5%
Nevada	58,646	44,148	11.85	112.18	3.0%	6.3%
South Dakota	56,274	47,947	11.59	121.16	3.0%	3.3%
Rhode Island	64,340	48,697	20.55	121.05	3.0%	4.6%
Iowa	59,955	45,073	12.24	109.27	2.9%	3.7%
Maryland	83,242	55,191	13.30	133.68	2.9%	3.3%
Idaho	55,583	39,670	10.15	95.84	2.9%	2.6%
Michigan	56,697	43,030	15.45	103.59	2.9%	4.1%
Pennsylvania	60,905	49,893	13.89	120.04	2.9%	6.0%
Connecticut	76,348	65,084	21.20	153.46	2.8%	3.7%
Alaska	74,346	54,601	21.94	125.57	2.8%	5.6%
North Dakota	63,837	50,169	10.25	114.60	2.7%	2.2%
Nebraska	59,566	48,022	10.70	109.27	2.7%	4.2%
Oregon	63,426	44,490	10.98	99.00	2.7%	3.3%
New Hampshire	74,991	55,112	19.69	122.27	2.7%	2.6%
Maine	55,602	43,887	16.84	96.33	2.6%	3.2%
Montana	55,328	42,693	10.96	93.19	2.6%	3.5%
Massachusetts	79,835	61,320	21.61	131.20	2.6%	2.9%
New Mexico	47,169	38,117	12.68	81.08	2.6%	5.9%
Wisconsin	60,773	45,781	14.02	97.09	2.5%	3.4%
Minnesota	70,315	49,946	13.14	103.34	2.5%	3.1%
Vermont	60,782	48,771	18.02	100.83	2.5%	3.2%
New York	67,844	58,040	18.52	111.93	2.3%	4.5%
Illinois	65,030	49,960	12.77	94.98	2.3%	4.6%
California	75,277	54,932	18.84	102.90	2.2%	5.3%
Utah	71,414	41,377	10.41	77.25	2.2%	3.6%
New Jersey	81,740	59,330	15.41	106.28	2.1%	3.8%
Wyoming	61,584	54,726	11.29	94.90	2.1%	3.7%
Washington	74,073	55,538	9.75	93.34	2.0%	5.1%
Colorado	71,953	51,444	12.15	83.90	2.0%	4.5%
District of Columbia	85,203	70,258	12.84	101.01	1.7%	6.0%
National Average	**62,013**	**47,190**	**13.6**	**116.6**	**3.0%**	**4.4%***

*This reflects the national unemployment rate of 4.4%. The national average from the data presented in the table is 4.2%.

Sources: Moody's Investors Service, US EIA, US Census and US Bureau of Labor Statistics

Appendix

The following is an excerpt from our July 2009 Industry Outlook report, "U.S. Regulated Electric Utilities: Six-Month Update," which we published during the last recession when our outlook was stable. (Our current outlook on the sector is stable.)

Consumers have limited ability to absorb new rate increases

All of these pressures indicate that there is pressure for higher electric rates, and we believe consumers and ratepayers may eventually complain to their elected officials. Once this inflection point is breached, the political and regulatory reaction will represent a major, fundamental and highly uncertain risk for the sector.

Regulators might find it increasingly difficult to authorize steadily increasing rates, especially in today's uncertain economic climate. No one knows how big an increase consumers can absorb; in any case the size would vary by location.

Even so, gasoline prices offer a look at how consumers react once this inflection point is reached, when $4-a-gallon gasoline in 2008 led to a distinct shift in behavior among US motorists. That shift still persists a year later, even with gasoline prices much lower nationwide.

Although we acknowledge that electricity volumes are more inelastic than gasoline, we attempt to illustrate the possible US consumer inflection point regarding electric rates. Our illustration begins with average household income in 2007. We subtract about 30% to reflect state and federal taxes and other primary deductions. The result is average disposable household income. We then compare the average annual utility bill to the average disposable household income, and arrive at the average electric bill as a percentage of disposable household income. As of 2007, this ratio was about 3.4%.

While no one claims to know exactly at what point consumers will begin to object to higher electric rates, we believe this inflection point is crossed roughly when the electric bill reaches 5%-10% of disposable income. This would imply annual electric bills of about $3,500-$1,800 from the current $1,200, and total aggregate rate increases of roughly 100%-50% over the existing national average of 10.65 cents per kwh.

Sharply higher utility bills and lackluster income growth: A politically volatile mix

If US household outlays for electric and gas bills advance by 20% annually between 2010-2012, they would represent a record 4% of disposable personal income (DPI) by the end of that period. Aggregate outlays on electric and gas rose by 21.3% annualized on average during the three years that ended in the first quarter of 1977, while spending on electric and gas rose no higher than 2.8% of DPI—mostly because DPI grew by a comparatively rapid annual 9.9% on average.

By contrast, US consumers would be enraged if their overall electric and gas bills soared more than 20% annualized during the 2010-2012 period if DPI rose by a much slower 1.8% annually, on average. DPI growth could indeed be this low, based on expectations of a soft US labor market subject to competitive pressures from workforces in China and India—a marked contrast from 1977, when American workers were not yet subject to wage pressures from competitively priced labor in the emerging markets.

Consumer spending on gasoline and fuel oil soared by 26% during the 12 months that ended September 2008. These prices became a political issue, even though DPI rose at a relatively normal 5.3% during this period. Any sharp acceleration of energy costs amid decidedly weak income growth is likely to spark political discord.

Sources: John Lonski, Managing Director, Moody's Capital Markets Research Group; National Income Product Accounts (NIPA)

Moody's related publications

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» Infrastructure & Project Finance – Asia-Pacific: Heat map: Exposure to coronavirus disruption is low for 68% of issuers, April 2020

» Regulated Electric, Gas and Water Utilities – US: Coronavirus outbreak delays rate cases, but regulatory support remains intact, April 2020

» Regulated Electric and Gas Utilities – US: Dividends a major source of cash if coronavirus downturn is prolonged, April 2020

» Regulated Electric and Gas Utilities – US: Utilities strengthen liquidity amid capital markets volatility, April 2020

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» Credit Conditions – Global: Coronavirus and oil price shocks: managing ratings in turbulent times, March 2020

» Regulated electric utilities – North America: Bill proposing fines for power shutoffs is credit negative for California utilities, January 2020

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» Regulated electric utilities – US: Intensifying climate hazards to heighten focus on infrastructure investments, January 2020

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» Electric utilities and power producers – US: Power companies on pace to reduce CO2 emissions, September 2019

» Utilities and power companies – North America: Corporate governance assessments show generally credit-friendly characteristics, September 2019

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» Global Macro Outlook 2020-21 (March 25, 2020 Update): The coronavirus will cause unprecedented shock to the global economy, March 2020

» Regulated electric and gas utilities – US: 2020 outlook moves to stable on supportive regulation, weaker but steady credit metrics, November 2019

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INFRASTRUCTURE AND PROJECT FINANCE

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SECTOR COMMENT
18 March 2020

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Regulated Electric, Gas and Water Utilities - US

Utilities demonstrate credit resilience in the face of coronavirus disruptions

The US regulated utility sector is better positioned than many industries to withstand the economic fallout from the coronavirus (COVID-19) outbreak. In addition to benefiting from stable residential customer demand, utilities can rely on a variety of cost recovery tools provided by state regulators, which helps to maintain a resilient financial profile through crises.

Financial market volatility is the biggest risk for utilities because the sector requires external capital in order to meet sizeable liquidity deficits. While we expect utilities to retain generally unfettered access to the capital markets, the continued spread of the virus and mounting pressures on commercial and industrial customers could ultimately weigh on utility credit quality.

Electric, gas and water utilities provide an essential public service, ensuring a base level of demand amid what has become a global pandemic. Residential customers account for roughly 35% of rated US electric and gas utility demand, which contributes to a dependable foundation of revenue. Water utilities typically have even higher residential exposure. For example, American Water Works Company Inc. (Baa1 stable), the largest investor-owned water utility in the US with utility operations across 15 states, sells about half its volume and generates about half of its revenue from residential customers.

Moreover, state regulatory commissions provide utility companies with a suite of credit supportive cost recovery tools. Mechanisms like revenue decoupling help ensure adequate fixed cost recovery regardless of changes in volumes, while a variety of capital spending trackers (including multiyear rate plans) help recoup cash outlays in a more timely manner. These features should enable utilities to maintain a base level of financial support, even amid potential declines in customer demand and economic stress for other sectors.

Financial market volatility is the most material risk, but market access still strong

The utility sector is significantly free cash flow negative and has serial debt maturities in the billions of dollars every year. For instance, about $41 billion of outstanding long-term debt is due during the remainder of 2020. As a result, utilities require continual and generally unfettered market access to maintain adequate liquidity. Exhibit 1 illustrates the aggregate sources and uses of liquidity for 40 regulated utility holding companies as of the latest reported financial data.

Exhibit 1

Holding companies have insufficient liquidity sources to meet cash demands

US regulated utility holding companies' aggregate sources and uses of liquidity, as of most recent LTM available ($ millions)

	HoldCo Totals
Credit Facility	106,258
Outstanding	26,621
Available	*79,636*
Cash	12,280
CFO	95,655
Organic sources	*107,935*
Total Sources	187,571
Capex	122,886
Dividends	29,593
Organic uses	*152,480*
Maturities (STD + CPLTD)	76,050
Total Uses	228,529
Sources - Uses	**(40,958)**

Aggregate figures for 40 holding companies

Sources: Company SEC filings and Moody's Investors Service

For most utility holding companies, high capital spending and dividend payout ratios that average 75% are outstripping cash flow generation and revolver availability. This is a credit weakness compared to other corporate sectors that produce free cash flow and generally have lower dividend requirements. As such, utilities' heavy reliance on market access is a risk at a time of financial market volatility.

However, the sector has continued to enjoy strong market access to date because it is often the sector that is most favored by investors in times of stress. In fact, utilities are typically the last to lose market access and are often the first to reopen markets. Exhibit 2 is a list of select utility and holding company bond issuances that have taken place as COVID-19 fears have escalated. The sector's favorable financing terms have been demonstrated by Duke Energy Indiana LLC's (A2, stable) recent 30-year $550 million first mortgage bond issued at 2.75%. Despite spreads widening versus benchmark US Treasury yields, an all-in lower cost of capital is beneficial to credit ratios.

Exhibit 2

Debt market transactions have remained active for utilities, despite wider spreads against benchmark Treasuries

Select US regulated utilities' debt market transactions since February

Issuer (rating, outlook)	Transaction complation date	Issuance type	Transaction value ($M)	Maturity year	Interest rate	Spread to Treasury (bps)
Union Electric Company (Baa1, stable)	17-Mar-2020	First mortgage bonds	$465	2030	2.95%	200
Consumers Energy Company (A3, stable)	17-Mar-2020	First mortgage bonds	$575	2051	3.50%	200
Dominion Energy, Inc. (Baa2, stable)	17-Mar-2020	Senior unsecured	$350	2027	3.60%	275
Dominion Energy, Inc. (Baa2, stable)	17-Mar-2020	Senior unsecured	$400	2025	3.30%	265
Entergy Arkansas, LLC (Baa1, stable)	13-Mar-2020	First mortgage bonds	$100	2028	4.00%	175
Ohio Power Company (A2, negative)	13-Mar-2020	Senior unsecured	$350	2030	2.60%	170
Duke Energy Indiana (A2, stable)	10-Mar-2020	First mortgage bonds	$550	2050	2.75%	165
Entergy Texas (Baa3, positive)	5-Mar-2020	First mortgage bonds	$175	2049	3.55%	138
Southern California Edison (Baa2, stable)	4-Mar-2020	First mortgage bonds	$400	2030	2.25%	125
American Electric Power (Baa1, negative)	3-Mar-2020	Senior unsecured	$400	2050	3.25%	165
American Electric Power (Baa1, negative)	3-Mar-2020	Senior unsecured	$400	2030	2.30%	130
Entergy Louisiana (Baa1, stable)	3-Mar-2020	First mortgage bonds	$350	2051	2.90%	130
Commonwealth Edison (A3, stable)	18-Feb-2020	First mortgage bonds	$650	2050	3.00%	100
Commonwealth Edison (A3, stable)	18-Feb-2020	First mortgage bonds	$350	2030	2.20%	68
FirstEnergy Corp. (Baa3, stable)	18-Feb-2020	Senior unsecured	$850	2050	3.40%	140
FirstEnergy Corp. (Baa3, stable)	18-Feb-2020	Senior unsecured	$600	2030	2.65%	110
FirstEnergy Corp. (Baa3, stable)	18-Feb-2020	Senior unsecured	$300	2025	2.05%	70
DTE Electric (A2, stable)	11-Feb-2020	First mortgage bonds	$500	2050	2.95%	90
DTE Electric (A2, stable)	11-Feb-2020	First mortgage bonds	$600	2030	2.25%	68

Sources: Moody's Investors Service and SPGMI

Moreover, management teams can take mitigating steps to improve their liquidity, such as increasing external credit facilities, trimming capital spending or reducing their large dividend payments. Of these defensive levers, we see the addition of liquidity facilities as the most likely to be used because utilities benefit from a flight to quality on the part of investors and these facilities can be a low-cost option that maintains equity investor-friendly financial policies of capital and dividend growth.

Trimming capital spending is likely the next best alternative for management because some capital can be scaled back and deferred to a later date without any risk to safety or service reliability. We estimate that cutting sector capital expenditures to maintenance levels would likely provide enough liquidity to support most utility's cash needs. This could be important if COVID-19 and recessionary pressures limit capacity of the financial markets to absorb corporate issuance needs.

And while dividend cuts have been exercised in the past, this is usually a last resort for management and often indicates that greater risks are on the horizon. In fact, holding companies in the sector increased dividends in both 2008 and 2009, at a compound annual growth rate (CAGR) of more than a 5%, despite the recession and the financial crisis.

Most direct risk is declining commercial and industrial demand

Sales to commercial and industrial (C&I) customers, which account for about 50% of electric revenue, are far more vulnerable to economic disruptions than residential demand. In addition, such customers may not always be included as part of decoupling mechanisms, or pay a high fixed-charge demand fee, and thus could be a source of potential volatility for utility sales.

From a distribution perspective, local gas distribution companies and large investor-owned water companies are least likely to be affected by declines in C&I demand because those classes represent around 19% for gas companies and less than 30% of revenue for both American Water and the water segment of Essential Utilities Inc. (Baa2 stable), formerly known as Aqua America Inc.

Interstate electric transmission assets and companies are perhaps the best positioned overall because their rates are set based on a formulaic, forward-looking rate-setting mechanism, with a monthly formula that adjusts for changes in network load that impacts demand. This should benefit primarily transmission companies like New England Power Company (A3 positive) and Central Maine Power Company (A2 stable), or even companies like Public Service Electric and Gas Company (A2 stable) and NSTAR Electric Company (A1 stable), which have rate bases that are comprised of about 45% interstate transmission assets.

Among the utility sector's largest industrial customers are oil and gas companies, which are also suppliers of fuel to utilities. Upstream producers can even be a source of demand for water utility companies that deliver water for fracking. In the wake of the COVID-19 outbreak, which is reducing demand, oil producers are enduring plummeting share prices, a rising cost of debt and a sharp decline in oil and gas prices, which has been exacerbated by the supply shock that emerged out of the disagreement among the producing country members of OPEC in March 2020. If these pressures were to weaken credit quality in the energy sector, utility demand could be negatively affected.

Also, holding companies owning natural gas pipelines that have a supply-push orientation (i.e., shippers seeking to sell gas) will be more at risk for credit degradation than those with a utility demand-pull (i.e., shippers requiring gas to serve end-use customers) customer profile.

Exhibit 3

Utilities in South, Midwest rely most heavily on industrial customers

States where utilities with highest industrial exposure operate

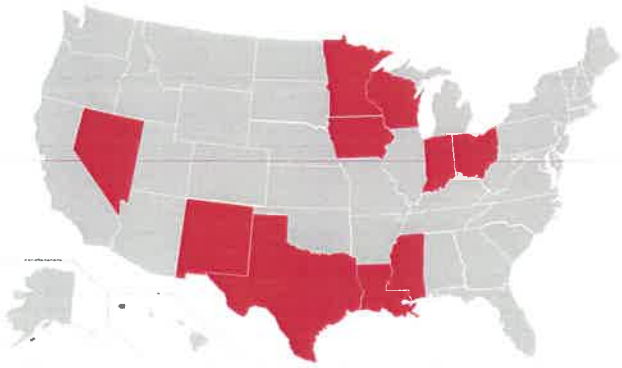

Exhibit 4

ALLETE and Superior are most exposed to industrial customers

Top 10 utilities with highest proportion of industrial customers

Company	Rating, Outlook	State	% Industrial customers (by MWh volumes)
ALLETE, Inc.	Baa1, Stable	Minnesota, Wisconsin	74%
Superior Water, Light and Power Company	A3, Stable	Wisconsin	73%
Toledo Edison Company	Baa1, Stable	Ohio	57%
Southwestern Public Service Company	Baa2, Stable	New Mexico, Texas	55%
Northern Indiana Public Service Company	Baa1, Stable	Indiana	54%
MidAmerican Energy Company	A1, Stable	Iowa	52%
Entergy Louisiana, LLC	Baa1, Stable	Louisiana	52%
Mississippi Power Company	Baa2, Positive	Mississippi	50%
Indianapolis Power & Light Company	Baa1, Stable	Indiana	47%
Sierra Pacific Power Company	Baa1, Stable	Nevada	47%

Electric volumes as of year end 2018.

Source: Moody's Investors Service, SPGMI

Utility business model and financial profiles are resilient

During previous economic downturns, utilities have exhibited a strong track record of generating enough revenue to cover their costs and earn a profit. For example, during the 2008-09 financial crisis, the gross margin and cash flow for approximately 40 large electric and gas utility holding companies continued to increase year-over-year despite the economic recession and pressures on volume consumption of electricity and natural gas. Thanks to authorized recovery mechanisms, such as revenue decoupling and others, funds from operations increased by nearly 12% CAGR 2007-2009.

Along the same lines, Essential Utilities, a large investor-owned water utility holding company, steadily increased its revenue, net income and cash flow from operations year-over-year, with CAGRs of around 6%, 5% and 16%, respectively.

Maintaining financial cushion is best action to avoid negative credit implications associated with unforeseen events, such as a protracted downturn or counterparty weakness

If a failure to contain the COVID-19 outbreak leads to more severe economic repercussions, some utility companies would be more vulnerable than others. Those with weak financial metrics for their current credit profile, like Sempra Energy (Baa1 negative) and Duke Energy Corporation (Baa1 stable) will have little to no financial flexibility to withstand any form of financial challenges without taking mitigating measures.

For utility holding companies that own midstream assets, such as natural gas pipelines, significant revenue and volume exposure to financially weakened oil and gas producers or counterparties could drag on their respective consolidated credit profiles. If a protracted recession occurs, these sectors could experience significant financial stress. CenterPoint Energy Inc. (Baa2 stable) and OGE Energy Corp. ([P]Baa1 stable) are two holding companies with material exposure to the energy sector via shared ownership of Enable Midstream Partners LP (Baa3 stable), as is DTE Energy Company (Baa2 stable), given its recent acquisition of midstream gas gathering assets in Texas.

Companies that are in the midst of large, multiyear capital plans for investments like liquefied natural gas export terminals, natural gas pipelines and offshore wind, could also be exposed if supply-chain disruptions endure or if economic volatility changes the financial and commercial premises upon which the project was founded. This could affect utility holding companies, such as Avangrid Inc. (Baa1 stable), Dominion Energy Inc. (Baa2 stable) and Duke Energy.

Moody's related publications

Outlook

- Global Macro Outlook 2020-21 (March 2020 Update): Coronavirus will hurt economic growth in many countries through first half of 2020, March 2020
- Regulated electric and gas utilities – US: 2020 outlook moves to stable on supportive regulation, weaker but steady credit metrics, November 2019

Sector In-Depth

- Regulated electric and gas utilities – US: Grid hardening, regulatory support key to credit quality as climate hazards worsen, March 2020
- Regulated electric utilities – US: Intensifying climate hazards to heighten focus on infrastructure investments, January 2020
- Regulated electric and gas utilities – New York: Threat to revoke National Grid's operating license is credit negative for utilities, November 2019
- Electric utilities and power producers – US: Power companies on pace to reduce CO2 emissions, September 2019
- Utilities and power companies – North America: Corporate governance assessments show generally credit-friendly characteristics, September 2019
- Regulated electric and gas utilities – US: Recent regulatory, legislative developments have been largely credit positive, September 2019
- Regulated electric and gas utilities - North America: Free cash flow and capital allocation: external capital needs to decline in 2019, August 2019
- Regulated electric utilities – US: Proposed California wildfire risk legislation is credit positive but questions remain, July 2019
- Electric and gas – US: Pipeline cybersecurity standards help plug security loophole in utility supply chain, July 2019
- Regulated water utilities - US: M&A expands to cross-sector deals, with mixed credit implications for acquirers, March 2019
- Regulated Utilities and Power - US: PG&E bankruptcy highlights environmental, social and governance risks in California, February 2019

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6 April 2020

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Regulated Electric and Gas Utilities – US

Dividends a major source of cash if coronavirus downturn is prolonged

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Shareholder dividends provide US regulated utilities with a significant source of internal cash that could help them offset the impact of a potentially prolonged coronavirus-related economic downturn. We expect US GDP to contract 2% in 2020, which will include a steep 4.3% contraction in the first half of the year, before recovering to 2.3% growth in 2021 (see "Global Macro Outlook 2020-21 [March 25, 2020 Update]: The coronavirus will cause unprecedented shock to the global economy"). As recessionary indicators build, some utilities will reassess their dividend policy.

In 2019, we estimate US utilities paid out $28.1 billion in shareholder dividends, or almost 70% of aggregate net income. As a critical infrastructure sector, most investors view utilities as an attractive asset class during periods of market volatility. A predictable dividend policy, and effective constituency outreach programs with regulators help contribute to a 10-year average cumulative probability of default that is about four times lower than all non-financial corporates.

Dividends are authorized by a company's board of directors. The disclosure of dividend policies is one of the factors we consider when examining a company's corporate governance practices (see "Non-financial companies – Global: Corporate governance assessments for publicly traded non-financial companies"). We also look at the degree of consistency with which companies comply with its stated dividend policies. That said, the ability to adjust capital dividend payments in response to significant market shocks is a credit positive (see "Utilities and power companies - Corporate governance assessments show generally credit-friendly characteristics").

In a prolonged economic downturn, boards of directors are likely to review dividend plans as an option to conserve cash. We think utilities with high payout ratios are more likely to scale back dividend plans. CenterPoint Energy Inc.(Baa2 stable), which had a payout ratio of 86% in 2019 announced a 48% reduction in its dividend on 1 April 2020 driven primarily by a reduction in cash flow from its Enable Midstream Partners, LP (Baa3 stable) investment. The dividend reduction translates to approximately $275 million in annual savings based on 2019 average shares outstanding. For fiscal year 2019, other utilities with high payout ratios include Dominion Energy Inc. (Baa2 stable), PNM Resources Inc. (Baa3 stable), FirstEnergy Corp. (Baa3 stable) and NiSource Inc. (Baa2 stable).

Exhibit 1

Utilities paid $28.1 billion in shareholder dividends in 2019, roughly 69% of the $40.9 billion net income

Ranked by 2019 dividend payout ratios ($ millions)

Company	Rating	Outlook	2019 Common Dividend	2019 Net Income	2019 Payout Ratio	2018-2019 YOY Dividend Growth	Expected Growth Guidance for 2020 [1]
Dominion Energy, Inc. [2]	Baa2	Stable	$2,983	$1,341	222%	9.9%	2.5%
PNM Resources, Inc. [3]	Baa3	Stable	$93	$77	120%	8.5%	5.5%
FirstEnergy Corp.	Baa3	Stable	$814	$849	96%	5.6%	3.0%
NiSource Inc.	Baa2	Stable	$299	$328	91%	2.6%	6.0%
CenterPoint Energy, Inc.	Baa2	Stable	$577	$674	86%	3.6%	2.0%
Avangrid, Inc.	Baa1	Negative	$545	$700	78%	0.9%	N/A
Eversource Energy	Baa1	Stable	$663	$909	73%	5.9%	6.0%
Duke Energy Corporation	Baa1	Stable	$2,668	$3,707	72%	3.0%	2.0%
American Electric Power Company, Inc.	Baa1	Negative	$1,350	$1,921	70%	7.1%	3.0%
Evergy, Inc.	Baa2	Stable	$463	$670	69%	11.2%	N/A
OGE Energy Corp.	(P)Baa1	Stable	$299	$434	69%	7.9%	5.0%
Consolidated Edison, Inc.	Baa2	Stable	$924	$1,343	69%	3.5%	3.4%
PPL Corporation	Baa2	Stable	$1,192	$1,745	68%	0.6%	0.6%
Spire Inc.	Baa2	Stable	$119	$179	67%	5.3%	5.1%
WEC Energy Group, Inc.	Baa1	Stable	$745	$1,134	66%	6.8%	7.2%
ALLETE, Inc.	Baa1	Stable	$121	$186	65%	4.9%	6.0%
Otter Tail Corporation	Baa2	Stable	$56	$87	64%	4.5%	5.7%
CMS Energy Corporation	Baa1	Stable	$436	$680	64%	7.0%	7.0%
NextEra Energy, Inc.	(P)Baa1	Stable	$2,408	$3,769	64%	12.6%	12.0%
Edison International	Baa3	Stable	$810	$1,284	63%	2.0%	4.1%
Black Hills Corporation	Baa2	Stable	$125	$199	63%	6.2%	4.4%
Pinnacle West Capital Corporation	A3	Negative	$330	$538	61%	6.1%	6.0%
Alliant Energy Corporation	(P)Baa2	Stable	$338	$557	61%	5.9%	6.0%
DTE Energy Company	Baa2	Stable	$692	$1,167	59%	7.1%	7.0%
Xcel Energy Inc.	Baa1	Stable	$791	$1,372	58%	6.6%	6.2%
Entergy Corporation	Baa2	Stable	$712	$1,241	57%	2.2%	3.7%
Ameren Corporation	Baa1	Stable	$472	$828	57%	3.9%	2.5%
Northwestern Corporation	Baa2	Stable	$115	$202	57%	4.5%	4.3%
ONE Gas, Inc.	A2	Stable	$105	$187	56%	8.7%	7.0%
Public Service Enterprise Group Incorporated	Baa1	Stable	$950	$1,693	56%	4.4%	4.3%
IDACORP, Inc.	Baa1	Stable	$130	$233	56%	6.7%	5.0%
Southwest Gas Holdings, Inc.	Baa1	Negative	$116	$214	54%	4.8%	4.6%
Southern Company (The)	Baa2	Stable	$2,570	$4,739	54%	3.4%	N/A
Avista Corporation	(P)Baa2	Stable	$103	$197	52%	4.0%	4.5%
Unitil Corporation	Baa2	Stable	$22	$44	50%	1.4%	1.4%
Sempra Energy	Baa1	Negative	$993	$2,055	48%	8.1%	8.0%
Atmos Energy Corporation	A1	Stable	$246	$511	48%	8.2%	9.5%
Exelon Corporation	Baa2	Stable	$1,408	$2,936	48%	5.1%	5.0%
Average					**69%**	**5.5%**	**5.0%**
Median					**63%**	**5.4%**	**5.0%**

[1] Based DPS growth guidance or EPS growth guidance and payout ratio target announced before the deterioration in economic conditions
[2] In 2019, Dominion had $1.3 billion in non-cash impairments in addition to roughly $500 million of one-time merger related expenses that reduced net income
[3] Payout ratio elevated due to negative impact on earnings of non-cash impairment associated with the disallowance of certain coal plant upgrade capital
Sources: FactSet, company documents and Moody's Investors Service

From a credit perspective, companies with high payout ratios stand out because the incremental cash outflow for growing dividends requires more financing. Some utilities, such as Dominion and FirstEnergy, indicated a reduction in dividend growth rate before the pandemic, in part to manage their payout ratios down, and reduce their need for incremental debt. For now, most utilities are still holding onto their publicly announced dividend growth guidance. Before the coronavirus outbreak, we were estimating growth in dividends by about 5% in 2020, up to roughly $30 billion from about $28 billion in 2019.

If the coronavirus-fueled economic recession were to reduce the aggregate net income of US regulated utilities by 10% to $36 billion, from about $40 billion in 2019, the average dividend payout ratio would jump to about 80%.

Slower dividend growth helps future cash flow

We do not expect to see a widespread reduction in utility dividends, but the dividend growth rate could decline materially. Utilities with above-average payout ratios benefit from slower dividend growth, especially if cash flow declines. Of the utilities with high payout ratios, the ones most likely to scale back their dividend plans are those with significant debt balances and little flexibility to cope with cash flow deterioration.

Although the ratio of cash flow from operations before changes in working capital (CFO pre-WC) to debt is weighted most heavily in our regulated electric and gas utilities methodology, the next most important ratio is CFO pre-WC less dividends to debt, commonly referred to as retained cash flow (RCF) to debt. The RCF-to-debt ratio provides insight into dividend policies and how management balances the interests of shareholders, fixed-income investors and other stakeholders.

Exhibit 2

Retained cash flow (CFO pre-WC less dividends) to debt ratios could pressure high dividend payers

Ranked by ratio of (CFO pre-WC) less dividends to debt (2019)

Company	2019 (CFO PreWC - Dividends)	2019 Adjusted Debt	2019 (CFO PreWC - Dividends)/Debt
Edison International	($1,359)	$20,671	-6.6%
PPL Corporation	$1,793	$23,752	7.6%
FirstEnergy Corp.	$1,867	$24,062	7.8%
Dominion Energy, Inc.	$3,276	$40,732	8.0%
Eversource Energy	$1,513	$17,112	8.8%
CenterPoint Energy, Inc.	$1,461	$16,461	8.9%
Avangrid, Inc.	$848	$9,059	9.4%
Southern Company (The)	$4,459	$47,490	9.4%
Consolidated Edison, Inc.	$2,260	$23,902	9.5%
Spire Inc.	$314	$3,289	9.5%
Sempra Energy	$2,651	$27,455	9.7%
NorthWestern Corporation	$235	$2,400	9.8%
American Electric Power Company, Inc.	$3,057	$30,800	9.9%
Entergy Corporation	$2,396	$22,796	10.5%
Avista Corp.	$252	$2,372	10.6%
Duke Energy Corporation	$6,606	$62,105	10.6%
IDACORP, Inc.	$257	$2,349	10.9%
Alliant Energy Corporation	$792	$7,230	11.0%
WEC Energy Group, Inc.	$1,450	$12,935	11.2%
Black Hills Corporation	$406	$3,587	11.3%
NiSource Inc.	$1,198	$10,276	11.7%
Evergy, Inc.	$1,319	$11,167	11.8%
CMS Energy Corporation	$1,343	$11,351	11.8%
ALLETE, Inc.	$214	$1,806	11.9%
NextEra Energy, Inc.	$5,103	$42,303	12.1%
Public Service Enterprise Group Incorporated	$2,102	$17,416	12.1%
Unitil Corporation	$73	$604	12.1%
DTE Energy Company	$2,235	$18,285	12.2%
PNM Resources, Inc.	$426	$3,417	12.5%
OGE Energy Corp.	$473	$3,484	13.6%
Xcel Energy Inc.	$2,679	$19,632	13.6%
ONE Gas, Inc	$269	$1,941	13.8%
Southwest Gas Holdings, Inc.	$461	$3,192	14.4%
Pinnacle West Capital Corporation	$920	$6,150	15.0%
Exelon Corporation	$6,514	$42,843	15.2%
Ameren Corporation	$1,726	$10,334	16.7%
Otter Tail Corporation	$139	$808	17.2%
Atmos Energy Corporation	$825	$4,242	19.4%

Source: Moody's Investors Service

Utilities view dividend reductions as a last resort

Dividend reductions are uncommon in the utilities sector and companies usually consider them only after taking other credit strengthening measures, such as curtailing discretionary capital expenditures and reducing O&M costs. Nevertheless, during times of market volatility, shifting macroeconomic fundamentals, or company-specific developments that stress liquidity, some utilities have turned to sharp reductions (or suspensions) of their dividend to conserve cash, as shown in Exhibit 5.

Exhibit 3

Historical dividend reductions have been used as a means to conserve cash when necessary

US regulated utility dividend reductions and suspensions since 2008

Company	Year	Previous year payout ratio	% reduction in dividend	Year over year cash savings ($mm) [1]	Primary driver
CenterPoint Energy, Inc.	2020	86%	48%	$275	Underperforming midstream investment
SCANA Corporation	2018	-295%	80%	$135	Abandonment of nuclear project
PG&E Corporation	2017	69%	100%	$1,021	California wildfires
FirstEnergy Corp.	2014	176%	35%	$316	Underperforming unregulated power business
Exelon Corporation	2013	148%	41%	$467	Underperforming unregulated power business
Empire District Electric Company	2011	109%	100%	$25	Service territory devastated by tornado
Ameren Corporation	2009	88%	39%	$196	Unregulated power; challenging business and financial market conditions
Great Plains Energy, Inc.	2009	144%	50%	$62	Economic and financial market uncertainty
Constellation Energy Group, Inc.	2009	-26%	50%	$108	Unregulated power; challenging business and financial market conditions
PNM Resources, Inc.	2008	94%	46%	$13	Underperforming unregulated electric retail business

[1] Represents the difference between total cash dividends paid in the year the dividend reduction took effect and the previous year; CenterPoint estimated based on difference in annualized dividends per share and 2019 average shares outstanding

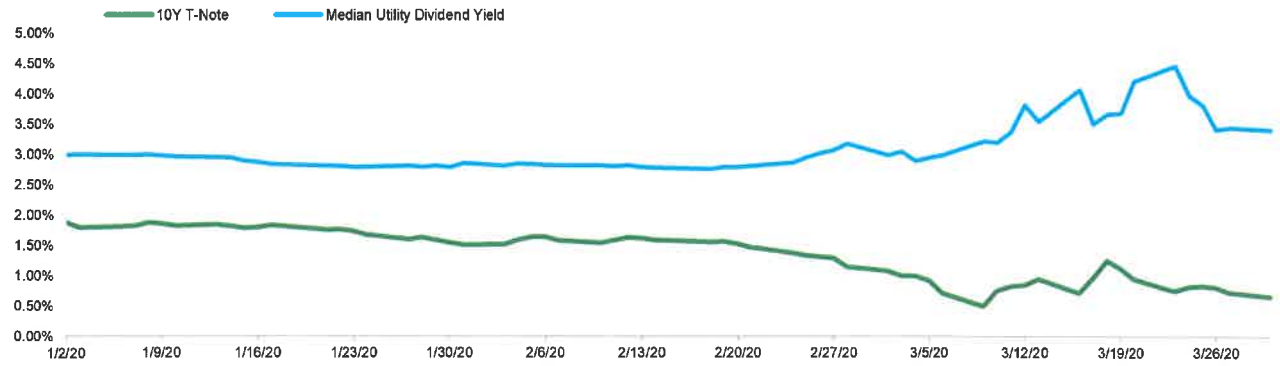
Sources: Company documents and Moody's Investors Service

The recent widening in the spread between 10-year US Treasury yields and the median utility dividend yield indicates a degree of investor uncertainty about the sustainability of dividends. For the companies included in this report, we saw the 2020 year-to-date median dividend yield peak in March at 4.5%, with the dividend yields of CenterPoint and PPL Corporation (Baa2 stable) far exceeding the median at 9.6% and 8.9%, respectively.

Exhibit 4

Widening spread points to investor uncertainty about dividend sustainability

Year-to-date median dividend yield of US utility holding companies and 10-year US Treasury yields as of 30 March 2020



Note: Median utility dividend yield based on the 38 electric and gas utility parent companies identified in this report

Source: FactSet

Appendix

Exhibit 5

Governance scores for publicly traded North American utilities and power companies

Issuer	LT Rating	CGA Assessment	Overall Score	Voting Rights and Ownership		Related Party Transactions		Compensation Disclosure		Compensation Design		Board Leadership & Independence		Director Qualifications, Experience & Refreshment		Financial Oversight & Capital Allocation 20%		Transparency of Financial Reporting		Audit Quality		Compliance Controls	
				Score	Strength Ind	Score	Strength Ind	Score	Strength Ind	Score	Strength Ind	Score	Strength Ind	Score	Strength Ind	Score	Strength Ind	Score	Strength Ind	Score	Strength Ind	Score	Strength Ind
AES Corporation, (The)	Ba1	GA-1	3.10	1	Highest	2	Highest	0	Highest	8	Moderate	5	Highest	1	Highest	6	High	0	Highest	0	Highest	3	Highest
ALLETE, Inc.	Baa1	GA-2	3.80	1	Highest	0	Highest	0	Highest	6	High	7	High	8	Moderate	7	Moderate	0	Highest	0	Highest	3	Highest
Alliant Energy Corporation	Baa2	GA-1	3.40	1	Highest	0	Highest	1	Highest	5	High	6	High	7	High	6	High	0	Highest	0	Highest	3	Highest
Ameren Corporation	Baa1	GA-1	3.10	1	Highest	0	Highest	0	Highest	10	Low	7	High	3	Highest	4	Highest	0	Highest	0	Highest	3	Highest
American Electric Power Company, Inc.	Baa1	GA-1	2.83	0	Highest	0	Highest	0	Highest	8	Moderate	3	Highest	2	Highest	7	Moderate	0	Highest	0	Highest	2	Highest
American Water Works Company, Inc.	Baa1	GA-1	3.43	1	Highest	2	Highest	0	Highest	7	Moderate	2	Highest	9	Moderate	6	High	0	Highest	0	Highest	2	Highest
Aqua America, Inc.	Baa2	GA-2	4.16	2	Highest	2	Highest	0	Highest	5	High	9	Moderate	3	Highest	9	Low	0	Highest	1	Highest	3	Highest
Atmos Energy Corporation	A1	GA-2	4.40	0	Highest	1	Highest	0	Highest	9	Moderate	8	Moderate	10	Moderate	7	Moderate	0	Highest	0	Highest	3	Highest
Avangrid, Inc.	Baa1	GA-3	4.70	4	High	1	Highest	0	Highest	5	High	15	Low	4	Highest	7	Moderate	1	Highest	2	High	3	Highest
Avista Corp.	Baa2	GA-1	3.40	1	Highest	0	Highest	1	Highest	6	High	5	Highest	5	Highest	7	Moderate	0	Highest	0	Highest	3	Highest
Black Hills Corporation	Baa2	GA-2	4.10	1	Highest	2	Highest	0	Highest	9	Moderate	9	Moderate	4	Highest	7	Moderate	0	Highest	0	Highest	3	Highest
CenterPoint Energy, Inc.	Baa2	GA-1	3.30	1	Highest	0	Highest	0	Highest	7	Moderate	7	High	2	Highest	7	Moderate	0	Highest	0	Highest	3	Highest
CMS Energy Corporation	Baa1	GA-1	2.33	1	Highest	0	Highest	0	Highest	6	High	6	High	3	Highest	3	Highest	0	Highest	0	Highest	2	Highest
Consolidated Edison, Inc.	Baa2	GA-2	4.03	1	Highest	1	Highest	0	Highest	7	Moderate	6	High	10	Moderate	7	Moderate	0	Highest	0	Highest	2	Highest
Dominion Energy, Inc.	Baa2	GA-1	3.33	1	Highest	1	Highest	0	Highest	5	High	6	High	7	High	6	High	0	Highest	0	Highest	2	Highest
DTE Energy Company	Baa2	GA-2	3.63	1	Highest	2	Highest	0	Highest	8	Moderate	7	High	3	Highest	7	Moderate	0	Highest	0	Highest	2	Highest
Duke Energy Corporation	Baa1	GA-2	3.53	1	Highest	2	Highest	1	Highest	8	Moderate	6	High	2	Highest	7	Moderate	0	Highest	0	Highest	2	Highest
Edison International	Baa3	GA-1	2.90	0	Highest	1	Highest	0	Highest	7	Moderate	1	Highest	4	Highest	7	Moderate	0	Highest	0	Highest	3	Highest
El Paso Electric Company	Baa2	GA-2	4.06	1	Highest	2	Highest	0	Highest	7	Moderate	4	Highest	10	Moderate	7	Moderate	0	Highest	1	Highest	3	Highest
Emera Inc.	Baa3	GA-1	3.00	1	Highest	2	Highest	0	Highest	6	High	1	Highest	4	Highest	7	Moderate	0	Highest	0	Highest	3	Highest
Enbridge Inc.	Baa2	GA-1	3.30	1	Highest	1	Highest	0	Highest	5	High	9	Moderate	1	Highest	7	Moderate	0	Highest	0	Highest	3	Highest
Entergy Corporation	Baa2	GA-2	3.70	1	Highest	0	Highest	0	Highest	9	Moderate	7	High	6	High	6	High	0	Highest	1	Highest	2	Highest
Eversource Energy	Baa1	GA-2	3.93	1	Highest	0	Highest	0	Highest	11	Low	6	High	4	Highest	7	Moderate	0	Highest	0	Highest	5	High
Exelon Corporation	Baa2	GA-1	2.23	0	Highest	0	Highest	1	Highest	7	Moderate	4	Highest	1	Highest	4	Highest	0	Highest	0	Highest	2	Highest
FirstEnergy Corp.	Baa3	GA-1	3.26	1	Highest	2	Highest	0	Highest	3	Highest	5	Highest	7	High	7	Moderate	0	Highest	0	Highest	1	Highest
Fortis Inc.	Baa3	GA-1	2.60	1	Highest	2	Highest	0	Highest	7	Moderate	3	Highest	1	Highest	5	High	0	Highest	0	Highest	3	Highest
IDACORP, Inc.	Baa1	GA-1	3.36	1	Highest	1	Highest	0	Highest	8	Moderate	5	Highest	4	Highest	7	Moderate	0	Highest	0	Highest	1	Highest
NextEra Energy, Inc.	Baa1	GA-1	3.50	0	Highest	1	Highest	0	Highest	5	High	7	High	6	High	7	Moderate	0	Highest	0	Highest	3	Highest
NiSource Inc.	Baa2	GA-2	3.76	1	Highest	0	Highest	0	Highest	8	Moderate	5	Highest	7	High	7	Moderate	0	Highest	1	Highest	3	Highest
NorthWestern Corporation	Baa2	GA-1	2.73	1	Highest	0	Highest	0	Highest	4	Highest	4	Highest	3	Highest	7	Moderate	0	Highest	0	Highest	2	Highest
NRG Energy, Inc.	Ba1	GA-2	3.60	1	Highest	2	Highest	0	Highest	8	Moderate	5	Highest	6	High	6	High	0	Highest	0	Highest	3	Highest
OGE Energy Corp.	(P)Baa1	GA-2	3.93	1	Highest	2	Highest	0	Highest	8	Moderate	9	Moderate	4	Highest	7	Moderate	0	Highest	0	Highest	2	Highest
ONE Gas, Inc	A2	GA-2	3.76	1	Highest	2	Highest	0	Highest	7	Moderate	8	Moderate	3	Highest	7	Moderate	0	Highest	0	Highest	4	High
Otter Tail Corporation	Baa2	GA-1	3.46	2	Highest	0	Highest	0	Highest	6	High	6	High	6	High	6	High	0	Highest	0	Highest	4	High
Pattern Energy Group Inc.	Ba3	GA-1	3.26	0	Highest	1	Highest	0	Highest	6	High	5	Highest	4	Highest	7	Moderate	0	Highest	0	Highest	4	High
Pinnacle West Capital Corporation	A3	GA-1	3.36	1	Highest	0	Highest	0	Highest	5	High	7	High	4	Highest	7	Moderate	0	Highest	0	Highest	4	High
PNM Resources, Inc.	Baa3	GA-1	3.40	1	Highest	0	Highest	0	Highest	8	Moderate	5	Highest	4	Highest	7	Moderate	0	Highest	0	Highest	3	Highest
Portland General Electric Company	A3	GA-1	3.23	0	Highest	2	Highest	0	Highest	4	Highest	4	Highest	7	High	7	Moderate	0	Highest	0	Highest	2	Highest
PPL Corporation	Baa2	GA-1	2.60	0	Highest	2	Highest	0	Highest	7	Moderate	6	High	5	Highest	3	Highest	0	Highest	0	Highest	0	Highest
Public Service Enterprise Group Incorporated	Baa1	GA-2	3.90	0	Highest	1	Highest	1	Highest	7	Moderate	4	Highest	8	Moderate	8	Moderate	0	Highest	0	Highest	3	Highest
Sempra Energy	Baa1	GA-2	3.60	1	Highest	0	Highest	0	Highest	10	Low	6	High	5	Highest	6	High	0	Highest	0	Highest	3	Highest
Southern Company (The)	Baa2	GA-2	3.80	1	Highest	1	Highest	0	Highest	6	High	8	Moderate	6	High	7	Moderate	0	Highest	1	Highest	2	Highest
Southwest Gas Holdings, Inc.	Baa1	GA-2	3.76	1	Highest	0	Highest	0	Highest	6	High	6	High	8	Moderate	7	Moderate	0	Highest	0	Highest	4	High
Spire Inc.	Baa2	GA-1	3.30	1	Highest	0	Highest	0	Highest	6	High	3	Highest	7	High	7	Moderate	0	Highest	0	Highest	3	Highest
TC Energy Corporation	Baa2	GA-2	3.56	1	Highest	4	Moderate	0	Highest	8	Moderate	3	Highest	1	Highest	8	Moderate	0	Highest	0	Highest	4	High
TransAlta Corporation	Ba1	GA-1	3.20	2	Highest	4	Moderate	0	Highest	6	High	4	Highest	2	Highest	6	High	0	Highest	0	Highest	3	Highest
Unitil Corporation	Baa2	GA-1	3.50	0	Highest	0	Highest	0	Highest	4	Highest	9	Moderate	8	Moderate	6	High	0	Highest	0	Highest	3	Highest
Vistra Energy Corp.	Ba1	GA-1	2.86	1	Highest	2	Highest	0	Highest	3	Highest	7	High	3	Highest	6	High	0	Highest	0	Highest	1	Highest
WEC Energy Group, Inc.	Baa1	GA-2	3.93	1	Highest	2	Highest	0	Highest	8	Moderate	5	Highest	8	Moderate	7	Moderate	0	Highest	0	Highest	2	Highest
Xcel Energy Inc.	Baa1	GA-2	3.70	0	Highest	0	Highest	0	Highest	7	Moderate	6	High	8	Moderate	7	Moderate	0	Highest	0	Highest	3	Highest

Source: Moody's Investors Service

Moody's related publications

Sector Comments

- Regulated Electric and Gas Utilities – US: FAQ on credit implications of the coronavirus outbreak, March 2020
- Regulated Electric, Gas and Water Utilities - US: Utilities demonstrate credit resilience in the face of coronavirus disruptions, March 2020
- Credit Conditions – Global: Coronavirus and oil price shocks: managing ratings in turbulent times, March 2020
- Regulated electric utilities – North America: Bill proposing fines for power shutoffs is credit negative for California utilities, January 2020
- Regulated electric and gas utilities – US: California's wildfire fund is sufficiently capitalized to pay out claims, November 2019
- Regulated electric and gas utilities – New York: Threat to revoke National Grid's operating license is credit negative for utilities, November 2019

Sector In-Depth

- Regulated electric and gas utilities – US: Grid hardening, regulatory support key to credit quality as climate hazards worsen, March 2020
- Regulated electric utilities – US: Intensifying climate hazards to heighten focus on infrastructure investments, January 2020
- Regulated electric and gas utilities – New York: Threat to revoke National Grid's operating license is credit negative for utilities, November 2019
- Electric utilities and power producers – US: Power companies on pace to reduce CO2 emissions, September 2019
- Utilities and power companies – North America: Corporate governance assessments show generally credit-friendly characteristics, September 2019
- Regulated electric and gas utilities – US: Recent regulatory, legislative developments have been largely credit positive, September 2019
- Regulated electric and gas utilities - North America: Free cash flow and capital allocation: external capital needs to decline in 2019, August 2019
- Regulated electric utilities – US: Proposed California wildfire risk legislation is credit positive but questions remain, July 2019
- Electric and gas – US: Pipeline cybersecurity standards help plug security loophole in utility supply chain, July 2019
- Regulated water utilities - US: M&A expands to cross-sector deals, with mixed credit implications for acquirers, March 2019
- Regulated Utilities and Power - US: PG&E bankruptcy highlights environmental, social and governance risks in California, February 2019

Outlooks

- Global Macro Outlook 2020-21 (March 25, 2020 Update): The coronavirus will cause unprecedented shock to the global economy, March 2020
- Regulated electric and gas utilities – US: 2020 outlook moves to stable on supportive regulation, weaker but steady credit metrics, November 2019

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Regulated Electric and Gas Utilities – US

Continued decline in ROEs to heighten pressure on financial metrics

» **Lower 30-year Treasury yield to increase pressure on utilities' authorized return on equity.** The decline in the yield on 30-year US Treasury bonds will heighten pressure on the return on equity (ROE) that utilities are authorized to collect in customer rates. The 30-year yield averaged 2.89% in 2019 and finished the year at 2.39%, which is well below the 3.11% average in 2018. If the yield were to remain close to year end levels and the average, roughly 670 basis point spread with utility ROEs over the past 10 years were to be maintained, this would result in an average approved utility ROE of about 9% in 2020, down from 9.65% during 2019.

» **Coronavirus-related drop in 30-year T-bill likely to stay the hand of regulators for now.** Regulators will be hesitant to reduce authorized returns given the current market uncertainty and while rate cases are being delayed. This may lead to the widest spread between the authorized ROE and the 30-year T-bill in at least the past two decades.

» **Modest increases in equity capital support credit strength.** Increasing equity in the capital structure results in higher net income and lower debt in the capital structure, both of which benefit credit quality. In addition, the equity component of the capital structure generally experiences less variability when measured as a percentage change compared to ROE. Thus, the increase in average equity thickness to 50.6% in 2019 from about 49.3% during the previous two years is credit positive for utilities.

» **Credit metrics are more sensitive to changes in ROE and equity capital after US tax reform.** Changes in ROE and equity capital affect financial metrics because utilities generate a significant portion of their cash flow from net income. While US tax reform has not had a direct impact on utility net income, it has reduced the overall level of cash flow by reducing deferred taxes and increasing net income and depreciation as percentages of utility cash flow. As a result, utility credit metrics are more sensitive to changes in authorized ROE and the level of equity capital than they were before tax reform.

» **Outcomes will continue to vary among regulatory jurisdictions.** A variety of factors can influence the outcome of discussions among utilities, regulators and intervenors about authorized returns and equity capital. Utilities use many arguments to bolster their case for increasing shareholder returns that may offset the pressure created by declining Treasury yields. Common issues that are typically raised include the impact of tax reform, large capital programs, access to capital, fair return standards, pressure on utility bills and increasing sector risks.

Declining 30-year Treasury yield to increase pressure on authorized returns on equity

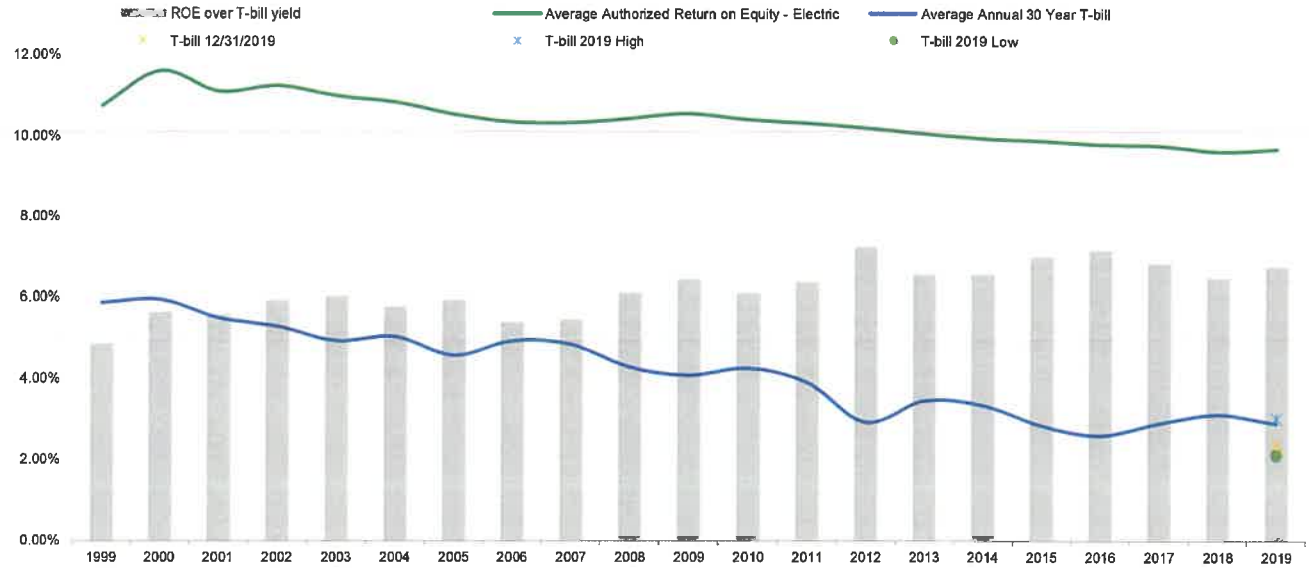
The renewed decline in the 30-year US Treasury yield during 2019 suggests that there will be heightened pressure on the ROE that utilities are authorized to collect in customer rates. During the past two decades, the average authorized ROE of US regulated utilities has fallen in the wake of the long-term decline in the 30-year T-bill. Utility ROEs have been "sticky" – that is, they have declined more slowly than the 30-year T-bill. As a result, the spread between the two has gradually expanded during this period.

The 30-year yield averaged 2.89% in 2019, down from 3.11% in 2018. However, as of 31 December 2019, the yield was 2.39% and the low for the year was 2.12%. If the yield were to remain close to year-end levels and the average 670 basis point spread with ROEs over the past 10 years were to be maintained, this would result in an average approved ROE of about 9% in 2020, down from the 9.65% in 2019. However, the stickiness of utility ROEs illustrated by higher average spreads historically suggests that the average ROE may not fall to 9% so quickly even if T-bills were to remain at year-end levels.

Exhibit 1

Spread between US utility ROEs and 30-year Treasury yield has widened over time

Average authorized return on equity for US electric utility operating companies and 30-year US Treasury yield



Sources: Moody's Analytics and S&P Global Market Intelligence

Over time, ROE declines are likely to continue to be more modest than declines in the 30-year Treasury yield. The equity component of the capital structure has increased modestly over the past 15 years, which may offset some of the pressure created by a lower ROE. These movements are important to credit quality because both ROE and the level of equity capital are key factors in utility net income, which makes up slightly less than half of utility cash flow.

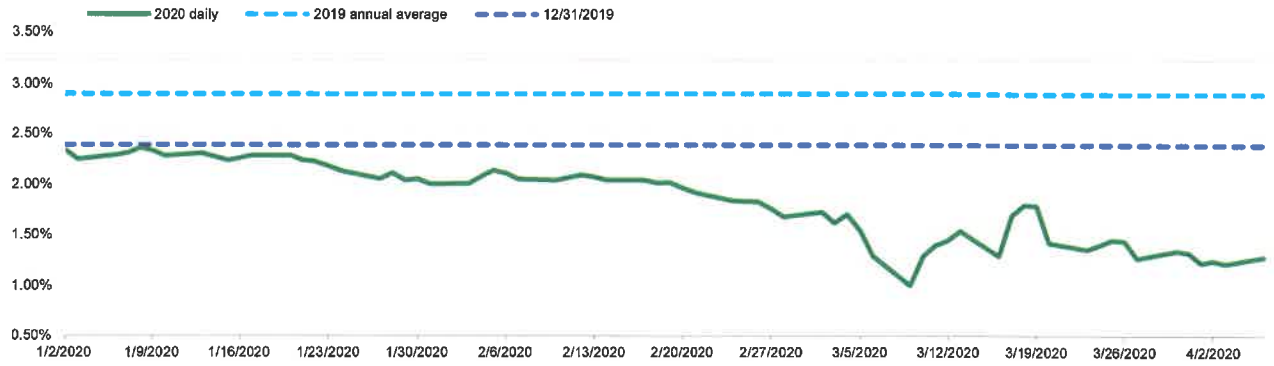
Changes to ROE's can take some time to occur. In November, the Federal Energy Regulatory Commission (FERC) lowered the base ROE for Midcontinent Independent System Operator (MISO) transmission owners, which include vertically integrated utilities such as ALLETE Inc. (Baa1 stable), Ameren Corporation (Baa1 stable), Cleco Power LLC (A3 stable), MidAmerican Energy Company (A1 stable) and Otter Tail Power Company (A3 stable). The decision to lower the base ROE to 9.88% with a cap of 12.24%, including ROE incentive adders, was the culmination of a series of inquiries and rulings emanating from a complaint filed in 2013. In that complaint, a group of transmission customers alleged that MISO transmission owners were earning a base ROE that was unjust and unreasonable under section 206 of the Federal Power Act (see "Regulated electric utilities – US: FERC order reducing MISO base ROE is

credit negative for transmission owners"). After many parties filed requests for rehearing, FERC published an order on 21 January 2020 granting these requests.

Coronavirus-related drop in 30-year T-bill likely to stay the hand of regulators for now

As a result of the economic fallout from the coronavirus outbreak, the rate on the 30-year T-bill has declined significantly, as shown in Exhibit 2. Assuming utilities continue to earn the average 670 bps spread over the 30-year T-bill, this would suggest that there will be a great deal of pressure on authorized returns. However, we think regulators will be hesitant to significantly reduce allowed returns given the uncertain market environment and the likely delays in adjudicating rate cases because of social distancing mandates and other issues associated with the coronavirus (see "Regulated Electric, Gas and Water Utilities – US: Coronavirus outbreak delays rate cases, but regulatory support remains intact"). This may lead to the widest spread between the authorized ROE and the 30-year T-bill in at least the past two decades. Utilities with a formula driven approach to setting ROEs may be hurt far more quickly as their ROE's are adjusted automatically. We expect some of these utilities to appeal to regulators to either suspend or alter this formula based approach, at least temporarily.

Exhibit 2
The 30-year T-bill has declined sharply amid coronavirus-related recessionary pressures
Yield on 30-year US Treasury bonds since the beginning of 2020



Source: Moody's Analytics

In contrast to the gradual, long-term decline in the 30-year T-bill illustrated in Exhibit 1, the year-to-date decline in the yield has been more abrupt, influenced by the plunge in economic activity at the end of the first quarter. We expect US GDP to undergo a sharp 4.5% contraction in the first half of the year, before finishing full-year 2020 down 2.0% and recovering in 2021 with 2.3% growth (see "Global Macro Outlook 2020-21 [March 25, 2020 Update]: The coronavirus will cause unprecedented shock to the global economy"). Given the continued uncertainty over efforts to contain the coronavirus outbreak, there is significant downside risk to our macroeconomic forecast. But if there were to be a material snapback in growth, we would expect interest rates to follow suit.

Modest increases in equity capital support credit strength

Increasing equity results in higher net income and lower debt in the capital structure, both of which benefit credit quality. In addition, the equity component of the capital structure generally experiences less variability from year to year when measured as a percentage change compared to ROE. Thus, the increase in the average equity thickness to 50.6% in 2019 from about 49.3% during the previous two years is credit positive for utilities.

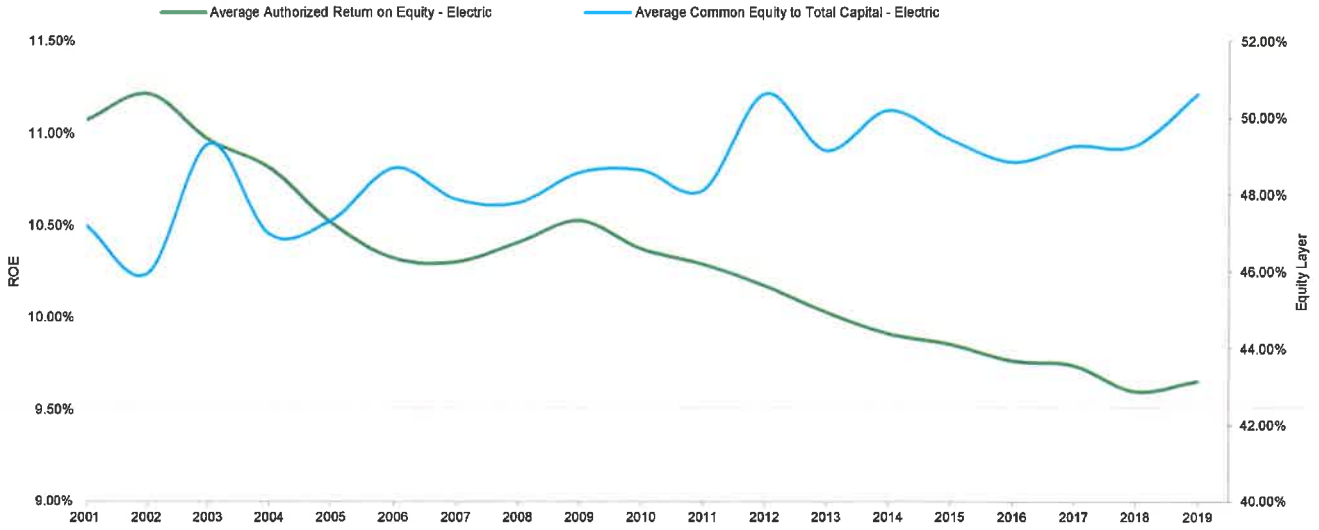
However, some jurisdictions are moving in a different direction. On 14 November, the Public Utility Commission of Texas (PUCT) issued a preliminary decision in CenterPoint Energy Houston Electric LLC's (CEHE, Baa1 stable) rate case, setting the utility's ROE at 9.25% and its equity ratio at 40%. Both were lower than the 9.42% ROE and 45% equity ratio recommended in September by administrative law judges at the Texas State Office of Administrative Hearings. Following the PUCT's preliminary decision, which also increases regulatory uncertainty for other regulated utilities in the state, we placed CEHE's ratings on review for downgrade and revised our outlook on AEP Texas Inc. (Baa1 negative) to negative from stable. On 21 January 2020 a CEHE filing indicated that a settlement had been reached that would set the ROE at 9.4% and the equity capital layer at 42.5%. The PUCT issued an order on 7 March 2020

based on the stipulation of settlement and incorporating the 9.4% ROE and 42.5% equity layer. CEHE's rating was lowered to Baa1 from A3, partly as are result of the lower ROE incorporated in the stipulation.

Exhibit 3

Equity capital is increasing as ROEs decline

US electric utilities' average authorized return on equity versus average common equity to total capital ratio



Source: S&P Global Market Intelligence

Credit metrics are more sensitive to changes in ROE and equity capital after US tax reform

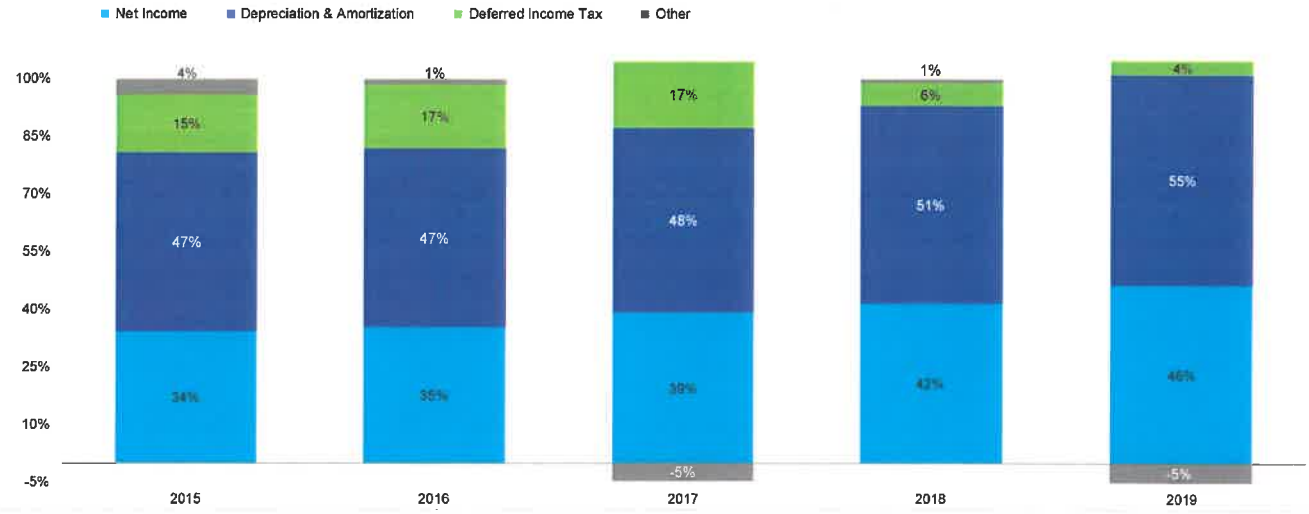
Changes in ROE and equity capital will affect financial metrics because utilities generate a significant portion of their cash flow from net income. As a simple proxy, net income is often a function of rate base times the level of equity capital multiplied by the authorized ROE. Rate base, which is the level of historical investment that utilities have made but have not yet recovered in rates, is roughly equal to net property plant and equipment with some adjustments. Investments included in rate base must be approved by the utility regulator.

While US tax reform has not had a direct impact on utility net income, it has reduced the overall level of cash flow by reducing deferred taxes. This has increased net income and depreciation as percentages of utility cash flow, as shown in Exhibit 4. As a result, utility credit metrics are now more sensitive to changes in authorized ROE and the level of equity capital than they were before tax reform.

Exhibit 4

US tax reform has changed the composition of utility cash flow

Components of utility cash flow for 109 rated vertically integrated and T&D operating companies



All numbers include Moody's standard adjustments.
Source: Moody's Investors Service

Key credit metrics are more sensitive to changes in the capital structure than they are to the authorized ROE. While ROE affects net income, changes in the capital structure affect both net income and the level of debt that cash flow has to service so, from a credit perspective, changes to the capital structure are more important to credit quality than ROE. This is clearly illustrated in Exhibit 5, which shows a simple model for estimating the impact of changes in these variables on the ratio of cash flow from operations (CFO) to debt, a key financial metric we use in analyzing a utility's financial strength. The exhibit assumes that all revenue and costs are pass-through items and assumes no impact from other potential variables, such as volume risk or taxes.

Under our base case of 50% equity capital, a 10% authorized ROE and a 4% depreciation rate, CFO/debt would be 18%. Under the alternative scenarios shown below, CFO/debt would decline to 17% if we were to assume a 9% ROE, all else being equal, and the ratio would fall to 15.5% if we were to assume 45% equity capital, all else being equal to our base case. The exhibit also shows that a one percentage point decline in ROE (to 9% from 10%) and a 1.9 percentage point reduction in equity capital (to 48.1% from 50%), all else being equal to our base case, would both result in CFO/debt of 17%.

Exhibit 5

Changes in ROE and equity capital both affect key financial metrics

Four scenarios illustrating how authorized return on equity and equity thickness affect CFO/debt ratio

	Base case (unchanged)	ROE reduced to 9%	Equity reduced to 45%	Equity reduced to 48.1%
Rate base	$100	$100	$100	$100
Allowed ROE	10.0%	**9.0%**	10.0%	10.0%
Equity thickness	50.0%	50.0%	**45.0%**	**48.1%**
Depreciation (years)	25	25	25	25
Depreciation rate (%)	4.0%	4.0%	4.0%	4.0%
Net income	$5.0	$4.5	$4.5	$4.8
Depreciation	$4.0	$4.0	$4.0	$4.0
CFO	$9.0	$8.5	$8.5	$8.8
CFO/debt	18.0%	17.0%	15.5%	17.0%

Source: Moody's Investors Service

Outcomes will continue to vary among regulatory jurisdictions

A variety of factors can influence the outcome of discussions among utilities, regulators and intervenors about authorized returns and equity capital. Outcomes may vary considerably among jurisdictions, with the credit implications for utilities ranging from modest to significant.

Utilities use many arguments to bolster their case for increasing shareholder returns. Common issues that are typically raised include the impact of tax reform, large capital programs, access to capital, fair return standards, higher returns at other utilities within the same corporate group, pressure on utility bills and increasing sector risks.

If capital programs have strong support for regulatory recovery, they may not ultimately pressure utility balance sheets and financial metrics, but they do still increase external capital needs. While we do not believe that utilities will experience difficulties in raising capital as required, as this is a fundamental strength of the sector, the cost of capital may vary considerably as recent market volatility has demonstrated.

Fair return standards that reference capital attraction, comparable returns and access to capital do not ensure that companies will have higher allowed returns because they are not prescriptive in terms of required return levels. Some Canadian jurisdictions, which often have similar fair return concepts, may have significantly different outcomes when it comes to shareholder returns.

It is easier to increase net income (i.e., shareholder returns) if utility bills are low or otherwise declining. It may be significantly more difficult to increase ROE or equity capital in an environment where rates are politically sensitive or are otherwise under significant upward pressure.

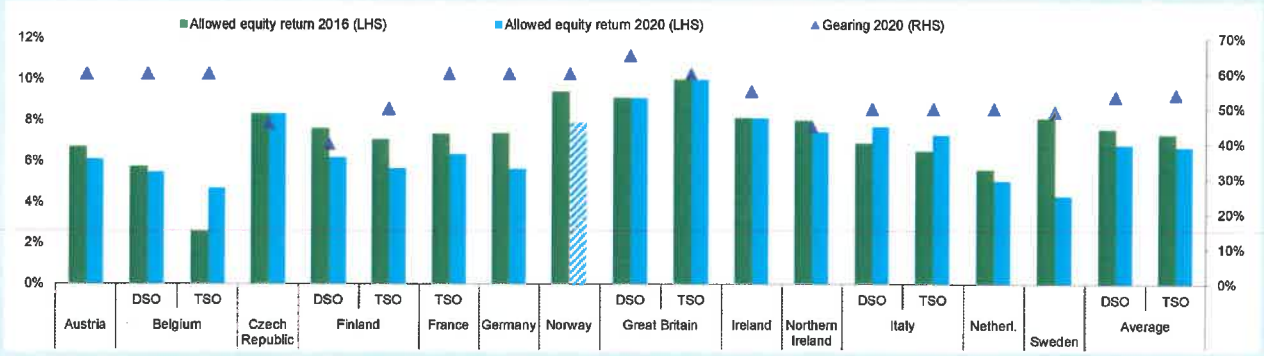
ROE and equity capital are lower in Europe

Allowed returns and equity thickness are generally lower for European electricity distribution and transmission networks. The average gearing or debt to rate base is about 54%, while the average ROE is about 6.8%. As shown in Exhibit 6, allowed equity returns have been relatively stable over the 2016-2020 period, with some notable downward exceptions. But the downward trend is more pronounced when we look at European electricity transmission operators over the period 2016-2023, as shown in Exhibit 7. For more information, see "Regulated electric and gas networks — EMEA: 2020 outlook stable, underpinned by transparent and predictable regulation"

Exhibit 6

Allowed equity returns relatively stable for electricity network operators in recent years; only Finnish, German, Norwegian and Swedish operators have seen material cuts since 2016

All figures nominal post-tax



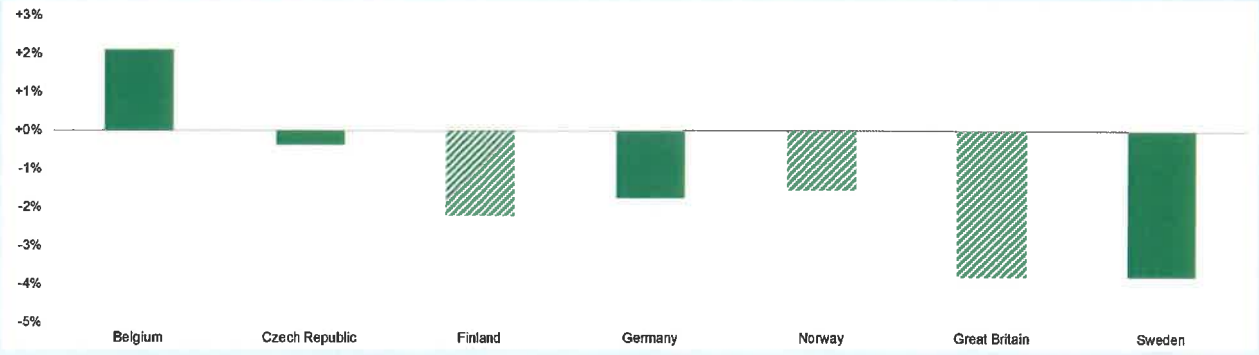
(1) Excludes measures that increase overall allowed return, for example: the 80 basis points higher equity return for new investments in Austria in the current regulatory period; 'aiming up' in Ireland; and 'F factor' in Italy; (2) Belgium Distribution System Operators (DSOs) refers to those in the Flanders region; (3) Where allowed equity returns have been set in real terms, these values have been converted to nominal terms using long-run inflation targets (that is 3% GB, NI; 2% Ireland and Italy) if not been specified by the regulator (Netherlands and Sweden specified); (4) Great Britain TSO figures for National Grid Electricity Transmission plc (A3 stable).

Source: Moody's Investors Service on regulatory data

Exhibit 7

Allowed equity returns for most electricity transmission operators will be materially lower in 2023 than they were in 2016

Change in allowed equity returns between 2016 and 2023, in nominal, post-tax terms. Shaded bar = projection based on draft determination/published methodology; solid bar = confirmed (final determination)



(1) Where allowed equity returns have been set in real terms, these values have been converted to nominal terms using a long-run inflation target (3% for RPI and 2% for CPIH in Great Britain, applicable for 2016 and 2023 respectively) if not specified by the regulator (Sweden specifies).
(2) Prevailing methodology applies to Finland, Great Britain and Norway.

Source: Moody's Investors Service on regulatory data

Moody's related publications

Sector Comments

» Regulated Electric and Gas Utilities – US: Coronavirus recession will impact utility pension underfunding to varying degrees, April 2020

» Infrastructure & Project Finance – Asia-Pacific: Heat map: Exposure to coronavirus disruption is low for 68% of issuers, April 2020

» Regulated Electric, Gas and Water Utilities – US: Coronavirus outbreak delays rate cases, but regulatory support remains intact, April 2020

» Regulated Electric and Gas Utilities – US: Dividends a major source of cash if coronavirus downturn is prolonged, April 2020

» Regulated Electric and Gas Utilities – US: Utilities strengthen liquidity amid capital markets volatility, April 2020

» Regulated Electric and Gas Utilities – US: FAQ on credit implications of the coronavirus outbreak, March 2020

» Regulated Electric, Gas and Water Utilities - US: Utilities demonstrate credit resilience in the face of coronavirus disruptions, March 2020

» Credit Conditions – Global: Coronavirus and oil price shocks: managing ratings in turbulent times, March 2020

Sector In-Depth

» Regulated electric and gas utilities – US: Grid hardening, regulatory support key to credit quality as climate hazards worsen, March 2020

» Regulated electric utilities – US: Intensifying climate hazards to heighten focus on infrastructure investments, January 2020

» Regulated electric and gas utilities – US: Recent regulatory, legislative developments have been largely credit positive, September 2019

» Regulated electric and gas utilities - North America: Free cash flow and capital allocation: external capital needs to decline in 2019, August 2019

» Regulated Electric & Gas Utilities - US: Capital expenditures will remain high, thanks to regulatory recovery mechanisms that provide timely recovery, December 2018

» Regulated Electric and Gas Utilities - US: Renewable generation transition unlikely to create significant stranded asset risk, November 2018

» US Regulated Utilities: Lower Authorized Equity Returns Will Not Hurt Near-Term Credit Profiles, March 2015

Industry Outlook

» Global Macro Outlook 2020-21 (March 25, 2020 Update): The coronavirus will cause unprecedented shock to the global economy, March 2020

» Regulated electric and gas utilities – US: 2020 outlook moves to stable on supportive regulation, weaker but steady credit metrics, November 2019

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What is the primary near-term credit issue for regulated investor-owned utilities arising from the coronavirus outbreak?

The maintenance of sufficient liquidity to weather a prolonged period of financial volatility and turbulent capital markets are the most important credit issue facing US regulated utilities. Liquidity encompasses a company's ability to generate cash from internal sources, as well as the availability of external sources to supplement these internal sources. Utilities are among the largest debt issuers in the corporate universe and typically require consistent access to the capital markets to assure adequate sources of funding and to maintain financial flexibility. During times of distress and when capital markets are exceedingly volatile and tight, liquidity becomes critically important because access to the capital markets may be difficult.

The severity of the coming economic recession will be determined in large part by the scope and duration of the coronavirus pandemic. As a result, utilities may encounter declines in volumes and revenue, as well as increases in bad debt expense if cash-strapped customers are unable to pay their bills. These factors will limit a utility's internal cash flow, which will require greater reliance on external sources of liquidity.

Do utilities currently have access to the capital markets?

Yes, thus far utilities have had relatively strong access. So far in March, utilities have had good access to the capital markets, raising over $20 billion in US investment-grade debt. Tier 1 issuers commercial paper issuers, such as Florida Power & Light Company (A1 stable), NSTAR Electric Company (A1 stable) and Northern Illinois Gas Company (A2 stable), continue to have generally good access to the CP market, albeit at shorter tenors and sometimes on an overnight basis. The commercial paper (CP) market has tightened considerably for Tier 2 issuing companies, such as Spire Inc. (Baa2 stable), The Southern Company (Baa2 stable) and Avangrid, Inc. (Baa1 negative). In an effort to reduce their reliance on the volatile CP market, many companies have taken a variety of measures to bolster their liquidity. Some have entered the bond markets opportunistically to issue long-dated bonds in an effort to capitalize on low rates, while others have used uncommitted lines of credit and entered into short-term bank term loans (e.g., 364-day facilities) to shore up their liquidity position.

We do not view higher leverage related to pre-financing as credit negative because the higher debt load should be temporary. Instead, we view the removal of near-term maturity uncertainty amid capital markets volatility as positive for liquidity, much as we did during the 2007-09 recession.

Exhibit 1

P-1 issuers continue to have better access to the CP market compared to P-2 peers

Short-term ratings for US regulated utilities for the most recent 12 month period (mostly as of the end of 2019) versus their short-term ratings as of the end of 2007

Issuer	Current ST Rating	ST Debt Outstanding as of LTM	2007 ST Rating	ST Debt Outstanding as of FY 2007
Alabama Power Company	P-1	$0	P-1	$0
American Transmission Company LLC	P-1	$263	P-1	$105
Consumers Energy Company	P-1	$90	WR	$0
DTE Electric Company	P-1	$451	P-2	$683
Florida Power & Light Company	P-1	$1,482	P-1	$842
Gulf Power Company	P-1	$155	WR	$45
Madison Gas and Electric Company	P-1	$55	P-1	$61
MidAmerican Energy Company	P-1	$0	P-1	$86
Northern Illinois Gas Company	P-1	$120	P-1	$369
Northern States Power Company (Minnesota)	P-1	$30	P-2	$437
Northern States Power Company (Wisconsin)	P-1	$65	NR	$59
NSTAR Electric Company	P-1	$77	P-1	$257
ONE Gas, Inc	P-1	$517	NR	-
PECO Energy Company	P-1	$0	P-1	$246
Peoples Gas Light and Coke Company	P-1	$28	P-1	$188
Public Service Electric and Gas Company	P-1	$10	P-2	$65
Southern California Gas Company	P-1	$630	P-1	$0
Virginia Electric and Power Company	P-1	$350	P-2	$371
Wisconsin Electric Power Company	P-1	$37	P-1	$354
Wisconsin Public Service Corporation	P-1	$19	P-1	$61
Alliant Energy Corporation	P-2	$364	P-2	$211
Ameren Corporation	P-2	$440	P-2	$1,472
Ameren Illinois Company	P-2	$53	WR	-
American Electric Power Company, Inc.	P-2	$2,838	P-2	$1,167
Atlantic City Electric Company	P-2	$70	P-2	$52
Avangrid, Inc.	P-2	$614	P-2	$138
Baltimore Gas and Electric Company	P-2	$76	P-2	$0
Berkshire Hathaway Energy Company	P-2	$3,214	NR	$130
Black Hills Corporation	P-2	$350	NR	$37
CenterPoint Energy Resources Corp.	P-2	$0	P-3	$299
CenterPoint Energy, Inc.	P-2	$868	NP	$232
Commonwealth Edison Company	P-2	$130	NP	$370
Consolidated Edison Company of New York, Inc.	P-2	$1,137	P-1	$555
Consolidated Edison, Inc.	P-2	$1,692	P-1	$840
Delmarva Power & Light Company	P-2	$56	P-2	$286
Dominion Energy Gas Holdings, LLC	P-2	$322	NR	-
Dominion Energy South Carolina, Inc	P-2	$565	P-2	$464
Dominion Energy, Inc.	P-2	$911	P-2	$1,757
DTE Energy Company	P-2	$828	P-2	$1,084
DTE Gas Company	P-2	$232	P-2	$454
Duke Energy Corporation	P-2	$3,135	P-2	$1,080
Empire District Electric Company (The)	P-2	$0	P-2	$33
Entergy Corporation	P-2	$1,947	NR	$25
Evergy Kansas Central, Inc.	P-2	$382	WR	$180
Evergy Metro, Inc.	P-2	$205	P-2	$436

Issuer	Current ST Rating	ST Debt Outstanding as of LTM	2007 ST Rating	ST Debt Outstanding as of FY 2007
Evergy Missouri West, Inc.	P-2	$168	NR	$25
Eversource Energy	P-2	$1,260	WR	$79
Exelon Corporation	P-2	$1,370	P-2	$616
Exelon Generation Company, LLC	P-2	$320	P-2	$0
Hydro One Inc.	P-2	$881	P-1	$12
IDACORP, Inc.	P-2	$0	P-2	$186
Idaho Power Company	P-2	$0	P-2	$137
Interstate Power and Light Company	P-2	$108	P-2	$130
ITC Holdings Corp.	P-2	$0	NR	$0
Kentucky Utilities Co.	P-2	$150	WR	$23
Louisville Gas & Electric Company	P-2	$238	NR	$78
New Jersey Natural Gas Company	P-2	$50	P-1	$186
NextEra Energy Capital Holdings, Inc.	P-2	-	NR	-
NiSource Inc.	P-2	$1,773	NR	$1,463
Northwest Natural Gas Company	P-2	$46	P-1	$143
NorthWestern Corporation	P-2	$0	WR	$0
OGE Energy Corp.	P-2	$112	P-2	$296
Oklahoma Gas & Electric Company	P-2	$0	P-1	$349
Oncor Electric Delivery Company LLC	P-2	$46	SGL-2	$1,280
Ontario Power Generation Inc.	P-2	$91	NR	$304
Orange and Rockland Utilities, Inc.	P-2	$30	P-1	$45
PacifiCorp	P-2	$130	P-2	$0
Pepco Holdings, LLC	P-2	$220	P-3	$289
Portland General Electric Company	P-2	$0	P-2	$0
Potomac Electric Power Company	P-2	$82	P-2	$180
PPL Electric Utilities Corporation	P-2	$0	P-2	$41
Public Service Company of Colorado	P-2	$39	P-2	$271
Public Service Enterprise Group Incorporated	P-2	$2,480	P-2	$65
Puget Sound Energy, Inc.	P-2	$176	NR	$260
Questar Gas Company	P-2	$45	WR	$73
San Diego Gas & Electric Company	P-2	$80	P-1	$0
South Jersey Gas Company	P-2	$175	WR	$78
Southern California Edison Company	P-2	$0	P-2	$704
Southern Company (The)	P-2	$2,055	P-1	$1,272
Southern Power Company	P-2	$1,373	P-2	$50
Southwestern Public Service Company	P-2	$0	P-2	$129
Spire Inc.	P-2	$519	NR	$211
Union Electric Company	P-2	$234	P-2	$82
WGL Holdings, Inc.	P-2	$331	NP	$184
Wisconsin Gas LLC	P-2	$266	P-1	$90
Wisconsin Power and Light Company	P-2	$168	P-1	$82
Xcel Energy Inc.	P-2	595	P-2	$1,089

Note: LTM financial data is based on latest 12-month data available.
Source: Moody's Investors Service, SEC Filings

Which companies are most vulnerable to credit pressure as a result of the coronavirus?

The impact of the coronavirus outbreak on utility credit quality will largely depend on the length of the crisis and the severity of the economic recession that we expect will take hold during the first half of this year (see "Global Macro Outlook 2020-21 [March 25, 2020 Update]: The coronavirus will cause unprecedented shock to the global economy"). The economic downturn will pose a challenge for companies with already-weak financial profiles that are trending at or below their respective downgrade thresholds.

The financial cushion that a utility company maintains – often expressed as where the latest 12 month financial credit ratio compares to the published upgrade or downgrade trigger – is always of interest to investors. But our assessment of a utility's credit quality goes beyond a specific ratio as we consider a host of other factors, particularly the regulatory environment in which it operates. Some

utilities have financial ratios that reflect the impact of extraordinary developments. For example, Edison International's (Baa3 stable) historical ratios of cash flow from operations before changes in working capital (CFO pre-WC) to debt reflect its extraordinary costs associated with past California's wildfires.

Exhibit 2

Utility companies with weak financial profiles are most vulnerable to the impact of the coronavirus outbreak

Select list of US regulated utility holding companies at or below their downgrade threshold for ratios of CFO pre-WC to debt as of 31 December 2019

Issuer	Rating	Outlook	FY 2019 (CFO Pre-W/C) / Debt	3-Year Average (CFO Pre-W/C) / Debt	Downgrade Threshold	Cushion Between Downgrade Threshold and FY 2019
Edison International	Baa3	Stable	-2%	13%	13%	-15%
Eversource Energy	Baa1	Stable	13%	13%	15%	-2%
Sempra Energy [1]	Baa1	Negative	14%	15%	16%	-2%
CenterPoint Energy, Inc. [2]	Baa2	Stable	13%	16%	15%	-2%
Emera Inc.	Baa3	Stable	10%	10%	12%	-2%
Entergy Corporation	Baa2	Stable	14%	13%	15%	-1%
CMS Energy Corporation	Baa1	Stable	16%	17%	17%	-1%
American Electric Power Company, Inc.	Baa1	Negative	14%	17%	15%	-1%
Pinnacle West Capital Corporation	A3	Negative	20%	22%	21%	-1%
Duke Energy Corporation	Baa1	Stable	15%	14%	15%	0%
FirstEnergy Corp.	Baa3	Stable	11%	13%	11%	0%
NextEra Energy, Inc.	(P)Baa1	Stable	18%	20%	18%	0%
Consolidated Edison, Inc.	Baa2	Stable	13%	15%	13%	0%
Berkshire Hathaway Energy Company	A3	Stable	15%	16%	15%	0%
Public Service Enterprise Group Incorporated	Baa1	Stable	18%	20%	17%	1%
Fortis Inc.	Baa3	Stable	12%	11%	11%	1%
PPL Corporation	Baa2	Stable	13%	13%	12%	1%
Southern Company (The)	Baa2	Stable	15%	15%	14%	1%
DTE Energy Company	Baa2	Stable	16%	17%	15%	1%
Dominion Energy, Inc.	Baa2	Stable	15%	14%	14%	1%

[1] As noted in the 31 Dec 2019 credit opinion, assuming no changes to Sempra's business risk profile, a downgrade of Sempra could occur if the company fails to achieve a ratio of CFO pre-W/C to debt well above 16% in 2020.
[2] As noted in the 27 Feb 2020 credit opinion, CNP's ratio of CFO pre-W/C to debt downgrade threshold may be lowered to below 14% upon completion of the announced sale of its non-regulated business.
Source: Moody's Investors Service, Moody's Financial Metrics

Utilities that have a higher proportion of commercial and industrial (C&I) customers will be hard hit by declining volumes during a pandemic-triggered economic downturn. C&I demand accounts for about 50% of total regulated electric revenue and is far more vulnerable to economic disruptions than residential demand. Utilities with substantial sales to businesses in the tourism, travel and oil & gas sectors are also vulnerable (see "Corporates - Global Heat map: Coronavirus hurts travel-driven sectors, disrupts supply chains, effects compounded with global spread"). While we expect many of the most affected businesses to recover, we are also monitoring the small commercial business customer classes, where volume declines could be slower to recover.

Exhibit 3

ALLETE and Superior are most exposed to industrial customers

Top US regulated utility companies with the highest proportion of industrial customers

Issuer	Rating, Outlook	State	% Industrial customers (by MWh volumes)
ALLETE, Inc.	Baa1, Stable	Minnesota, Wisconsin	74%
Superior Water, Light and Power Company	A3, Stable	Wisconsin	73%
Toledo Edison Company	Baa1, Stable	Ohio	57%
Southwestern Public Service Company	Baa2, Stable	New Mexico, Texas	55%
Northern Indiana Public Service Company	Baa1, Stable	Indiana	54%
Entergy Louisiana, LLC	Baa1, Stable	Louisiana	52%
Mississippi Power Company	Baa2, Positive	Mississippi	50%
Indianapolis Power & Light Company	Baa1, Stable	Indiana	47%

Note: Electricity volumes as of year-end 2018.
Sources: S&P Global Market Intelligence, Moody's Investors Service

How do utilities absorb abrupt declines in volumes or revenues?

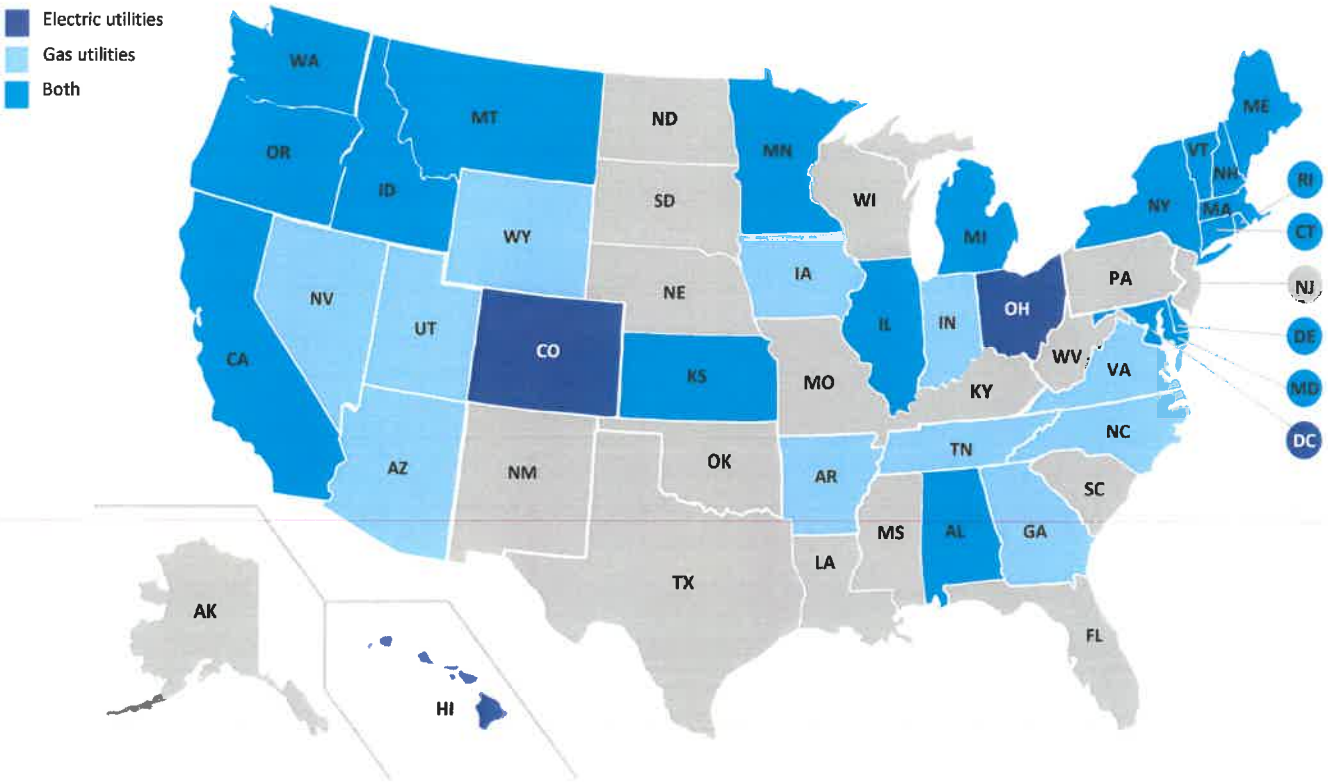
Regulatory support is important to recover costs associated with lost volumes, revenue or customers. Some utilities are already somewhat insulated from volume declines thanks to decoupling mechanisms. Revenue decoupling, which is widely used by local gas distribution companies (LDCs), is a ratemaking mechanism that is generally designed to eliminate or reduce the volatility of a utility's revenue on system throughput (i.e., electricity load or natural gas volumes). Decoupling helps insulate utility credit quality by safeguarding against the financial impact of a decline in electricity and natural gas consumption due to factors beyond the utility's control, such as energy efficiency, fluctuations in commodity fuel prices and weather. Because of the regulatory lag in recovering costs under these mechanisms, utilities also need to maintain sufficient liquidity until this recovery materializes.

Bad debt expense or the inability of customers to pay their bills will likely be addressed in several different ways. Many utilities already have a baseline level of bad debt expense, based on historical run-rates, which they already recover through customer rates. Some utilities, such as Oncor Electric Delivery Company LLC (A2 stable), have a bad debt expense rider/tracker that allows the utility to recover these costs in rates in a timely manner. Others may be able to defer the cost on their balance sheet as a regulatory asset and will need to address recovery in their next general rate case.

Exhibit 4

Decoupling, widely used by LDCs, is becoming more prevalent among electric utilities

US states with partial or full decoupling revenue recovery mechanisms for electric and gas utilities



Note: See list of utilities with full or partial decoupling mechanisms in the appendix.
Source: Moody's Investors Service, S&P Global Market Intelligence

Appendix

Exhibit 5

Revenue decoupling insulates utilities' revenues due to volume volatility

US regulated utility companies with full or partial revenue decoupling

Issuer	Decoupling (Full/Partial)	Issuer	Decoupling (Full/Partial)
Ameren Illinois Company	Partial	North Shore Gas Company	Partial
Arizona Public Service Company	Partial	Northern Illinois Gas Company	Partial
Avista Corp.	Full/Partial	Northern Indiana Public Service Company	Partial
Baltimore Gas and Electric Company	Full	Northern States Power Company (Minnesota)	Partial
Berkshire Gas Company	Full	Northern Utilities, Inc.	Partial
Black Hills Corporation	Full	Northwest Natural Gas Company	Partial
Black Hills Power, Inc.	Partial	NSTAR Electric Company	Full
CenterPoint Energy Resources Corp.	Full/Partial	Ohio Power Company	Partial
Central Hudson Gas & Electric Corporation	Full	Oklahoma Gas & Electric Company	Partial
Central Maine Power Company	Full	Orange and Rockland Utilities, Inc.	Full
Cleco Power LLC	Partial	PacifiCorp	Partial
Connecticut Light and Power Company (The)	Full	Peoples Gas Light and Coke Company	Partial
Connecticut Natural Gas Corporation	Full	Piedmont Natural Gas Company, Inc.	Full/Partial
Consolidated Edison Company of New York, Inc.	Full	Portland General Electric Company	Partial
Consumers Energy Company	Partial	Potomac Electric Power Company	Full/Partial
Dayton Power & Light Company	Partial	Public Service Co. of North Carolina, Inc.	Full
Delmarva Power & Light Company	Full	Public Service Company of Colorado	Partial
Dominion Energy South Carolina, Inc.	Partial	Public Service Company of New Hampshire	Partial
DTE Gas Company	Partial	Public Service Company of Oklahoma	Partial
Duke Energy Indiana, LLC.	Partial	Public Service Electric and Gas Company	Partial
Duke Energy Kentucky, Inc.	Partial	Puget Sound Energy, Inc.	Partial
Duke Energy Ohio, Inc.	Partial	Questar Gas Company	Full/Partial
Elizabethtown Gas Company	Partial	Rochester Gas & Electric Corporation	Full
Entergy Arkansas, LLC	Partial	San Diego Gas & Electric Company	Full
Entergy Louisiana, LLC	Partial	Sierra Pacific Power Company	Partial
Entergy Mississippi, LLC	Partial	South Jersey Gas Company	Full
Entergy New Orleans, LLC	Partial	Southern California Edison Company	Full
Evergy Kansas Central, Inc.	Partial	Southern California Gas Company	Full
Evergy Metro, Inc.	Partial	Southern Connecticut Gas Company	Full
Evergy Missouri West, Inc.	Partial	Southern Indiana Gas & Electric Company	Full/Partial
Fitchburg Gas & Electric Light Company	Full	Southwest Gas Corporation	Full
Hawaiian Electric Company, Inc.	Full	Southwestern Electric Power Company	Partial
Indiana Gas Company, Inc.	Full	Spire Alabama Inc.	Partial
Indiana Michigan Power Company	Partial	Spire Missouri Inc.	Partial
Indianapolis Power & Light Company	Partial	Tucson Electric Power Company	Partial
Kentucky Power Company	Partial	Union Electric Company	Partial
Kentucky Utilities Co.	Partial	United Illuminating Company	Full
Louisville Gas & Electric Company	Partial	Unitil Energy Systems, Inc.	Partial
Mississippi Power Company	Partial	UNS Electric, Inc.	Partial
Nevada Power Company	Partial	UNS Gas, Inc.	Partial
New Jersey Natural Gas Company	Full	Washington Gas Light Company	Partial
New York State Electric and Gas Corporation	Full	Yankee Gas Services Company	Full

Source: Moody's Investors Service, S&P Global Market Intelligence

Moody's related publications

Outlooks

» Global Macro Outlook 2020-21 (March 2020 Update): Coronavirus will hurt economic growth in many countries through first half of 2020, March 2020

» Regulated electric and gas utilities – US: 2020 outlook moves to stable on supportive regulation, weaker but steady credit metrics, November 2019

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» Regulated Electric, Gas and Water Utilities - US: Utilities demonstrate credit resilience in the face of coronavirus disruptions, March 2020

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Regulated Electric and Gas Utilities – US

Coronavirus recession will impact utility pension underfunding to varying degrees

US investor-owned utilities will likely face higher underfunded pension liabilities as a result of the market turmoil caused by the coronavirus outbreak. This could result in lower cash flow coverage metrics because underfunded pension liabilities are included as debt in our financial ratio calculations. The impact could be exacerbated if a company's gross pension liability is large compared to its balance sheet debt. We think the potentially most exposed utility – Hawaiian Electric Company Inc. (Baa2 positive) – could experience as much as a 155 basis point decline in its ratio of cash flow from operations before changes in working capital (CFO pre-WC) to debt if its pension assets drop 10% in value, all else being equal. Under similar hypothetical scenario analysis, other potentially exposed utilities include Pinnacle West Capital Corporation (A3 negative), Ameren Corporation (Baa1 stable), Consolidated Edison (Baa2 stable), and Exelon Corporation (Baa2 stable).

Given the impact of lockdowns and "shelter in place" mandates on economic activity, we expect US GDP to slip into a recession for full-year 2020. Treasury interest rates have already declined and could fall further during a recession. High-grade corporate bond yields have not fallen relative to the beginning of the year. But if they follow Treasury rates lower, the net present value of a pension obligation would rise.

We think the fall in the stock market will likely lower pension asset values. Most utilities' pension asset value fell by 22% to 33% in 2008, the first year of the great recession. However, the extent of the decline will depend on the composition of a pension fund's investment portfolio. For example, an investment portfolio comprised entirely of high-grade corporate bonds has no sensitivity to the stock market and, at the same time, may match well with pension liability fluctuations.

Moreover, after suffering large losses during the great recession, many utilities have since transitioned to Liability Driven Investment (LDI) strategies. Companies that have adopted LDI strategies include Hawaiian Electric Company, Pinnacle West Capital Corporation, and DTE Energy (Baa2 stable). LDI should reduce the potential for a large loss in a market downturn because it prioritizes meeting its pension obligation over maximizing return. So it may forgo some of the equity-driven upsides to reduce the potential of a shortfall in meeting its pension liabilities.

We view underfunded pension liabilities as debt. We calculate a utility's credit ratios by adding the underfunded liability on the balance sheet to debt as part of our standard financial adjustments, which we make for all issuers. Pension costs, as with other prudent utility operating expenses, are a legitimate utility cost and are therefore recoverable in rates.

From an authorized cost recovery perspective, future costs that have not been explicitly allowed in rates, such as pension obligations, may still be subject to a prudency review by regulators. If the regulator deems the pension cost to be imprudent (e.g., the pension is viewed as excessively generous or the pension is mismanaged), it could still be disallowed. While we view pension costs as having low disallowance risk, future pension costs are riskier than regulatory assets that have already gone through a prudency review process.

Some jurisdictions, such as Hawaii, California, and Massachusetts, allow accrual pension expense (i.e., net period pension cost) to be tracked in a balancing account between rate cases, reducing the incentive to contribute less to the pension fund than the accrual expense. Illinois goes one step further. Investor-owned electric utilities in Illinois, including Commonwealth Edison Company (A3 stable) and Ameren Illinois Company (A3 stable), are allowed a debt return on the amount that they contribute in excess of the accrual expense.

To gauge how badly a market downturn will increase net pension liabilities, we looked at how a utility's sensitivity to market downturns would fare under two downside scenarios. In each scenario, we analyzed the potential impact of higher pension underfunding on a company's ratio of CFO pre-WC to debt. While the mix of fixed income and equity investments in a pension fund and overall pension management practices vary by company, a high-level scenario analysis provides a sense of the magnitude of the potential impact on credit quality. Each of the 15 utilities has a sensitivity of greater than 40 basis points on the CFO pre-WC to debt ratio if their pension asset value were to drop by 10% with no change in the value of their pension liabilities. The results of the two scenarios are summarized in Exhibit 1.

In the first stress scenario, we assume the projected benefit obligation (PBO) rises by 6% with no change in pension asset value. This scenario results in a CFO pre-WC to debt decline by a range of 28 to 122 basis points. We derived the 6% assumption from a sampling of the disclosure of 21 utilities, which showed that a 50 basis point fall in the discount rate translates into about a 5% to 7% rise in the net present value of their pension benefit obligation.

In the second scenario, we assume pension asset values fall by 10%, thus increasing the underfunding by the same dollar amount. In this case, CFO pre-WC to debt would fall by 43 to 155 basis points. This level of impact on credit metrics is unlikely to affect utilities' credit quality on its own but could be a contributing factor.

Exhibit 1

Declines in CFO pre-WC to debt under two pension underfunding downside scenarios for select utilities and holding companies

For the companies below, our two downside scenarios show that the CFO pre-WC to debt ratio could drop on average by 52 basis points with a 6% increase in pension benefit obligation (PBO) and by 70 basis points with a 10% drop in pension asset value

Utility Name	2019 CFO pre-WC/debt	Stress 1: Decline in CFO/D based on 6% increase in pension liabilities	Stress 2: Decline in CFO/D based on 10% fall in fair value of pension assets
Hawaiian Electric Company, Inc.	21.4%	1.22%	1.55%
Pinnacle West Capital Corporation	20.3%	0.69%	1.04%
Ameren Corporation	21.3%	0.60%	0.90%
Consolidated Edison, Inc.	13.4%	0.54%	0.82%
Exelon Corporation	18.5%	0.57%	0.77%
Southern California Gas Company	23.6%	0.65%	0.74%
Exelon Corporation	18.5%	0.57%	0.77%
PPL Corporation	12.6%	0.39%	0.63%
Public Service Enterprise Group Incorporated	18.9%	0.44%	0.65%
Southwest Gas Holdings, Inc.	18.1%	0.44%	0.54%
Avangrid, Inc.	16.1%	0.38%	0.49%
Idaho Power Company	15.3%	0.43%	0.48%
Northwest Natural Gas Company	18.3%	0.47%	0.47%
Portland General Electric Company	19.7%	0.35%	0.44%
DTE Energy Company	16.4%	0.31%	0.44%
Southern Company	15.3%	0.28%	0.43%
Average	**18.0%**	**0.52%**	**0.70%**

Source: Company filings and Moody's Investors Service

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Regulated Electric and Gas Utilities – US

Utilities strengthen liquidity amid capital markets volatility

Given the recent turbulence in the capital markets environment, many US regulated utilities are looking to strengthen their liquidity resources. We view these actions as credit positive, even though they may result in a temporary increase in leverage. In this report, we summarize some of the capital market actions we've seen over the past few weeks for about 50 large utility holding companies.

During March, when the spread of coronavirus created unprecedented turbulence in the capital markets, utilities were very active, issuing more than $31 billion in new debt. The issuances were a mix of long-term debt and new term loans. The companies were able to either refinance their upcoming maturing debt earlier or move their financing up to prefund upcoming needs. For example, Consumers Energy Company (Aa3 secured stable), a utility subsidiary of CMS Energy Corporation (Baa1 stable), issued $575 million of first mortgage bonds to prefund its capital investment needs.

In 2020, we estimate about $40 billion of long-term debt maturities. The top five utility families with the largest maturities in 2020 are Exelon Corporation (Baa2 stable) with $4.9 billion, Duke Energy Corporation (Baa1 stable) with $3.3 billion, Dominion Energy Inc. (Baa2 stable) at $3.2 billion, The Southern Company (Baa2 stable) with $3.2 billion and Berkshire Hathaway Energy Company (A3 stable) with $2.5 billion. Beginning in early January, even before market uncertainty increased, several utilities took advantage of market conditions to address the expected long-term debt maturity. For example, The Southern Company (Southern, Baa2 stable) issued $1 billion of junior subordinated notes. In addition, many utilities were able to take advantage of lower interest rates. For example, Florida Power & Light Company (FPL, A1 stable) issued $1.1 billion of five-year first mortgage bonds at 2.85% on 24 March.

This report was republished on 7 April 2020 to correct a debt issuance figure for American Water Works Company in Exhibit 6

Exhibit 1

Utility holding companies face significant maturities in 2020 - over $25 billion for top 10

Current portion of long-term debt at 31 December 2019 (in millions)

Company	LT rating and outlook	Current portion of long-term debt
Exelon Corporation	Baa2 stable	$4,935
Duke Energy Corporation	Baa1 stable	$3,349
Dominion Energy, Inc.	Baa2 stable	$3,221
Southern Company (The)	Baa2 stable	$3,218
Berkshire Hathaway Energy Company	A3 stable	$2,539
NextEra Energy, Inc.	Baa1 stable	$2,124
American Electric Power Company, Inc.	Baa1 negative	$1,890
Sempra Energy / Sempra Global	Baa1 negative	$1,578
Consolidated Edison, Inc.	Baa2 stable	$1,511*
Public Service Enterprise Group Incorporated	Baa1 stable	$1,398

Moody's adjusted current portion of long-term debt at 31 December 2019.
*ConEd's maturities include $1.0 billion of non-recourse solar project debt associated with Pacific Gas & Electric contracts, $150 million amortization of other non-recourse project debt and $350 million of utility maturities.
Sources: Company filings and Moody's Investors Service

As a defensive asset class, utilities have alternative ways to strengthen liquidity

With wider spreads and less liquidity in the commercial paper market, utilities are staying nimble to strengthen their liquidity through other measures. We saw an increase in short-term bank term loan issuance during the month of March. During the three weeks ended 27 March, about $9.4 billion in term loans were issued. Some utilities added credit facilities with the flexibility to draw down over a short-term period. For example, Duke added a $1.5 billion 364-day term loan facility with an accordion feature to increase the size of the facility up to $2 billion. The company will be able to manage the near-term commercial paper maturities with these proceeds. Overall, utilities had about 80% of their aggregated credit facilities available at the end of 2019 in general, providing a healthy liquidity base in the first quarter of 2020.

Exhibit 2

Short-term bank term loan issuance is up since early March

Over $9 billion issuance during March 2020 (in millions)

Company	Long-term rating and outlook	Short-term rating	Short-term term loan issuance
Edison International	Baa3 stable	P-3	$2,075*
Sempra Energy / Sempra Global	Baa1 negative	P-2	$1,800
Duke Energy Corporation	Baa1 stable	P-2	$1,500
American Electric Power Company, Inc.	Baa1 negative	P-2	$1,000
American Water Works Company, Inc.	Baa1 stable	P-2**	$750
Xcel Energy Inc.	Baa1 stable	P-2	$700
ITC Holdings Corp.	Baa2 stable	P-2	$400
PPL Corporation	Baa2 stable	P-2**	$400
Oncor Electric Delivery Company LLC	A2 stable	P-2	$350
WEC Energy Group, Inc.	Baa1 stable	P-2	$340
Spire Inc.	Baa2 stable	P-2	$150

*Includes $800 million of credit facility capacity at Edison and Southern California Edison Company (Baa2 stable) added in March 2020 that matures in March 2021.
**Short-term ratings for guaranteed financing entities: American Water Capital Corp (Baa1 stable) and PPL Capital Funding Inc. (Baa2 stable).
Sources: Company filings and Moody's Investors Service

Exhibit 3

Ample revolver availability provides healthy liquidity base as of 31 December 2019

US utility holding companies' consolidated credit facilities and available amounts (in millions)

Company	Long-term rating and outlook	Short-term rating	Revolver amount	Used amount	Revolver available
NextEra Energy, Inc.	Baa1 stable	P-2*	$10,895	$3,131	$7,764
Berkshire Hathaway Energy Company	A3 stable	P-2	$9,412	$3,843	$5,569
Exelon Corporation	Baa2 stable	P-2	$9,000	$1,648	$7,352
Duke Energy Corporation	Baa1 stable	P-2	$9,000	$3,668	$5,332
Sempra Energy / Sempra Global	Baa1 negative	P-2	$8,565	$3,508	$5,057
Southern Company (The)	Baa2 stable	P-2	$7,608	$32	$7,576
Dominion Energy, Inc.	Baa2 stable	P-2	$6,000	$925	$5,075
Fortis Inc.	Baa3 stable	NR	$5,590	$1,266	$4,324
Edison International	Baa3 stable	P-3	$4,500	$702	$3,798
FirstEnergy Corp.	Baa3 stable	NR	$3,500	$4	$3,496

NR = Not rated
Used amount includes commercial paper borrowing.
*Short-term rating for NextEra Energy's guaranteed financing entity, NextEra Energy Capital Holdings, Inc. (Baa1 stable).
Source: Moody's Investors Service

Utilities maintain other options to further improve liquidity if market volatility persists

Based on 2019 year-end financial results, utilities had about $2 billion in aggregate funding needs. The aggregate sources of cash totaled around $241 billion, while the aggregate uses of cash was estimated to be about $243 billion. Additional sources of cash from the financing activities in March which resulted in about $31 billion issuance alone more than offset this estimated funding needs.

Exhibit 4

Regulated utility sector improved its liquidity over the last three weeks

Aggregated liquidity sources and uses of 49 US regulated utility holding companies (in billions)

Total 2019 sources	Total 2019 uses	Funding (needs)/surplus
$241	$(243)	$(2)

Sources = cash & cash equivalents + revolver available + FFO
Uses = short-term debt + current portion of long-term debt + capital expenditures + dividends
Source: Moody's Investors Service

Our observation is based on the utility holding companies' 2019 year-end funds from operations (FFO), as well as dividends and capital investments. If FFO were to decline due to lower power demand, utilities would still be able to mitigate their cash uses by reducing capital investments or operating expenses. Suspending or reducing dividends would also be an option as a last resort.

Using 2019 actual aggregated FFO as a starting point for the sources of cash, we estimate that funding needs will increase by about $6 billion for every 5% reduction in FFO. Utilities are also able to moderate or defer their investments as well as operating expenses to offset the reduction in power demand. The outcome of these scenarios would change if we were also to assume a reduction in capital investment in 2020. For example, if we assume a 5% reduction in capital investment in addition to the 5% FFO reduction, the group would have approximately $1 billion of funding needs rather than $7 billion. With the additional issuance of $31 billion in March alone, utilities will have the cushion to withstand a temporary reduction in power demand. Exhibit 5 summarizes the sensitivity scenarios and outcome.

Exhibit 5

Liquidity would improve further if cash uses were reduced to counter FFO reduction

US utility holding companies' liquidity sensitivity scenarios based on changes in funds from operations (FFO) (in billions)

Scenario	Total 2019 sources	Total 2019 uses	Funding (needs)	Change in funding (needs)/surplus versus 2019	Issuances in March 2020	Funding (needs)/surplus including March 2020 issuances
5% FFO reduction	$ 236	$ (243)	$ (7)	$ (5)	$ 31	$ 24
10% FFO reduction	$ 230	$ (243)	$ (13)	$ (11)	$ 31	$ 18
5% FFO and capex reduction	$ 236	$ (236)	$ (1)	$ 1	$ 31	$ 30
10% FFO and capex reduction	$ 230	$ (229)	$ -	$ 2	$ 31	$ 31

Sources = cash & cash equivalents + revolver available + FFO
Uses = short-term debt + current portion of long-term debt + capital expenditures + dividends
Issuances in March 2020 = long-term debt issued + short-term term loans issued
Source: Moody's Investors Service

Appendix

Exhibit 6

US utility holding companies' consolidated long-term debt issuance and short-term term loan issuance during March 2020

In millions

Company	Long-term rating and outlook	Short-term rating	Long-term debt issuance during March 2020	Short-term term loan issuance during March 2020
Berkshire Hathaway Energy Company	A3 stable	P-2	$3,250	-
Exelon Corporation	Baa2 stable	P-2	$2,000	-
Dominion Energy, Inc.	Baa2 stable	P-2	$2,250	-
Edison International	Baa3 stable	P-3	$2,100	$2,075*
Consolidated Edison, Inc.	Baa2 stable	P-2	$1,600	-
NextEra Energy, Inc.	Baa1 stable	P-2**	$1,275	-
Ameren Corporation	Baa1 stable	P-2	$1,265	-
American Electric Power Company, Inc.	Baa1 negative	P-2	$1,675	$1,000
Entergy Corporation	Baa2 stable	P-2	$1,065	-
Oncor Electric Delivery Company LLC	A2 stable	P-2	$800	$350
Xcel Energy Inc.	Baa1 stable	P-2	$600	$700
DTE Energy Company	Baa2 stable	P-2	$600	-
CMS Energy Corporation	Baa1 stable	NR	$575	-
Duke Energy Corporation	Baa1 stable	P-2	$550	$1,500
Sempra Energy / Sempra Global	Baa1 negative	P-2	$400	$1,800
Eversource Energy	Baa1 stable	P-2	$400	-
Alliant Energy Corporation	Baa2 stable	P-2	$350	-
OGE Energy Corp.	Baa1 stable	P-2	$300	-
IDACORP, Inc.	Baa1 stable	P-2	$230	-
Portland General Electric Company	A3 stable	P-2	$130	-
American Water Works Company, Inc.	Baa1 stable	P-2**	-	$750
ITC Holdings Corp.	Baa2 stable	P-2	-	$400
PPL Corporation	Baa2 stable	P-2**	-	$400
WEC Energy Group, Inc.	Baa1 stable	P-2	-	$340
Spire Inc.	Baa2 stable	P-2	-	$150

NR = Not rated

*Includes $800 million of credit facility capacity at Edison and Southern California Edison Company (Baa2 stable) added in March 2020 that matures in March 2021.

**Short-term ratings for guaranteed financing entities: NextEra Energy Capital Holdings, Inc. (Baa1 stable), American Water Capital Corp (Baa1 stable) and PPL Capital Funding Inc. (Baa2 stable).

Sources: Company filings and Moody's Investors Service

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Regulated Electric Utilities – US

Sales mix, decoupling and O&M savings support credit quality amid lower volumes

» **Decline in electricity demand to vary by customer mix.** Customer mix will be a key determinant of the impact of lower demand on a regulated utility's revenue and funds from operations (FFO). Many businesses closed or curtailed operations in the wake of the initial coronavirus outbreak, sparking a sharp decline in commercial and industrial electricity sales beginning in late March. By contrast, residential electric sales volumes have increased because of the large number of people who are working or studying from home and higher-than-normal summer temperatures.

» **Growing demand from residential customers will help offset declines in total revenue.** Higher residential volumes will mitigate the loss of revenues and cash flow from commercial and industrial customers as residential sales generate a higher gross margin per kilowatt-hour. The combination of increased residential volume and higher earned margins will mitigate the financial impact of the 2% decline in total volume. Projected declines in revenue and cash flow will have a minor impact on FFO-to-debt ratios.

» **Commercial customers will account for the steepest decline in electricity demand.** The drop in electricity demand from commercial customers will exceed declines for other customer classes in 2020, leading to a decline in total demand. Spurred by social distancing and other measures to protect public health and safety, power consumption has plunged for major commercial customer categories.

» **Ratcheting demand charges limit revenue decline from falling industrial volume.** The loss of load among industrial customers is mitigated by a ratcheting demand charge on their electricity bills, which on average accounts for 55% of an electric utility's total industrial revenues, leaving 45% of revenues derived from actual energy consumed. These charges mitigate the revenue impact on lost volumes from industrial customers because they provide an annual fixed revenue stream.

» **Decoupling mechanisms and formula rates will recover lost 2020 revenues.** Eleven US states and the District of Columbia have mechanisms that decouple authorized revenue from the volume of electricity sold through a true-up of collected revenues to authorized revenues, ensuring an adequate rate of return. In addition, many companies own electric transmission assets regulated by the Federal Energy Regulatory Commission (FERC) under which formula rates are used to calculate annually authorized revenue based on prudently incurred capital and operating costs and a return on rate base. Reductions in administrative and operating and maintenance (O&M) costs are also buffering the cash flow impact of lower electricity sales.

Decline in electricity demand to vary by customer mix

Declining electricity demand amid the coronavirus-fueled US recession has reduced total electricity sales volume. Customer mix will be a key determinant of the impact of lower demand on a regulated utility's revenue and funds from operations (FFO), given the sharp decline in electricity sales to commercial and industrial customers and higher demand from residential customers.

To assess the impact of declining electricity demand on the US regulated utility sector, we identified utilities that generate more than 80% of their revenue from electricity, resulting in a cohort of 59 utility operating companies (see Exhibit 13 in the appendix). Based on our projections of a 8% decline in commercial electricity demand, a 6% decline in industrial demand and a 5% increase in residential demand, total annual electricity demand in our cohort is on track for a 2% decline year-over-year in 2020. As shown in Exhibit 1, we expect the cohort to post an average decline in FFO-to-debt of about 37 basis points (bps) and an average decline in FFO-to-electric revenue of 24 bps.

Exhibit 1

Southern California Edison, NSTAR and PacifiCorp would be hit hardest

Top 25 US regulated electric utilities with the highest basis point declines in FFO-to-debt in 2020 based on our projections

Company	Rating	Outlook	2019 FFO	2020F FFO	2019 FFO / Electric Revenue	2020 FFO / Electric Revenue	Change (Bps)	2019 FFO / Debt	2020F FFO / Debt	Change (Bps)
Southern California Edison Company*[1]	Baa2	Stable	3,171	3,012	27.3%	26.6%	(70.6)	18.3%	17.4%	(91.9)
NSTAR Electric Company*	A1	Stable	832	803	29.2%	28.7%	(47.9)	23.3%	22.5%	(80.1)
PacifiCorp	A3	Stable	1,454	1,399	32.1%	31.6%	(51.4)	18.2%	17.5%	(68.3)
Evergy Metro, Inc.	Baa1	Stable	583	562	35.6%	35.2%	(45.1)	16.9%	16.3%	(59.4)
Georgia Power Company	Baa1	Stable	2,834	2,752	37.4%	37.1%	(35.3)	20.5%	19.9%	(59.3)
Oklahoma Gas & Electric Company	A3	Stable	729	710	36.4%	36.0%	(34.0)	21.8%	21.2%	(59.1)
Potomac Electric Power Company*	Baa1	Stable	676	659	33.9%	33.6%	(32.2)	21.9%	21.4%	(53.5)
Virginia Electric and Power Company	A2	Stable	2,989	2,916	38.7%	38.4%	(28.4)	21.3%	20.8%	(51.9)
Entergy Louisiana, LLC	Baa1	Stable	1,548	1,504	43.4%	43.1%	(27.1)	19.4%	18.9%	(56.1)
Duke Energy Indiana, LLC.	A2	Stable	1,095	1,071	42.0%	41.8%	(21.9)	24.3%	23.8%	(52.7)
Union Electric Company	Baa1	Stable	1,040	1,017	33.5%	33.3%	(29.0)	22.1%	21.6%	(48.3)
Wisconsin Electric Power Company[3]	A2	Stable	609	580	21.4%	20.8%	(62.9)	10.5%	10.0%	(49.4)
Alabama Power Company	A1	Stable	2,167	2,126	40.7%	40.5%	(20.4)	24.5%	24.0%	(46.5)
Duke Energy Carolinas, LLC	A1	Stable	3,218	3,168	49.8%	49.7%	(7.5)	26.5%	26.1%	(41.5)
Evergy Kansas Central, Inc.	Baa1	Stable	831	810	43.6%	43.4%	(22.9)	17.5%	17.0%	(43.5)
DTE Electric Company	A2	Stable	1,824	1,793	37.4%	37.2%	(20.9)	21.5%	21.1%	(37.0)
Dominion Energy South Carolina, Inc.[2]	Baa2	Stable	914	898	40.5%	40.3%	(19.1)	21.6%	21.2%	(38.1)
Arizona Public Service Company	A2	Negative	1,424	1,405	41.4%	41.3%	(13.2)	25.5%	25.2%	(32.5)
Portland General Electric Company	A3	Stable	698	688	40.5%	40.3%	(15.2)	23.1%	22.8%	(32.5)
Tampa Electric Company	A3	Positive	754	745	38.4%	38.3%	(14.0)	22.6%	22.4%	(27.2)
Appalachian Power Company	Baa1	Stable	740	734	29.4%	29.3%	(10.7)	15.3%	15.1%	(11.9)
Florida Power & Light Company	A1	Stable	5,311	5,298	50.3%	50.3%	(1.0)	33.6%	33.5%	(8.0)
Duke Energy Florida, LLC.	A3	Stable	1,748	1,749	39.6%	39.6%	0.9	20.5%	20.5%	1.6
Commonwealth Edison Company*	A3	Stable	2,098	2,099	42.7%	42.7%	0.5	20.2%	20.2%	1.2
Connecticut Light and Power Company (The)*	A3	Stable	810	817	28.4%	28.5%	10.9	20.3%	20.5%	16.2
Weighted Average of 59 Companies**							(23.5)			(37.2)

[1] $2.4 billion wildfire fund was incorporated in 2019 YE funds from operations
[2] $633 mm of revenue was added back due to charges for refunds of amounts previously collected from retail electric customers for the NND Project, certain regulatory assets and utility plant for which DESC committed to forgo recovery, litigation and a voluntary retirement program.
[3] Artificially low credit metrics; these ratios do not reflect the adjustments related to the Power the Future (PTF) lease arrangements
*Fully decoupled
**Weighted average based on debt outstanding
Note the top 25 companies are based on the largest utilities by debt that are >80% electric revenue.
Sources: Moody's Investors Service and US Energy Information Administration

How we calculated the potential credit impact of a decline in total electricity demand

Our projections in Exhibit 1 take into consideration our forecast for a 5.7% contraction in US GDP during 2020 and the US Energy Information Administration's (EIA) 9 September projection of a 2.4% decline in electricity volumes this year. The EIA forecast was comprised of an increase in residential volumes of 3.5%, a decline of 6.4% for commercial volumes and a decline of 6% in industrial volumes. Moreover, we incorporated the companies' volume expectations from recent earnings releases and conversations with management on volumes by customer class to arrive at our 2020 estimated year-over-year change in kilowatt-hour (kWh) electricity volumes.

Our revenue sensitivity analysis is based on those companies' 2018 Form 1 filings with FERC, which provide a breakdown of retail electric revenues and volumes by customer class. We calculated a 2018 rate per kWh by customer class and used EIA data to calculate the change in rates and volumes by customer class from 2018 to 2019 to estimate 2019 electric revenues and volumes. Our company sample consists of 59 companies where their retail electric revenues comprised 80% or more of total revenues. The Top 25 companies listed in the exhibits includes those with the highest level of debt outstanding within the company sample.

Our 2020 revenue projections are based on our projected change in kWh volume scenarios by customer class and adjusting 2019 rates based on EIA's projected percentage change in 2020 rates. Projected 2020 industrial revenues incorporate fixed demand charges, which accounted for an average of 55% of an industrial customer's annual bill. To calculate our FFO forecasts for 2020, we applied a 55% FFO-to-revenue margin to the change in revenues (2020P vs. 2019E). We believe this FFO margin, applied to the 2020 change in revenues, accounts for the lower fuel and power costs due to the decline in volumes and a cost structure that is largely fixed, but reflects reductions being achieved in selling, general and administrative (SG&A) and O&M costs. We believe this concurs with most companies' affirmation or manageable reduction of their 2020 earnings guidance. We also held debt flat at 2019 levels in our projections for 2020 FFO-to-debt to best isolate the impact of lower volumes.

Growing demand from residential customers will help offset declines in total revenue

Residential electricity sales volumes have increased this year because of the large number of people who are working or studying from home and unusually hot summer weather in some of the most populous regions of the country. Higher residential volumes will mitigate the loss of revenues and cash flow from commercial and industrial customers as residential sales generate a higher gross margin per kWh. The larger the proportion of residential customers, the greater the buffer a utility will have from revenue declines in other customer classes, thanks to rising demand and rates that are typically higher than for other customers. An unusually hot summer in many parts of the country resulted in even greater usage from residential customers and many continue to work from home and schooling from home.

Residential customers contribute more to gross margin than commercial and industrial customers on a per kWh basis, as shown in Exhibit 2. The exhibit shows the relative contribution of each customer class at an average gross margin of 65%.

Exhibit 2

Residential customers are more profitable than commercial or industrial customers

Average rate per kWh and gross margin contribution of each customer class served by US regulated utilities

	Residential	Commercial	Industrial
Avg 2020 rate per/ KWh	$124	$84	$55
Demand Charges = 55% of revs			$30
65% Gross Margin/KWh sold	$81	$55	$46
Percent contribution to gross margin per Kwh	45%	30%	25%

Source: Moody's Investors Service

Regulators allow utilities to charge residential customers the highest rates per kWh of all customer classes to cover the cost of the infrastructure required to serve a large number of low-voltage electricity consumers, which results in significant operating leverage. The higher prices paid by residential customers result in a higher gross margin contribution per kWh. In addition, the daily load shape is changing, resulting in lower peak demand levels across all regional transmission organizations as commercial business is curtailed and

residential demand steadies at a higher level. This should result in lower overall power costs, further shielding utilities from the negative impact on gross margin due to declining demand from other customers.

For companies with the highest proportion of residential customers (50% or more), we expect total electric revenue to be relatively flat to down only about 1% at companies such as Connecticut Light & Power (A3 stable), (A3 stable) and Florida Power & Light Company (A1 stable). While companies in the Southwest, such as Arizona Public Service Company (A2 negative), experienced very high summer load due to weather, further mitigating overall lower demand.

Exhibit 3

Utilities with the highest proportion of residential customers will post the smallest declines in total revenue

Regulated US electric utilities that derive the highest percentage of revenue from residential customers

Company	Customer Mix (%)	2019 Residential Electric Revenue	2019 Total Electric Revenue	2020F Residential Electric Revenue	2020F Total Electric Revenue	2020F Residential Rev /Total Rev	2019 vs. 2020F Total Rev Change
Connecticut Light and Power Company (The)*	63%	$ 1,810	$ 2,857	$ 1,907	$ 2,868	66%	*0.4%*
Duke Energy Florida, LLC.	61%	$ 2,683	$ 4,411	$ 2,828	$ 4,414	64%	*0.1%*
Florida Power & Light Company	60%	$ 6,337	$ 10,554	$ 6,680	$ 10,531	63%	*(0.2%)*
Commonwealth Edison Company*	59%	$ 2,911	$ 4,918	$ 3,068	$ 4,920	62%	*0.0%*
Tampa Electric Company	54%	$ 1,056	$ 1,962	$ 1,113	$ 1,945	57%	*(0.8%)*
Arizona Public Service Company	54%	$ 1,848	$ 3,436	$ 1,948	$ 3,403	57%	*(1.0%)*
Appalachian Power Company	52%	$ 1,314	$ 2,516	$ 1,385	$ 2,505	55%	*(0.4%)*
Potomac Electric Power Company*	51%	$ 1,019	$ 1,993	$ 1,074	$ 1,963	55%	*(1.5%)*
Portland General Electric Company	51%	$ 881	$ 1,724	$ 929	$ 1,706	54%	*(1.0%)*
Union Electric Company	50%	$ 1,544	$ 3,100	$ 1,628	$ 3,059	53%	*(1.3%)*
DTE Electric Company	50%	$ 2,427	$ 4,882	$ 2,558	$ 4,825	53%	*(1.2%)*
NSTAR Electric Company*	48%	$ 1,369	$ 2,850	$ 1,443	$ 2,798	52%	*(1.8%)*
Virginia Electric and Power Company	48%	$ 3,707	$ 7,726	$ 3,907	$ 7,593	51%	*(1.7%)*
Dominion Energy South Carolina, Inc.	48%	$ 1,078	$ 2,255	$ 1,136	$ 2,226	51%	*(1.3%)*
Duke Energy Carolinas, LLC	47%	$ 3,014	$ 6,465	$ 3,177	$ 6,373	50%	*(1.4%)*
Oklahoma Gas & Electric Company	44%	$ 892	$ 2,006	$ 940	$ 1,970	48%	*(1.8%)*
Alabama Power Company	44%	$ 2,362	$ 5,328	$ 2,489	$ 5,254	47%	*(1.4%)*
Evergy Metro, Inc.	44%	$ 712	$ 1,635	$ 751	$ 1,598	47%	*(2.3%)*
Evergy Kansas Central, Inc.	42%	$ 794	$ 1,904	$ 837	$ 1,867	45%	*(2.0%)*
Georgia Power Company	43%	$ 3,262	$ 7,571	$ 3,438	$ 7,422	46%	*(2.0%)*
Southern California Edison Company*	43%	$ 4,971	$ 11,625	$ 5,239	$ 11,337	46%	*(2.5%)*
Wisconsin Electric Power Company	42%	$ 1,208	$ 2,842	$ 1,273	$ 2,790	46%	*(1.8%)*
Duke Energy Indiana, LLC.	42%	$ 1,089	$ 2,606	$ 1,148	$ 2,562	45%	*(1.7%)*
PacifiCorp	38%	$ 1,725	$ 4,532	$ 1,818	$ 4,433	41%	*(2.2%)*
Entergy Louisiana, LLC	34%	$ 1,223	$ 3,570	$ 1,289	$ 3,489	37%	*(2.3%)*

*Fully decoupled

Sources: Moody's Investors Service and US Energy Information Administration

Commercial customers will account for the steepest decline in electricity demand

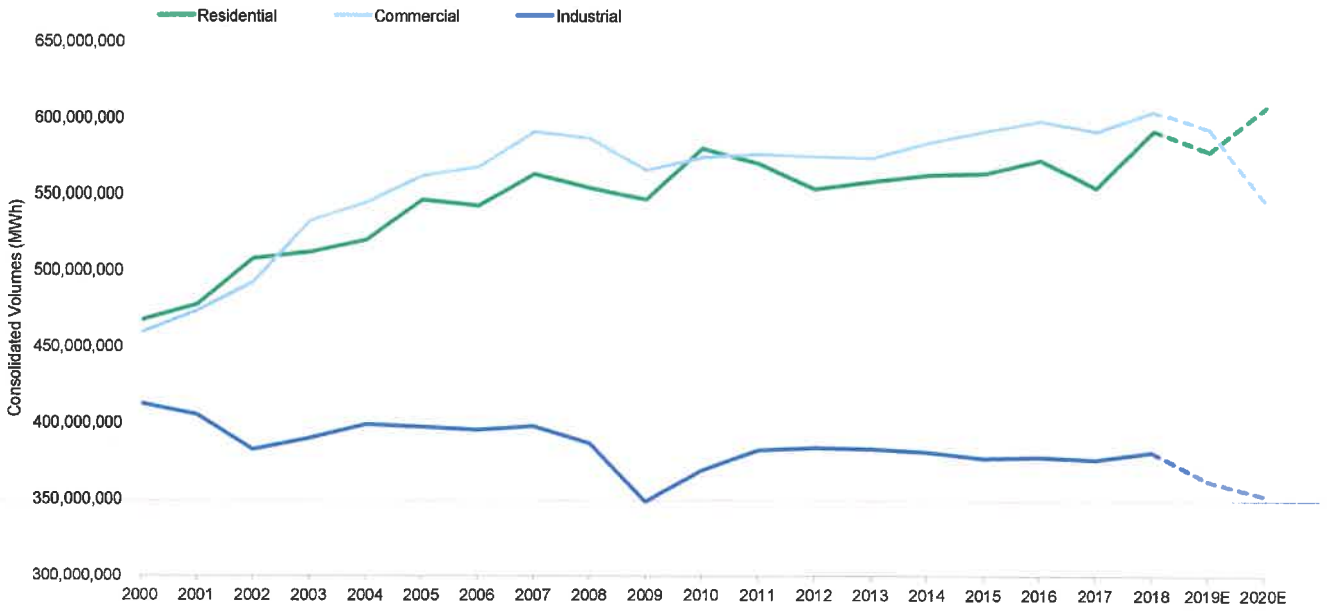
The drop in electricity demand from commercial customers will exceed declines for other customer classes in 2020, leading to a decline in total demand. Spurred by social distancing and other measures to protect public health and safety, power consumption has plunged for major commercial customer categories, including office buildings, large retailers, restaurants and movie theaters.

The decline in demand from commercial customers represents a sharp deviation from consumption trends over the past 20 years, as shown in Exhibit 4. During this period, commercial volumes drove growth in total demand, while industrial demand steadily declined and residential demand flattened during the past decade, largely because of improved energy efficiency.

Exhibit 4

Commercial customers had driven growth in total electricity demand

Actual and estimated change in US electricity volumes by customer class



Sources: Moody's Investors Service, Federal Energy Regulatory Commission Form 1 data via S&P Global Market Intelligence and US Energy Information Administration

In Exhibit 5, we show the top 25 utilities with the highest proportion of commercial revenues. We expect revenue to decline 1.5% to 2.5% at companies that derive the highest proportion of their revenues from commercial customers, such as Southern California Edison Company (Baa2 stable), Evergy Metro, Inc. (Baa1 stable) and NSTAR Electric Company (A1 stable). Southern California Edison, NSTAR and Potomac Electric Power have rate constructs that include full revenue decoupling and are expected to recover authorized revenues through relevant regulatory mechanisms in future filings. (See Exhibit 10 in the appendix for a list of companies with full decoupling mechanisms.)

Exhibit 5

The greater the reliance on commercial customers, the steeper the decline in total revenue

Regulated US electric utilities that derive the highest percentage of revenue from commercial customers

Company	Customer Mix (%)	2019 Commercial Electric Revenue	2019 Total Electric Revenue	2020F Commercial Electric Revenue	2020F Total Electric Revenue	2020F Commercial Rev / Total Rev	2019 vs. 2020F Total Rev Change
Southern California Edison Company*	51%	$ 5,927	$ 11,625	$ 5,402	$ 11,337	48%	(2.5%)
Evergy Metro, Inc.	48%	$ 786	$ 1,635	$ 716	$ 1,598	45%	(2.3%)
NSTAR Electric Company*	48%	$ 1,361	$ 2,850	$ 1,240	$ 2,798	44%	(1.8%)
Potomac Electric Power Company*	47%	$ 946	$ 1,993	$ 862	$ 1,963	44%	(1.5%)
Virginia Electric and Power Company	45%	$ 3,488	$ 7,726	$ 3,179	$ 7,593	42%	(1.7%)
Arizona Public Service Company	41%	$ 1,412	$ 3,436	$ 1,287	$ 3,403	38%	(1.0%)
Union Electric Company	41%	$ 1,262	$ 3,100	$ 1,150	$ 3,059	38%	(1.3%)
Georgia Power Company	40%	$ 3,041	$ 7,571	$ 2,771	$ 7,422	37%	(2.0%)
Oklahoma Gas & Electric Company	39%	$ 785	$ 2,006	$ 716	$ 1,970	36%	(1.8%)
Tampa Electric Company	38%	$ 754	$ 1,962	$ 687	$ 1,945	35%	(0.8%)
Florida Power & Light Company	38%	$ 4,030	$ 10,554	$ 3,673	$ 10,531	35%	(0.2%)
DTE Electric Company	37%	$ 1,796	$ 4,882	$ 1,636	$ 4,825	34%	(1.2%)
Portland General Electric Company	37%	$ 635	$ 1,724	$ 579	$ 1,706	34%	(1.0%)
Evergy Kansas Central, Inc.	37%	$ 709	$ 1,904	$ 646	$ 1,867	35%	(2.0%)
Wisconsin Electric Power Company	36%	$ 1,019	$ 2,842	$ 929	$ 2,790	33%	(1.8%)
Duke Energy Carolinas, LLC	36%	$ 2,299	$ 6,465	$ 2,095	$ 6,373	33%	(1.4%)
Dominion Energy South Carolina, Inc.	36%	$ 801	$ 2,255	$ 730	$ 2,226	33%	(1.3%)
PacifiCorp	34%	$ 1,546	$ 4,532	$ 1,409	$ 4,433	32%	(2.2%)
Duke Energy Florida, LLC.	34%	$ 1,486	$ 4,411	$ 1,355	$ 4,414	31%	0.1%
Connecticut Light and Power Company (The)*	31%	$ 896	$ 2,857	$ 816	$ 2,868	28%	0.4%
Commonwealth Edison Company*	30%	$ 1,495	$ 4,918	$ 1,363	$ 4,920	28%	0.0%
Duke Energy Indiana, LLC.	30%	$ 789	$ 2,606	$ 719	$ 2,562	28%	(1.7%)
Alabama Power Company	30%	$ 1,604	$ 5,328	$ 1,462	$ 5,254	28%	(1.4%)
Entergy Louisiana, LLC	28%	$ 982	$ 3,570	$ 895	$ 3,489	26%	(2.3%)
Appalachian Power Company	25%	$ 639	$ 2,516	$ 583	$ 2,505	23%	(0.4%)

*Fully decoupled

Sources: Moody's Investors Service and US Energy Information Administration

Ratcheting demand charges limit revenue decline from falling industrial volume

The loss of load among industrial customers is mitigated by a ratcheting demand charge on their electricity bills, which on average accounts for 55% of an electric utility's total industrial revenues, with only 45% of revenues derived from actual energy consumed. These charges offset lost volumes from industrial customers because they provide an annual fixed revenue stream to serve these large-volume customers. The demand charge is typically based on a kWh rate and the prior 12-month period's peak usage to ensure that a utility can recover the fixed costs to serve the peak demand of an industrial customer.

The volume portion of a demand charge is typically increased the month after an industrial customer reaches a new 12-month peak level of usage. But during periods when usage declines, the volume portion of a demand charge is generally not reduced until 12 months after a new lower peak level of usage has been set. The kWh rate portion of a demand charge is only reset in a rate proceeding; we expect a general delay in finalizing rate cases in the near term.

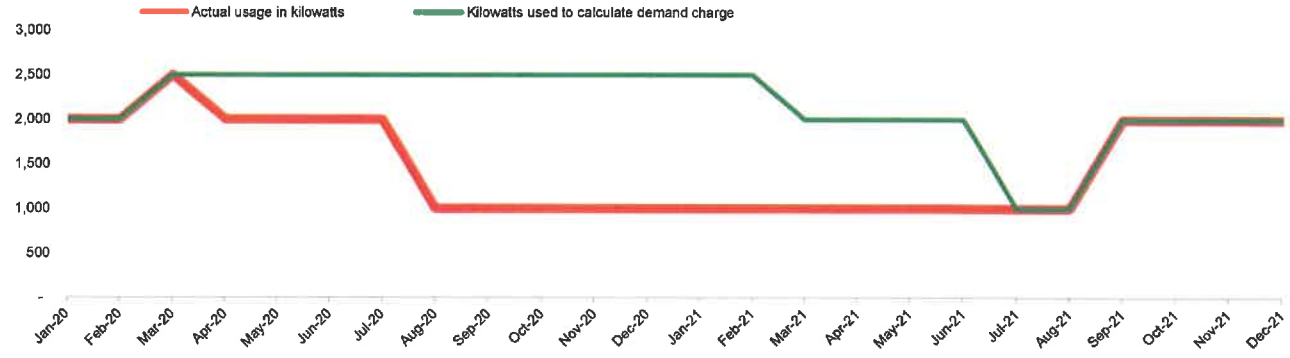
In Exhibit 6, we illustrate an example of an industrial customer's 24-month billing based on peak usage of 2,000 kilowatts, including a demand charge at $9/kilowatt and an actual energy charge of three cents per kWh. The combination of demand charge revenue and actual energy consumption revenue for industrial customers results in the lowest rate per kWh of electricity among all customer

classes. Exhibit 6 illustrates that demand charges will increase the month a new peak level is set, but not decline until 12 months after a new lowered peak load is exhibited.

Exhibit 6

If an industrial customer's peak power usage falls, demand charges do not decline until 12 months later

Actual usage in kilowatt-hours versus kilowatts used to calculate volume portion of a US regulated utility's demand charge



Source: Moody's Investors Service

While this example shows volumes increasing and decreasing over a short period of time, industrial customers are sophisticated electricity consumers and avoid dramatic load changes and any new peak usage when possible. While industrial consumers are sophisticated, the ratcheting demand price structure typically ensures that a utility earns an appropriate return on the capital employed to serve these large-volume customers.

Industrial customers represent the lowest revenue contributor to overall electric utility revenue. Moreover, their power consumption among industrial customers has been declining due to improving energy efficiencies and the shrinking size of the US industrial base. However, the industrial class customer's contribution to a utility's gross margin remains comparable to that of a commercial customer thanks to the ratcheting charges. We expect revenue to decline 1% to 2% at companies with high industrial exposure, such as Entergy Louisiana LLC (Baa1 stable), Duke Energy Indiana LCC (A2 stable) and PacifiCorp. (A3 stable).

Exhibit 7

Even as industrial consumption drops, demand charges keep revenue stable

Regulated US electric utilities that derive the highest percentage of revenue from industrial customers

Company	Customer Mix (%)	2019 Industrial Electric Revenue	2019 Total Electric Revenue	2020F Industrial Electric Revenue	2020F Total Electric Revenue	2020F Industrial Rev / Total Rev	2019 vs. 2020F Total Rev Change
Entergy Louisiana, LLC	38%	$ 1,365	$ 3,570	$ 1,305	$ 3,489	37%	(2.3%)
Duke Energy Indiana, LLC.	28%	$ 727	$ 2,606	$ 695	$ 2,562	27%	(1.7%)
PacifiCorp	28%	$ 1,261	$ 4,532	$ 1,206	$ 4,433	27%	(2.2%)
Alabama Power Company	26%	$ 1,362	$ 5,328	$ 1,302	$ 5,254	25%	(1.4%)
Appalachian Power Company	22%	$ 562	$ 2,516	$ 537	$ 2,505	21%	(0.4%)
Wisconsin Electric Power Company	22%	$ 616	$ 2,842	$ 589	$ 2,790	21%	(1.8%)
Evergy Kansas Central, Inc.	21%	$ 401	$ 1,904	$ 384	$ 1,867	21%	(2.0%)
Duke Energy Carolinas, LLC	18%	$ 1,151	$ 6,465	$ 1,100	$ 6,373	17%	(1.4%)
Georgia Power Company	17%	$ 1,269	$ 7,571	$ 1,213	$ 7,422	16%	(2.0%)
Dominion Energy South Carolina, Inc.	17%	$ 376	$ 2,255	$ 359	$ 2,226	16%	(1.3%)
Oklahoma Gas & Electric Company	16%	$ 328	$ 2,006	$ 314	$ 1,970	16%	(1.8%)
DTE Electric Company	14%	$ 659	$ 4,882	$ 630	$ 4,825	13%	(1.2%)
Portland General Electric Company	12%	$ 207	$ 1,724	$ 198	$ 1,706	12%	(1.0%)
Commonwealth Edison Company*	10%	$ 512	$ 4,918	$ 489	$ 4,920	10%	0.0%
Union Electric Company	9%	$ 294	$ 3,100	$ 281	$ 3,059	9%	(1.3%)
Evergy Metro, Inc.	8%	$ 137	$ 1,635	$ 131	$ 1,598	8%	(2.3%)
Tampa Electric Company	8%	$ 151	$ 1,962	$ 145	$ 1,945	7%	(0.8%)
Virginia Electric and Power Company	7%	$ 531	$ 7,726	$ 508	$ 7,593	7%	(1.7%)
Southern California Edison Company*	6%	$ 728	$ 11,625	$ 696	$ 11,337	6%	(2.5%)
Duke Energy Florida, LLC.	5%	$ 242	$ 4,411	$ 231	$ 4,414	5%	0.1%
Connecticut Light and Power Company (The)*	5%	$ 151	$ 2,857	$ 145	$ 2,868	5%	0.4%
Arizona Public Service Company	5%	$ 176	$ 3,436	$ 168	$ 3,403	5%	(1.0%)
NSTAR Electric Company*	4%	$ 120	$ 2,850	$ 115	$ 2,798	4%	(1.8%)
Florida Power & Light Company	2%	$ 187	$ 10,554	$ 178	$ 10,531	2%	(0.2%)
Potomac Electric Power Company*	1%	$ 28	$ 1,993	$ 27	$ 1,963	1%	(1.5%)

*Fully decoupled

Sources: Moody's Investors Service and US Energy Information Administration

The coronavirus pandemic's impact on industrial demand varies by sector. While the outbreak has reduced electricity demand in the tourism, aerospace, retail and energy industries, demand from the information technology, telecommunications, medical and packaged food sectors is stable or increasing.

Decoupling mechanisms and formula rates will recover lost 2020 revenues

Decoupling, formula rates and other cost-recovery mechanisms will enable some utilities to smooth the financial impact of the coronavirus-fueled drop in revenue.

Decoupling

Eleven US states – New York, California, Connecticut, Massachusetts, Maryland, Rhode Island, Hawaii, Maine, Ohio, Illinois, Idaho and the District of Columbia – have decoupling mechanisms that mitigate the financial impact of lower electricity volumes and revenues. Large commercial and industrial customers are sometimes excluded from the mechanism, limiting the extent to which decoupling can smooth out revenues.

Rate constructs in these states decouple authorized revenue from the volume of electricity sold through a true-up of collected revenues to authorized revenues, reducing the financial risk to a drop in demand. Truing up revenues over an extended period of time (usually two years or less) can also mitigate the impact on ratepayers. Through periodic filings with state regulators, the impact on a utility's net cash flow is typically spread out within the next two years.

California, for example, has a robust set of cost recovery mechanisms – including a decoupling mechanism, procurement cost pass-throughs and an adjustment mechanism for authorized return on equity (see "Southern California Edison Company: Update following the passage of AB 1054"). Any differences between the amounts collected and revenue authorized are either collected from customers or refunded to them. Thus, Southern California Edison and other investor-owned utilities in the state are not burdened by, nor would they benefit from, changes in electricity volumes sold.

In Maryland, Exelon Corp.'s (Baa2 stable) electric distribution companies, including Potomac Electric Power, Delmarva Power & Light (Baa1 stable) and Baltimore Gas and Electric (A3 stable) have a strong decoupling provision called a monthly rate adjustment (MRA). The MRA allows for monthly adjustments and eliminates the effect of abnormal weather and usage patterns on electric volumes. As a result, the Maryland electric distribution companies' revenues are not materially impacted by delivery volumes.

In Idaho, two regulatory mechanisms effectively decouple Idaho Power Company's (IPC, A3 stable) revenue and earnings from declines in volumes. IPC has a fixed-cost adjustment mechanism that allows the company to charge its residential and small commercial customers when it recovers less than the base level of fixed costs approved under its last rate case. IPC also has an earnings support mechanism through an accumulated deferred investment tax credit that the company can use if its earned return on equity (ROE) falls below 95% of its current allowed ROE. These mechanisms provide a high level of revenue, cash flow and earnings stability.

Formula rates

Companies that own electric transmission assets regulated by FERC use formula rates to calculate authorized revenue based on prudently incurred capital and operating costs and a return on net investment in transmission assets (i.e., its rate base). The transmission revenue requirement and thus retail rates are typically updated every December for the upcoming year based on costs and rate base and to true-up the actual revenues and costs of the prior projected period. Any over- or under-collection of the projected revenue requirement and actual revenues collected based on actual monthly peak load is trued up to refund or collect additional revenue within a two-year period. Companies with significant FERC rate base include Virginia Electric and Power Company (A2 stable), Connecticut Light and Power Company (A3 stable) and Portland General Electric Company (A3 stable).

Transmission and distribution companies in Illinois also operate under formula rates that are not based on volumes. The state adopted a formula rate construct in 2011 that will be in effect through at least 2022. Similar to FERC formula rates, we view Illinois' rate construct as credit positive for utilities in the state, such as Commonwealth Edison (A3 stable) and Ameren Illinois Company (A3 stable).

In addition, Arkansas, Louisiana and Mississippi where Entergy Corporation (Baa2 stable) has material operations, its electric companies benefit from similar rate structures with formula rate plans allowing annual adjustments to revenues in order for earnings to remain within a bandwidth of allowed returns.

The true-up of revenues for 2020 under decoupling mechanisms or formula rates will result in additional revenues collected in future periods, which will smooth out the negative financial impact of lower electricity demand being experienced in 2020.

Reducing SG&A and O&M costs and deferral of coronavirus-related expenses

Many utilities have also been able to lower cash expenses through reduced travel and noncritical maintenance activities. Over the last few years, the industry has been gradually reducing O&M costs, which has been an increasing focus of management teams. A general rule applied is that a $1 reduction in SG&A and O&M costs can facilitate a $7 to $8 capital investment with minimal to no impact on customer rates. SG&A and O&M costs represent an average of 30% of revenue, on which utilities do not earn a return. Many companies recently affirmed their 2020 earnings guidance, helped by their ability to reduce O&M costs. As shown in Exhibit 8, Moody's adjusted SG&A and O&M costs declined by an average of .3% for the full sample of companies during the first half of 2020 from a year earlier.

Exhibit 8

Moody's adjusted administrative and operating costs (000s) fell by an average of .3%

Year-over-year change in SG&A and O&M costs in the first half of 2020 for the 59 sample US regulated utilities

Company	1H2020	1H2019	$ change	% change
Alabama Power Company	883,254	1,000,397	(117,143)	(11.7%)
Appalachian Power Company	409,270	464,786	(55,516)	(11.9%)
Arizona Public Service Company	544,379	570,886	(26,507)	(4.6%)
Commonwealth Edison Company*	998,240	774,181	224,059	28.9%
Connecticut Light and Power Company (The)*	500,805	489,105	11,700	2.4%
Dominion Energy South Carolina, Inc.	413,882	479,510	(65,628)	(13.7%)
DTE Electric Company	820,136	840,533	(20,397)	(2.4%)
Duke Energy Carolinas, LLC	959,300	1,023,479	(64,179)	(6.3%)
Duke Energy Florida, LLC.	671,741	650,541	21,200	3.3%
Duke Energy Indiana, LLC.	392,834	409,857	(17,023)	(4.2%)
Entergy Louisiana, LLC	604,196	624,712	(20,516)	(3.3%)
Evergy Kansas Central, Inc.	463,684	474,588	(10,904)	(2.3%)
Evergy Metro, Inc.	262,941	291,273	(28,332)	(9.7%)
Florida Power & Light Company	1,336,000	1,379,000	(43,000)	(3.1%)
Georgia Power Company**	1,093,149	1,073,645	19,504	1.8%
NSTAR Electric Company*	461,998	457,113	4,885	1.1%
Oklahoma Gas & Electric Company	286,290	283,743	2,548	0.9%
PacifiCorp	597,358	610,160	(12,802)	(2.1%)
Portland General Electric Company	361,955	377,191	(15,236)	(4.0%)
Potomac Electric Power Company*	405,544	407,665	(2,121)	(0.5%)
Southern California Edison Company*	1,968,544	1,625,168	343,375	21.1%
Tampa Electric Company	100,675	101,713	(1,038)	(1.0%)
Union Electric Company	603,000	638,000	(35,000)	(5.5%)
Virginia Electric and Power Company	954,991	1,009,350	(54,359)	(5.4%)
Wisconsin Electric Power Company	468,784	544,508	(75,723)	(13.9%)
Total of 59 Companies	21,750,483	21,792,048	(41,565)	(0.3%)

* Fully decoupled

** Includes $92 million increase in O&M primarily due to amortization of storm damage recovery approved in their 2019 rate case.

Source: Moody's Investors Service

In addition, many companies have sought deferrals of coronavirus-related expenses. Many companies have provided for two times their typical annual bad debt expense as states extend moratoriums on cutting service to delinquent ratepayers. These expenses are still being incurred and deferred into a regulatory asset and may be recovered in future rates through a regulatory proceeding.

Appendix

Exhibit 9

A higher electric-to-total revenue ratio reflects greater vulnerability to FFO changes, all else being equal

Top 25 regulated US electric utilities with the highest proportion of electric revenues to total revenues and customer revenue mix

Company	Rating	Outlook	Residential	Commercial	Industrial	Electric Revenue / Total Revenue
Arizona Public Service Company	A2	Negative	54%	41%	5%	97%
Union Electric Company	Baa1	Stable	50%	41%	9%	96%
Virginia Electric and Power Company	A2	Stable	48%	45%	7%	95%
Southern California Edison Company*	Baa2	Stable	43%	51%	6%	94%
NSTAR Electric Company*	A1	Stable	48%	48%	4%	94%
DTE Electric Company	A2	Stable	50%	37%	14%	93%
Evergy Metro, Inc.	Baa1	Stable	44%	48%	8%	91%
Georgia Power Company	Baa1	Stable	43%	40%	17%	90%
Oklahoma Gas & Electric Company	A3	Stable	44%	39%	16%	90%
PacifiCorp	A3	Stable	38%	34%	28%	89%
Connecticut Light and Power Company (The)*	A3	Stable	63%	31%	5%	88%
Potomac Electric Power Company*	Baa1	Stable	51%	47%	1%	88%
Duke Energy Carolinas, LLC	A1	Stable	47%	36%	18%	87%
Alabama Power Company	A1	Stable	44%	30%	26%	87%
Duke Energy Indiana, LLC.	A2	Stable	42%	30%	28%	87%
Florida Power & Light Company	A1	Stable	60%	38%	2%	87%
Appalachian Power Company	Baa1	Stable	52%	25%	22%	86%
Commonwealth Edison Company*	A3	Stable	59%	30%	10%	86%
Duke Energy Florida, LLC.	A3	Stable	61%	34%	5%	84%
Entergy Louisiana, LLC	Baa1	Stable	34%	28%	38%	83%
Dominion Energy South Carolina, Inc.**	Baa2	Stable	48%	36%	17%	82%
Tampa Electric Company	A3	Positive	54%	38%	8%	82%
Wisconsin Electric Power Company	A2	Stable	42%	36%	22%	81%
Portland General Electric Company	A3	Stable	51%	37%	12%	81%
Evergy Kansas Central, Inc.	Baa1	Stable	42%	37%	21%	76%

Note: Customer mix based on 2019E revenue
*Fully decoupled
** Lower than historical due to a $1.0 billion charge to electric revenue for refunds of amounts previously collected from retail electric customers for new nuclear development
Sources: Moody's Investors Service and US Energy Information Administration

Exhibit 10

Regulated US electric utilities in states with decoupling mechanisms

Company	State	Rating	Outlook
Southern California Edison Company	CA	Baa2	Stable
Connecticut Light and Power Company (The)	CT	A3	Stable
United Illuminating Company	CT	Baa1	Stable
Potomac Electric Power Company	DC	Baa1	Stable
Delmarva Power & Light Company	DE	Baa1	Stable
Idaho Power Company	ID	A3	Stable
Commonwealth Edison Company	IL	A3	Stable
Ameren Illinois	IL	A3	Stable
NSTAR Electric Company	MA	A1	Stable
Baltimore Gas and Electric Company	MD	A3	Stable
Unitil Energy Systems, Inc.	NH	Baa1	Stable
Central Hudson Gas & Electric Corporation	NY	A3	Stable

Source: Moody's Investors Service

Exhibit 11

Regulated US electric utilities' rates by customer class

Company	2018 Residential	2018 Commercial	2018 Industrial	2019F Residential	2019F Commercial	2019F Industrial	2020F Residential	2020F Commercial	2020F Industrial
$ per MWh % Change per EIA				1.3%	-0.1%	-1.3%	0.4%	-0.9%	-1.8%
Alabama Power Company	$ 128.1	$ 116.5	$ 63.1	$ 129.8	$ 116.4	$ 62.3	$ 130.3	$ 115.3	$ 61.2
Alaska Electric Light and Power Company(AELP)	$ 128.7	$ 106.2	$ 117.8	$ 130.4	$ 106.1	$ 116.3	$ 130.9	$ 105.1	$ 114.3
Appalachian Power Company	$ 111.8	$ 87.7	$ 62.6	$ 113.3	$ 87.6	$ 61.8	$ 113.7	$ 86.8	$ 60.7
Arizona Public Service Company	$ 141.6	$ 115.1	$ 84.2	$ 143.4	$ 115.0	$ 83.1	$ 144.0	$ 113.9	$ 81.6
Atlantic City Electric Company	$ 157.9	$ 76.4	$ 42.0	$ 160.0	$ 76.3	$ 41.4	$ 160.6	$ 75.6	$ 40.7
Central Hudson Gas & Electric Corporation	$ 176.4	$ 82.5	$ 20.4	$ 178.7	$ 82.4	$ 20.2	$ 179.4	$ 81.7	$ 19.8
Cleveland Electric Illuminating Company (The)	$ 85.0	$ 67.7	$ 17.7	$ 86.1	$ 67.6	$ 17.5	$ 86.4	$ 67.0	$ 17.2
Commonwealth Edison Company	$ 104.3	$ 46.9	$ 19.4	$ 105.7	$ 46.9	$ 19.1	$ 106.1	$ 46.4	$ 18.8
Connecticut Light and Power Company (The)	$ 179.7	$ 101.4	$ 76.6	$ 182.0	$ 101.3	$ 75.6	$ 182.7	$ 100.4	$ 74.2
Dayton Power & Light Company	$ 81.5	$ 36.2	$ 15.4	$ 82.5	$ 36.2	$ 15.2	$ 82.9	$ 35.8	$ 14.9
Dominion Energy South Carolina, Inc	$ 130.2	$ 101.8	$ 64.0	$ 131.9	$ 101.7	$ 63.2	$ 132.4	$ 100.7	$ 62.1
DTE Electric Company	$ 156.3	$ 93.4	$ 57.4	$ 161.1	$ 105.9	$ 67.1	$ 161.7	$ 104.9	$ 65.9
Duke Energy Carolinas, LLC	$ 103.0	$ 78.7	$ 56.7	$ 104.4	$ 78.6	$ 56.0	$ 104.8	$ 77.9	$ 55.0
Duke Energy Florida, LLC.	$ 131.4	$ 98.5	$ 83.0	$ 133.1	$ 98.5	$ 81.9	$ 133.6	$ 97.5	$ 80.5
Duke Energy Indiana, LLC	$ 115.3	$ 95.1	$ 73.0	$ 116.8	$ 95.0	$ 72.1	$ 117.2	$ 94.1	$ 70.8
Duquesne Light Company	$ 133.9	$ 43.5	$ 17.2	$ 135.7	$ 43.4	$ 17.0	$ 136.2	$ 43.0	$ 16.7
El Paso Electric Company	$ 120.1	$ 92.6	$ 50.4	$ 121.7	$ 92.5	$ 49.7	$ 122.1	$ 91.7	$ 48.9
Empire District Electric Company (The)	$ 137.5	$ 117.1	$ 85.9	$ 139.3	$ 117.0	$ 84.8	$ 139.8	$ 115.9	$ 83.3
Entergy Louisiana, LLC	$ 85.2	$ 80.9	$ 49.7	$ 86.3	$ 80.8	$ 49.1	$ 86.7	$ 80.0	$ 48.2
Entergy Mississippi, LLC	$ 99.3	$ 95.3	$ 68.4	$ 100.6	$ 95.3	$ 67.5	$ 100.9	$ 94.4	$ 66.3
Entergy New Orleans, LLC	$ 106.1	$ 92.2	$ 75.8	$ 107.5	$ 92.1	$ 74.8	$ 107.9	$ 91.2	$ 73.5
Entergy Texas, Inc.	$ 102.9	$ 76.0	$ 49.3	$ 104.3	$ 76.0	$ 48.7	$ 104.7	$ 75.2	$ 47.8
Evergy Kansas Central, Inc.	$ 133.5	$ 100.9	$ 75.0	$ 122.9	$ 95.8	$ 71.4	$ 123.4	$ 94.9	$ 70.1
Evergy Metro, Inc.	$ 135.7	$ 107.4	$ 83.1	$ 131.3	$ 103.1	$ 79.9	$ 131.8	$ 102.1	$ 78.5
Evergy Missouri West, Inc.	$ 111.6	$ 89.4	$ 67.2	$ 113.1	$ 89.3	$ 66.3	$ 113.5	$ 88.5	$ 65.1
Florida Power & Light Company	$ 108.3	$ 86.0	$ 66.0	$ 109.8	$ 85.9	$ 65.2	$ 110.2	$ 85.1	$ 64.0
Georgia Power Company	$ 116.3	$ 93.1	$ 57.2	$ 117.9	$ 93.0	$ 56.4	$ 118.3	$ 92.2	$ 55.4
Idaho Power Company	$ 103.8	$ 76.0	$ 65.4	$ 105.2	$ 75.9	$ 64.5	$ 105.6	$ 75.2	$ 63.4
Indianapolis Power & Light Company	$ 110.3	$ 116.8	$ 86.7	$ 111.8	$ 116.7	$ 85.6	$ 112.2	$ 115.6	$ 84.1
Jersey Central Power & Light Company	$ 116.9	$ 59.1	$ 33.1	$ 118.4	$ 59.0	$ 32.7	$ 118.9	$ 58.5	$ 32.1
Kentucky Power Company	$ 121.0	$ 123.7	$ 66.7	$ 122.6	$ 123.6	$ 65.8	$ 123.1	$ 122.4	$ 64.6
Kentucky Utilities Co.	$ 97.3	$ 93.4	$ 59.2	$ 98.6	$ 93.3	$ 58.5	$ 99.0	$ 92.4	$ 57.4
Metropolitan Edison Company	$ 109.3	$ 46.6	$ 11.3	$ 110.8	$ 46.6	$ 11.1	$ 111.2	$ 46.2	$ 10.9
Nevada Power Company	$ 120.9	$ 64.0	$ 77.8	$ 122.5	$ 63.9	$ 76.8	$ 123.0	$ 63.3	$ 75.4
NSTAR Electric Company	$ 169.1	$ 98.3	$ 75.8	$ 171.3	$ 98.3	$ 74.8	$ 172.0	$ 97.3	$ 73.5
Ohio Edison Company	$ 85.1	$ 60.4	$ 19.2	$ 86.2	$ 60.4	$ 19.0	$ 86.5	$ 59.8	$ 18.7
Ohio Power Company	$ 106.3	$ 56.8	$ 25.8	$ 107.7	$ 56.7	$ 25.5	$ 108.1	$ 56.2	$ 25.0
Oklahoma Gas & Electric Company	$ 92.6	$ 71.6	$ 49.0	$ 93.8	$ 71.5	$ 48.4	$ 94.2	$ 70.8	$ 47.5
Otter Tail Power Company	$ 96.5	$ 81.2	$ 56.2	$ 97.8	$ 81.1	$ 55.5	$ 98.2	$ 80.4	$ 54.5
PacifiCorp	$ 107.4	$ 85.5	$ 64.8	$ 108.8	$ 85.4	$ 63.9	$ 109.2	$ 84.6	$ 62.8
Pennsylvania Electric Company	$ 132.8	$ 53.9	$ 15.8	$ 134.5	$ 53.9	$ 15.6	$ 135.0	$ 53.4	$ 15.3
Pennsylvania Power Company	$ 112.5	$ 39.0	$ 4.7	$ 114.0	$ 39.0	$ 4.6	$ 114.5	$ 38.6	$ 4.5
Portland General Electric Company	$ 120.1	$ 88.0	$ 50.0	$ 121.7	$ 87.9	$ 49.3	$ 122.1	$ 87.1	$ 48.5
Potomac Edison Company (The)	$ 102.0	$ 63.0	$ 38.4	$ 103.4	$ 63.0	$ 37.9	$ 103.8	$ 62.4	$ 37.2
Potomac Electric Power Company	$ 122.1	$ 59.3	$ 57.5	$ 123.7	$ 59.2	$ 56.8	$ 124.2	$ 58.7	$ 55.8
Public Service Company of New Hampshire	$ 171.2	$ 95.7	$ 58.8	$ 173.5	$ 95.6	$ 58.1	$ 174.1	$ 94.7	$ 57.0
Public Service Company of New Mexico	$ 133.2	$ 106.0	$ 56.8	$ 135.0	$ 105.9	$ 56.1	$ 135.5	$ 104.9	$ 55.1
Public Service Company of Oklahoma	$ 103.6	$ 77.1	$ 50.1	$ 105.0	$ 77.0	$ 49.5	$ 105.4	$ 76.3	$ 48.6
Southern California Edison Company	$ 160.9	$ 128.4	$ 91.1	$ 163.0	$ 128.3	$ 89.9	$ 163.7	$ 127.1	$ 88.3
Southwestern Electric Power Company	$ 102.1	$ 84.6	$ 66.5	$ 103.4	$ 84.5	$ 65.6	$ 103.8	$ 83.8	$ 64.4
Tampa Electric Company	$ 113.3	$ 93.9	$ 80.0	$ 114.8	$ 93.8	$ 79.0	$ 115.3	$ 92.9	$ 77.6
Toledo Edison Company	$ 91.2	$ 68.6	$ 12.5	$ 92.4	$ 68.6	$ 12.3	$ 92.8	$ 67.9	$ 12.1
Union Electric Company	$ 109.0	$ 86.6	$ 69.6	$ 110.5	$ 86.5	$ 68.7	$ 110.9	$ 85.7	$ 67.5
United Illuminating Company	$ 219.4	$ 110.9	$ 97.7	$ 222.3	$ 110.8	$ 96.5	$ 223.1	$ 109.7	$ 94.8
Unitil Energy Systems, Inc.	$ 170.0	$ 129.0	$ 65.7	$ 172.2	$ 128.8	$ 64.8	$ 172.9	$ 127.6	$ 63.7
UNS Electric, Inc.	$ 100.4	$ 99.7	$ 70.6	$ 101.7	$ 99.6	$ 69.7	$ 102.1	$ 98.7	$ 68.5
Virginia Electric and Power Company	$ 116.5	$ 80.4	$ 64.6	$ 118.1	$ 80.3	$ 63.8	$ 118.5	$ 79.6	$ 62.7
West Penn Power Company	$ 96.2	$ 40.0	$ 9.8	$ 97.5	$ 40.0	$ 9.6	$ 97.9	$ 39.6	$ 9.5
Wisconsin Electric Power Company	$ 152.0	$ 114.8	$ 77.6	$ 154.0	$ 114.7	$ 76.6	$ 154.6	$ 113.6	$ 75.2

Source: US Energy Information Administration

Exhibit 12

A high percentage of revenue from industrial customers is fixed

Illustration of demand ratchet rate structure for a hypothetical industrial customer of a regulated US electric utility

Year 1			New Peak Demand	Return to Normal with New Peak				Cut Production by 50%				
	January	February	March	April	May	June	July	August	September	October	November	December
Actual KW	2,000	2,000	2,500	2,000	2,000	2,000	2,000	1,000	1,000	1,000	1,000	1,000
Billing KW	2,000	2,000	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500
Demand Charge (9 per KW)	$ 18,000	$ 18,000	$ 22,500	$ 22,500	$ 22,500	$ 22,500	$ 22,500	$ 22,500	$ 22,500	$ 22,500	$ 22,500	$ 22,500
% of Revenue	*56%*	*56%*	*56%*	*61%*	*61%*	*61%*	*61%*	*76%*	*76%*	*76%*	*76%*	*76%*
Actual Energy Kwh	480,000	480,000	600,000	480,000	480,000	480,000	480,000	240,000	240,000	240,000	240,000	240,000
Energy Charge ($0.03 per kwh)	$ 14,400	$ 14,400	$ 18,000	$ 14,400	$ 14,400	$ 14,400	$ 14,400	$ 7,200	$ 7,200	$ 7,200	$ 7,200	$ 7,200
% of Revenue	*44%*	*44%*	*44%*	*39%*	*39%*	*39%*	*39%*	*24%*	*24%*	*24%*	*24%*	*24%*
Total Bill	**$ 32,400**	**$ 32,400**	**$ 40,500**	**$ 36,900**	**$ 36,900**	**$ 36,900**	**$ 36,900**	**$ 29,700**	**$ 29,700**	**$ 29,700**	**$ 29,700**	**$ 29,700**

Year 2			Returned to Normal Peak Billing				Production Cut Reflected Fully in Rates		Returned to Normal Peak Actual/Billing			
	January	February	March	April	May	June	July	August	September	October	November	December
Actual KW	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	2,000	2,000	2,000	2,000
Billing KW	2,500	2,500	2,000	2,000	2,000	2,000	1,000	1,000	2,000	2,000	2,000	2,000
Demand Charge ($9 per KW)	$ 22,500	$ 22,500	$ 18,000	$ 18,000	$ 18,000	$ 18,000	$ 9,000	$ 9,000	$ 18,000	$ 18,000	$ 18,000	$ 18,000
% of Revenue	*76%*	*76%*	*71%*	*71%*	*71%*	*71%*	*56%*	*56%*	*56%*	*56%*	*56%*	*56%*
Actual Energy Kwh	240,000	240,000	240,000	240,000	240,000	240,000	240,000	240,000	480,000	480,000	480,000	480,000
Energy Charge ($0.03 per kwh)	$ 7,200	$ 7,200	$ 7,200	$ 7,200	$ 7,200	$ 7,200	$ 7,200	$ 7,200	$ 14,400	$ 14,400	$ 14,400	$ 14,400
% of Revenue	*24%*	*24%*	*29%*	*29%*	*29%*	*29%*	*44%*	*44%*	*44%*	*44%*	*44%*	*44%*
Total Bill	**$ 29,700**	**$ 29,700**	**$ 25,200**	**$ 25,200**	**$ 25,200**	**$ 25,200**	**$ 16,200**	**$ 16,200**	**$ 32,400**	**$ 32,400**	**$ 32,400**	**$ 32,400**

Source: Moody's Investors Service

Exhibit 13

Our cohort of 59 utility operating companies

Credit metrics for US regulated utility operating companies that generate more than 80% of their total revenue from electricity

Company	Rating	Outlook	2019 FFO	2020 FFO	2019 FFO/ Electric Revenue	2020F FFO/ Electric Revenue	Change (Bps)	2019 FFO / Debt	2020F FFO / Debt	Change (Bps)
Alabama Power Company	A1	Stable	2,167	2,126	40.7%	40.5%	(20.4)	24.5%	24.0%	(46.5)
Appalachian Power Company	Baa1	Stable	740	734	29.4%	29.3%	(10.7)	15.3%	15.1%	(11.9)
Arizona Public Service Company	A2	Negative	1,424	1,405	41.4%	41.3%	(13.2)	25.5%	25.2%	(32.5)
Atlantic City Electric Company	Baa1	Stable	283	287	28.4%	28.6%	16.5	19.4%	19.6%	23.5
Central Hudson Gas & Electric Corporation	A3	Negative	147	150	26.4%	26.7%	27.1	19.3%	19.7%	38.5
Cleveland Electric Illuminating Company (The)	Baa2	Stable	243	234	23.9%	23.3%	(53.4)	15.7%	15.1%	(61.2)
Commonwealth Edison Company	A3	Stable	2,098	2,099	42.7%	42.7%	0.5	20.2%	20.2%	1.2
Connecticut Light and Power Company (The)	A3	Stable	810	817	28.4%	28.5%	10.9	20.3%	20.5%	16.2
Dayton Power & Light Company	Baa2	Negative	187	190	27.4%	27.6%	23.1	27.0%	27.4%	45.7
Dominion Energy South Carolina, Inc.	Baa2	Stable	914	898	40.5%	40.3%	(19.1)	21.6%	21.2%	(38.1)
DTE Electric Company	(P)A2	Stable	1,824	1,793	37.4%	37.2%	(20.9)	21.5%	21.1%	(37.0)
Duke Energy Carolinas, LLC	A1	Stable	3,218	3,168	49.8%	49.7%	(7.5)	26.5%	26.1%	(41.5)
Duke Energy Florida, LLC.	A3	Stable	1,748	1,749	39.6%	39.6%	0.9	20.5%	20.5%	1.6
Duke Energy Indiana, LLC.	A2	Stable	1,095	1,071	42.0%	41.8%	(21.9)	24.3%	23.8%	(52.7)
Duquesne Light Company	A3	Stable	353	356	40.4%	40.5%	8.2	26.8%	27.0%	20.7
El Paso Electric Company	Baa2	Stable	262	254	34.2%	33.8%	(41.8)	16.4%	15.8%	(51.8)
Empire District Electric Company (The)	Baa1	Stable	206	202	36.4%	36.1%	(23.8)	22.9%	22.4%	(43.6)
Entergy Louisiana, LLC	Baa1	Stable	1,548	1,504	43.4%	43.1%	(27.1)	19.4%	18.9%	(56.1)
Entergy Mississippi, LLC	Baa1	Stable	326	315	26.5%	26.0%	(47.5)	18.4%	17.8%	(62.8)
Entergy New Orleans, LLC.	Ba1	Stable	127	120	22.7%	22.0%	(72.1)	19.3%	18.2%	(101.9)
Entergy Texas, Inc.	Baa3	Positive	323	314	23.5%	23.1%	(36.8)	15.4%	15.0%	(41.6)
Evergy Kansas Central, Inc.	Baa1	Stable	831	810	43.6%	43.4%	(22.9)	17.5%	17.0%	(43.5)
Evergy Metro, Inc	(P)Baa1	Stable	583	562	35.6%	35.2%	(45.1)	16.9%	16.3%	(59.4)
Evergy Missouri West, Inc.	Baa2	Stable	314	310	39.8%	39.7%	(13.9)	25.3%	25.0%	(31.6)
Florida Power & Light Company	A1	Stable	5,311	5,298	50.3%	50.3%	(1.0)	33.6%	33.5%	(8.0)
Georgia Power Company	Baa1	Stable	2,834	2,752	37.4%	37.1%	(35.3)	20.5%	19.9%	(59.3)
Gulf Power Company	A2	Stable	480	479	40.3%	40.3%	(1.8)	20.9%	20.9%	(3.6)
Idaho Power Company	A3	Stable	368	361	31.7%	31.5%	(26.4)	15.7%	15.4%	(30.5)
Indianapolis Power & Light Company	Baa1	Stable	410	403	30.6%	30.4%	(21.8)	22.2%	21.8%	(35.4)
Jersey Central Power & Light Company	A3	Stable	457	463	26.6%	26.8%	18.5	23.1%	23.5%	31.3
Kentucky Power Company	Baa3	Stable	115	111	20.3%	19.9%	(40.4)	11.1%	10.7%	(34.5)
Kentucky Utilities Co.	A3	Stable	665	649	43.0%	42.7%	(22.9)	23.5%	22.9%	(56.2)
Metropolitan Edison Company	A3	Stable	269	279	32.9%	33.4%	49.6	23.8%	24.7%	91.1
Nevada Power Company	Baa1	Stable	608	611	29.4%	29.4%	6.1	21.3%	21.4%	9.6
NSTAR Electric Company	A1	Stable	832	803	29.2%	28.7%	(47.9)	23.3%	22.5%	(80.1)
Ohio Edison Company	A3	Stable	442	443	32.6%	32.6%	3.5	36.2%	36.3%	9.7
Ohio Power Company	A3	Stable	564	562	20.5%	20.5%	(4.7)	21.1%	21.0%	(7.7)
Oklahoma Gas & Electric Company	A3	Stable	729	710	36.4%	36.0%	(34.0)	21.8%	21.2%	(59.1)
Otter Tail Power Company	A3	Stable	125	118	32.2%	31.4%	(84.9)	18.3%	17.1%	(112.0)
PacifiCorp	A3	Stable	1,454	1,399	32.1%	31.6%	(51.4)	18.2%	17.5%	(68.3)
Pennsylvania Electric Company	Baa1	Stable	293	298	34.0%	34.3%	25.4	20.9%	21.3%	41.4
Portland General Electric Company	A3	Stable	698	688	40.5%	40.3%	(15.2)	23.1%	22.8%	(32.5)
Potomac Edison Company (The)	Baa2	Stable	105	110	13.0%	13.4%	43.1	16.7%	17.5%	73.5
Potomac Electric Power Company	Baa1	Stable	676	659	33.9%	33.6%	(32.2)	21.9%	21.4%	(53.5)
Public Service Company of New Hampshire	A3	Stable	295	294	31.5%	31.5%	(2.5)	17.2%	17.2%	(3.1)
Public Service Company of New Mexico	Baa2	Stable	210	200	22.5%	21.9%	(63.2)	10.5%	10.0%	(48.8)
Public Service Company of Oklahoma	Baa1	Stable	283	272	19.8%	19.3%	(49.1)	18.3%	17.6%	(69.8)
Sierra Pacific Power Company	Baa1	Stable	259	250	36.7%	36.2%	(41.9)	21.6%	20.9%	(72.4)
Southern California Edison Company	Baa2	Stable	3,171	3,012	27.3%	26.6%	(70.6)	18.3%	17.4%	(91.9)
Southwestern Electric Power Company	Baa2	Stable	401	388	26.8%	26.3%	(44.9)	13.4%	13.0%	(43.2)
Tampa Electric Company	A3	Positive	754	745	38.4%	38.3%	(14.0)	22.6%	22.4%	(27.2)
Toledo Edison Company	Baa1	Stable	116	115	26.7%	26.5%	(13.7)	25.6%	25.4%	(25.4)
Union Electric Company	(P)Baa1	Stable	1,040	1,017	33.5%	33.3%	(29.0)	22.1%	21.6%	(48.3)
United Illuminating Company	Baa1	Stable	282	282	35.5%	35.5%	(0.7)	25.2%	25.1%	(1.5)
Unitil Energy Systems, Inc	Baa1	Stable	26	26	17.0%	16.9%	(9.6)	20.0%	19.8%	(16.3)
UNS Electric, Inc.	A3	Stable	47	46	28.8%	28.6%	(20.5)	21.4%	21.1%	(31.7)
Virginia Electric and Power Company	A2	Stable	2,989	2,916	38.7%	38.4%	(28.4)	21.3%	20.8%	(51.9)
West Penn Power Company	A3	Stable	276	287	28.9%	29.4%	50.0	27.2%	28.3%	101.3
Wisconsin Electric Power Company	A2	Stable	609	580	21.4%	20.8%	(62.9)	10.5%	10.0%	(49.4)
				Weighted Average of 59 Companies*			(23.5)			(37.2)

*Weighted average based on debt outstanding
Source: Moody's Investors Service

Moody's related publications

Sector In-Depth

- Credit Conditions – Global: From synchronized downturn to uneven recovery: credit risks in turbulent times, 22 September 2020
- Regulated Electric and Gas Utilities – US: Continued decline in ROEs to heighten pressure on financial metrics, 17 April 2020
- Regulated electric and gas utilities – US: Grid hardening, regulatory support key to credit quality as climate hazards worsen, 2 March 2020
- Regulated electric utilities – US: Intensifying climate hazards to heighten focus on infrastructure investments, 16 January 2020
- Regulated electric and gas utilities – New York: Threat to revoke National Grid's operating license is credit negative for utilities, 18 November 2019
- Electric utilities and power producers – US: Power companies on pace to reduce CO2 emissions, 26 September 2019
- Utilities and power companies – North America: Corporate governance assessments show generally credit-friendly characteristics, 19 September 2019
- Regulated electric and gas utilities – US: Recent regulatory, legislative developments have been largely credit positive, 18 September 2019
- Regulated electric and gas utilities - North America: Free cash flow and capital allocation: external capital needs to decline in 2019, 12 August 2019

Sector Comments

- Regulated Electric and Gas Utilities – US: Coronavirus-fueled rise in unemployment will limit consumer tolerance for rate hikes, 17 April 2020
- Regulated Electric and Gas Utilities – US: Coronavirus recession will impact utility pension underfunding to varying degrees, 16 April 2020
- Infrastructure & Project Finance – Asia-Pacific: Heat map: Exposure to coronavirus disruption is low for 68% of issuers, 8 April 2020
- Regulated Electric, Gas and Water Utilities – US: Coronavirus outbreak delays rate cases, but regulatory support remains intact, 6 April 2020
- Regulated Electric and Gas Utilities – US: Dividends a major source of cash if coronavirus downturn is prolonged, 6 April 2020
- Regulated Electric and Gas Utilities – US: Utilities strengthen liquidity amid capital markets volatility, 6 April 2020
- Regulated Electric and Gas Utilities – US: FAQ on credit implications of the coronavirus outbreak, 26 March 2020
- Regulated Electric, Gas and Water Utilities - US: Utilities demonstrate credit resilience in the face of coronavirus disruptions, 18 March 2020

Outlooks

- Regulated Electric and Gas Utilities – US: 2021 outlook stable on strong regulatory support and robust residential demand, 29 October 2020
- Global Macro Outlook 2020-21 (August 2020 Update): Economic recovery remains tenuous as pandemic fears persist, 25 August 2020

REPORT NUMBER 1232688

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EMEA	44-20-7772-5454

INFRASTRUCTURE AND PROJECT FINANCE

MOODY'S
INVESTORS SERVICE

SECTOR COMMENT
6 April 2020

Rate this Research

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Regulated Electric, Gas and Water Utilities – US

Coronavirus outbreak delays rate cases, but regulatory support remains intact

The coronavirus (COVID-19) pandemic is creating logistical and social challenges for US regulated utility rate case proceedings. Electric, gas and water utilities will likely see the schedules associated with 2020 rate case proceedings postponed or delayed. In addition, we will likely see the schedules of other regulatory proceedings, open meetings, investigations or other open dockets pushed back. For many utilities, the timely conclusion of a rate case is important for earnings and cash flow, which helps fund operations, capital investing and dividends to shareholders.

When considering the short-term credit implications of coronavirus-related regulatory delays, we will view any modest weakening in financial metrics as temporary and not detrimental to long-term credit quality, unless it is accompanied by a more contentious regulatory or political environment. We will continue to expect utilities to make proactive financial policy adjustments if the dip is material, or appears likely to remain for an extended period of time. For now, we expect state regulatory commissions to continue to provide a broad suite of timely cost recovery mechanisms and to address current challenges like lost revenue and incremental expenses. As a result, we think the overall relationship with the sector remains supportive.

Still, the prospects for political intervention in the rate-making process will rise and will likely be credit positive for the sector. We think state legislatures and governors will look to provide regulators with additional flexibility to reduce their docket backlog. Utility rate proceedings are complex, time-consuming and require public hearings, making them difficult to process in a remote environment. So changes need to be codified. There is also the possibility that broader political intervention becomes credit negative, since social risks will rise as high unemployment levels make rate increases less politically palatable. (See the National Association of Regulatory Utility Commissioners' State Response Tracker.)

The New York Public Service Commission has already approved multiple revenue deferral orders, allowing Niagara Mohawk Power Corporation (A3 stable) to delay about $110 million in electric and gas revenue increases by three months to 1 July 2020 and American Water Works Company Inc. (AWK, Baa1 stable) subsidiary New York American Water Company to defer a roughly $4 million revenue increase by five months to 1 September 2020. (AWK expects to complete the planned sale of its New York subsidiary to Algonquin Power & Utilities Corp. subsidiary Liberty Utilities in the second half of this year.)

Along similar lines, Avangrid Inc. (Baa1 negative) subsidiaries New York State Electric & Gas Corporation (A3 stable) and Rochester Gas & Electric Corporation (A3 stable) are seeking suspension of their electric and gas cases through 13 September 2020. We note that all of these filings were proposed by the utilities, as they try to do their part in reducing any near-term financial burdens on customers during the critical months of the COVID-19 pandemic. Furthermore, National Grid Plc (Baa1 stable) subsidiaries KeySpan Gas East Corporation (A3 negative) and The Brooklyn Union Gas Company (A3 negative) had their rate cases extended to 1 August 2020 in January, following the fourth one-month extension being granted (we now expect the order to come in July). Several other companies across the US have made similar requests of their respective regulators.

Rate case delays that help stakeholders are not new for the sector. We see these regulatory delays as a social benefit and view the actions as prudent corporate governance. Over the long-term, these actions often enhance financial strategy, risk management and customer relations.

We will generally try to see through one- or two-year drags on financial metrics due to these delays. We assume that the pandemic will be contained by then, that economic activity will recover and that the rate increases will eventually be approved, including some of the lost revenues associated with the delay. However, if the US economic downturn were to be protracted, it could have negative credit implications for certain utilities, such as those that have been operating with leverage that we had already considered high before the outbreak.

Exhibit 1

Utilities with rate cases that were expected to be completed in 2020 or the first quarter of 2021

Rate filing data as of 31 March 2020 and (CFO pre-WC)/debt as of year-end 2019 or available LTM

State	Company	Rating	Outlook	Expected Decision Date	Original Revenue Request ($M)	Revenue Requested / Total Rev of Utility	Revenue Requested / Total Rev of Parent	Utility CFO Pre-WC / Debt	Utility Downgrade Trigger
MI	DTE Gas Company	A3	Stable	Sep-20	$ 203.8	13.7%	1.6%	15.7%	15%
NJ	South Jersey Gas Company	A3	Negative	Dec-20	$ 75.3	13.2%	4.6%	11.1%	15%
IN	Duke Energy Indiana, LLC.	A2	Stable	Apr-20	$ 394.6	13.1%	1.6%	23.1%	22%
CA	Southern California Edison Company	Baa2	Stable	Dec-20	$ 1,319.4	10.7%	10.7%	(2.1%)	15%
NJ	Jersey Central Power & Light Company	Baa1	Rating(s) Under Review	Nov-20	$ 186.9	10.2%	1.7%	23.2%	17%
NY	New York State Electric and Gas Corporation	A3	Stable	Jul-20	$ 162.7	10.2%	2.6%	19.9%	18%
NC	Duke Energy Progress, LLC	A2	Stable	May-20	$ 586.0	9.8%	2.3%	22.4%	20%
OR	Northwest Natural Gas Company	Baa1	Stable	Oct-20	$ 71.4	9.7%	9.7%	18.3%	14%
KY	Duke Energy Kentucky, Inc.	Baa1	Stable	Apr-20	$ 45.6	9.5%	0.2%	17.2%	15%
NY	Brooklyn Union Gas Company, The	A3	Negative	May-20	$ 179.8	9.4%	1.4%	8.6%	17%
LA	Cleco Power LLC	A3	Stable	N/A	$ 109.6	9.4%	6.7%	20.3%	20%
AZ	Tucson Electric Power Company	A3	Stable	May-20	$ 114.9	8.1%	1.7%	22.6%	22%
TX	Southwestern Public Service Company	Baa2	Stable	Sep-20	$ 136.5	7.5%	1.2%	18.1%	18%
PA	UGI Utilities, Inc.	A2	Stable	Oct-20	$ 74.6	7.1%		20.8%	20%
DC	Potomac Electric Power Company	Baa1	Stable	Oct-20	$ 157.9	7.0%	0.5%	18.8%	14%
AZ	Southwest Gas Corporation	A3	Negative	May-20	$ 93.3	6.8%	3.0%	14.6%	17%
MI	DTE Electric Company	A2	Stable	May-20	$ 343.2	6.6%	2.7%	21.1%	20%
NH	Public Service Company of New Hampshire	A3	Stable	May-20	$ 69.3	6.5%	0.8%	14.5%	18%
NC	Duke Energy Carolinas, LLC	A1	Stable	Apr-20	$ 464.7	6.3%	1.9%	25.9%	25%
MN	ALLETE, Inc.	Baa1	Stable	Dec-20	$ 65.9	5.3%	5.3%	18.6%	19%
NY	Rochester Gas & Electric Corporation	A3	Stable	Jul-20	$ 38.7	4.2%	0.6%	18.2%	17%
WA	Puget Sound Energy, Inc.	Baa1	Stable	May-20	$ 138.4	4.1%	4.1%	15.1%	20%
IL	Ameren Illinois Company	A3	Stable	Jan-21	$ 102.0	4.0%	1.7%	25.3%	19%

Revenue requests represent the original filing and do not reflect settlement amounts or revised filing requests, which we expect to occur on a case-by-case basis.
Sources: Standard & Poor's Global Market Intelligence and Moody's Investors Service

Exhibit 2

Utilities with rate cases that were expected to be completed in 2020 or the first quarter of 2021

Rate filing data as of 31 March 2020 and (CFO pre-WC)/debt as of year-end 2019 or available LTM

State	Company	Rating	Outlook	Expected Decision Date	Original Revenue Request ($M)	Revenue Requested / Total Rev of Utility	Revenue Requested / Total Rev of Parent	Utility CFO Pre-WC / Debt	Utility Downgrade Trigger
ME	Northern Utilities, Inc.	Baa1	Stable	Mar-20	$ 7.1	4.0%	1.6%	23.0%	17%
MO	Empire District Electric Company (The)	Baa1	Stable	Jun-20	$ 26.5	4.0%		25.2%	17%
MI	Consumers Energy Company	Aa3	Stable	Oct-20	$ 244.7	3.8%	3.6%	20.1%	20%
MI	Consumers Energy Company	Aa3	Stable	Dec-20	$ 244.4	3.8%	3.6%	20.1%	20%
CO	Public Service Company of Colorado	A3	Stable	Sep-20	$ 144.5	3.4%	1.3%	22.1%	20%
NY	KeySpan Gas East Corporation	A3	Negative	May-20	$ 38.8	3.1%	0.3%	16.1%	17%
HI	Hawaiian Electric Company, Inc.	Baa2	Positive	N/A	$ 77.6	3.0%	2.7%	21.4%	15%
DC	Washington Gas Light Company	A3	Stable	Dec-20	$ 35.2	2.6%	1.4%	15.4%	18%
NV	Southwest Gas Corporation	A3	Negative	Aug-20	$ 35.2	2.6%	1.1%	14.6%	17%
NM	Southwestern Public Service Company	Baa2	Stable	Apr-20	$ 46.6	2.6%	0.4%	18.1%	18%
MA	Fitchburg Gas & Electric Light Company	Baa1	Stable	Oct-20	$ 2.7	2.5%	0.6%	23.1%	17%
AZ	Arizona Public Service Company	A2	Negative	Dec-20	$ 68.6	2.0%	2.0%	23.4%	22%
WA	Puget Sound Energy, Inc.	Baa1	Stable	May-20	$ 65.5	1.9%	1.9%	15.1%	20%
DE	Delmarva Power & Light Company	Baa1	Stable	Oct-20	$ 24.3	1.9%	0.1%	17.2%	15%
OR	PacifiCorp	A3	Stable	Dec-20	$ 78.0	1.5%	0.4%	18.4%	20%
MD	Delmarva Power & Light Company	Baa1	Stable	Jul-20	$ 17.3	1.3%	0.1%	17.2%	15%
DE	Delmarva Power & Light Company	Baa1	Stable	Sep-20	$ 14.6	1.1%	0.0%	17.2%	15%
MN	CenterPoint Energy Resources Corp.	Baa1	Positive	Nov-20	$ 62.0	0.9%	0.5%	18.7%	17%
VA	Kentucky Utilities Co.	A3	Stable	Apr-20	$ 12.7	0.7%	0.2%	23.1%	20%
OR	Avista Corp.	Baa2	Stable	Dec-20	$ 6.8	0.5%	0.5%	15.0%	14%
CA	Southwest Gas Corporation	A3	Negative	Feb-21	$ 6.8	0.5%	0.2%	14.6%	17%
WY	Questar Gas Company	A3	Stable	Sep-20	$ 3.5	0.4%	0.0%	22.1%	16%
CA	Southwest Gas Corporation	A3	Negative	Feb-21	$ 4.5	0.3%	0.1%	14.6%	17%
NY	New York State Electric and Gas Corporation	A3	Stable	Jul-20	$ 4.1	0.3%	0.1%	19.9%	19%
NV	Southwest Gas Corporation	A3	Negative	Aug-20	$ 3.1	0.2%	0.1%	14.6%	17%
WY	PacifiCorp	A3	Stable	Jan-21	$ 7.1	0.1%	0.0%	18.4%	20%
CA	Southwest Gas Corporation	A3	Negative	Feb-21	$ 1.5	0.1%	0.0%	14.6%	17%
WA	PacifiCorp	A3	Stable	Nov-20	$ 3.1	0.1%	0.0%	18.4%	20%
OK	CenterPoint Energy Resources Corp.	Baa1	Positive	Jun-20	$ 2.0	0.0%	0.0%	18.7%	17%
NY	Rochester Gas & Electric Corporation	A3	Stable	Jul-20	$ (1.8)	(0.2%)	(0.0%)	18.2%	19%

Revenue requests represent the original filing and do not reflect settlement amounts or revised filing requests, which we expect to occur on a case-by-case basis.
Source: Standard & Poor's Global Market Intelligence and Moody's Investors Service

Moody's related publications

Sector Comments

- Regulated Electric and Gas Utilities – US: FAQ on credit implications of the coronavirus outbreak, March 2020
- Regulated Electric, Gas and Water Utilities - US: Utilities demonstrate credit resilience in the face of coronavirus disruptions, March 2020
- Credit Conditions – Global: Coronavirus and oil price shocks: managing ratings in turbulent times, March 2020
- Regulated electric utilities – North America: Bill proposing fines for power shutoffs is credit negative for California utilities, January 2020
- Regulated electric and gas utilities – US: California's wildfire fund is sufficiently capitalized to pay out claims, November 2019
- Regulated electric and gas utilities – New York: Threat to revoke National Grid's operating license is credit negative for utilities, November 2019

Sector In-Depth

- Regulated electric and gas utilities – US: Grid hardening, regulatory support key to credit quality as climate hazards worsen, March 2020
- Regulated electric utilities – US: Intensifying climate hazards to heighten focus on infrastructure investments, January 2020
- Regulated electric and gas utilities – New York: Threat to revoke National Grid's operating license is credit negative for utilities, November 2019
- Electric utilities and power producers – US: Power companies on pace to reduce CO2 emissions, September 2019
- Utilities and power companies – North America: Corporate governance assessments show generally credit-friendly characteristics, September 2019
- Regulated electric and gas utilities – US: Recent regulatory, legislative developments have been largely credit positive, September 2019
- Regulated electric and gas utilities - North America: Free cash flow and capital allocation: external capital needs to decline in 2019, August 2019
- Regulated electric utilities – US: Proposed California wildfire risk legislation is credit positive but questions remain, July 2019
- Electric and gas – US: Pipeline cybersecurity standards help plug security loophole in utility supply chain, July 2019
- Regulated water utilities - US: M&A expands to cross-sector deals, with mixed credit implications for acquirers, March 2019
- Regulated Utilities and Power - US: PG&E bankruptcy highlights environmental, social and governance risks in California, February 2019

Outlooks

- Global Macro Outlook 2020-21 (March 25, 2020 Update): The coronavirus will cause unprecedented shock to the global economy, March 2020
- Regulated electric and gas utilities – US: 2020 outlook moves to stable on supportive regulation, weaker but steady credit metrics, November 2019

REPORT NUMBER 1221219

LOUISVILLE GAS AND ELECTRIC COMPANY

Response to First Request for Information of the
United States Department of Defense and All Other Federal Executive Agencies
Dated January 8, 2021

Case No. 2020-00350

Question No. 35

Responding Witness: Daniel K. Arbough

Q-1-35. Please provide the most recent senior secured, unsecured and corporate credit ratings and outlook of LGE assigned by S&P, Moody's and Fitch. Also, please provide their S&P business and financial risk profiles.

A-1-35. See the response to AG-KIUC 1-104.

LOUISVILLE GAS AND ELECTRIC COMPANY

Response to First Request for Information of the
United States Department of Defense and All Other Federal Executive Agencies
Dated January 8, 2021

Case No. 2020-00350

Question No. 36

Responding Witness: Daniel K. Arbough

Q-1-36. Please provide all copies of all correspondence, presentations and all other materials that LGE provided to credit and equity analysts over the last two years.

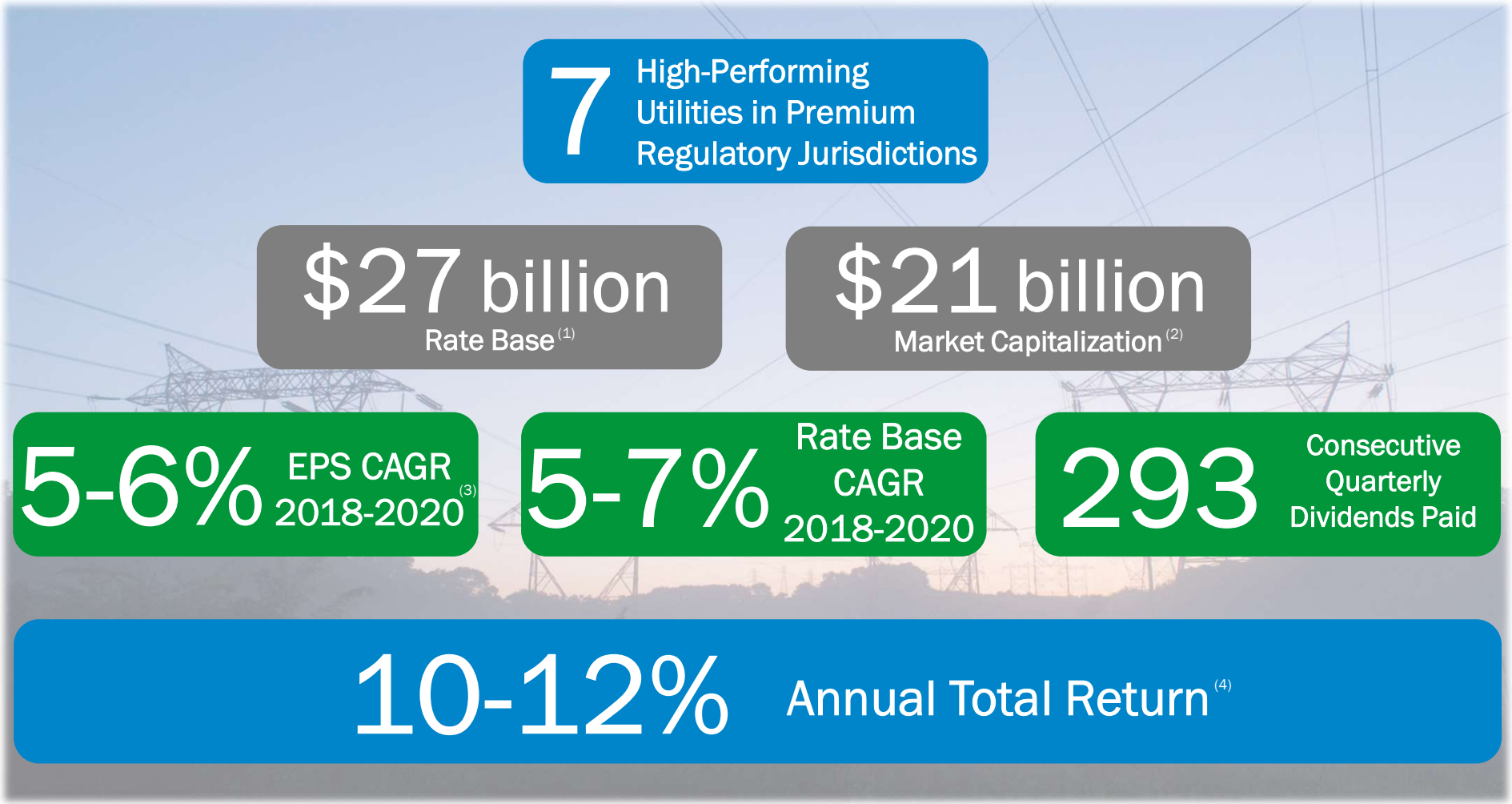
A-1-36. See attached for copies of the 2019 presentations to rating agencies. There was no presentation made in 2020. Portions of the rating agencies presentations that are nonresponsive to the request have been redacted. See the link below for presentations to investors.

Presentations to Investors
https://pplweb.investorroom.com/events

Moody's Investors Service

July 16, 2019

PPL Investment Proposition



(1) Actual as of December 31, 2018. Represents Regulatory Asset Value (RAV) for the U.K. and utility capitalization for Kentucky. U.K. based on exchange rate of $1.35/£.
(2) As of May 31, 2019. Does not reflect $1.2 billion of equity to be issued under the previously announced equity forward agreement entered into May 2018.
(3) EPS growth rate based on the midpoint of the original 2018 ongoing earnings guidance range of $2.20 - $2.40 per share.
(4) Annual total return is the combination of projected annual EPS growth and dividend yield as of May 31, 2019.

Premium Regulatory Jurisdictions

Pennsylvania

PPL Electric Utilities

- FERC Formula Transmission Rates for ~50% of rate base
  - 11.68% allowed ROE
- Constructive Distribution Regulatory Mechanisms
  - Smart Meter Rider, Storm Cost Recovery, DSIC[1]
- Forward Test Year for Distribution rate cases
- Alternative Ratemaking[2]

Kentucky

Louisville Gas & Electric (LG&E) and Kentucky Utilities (KU)

- 9.725% allowed ROE
- Environmental Cost Recovery (ECR) Mechanism[3]
- Forward Test Year for base rate cases
- Fuel Adjustment Clause
- Gas Line Tracker

United Kingdom

WPD East and West Midlands, South West and South Wales

- Pre-approved plan with base revenues set for 8 years; through March 2023[4]
- Real-time recovery of capex
- Incentive revenues available for strong performance and innovation
- Mechanism to retain 70% of cost efficiencies

(1) DSIC – Distribution System Improvement Charge: automatic adjustment charge that enables PPL to recover certain infrastructure improvement costs between base rate cases.
(2) In June 2018, Pennsylvania passed Act 58, which allows for alternative ratemaking in the state.
(3) Kentucky ECR provides near real-time recovery for approved environmental projects on the coal fleet.
(4) RIIO-ED1 Price Control extends through March 31, 2023.

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~$3 billion annually *Investing capital to modernize and strengthen grid resilience*

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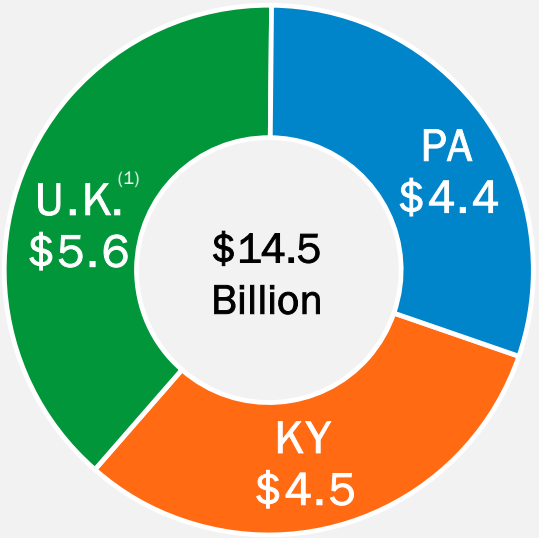
Robust 5-Year Capital Plan (2019-2023)

($ in billions)



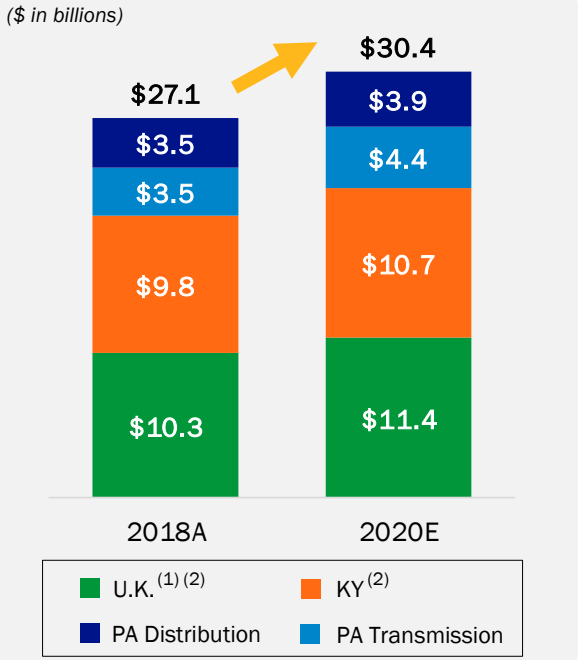
(1) U.K. capital plan is based on assumed exchange rates of $1.35/£ for 2019 and $1.40/£ for 2020-2023.

Prudent Investments, Timely Recovery Drive 5-6% EPS Growth Through 2020

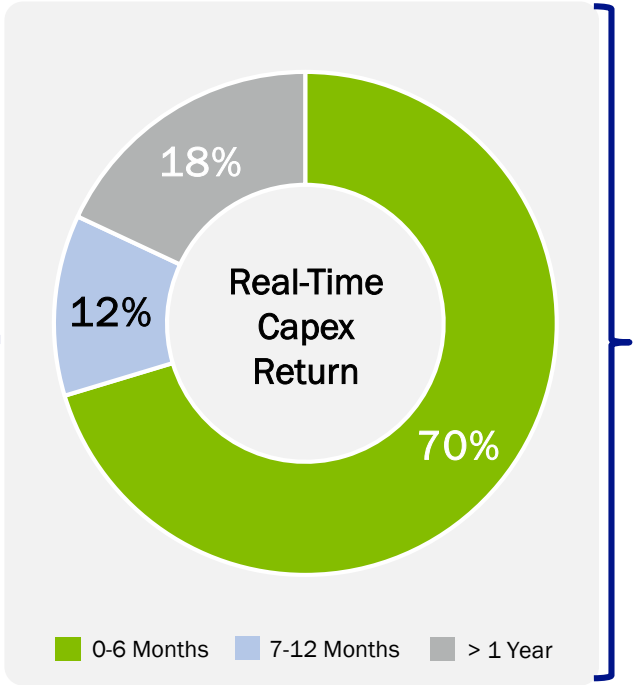
Strong Rate Base Growth

Supported by constructive regulatory recovery mechanisms

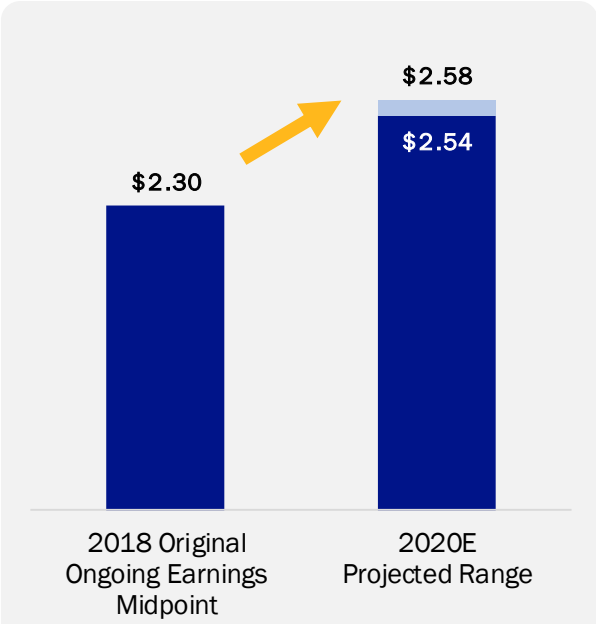
5-7% CAGR
Rate Base CAGR 2018-2020



~80% Capex
Earns Return within 1 year



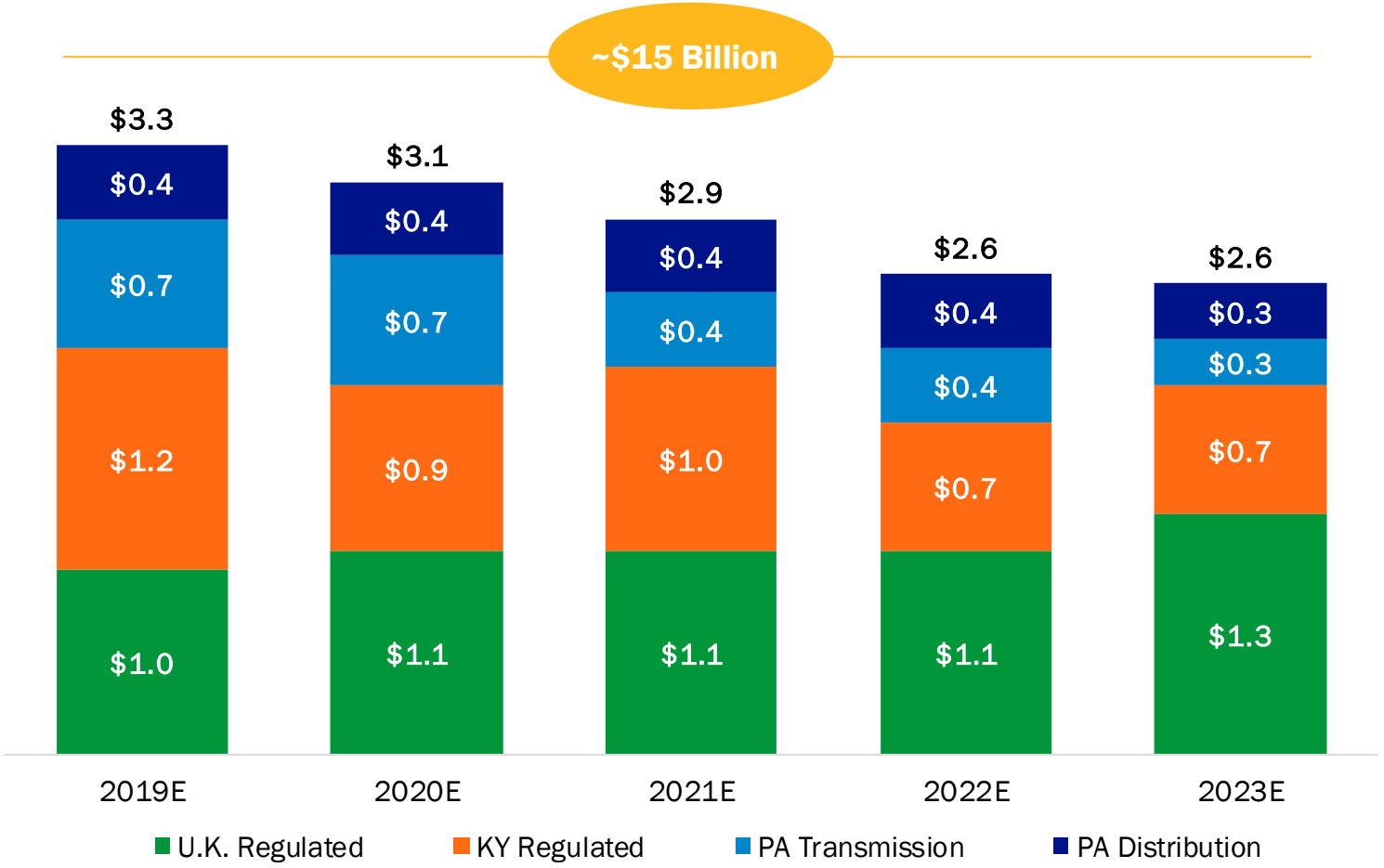
EPS Growth
2018-2020



(1) Based on exchange rate of $1.35/£ in all years for comparability purposes.
(2) Represents Regulatory Asset Value (RAV) for U.K. Represents utility capitalization for KY.

Capital Expenditure Plan

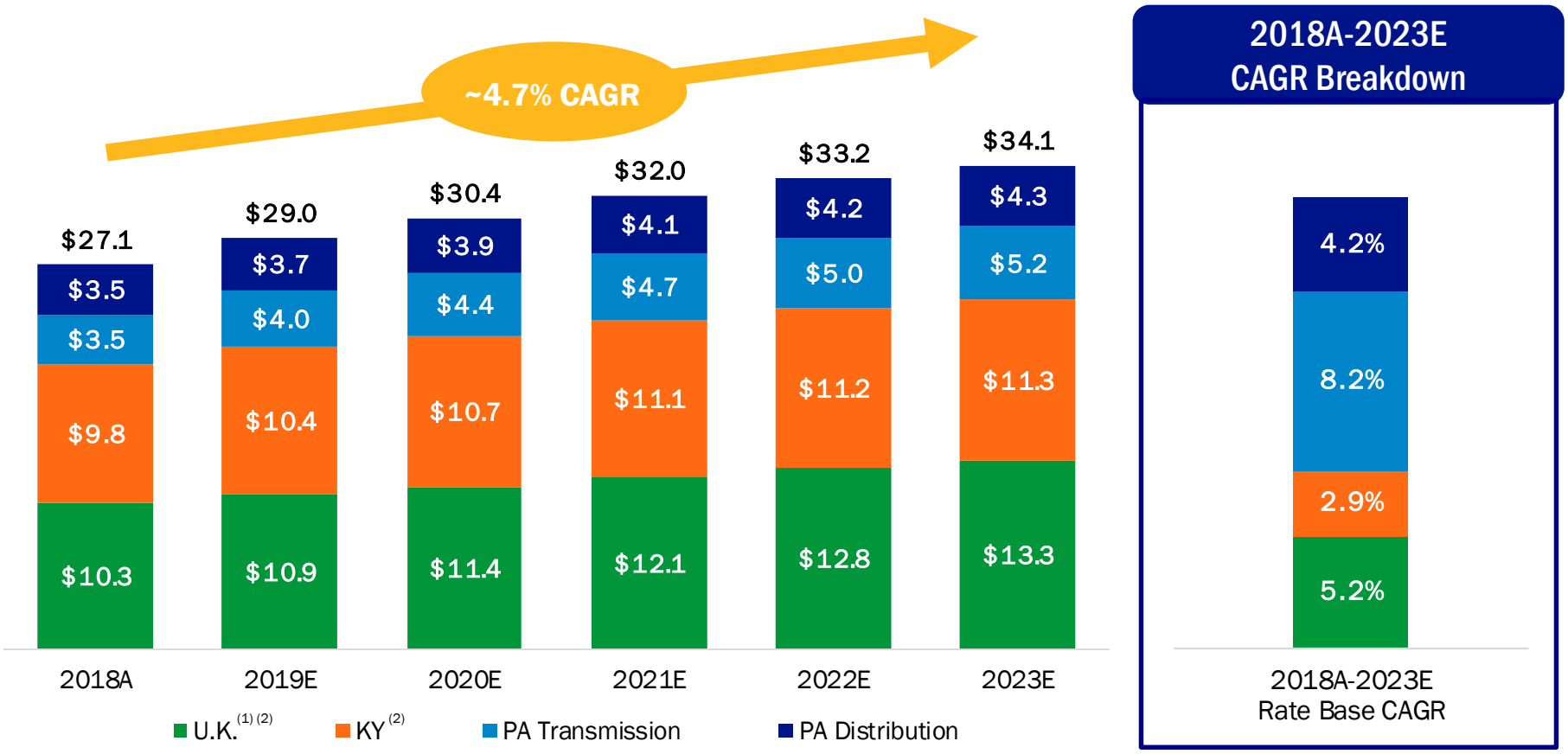
($ in billions)



Note: U.K. capital plan is based on assumed exchange rates of $1.35/£ for 2019 and $1.40/£ for 2020-2023.

Projected Rate Base Growth

($ in billions)



(1) Based on assumed exchange rate of $1.35/£ in all years for comparability purposes.
(2) Represents Regulatory Asset Value (RAV) for U.K. and utility capitalization for KY.

Pennsylvania Regulated Overview

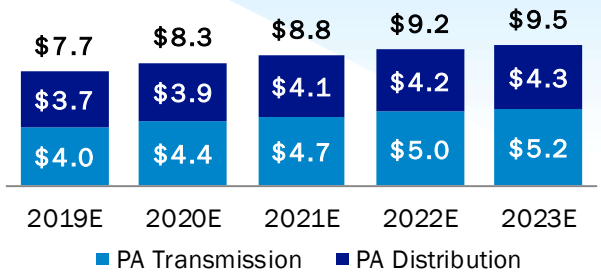
$7 billion
Rate Base [1]

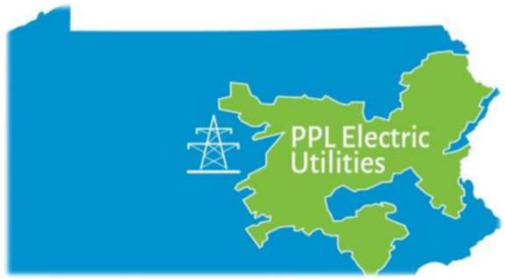
1.4 million
Customers

$4.4 billion
Capex Plan

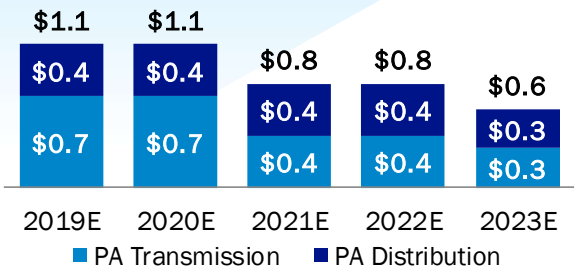
($ in billions)

6.3% CAGR 2018A-2023E





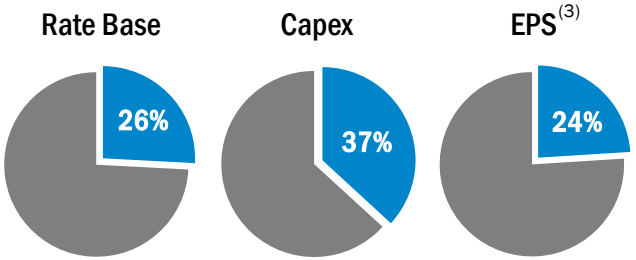
($ in billions)



PA Segment Highlights [1]

- Services provided:
  - Electric Distribution, Electric Transmission
- Service area: 10,000 square miles
- Electricity delivered: 37,497 GWh
- Operating revenues: $2.3 billion
- Net income: $431 million

PA Segment Proportion of PPL [2]



Regulatory Attributes

- FERC Formula Rates
- DSIC Mechanism [4]
- Smart Meter Rider
- Storm Cost Recovery
- Forward Test Year for Distribution rate cases
- Alternative Ratemaking
- Strong regulatory track record with PA PUC

(1) Actual as of December 31, 2018.
(2) Proportions based on 2018 year end actuals.
(3) Represents Earnings from Ongoing Operations, includes allocation from Corporate and Other for comparative purposes.
(4) DSIC – Distribution System Improvement Charge: automatic adjustment charge that enables PPL to recover certain infrastructure improvement costs between base rate cases.

Kentucky Regulated Overview

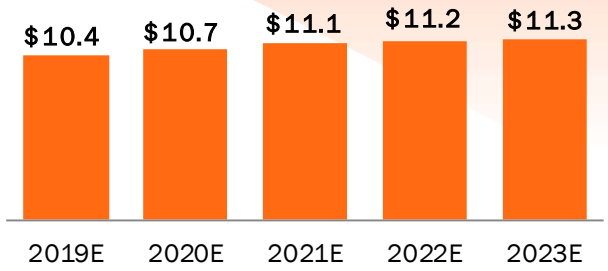
$9.8 billion
Rate Base [1]

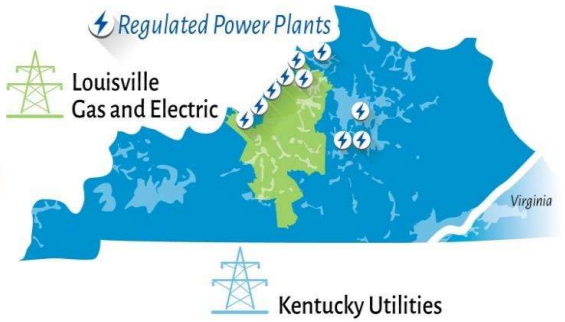
1.3 million
Customers

$4.5 billion
Capex Plan

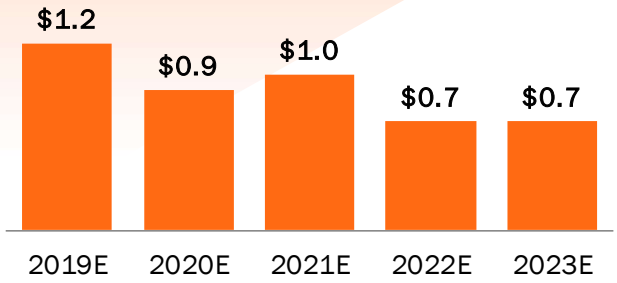
($ in billions)

2.9% CAGR 2018A-2023E





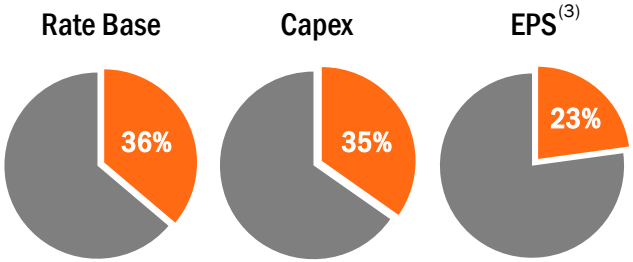
($ in billions)



KY Segment Highlights [1]

- Services provided:
  - Electric Distribution, Electric Transmission, Gas Distribution, Regulated Generation
- Service area: 9,400 square miles
- Electricity delivered: 33,650 GWh
- Operating revenues: $3.2 billion
- Net income: $411 million
- Operate approx. 8,000 MW of generation

KY Segment Proportion of PPL [2]



Regulatory Attributes

- Environmental Cost Recovery (ECR) Mechanism [4]
- Fuel Adjustment Clause
- Gas Line Tracker
- Forward Test Year for base rate cases
- Very competitive retail rates
- Strong regulatory track record with KPSC

(1) Actual as of December 31, 2018. Represents utility capitalization for Kentucky.
(2) Proportions based on 2018 year end actuals.
(3) Represents Earnings from Ongoing Operations, includes allocation from Corporate and Other for comparative purposes.
(4) Kentucky ECR provides near real-time recovery for approved environmental projects on the coal fleet.

U.K. Regulated Overview

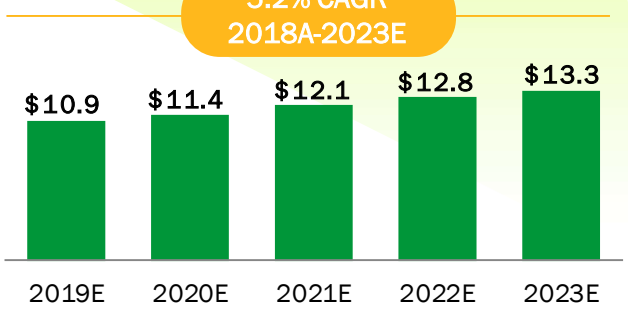
$10.3 billion [1]
Rate Base [2]

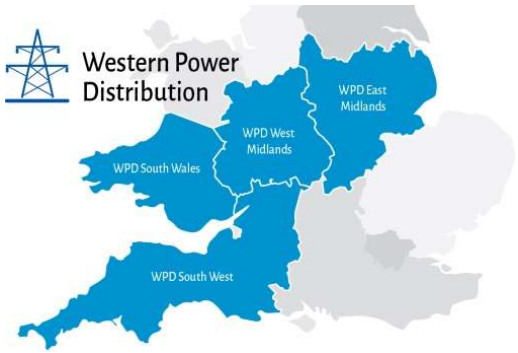
7.9 million
Customers

$5.6 billion
Capex Plan [5]

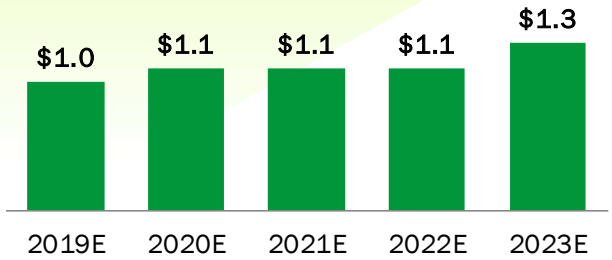
($ in billions)

5.2% CAGR 2018A-2023E





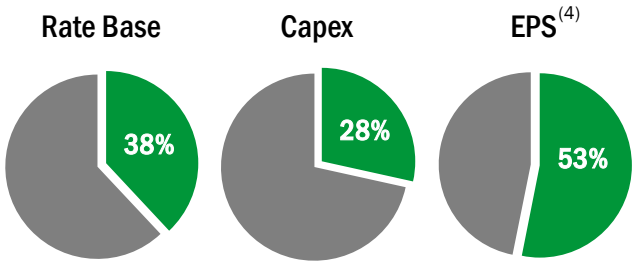
($ in billions)



U.K. Segment Highlights [1]

- Services provided:
  - Electric Distribution
- Service area: 21,600 square miles
- Electricity delivered: 74,181 GWh
- Operating revenues: $2.3 billion
- Net income: $1,114 million
- U.K.'s largest distribution network operator

U.K. Segment Proportion of PPL [3]



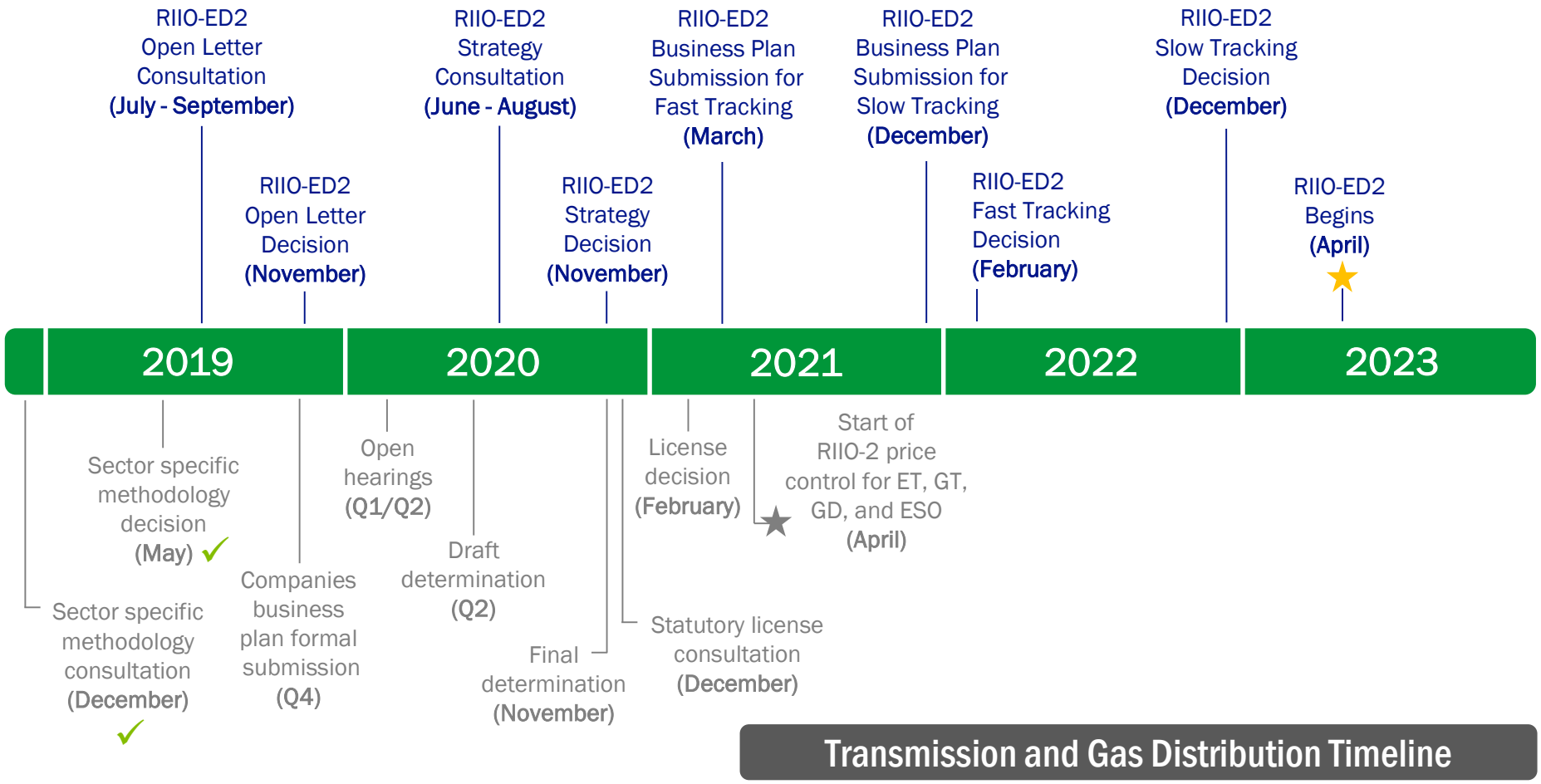
Regulatory Attributes

- Pre-approved plan with base revenues set for 8 years; through March 2023
- Accelerated recovery of RAV
- Inflation indexed revenue model
- Real-time recovery of capex
- Performance incentives drive improvement
- 70% of cost efficiencies retained by company
- Strong regulatory track record with Ofgem

(1) Actual as of December 31, 2018.
(2) Represents Regulatory Asset Value (RAV) for the U.K. For comparability reflects exchange rate of $1.35/£ for all years.
(3) Proportions based on 2018 year end actuals.
(4) Represents Earnings from Ongoing Operations, includes allocation from Corporate and Other for comparative purposes.
(5) Capital plan is based on assumed exchange rate of $1.35/£ for 2019 and $1.40/£ for 2020-2023.

U.K. Regulated: RIIO-2 Projected Timelines

Electricity Distribution Timeline[1]



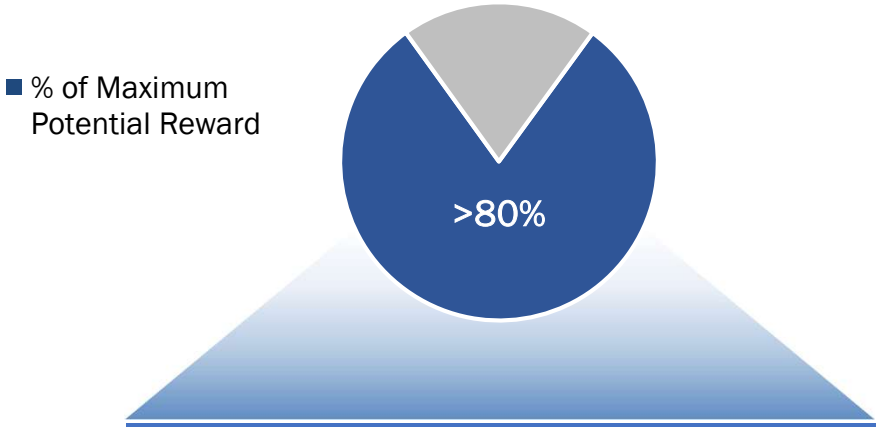
Transmission and Gas Distribution Timeline

(1) Ofgem will consult on the need for Fast Tracking in RIIO-ED2 as part of the strategy consultation in June 2020. The electricity distribution timeline shown here represents the events following an Ofgem decision that allows Fast Tracking.

U.K. Regulated Incentive Revenues

WPD continues to demonstrate how premier network operators deliver value for customers and shareowners

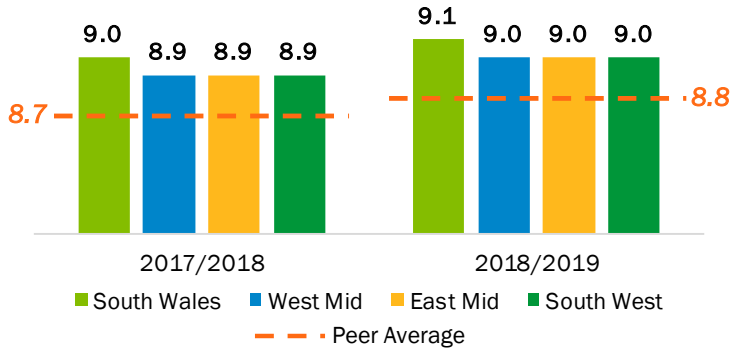
2018/19 Earned Incentive Revenue Summary (1)



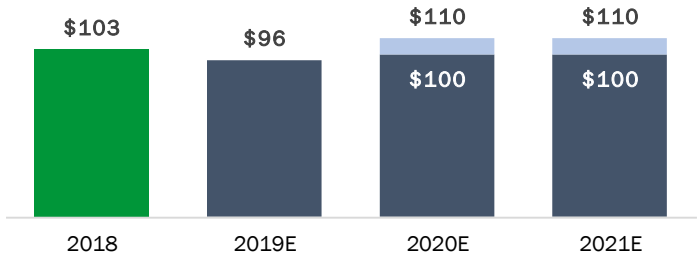
Incentive	Reward
($ in millions)	
Customer Interruptions/CML	$76
Customer Satisfaction	28
Time to Connect	8
Total 2018/19 Incentive Revenue	**$112**

Excellent Customer Satisfaction Ratings

Customer Service Rating (10 point scale)



Incentive Revenues (2)



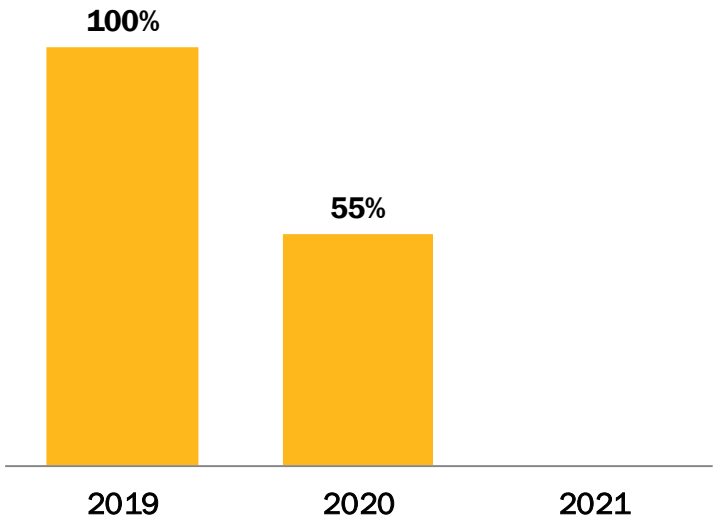
(1) Based on exchange rate of $1.35/£. Rewards earned in 2018/19 are received in the 2020/21 regulatory year. Values are estimates and are expected to be finalized in the Ofgem annual report, which is expected to be released in Q4 2019.

(2) Based on calendar year revenues on an exchange rate of $1.35/£ in all years for comparability purposes. The annual incentives are reflected in customer rates on a two-year lag from the time they are earned.

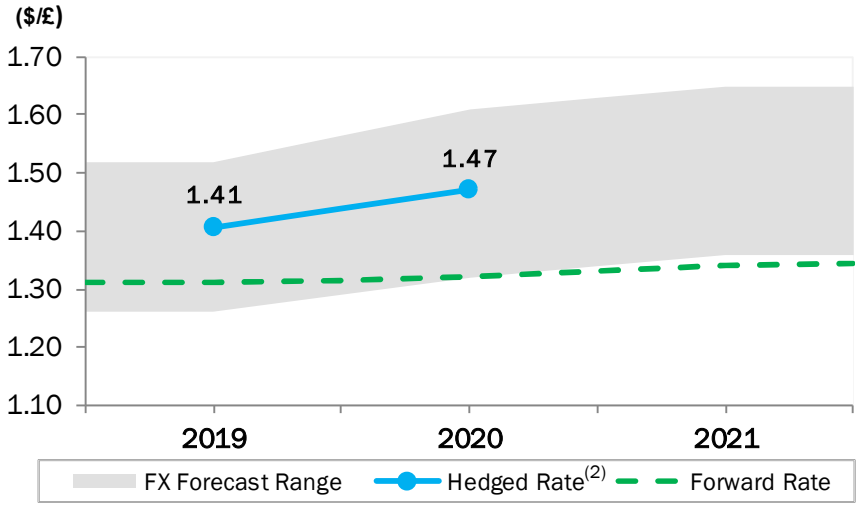
Foreign Currency Update

PPL uses a disciplined approach to hedging foreign currency risk

Foreign Currency Hedge Status (1)



Forward Foreign Currency Rates



Note: Forward FX rates sourced from Bloomberg as of April 29, 2019. Forecast range reflects views from up to 14 financial institutions and does not represent PPL's internal forecast. Not all institutions provide forecasts for all periods.

(1) PPL's foreign currency hedge status as of April 29, 2019.
(2) Hedge rates reflect a combination of average-rate forwards and options. Average hedge rates based on the average forward rate and the average floor in the options.

Debt Maturities

($ in Millions)	2019	2020	2021	2022	2023	2024 and Beyond	Total
PPL Capital Funding	$0	$0	$0	$800	$600	$3,130	$4,530
PPL Electric Utilities[(1)]	0	100	400	474	90	2,675	3,739
LG&E and KU Energy	0	475	250	0	0	0	725
Louisville Gas & Electric[(1)(2)]	106	0	226	0	0	1,493	1,824
Kentucky Utilities[(1)(3)]	96	500	0	0	13	1,733	2,342
WPD plc	0	0	500	0	663	666	1,829
WPD Operating Companies[(4)]	0	199	0	0	928	4,858	5,986
Total	**$202**	**$1,274**	**$1,376**	**$1,274**	**$2,294**	**$14,555**	**$20,975**

Note: As of March 31, 2019.

(1) Amounts reflect the timing of any put option on municipal bonds that may be put by the holders before the bonds' final maturities.

(2) In April 2019, $128 million of Pollution Control Revenue Bonds issued on behalf of LG&E with a put date of April 1, 2019 were remarketed and now carry a mandatory put date of April 1, 2021. LG&E also issued $400 million of First Mortgage bonds due 2049 and repaid its $200 million term loan due 2019.

(3) In April 2019, KU issued an additional $300 million of its existing First Mortgage Bonds due 2045.

(4) Includes WPD (East Midlands) plc, WPD (West Midlands) plc, WPD (South Wales) plc and WPD (South West) plc.

Liquidity Profile

Entity	Facility	Expiration Date	Capacity (Millions)	Borrowed (Millions)	Letters of Credit & Commercial Paper Issued (Millions)	Unused Capacity (Millions)
PPL Capital Funding	Syndicated Credit Facility	Jan-2024	$1,450	$0	$968	$482
	Bilateral Credit Facility	Mar-2020	100	0	15	85
			$1,550	$0	$983	$567
PPL Electric Utilities	Syndicated Credit Facility	Jan-2024	$650	$0	$61	$589
Louisville Gas & Electric	Syndicated Credit Facility(1)	Jan-2024	$500	$0	$269	$231
	Term Loan Facility(1)	Oct-2019	200	200	0	0
			$700	$200	$269	$231
Kentucky Utilities	Syndicated Credit Facility(2)	Jan-2024	$400	$0	$233	$167
	Letter of Credit Facility	Oct-2020	198	0	198	0
			$598	$0	$431	$167
WPD	WPD plc Syndicated Credit Facility(3)	Jan-2023	£210	£151	£0	£57
	WPD (South West) Syndicated Credit Facility	Jul-2021	245	0	0	245
	WPD (East Midlands) Syndicated Credit Facility	Jul-2021	300	99	0	201
	WPD (West Midlands) Syndicated Credit Facility	Jul-2021	300	0	0	300
	Uncommitted Credit Facilities		100	0	4	96
			£1,155	£250	£4	£899

Note: As of March 31, 2019.

(1) In April 2019, LG&E issued $400 million of First Mortgage Bonds due 2049. The proceeds from this issuance were used to repay $200 million of commercial paper under its syndicated credit facility and to fully repay its term loan facility.

(2) In April 2019, KU issued $300 million of First Mortgage Bonds due 2045. A portion of the proceeds from this issuance were used to fully repay commercial paper under its syndicated credit facility.

(3) The unused capacity reflects the amount borrowed in GBP of £153 million as of the date borrowed.

PPL Investment Summary

- Pure-play regulated business operating in premium jurisdictions
- Strong operational performance and history of prudent investments support constructive regulatory relationships
- Competitive projected earnings growth of 5-6% through 2020[(1)]
- Solid, secure dividend with commitment to future growth and an attractive 5.5% dividend yield[(2)]
- Proven track record of delivering commitments to shareowners and customers

(1) EPS growth rate based on the midpoint of the original 2018 ongoing earnings guidance range of $2.20 - $2.40 per share.
(2) Based on dividend yield as of May 31, 2019.

Sustainability Highlights

PPL's Sustainability Commitments

Energy and Environment

Advance a cleaner energy future

Encourage responsible stewardship in partnership with our customers and stakeholders to have a sustainable environmental impact

Build tomorrow's energy infrastructure

Invest in tomorrow's energy infrastructure by developing a more reliable, resilient and efficient grid that enables continued progress and a cleaner energy future

Social Responsibility

Exceed customer expectations

Provide energy safely, reliably and in an environmentally responsible manner at the lowest reasonable cost

Foster an exceptional workplace

Cultivate success by energizing an inclusive, respectful and diverse workplace that rewards performance, fosters professional development, encourages employee engagement and enables employees to achieve their full potential

Strengthen communities

Empower the success of future generations by helping to build strong communities today

Governance and Management

Create extraordinary shareowner value

Create long-term value for shareowners through fiscal discipline, continuous improvement, environmental stewardship and enduring strategic investments

Drive best-in-sector operational performance

Excel in safety, reliability, customer responsiveness and energy efficiency while maintaining a culture that fosters innovation

70%
Goal to cut the company's carbon dioxide emissions from 2010 levels by 2050

900 MW
Approximate megawatts of coal capacity retired in Kentucky 2010 - 2018

547M kWh
Amount of electricity saved from energy efficiency programs across PPL's utilities

700
Number of electric vehicle users who participated in Electric Nation, a two-year trial of home charging in the U.K.

Delivering on our Sustainability Commitments

Energy and Environment

Carbon Reduction Commitment

Achieved	*Goal*
~52% ↓	70% ↓
2010 - 2018	2010 - 2050

Water Conservation

89% Amount of water recycled and reused

Sustainable Investments

Over 5GW Amount of solar and wind connected to local networks as PPL works to enable more distributed energy resources

Continuous Performance Review

- Dedicated Board Committee
- Sustainability Report
- Climate Assessment Report
- EEI ESG Report
- CDP Survey

Social Responsibility

Workplace Equality

100% Perfect Score on the Human Rights Campaign Foundation's Corporate Equality Index for LGBTQ workplace equality (PA operations 2017-2019)

Giving Back to our Communities

$12 MILLION Total Charitable Giving in 2018

78,000 Number of Employee Volunteer Hours in 2018

Supplier Diversity

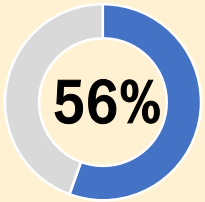
$212 MILLION Total corporate spend on diverse suppliers in 2018

Governance and Management

2018 Awards for Excellence

- **Best Places to Work by Forbes Magazine**
- **Safety** – PPL Electric recognized for exceptionally low injury rates
- **Reliability** – PPL Electric ranked top 10 nationally by IEEE; WPD attained Customer Service Excellence Award for 26th consecutive year
- **Customer Service** – Ranked highest for residential customer satisfaction in both PA and KY in respective regions; WPD ranked highest in in Ofgem's BMCS for 7th year in a row

Board Diversity



Added to our gender diversity in 2018

Diverse board members
Based on gender and ethnicity

Ensuring Cyber and Physical Security

PPL continues to make significant investments to strengthen defensive capabilities and enhance grid reliability and resiliency

PA Sustainability Highlights

Policies Driving Sustainable Investments

Alternative Ratemaking

- Recently approved legislation supported by PPL Electric grants PA utilities the option to propose different ratemaking structures, such as decoupling and performance-based rates, as we adapt our grid to new technologies and new customer expectations

Integration of Distribution Energy Resources

- PPL continues to advocate for funding levels that allow federal agencies to fund additional research and development grants and effectively administer current projects like PPL Electric's Keystone Solar Future Project

Notable Achievements

5.5 MILLION MINUTES — Customer minutes saved by installing ~114 motor-operated switches on higher-voltage transmission grid, which prevent sustained interruptions

98% — Percentage of transformer oil recycled by PPL Electric

Avian Protection Plan — Adopted a comprehensive plan to protect birds from coming in contact with electrical equipment & power lines

PPL Electric's ESG Commitments in Action

A support engineer dons virtual reality headgear as part of a pilot program simulating substation construction and troubleshooting

PPL Electric has converted 30% of its bucket trucks to electric lift bucket trucks, which reduces idling and diesel fuel usage

The company's goal is to equip all 277 bucket trucks with the technology by the end of 2025

Investing in a Smarter, More Resilient Grid

Advancing Meter Technology

- PPL Electric reached a major milestone by installing more than 1.3 million new meters that enable better management of power usage, more accurate outage reporting, and new functionality that improves customer service

Ensuring Safety For All

- Deployed a system called ArcSense, which accurately detects the fault from a downed power line. ArcSense automatically trips protective relays, cutting power to the downed line. PPL expects about 1,500 locations across the service territory will have ArcSense by end of 2019

KY Sustainability Highlights

PPL Generation in Kentucky

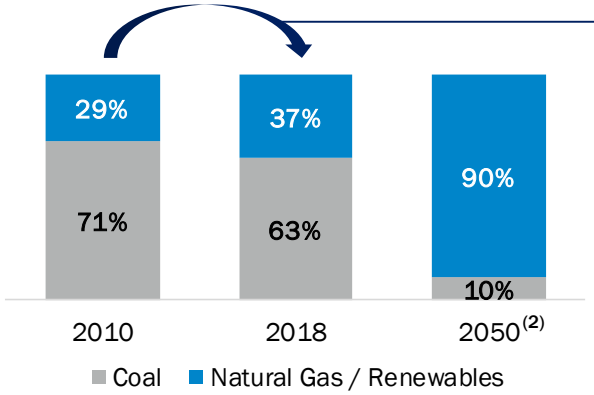
State Regulatory Environment

- Affordable, reliable coal generation remains a significant contributor to state's economy; leads to supportive state policies
- Gradual, economic retirement of coal generation planned in line with "least cost" standard
- No statewide renewable portfolio standard; customer demand and demonstration projects driving renewable development

Adapting Our Fleet

- KY retired 900MW of coal between 2010-2018 and ~300MW in Q1 2019
- Expect CO_2 emissions will meet objectives of 2°C scenario as outlined in PPL's 2017 Climate Assessment Report[1]

Our Changing Generation Composition



2010 - 2018

▼10% decrease in coal capacity (MW)

▲28% increase in natural gas / renewables capacity (MW)

Notable Achievements

29% DECREASE — Reduction in interruptions of electric service for LG&E and KU customers since 2011

49% — Percentage of gypsum byproduct that is beneficially reused by LG&E and KU

since 1995 — LG&E and KU have been a corporate sponsor of the Ohio River Sweep, where employee volunteers remove litter and debris from the banks of the Ohio River

Advancing a Cleaner Energy Future

Advancing Solar in Kentucky

- The first 500kW section of LG&E and KU's new Solar Share facility is expected to become operational this summer

Green Energy Tariff

- Promotes renewable energy growth and economic development in Kentucky by providing customers with more options to support development of renewable energy resources

Technology and Innovation – Energy Storage

- Collaboration with the Electric Power Research Institute (EPRI), allows LG&E and KU to develop, test and evaluate the potential benefits of energy storage and battery technologies resources

(1) Scenario focused on limiting global warming to below 2° Celsius.
(2) Represents potential generation mix based on a 55-year operating life under all 3 scenarios analyzed in PPL's 2017 Climate Assessment Report.

U.K. Sustainability Highlights

U.K. Initiatives Driving Sustainable Investments

U.K. Climate Change Targets

- To "reduce emissions by at least 80% of 1990 levels by 2050" (1)

Decarbonizing Heat

- The U.K. plans to "introduce a Future Homes standard, mandating the end of fossil fuel heating systems in all new homes from 2025" (2)

Move Away from Combustion Engine Vehicles

- Includes ending the sale of new conventional gasoline and diesel automobiles in the U.K. by 2040 (3)

WPD's ESG Commitments in Action

As part of a community energy project that could be the shape of things to come, WPD has carried out a new connection to Europe's largest community battery

A WPD lineworker completes a demonstration during a public safety event

Notable Achievements

88% Percent of WPD customers who have their power restored within one hour of a high-voltage fault

68% Percentage of total waste that is recycled by WPD

13% Reduction in WPD's business carbon footprint compared to 2012/13

Advancing a Cleaner Energy Future

Distribution System Operator - Flexibility

- Enhanced focus on building a smarter, more secure grid that has the flexibility to accommodate distributed energy resources and support new capacity via non-network solutions, such as energy storage and microgrids
- WPD has connected 186,000 sites providing over 9.3GW of distributed generation

Expanding Electric Vehicle Infrastructure

- WPD estimates it will have 1.3 million EVs on its network by 2028 requiring more than £0.5 billion of additional reinforcement

Heat Pump Forecasts

- WPD estimates 210,000 HPs to be installed on WPD's network by 2028, adding 320MW of peak demand. This would drive more than £100 million of additional network reinforcement by 2028

(1) U.K. Climate Change Act 2008.
(2) From the Chancellor of the Exchequers Spring Statement in the House of Commons on March 13, 2019.
(3) From the Chancellor of the Exchequers Spring Statement in the House of Commons on March 13, 2019, influenced by the Committee on Climate Change 2018 Progress Report to Parliament.

Financial Metrics

Financial Metrics

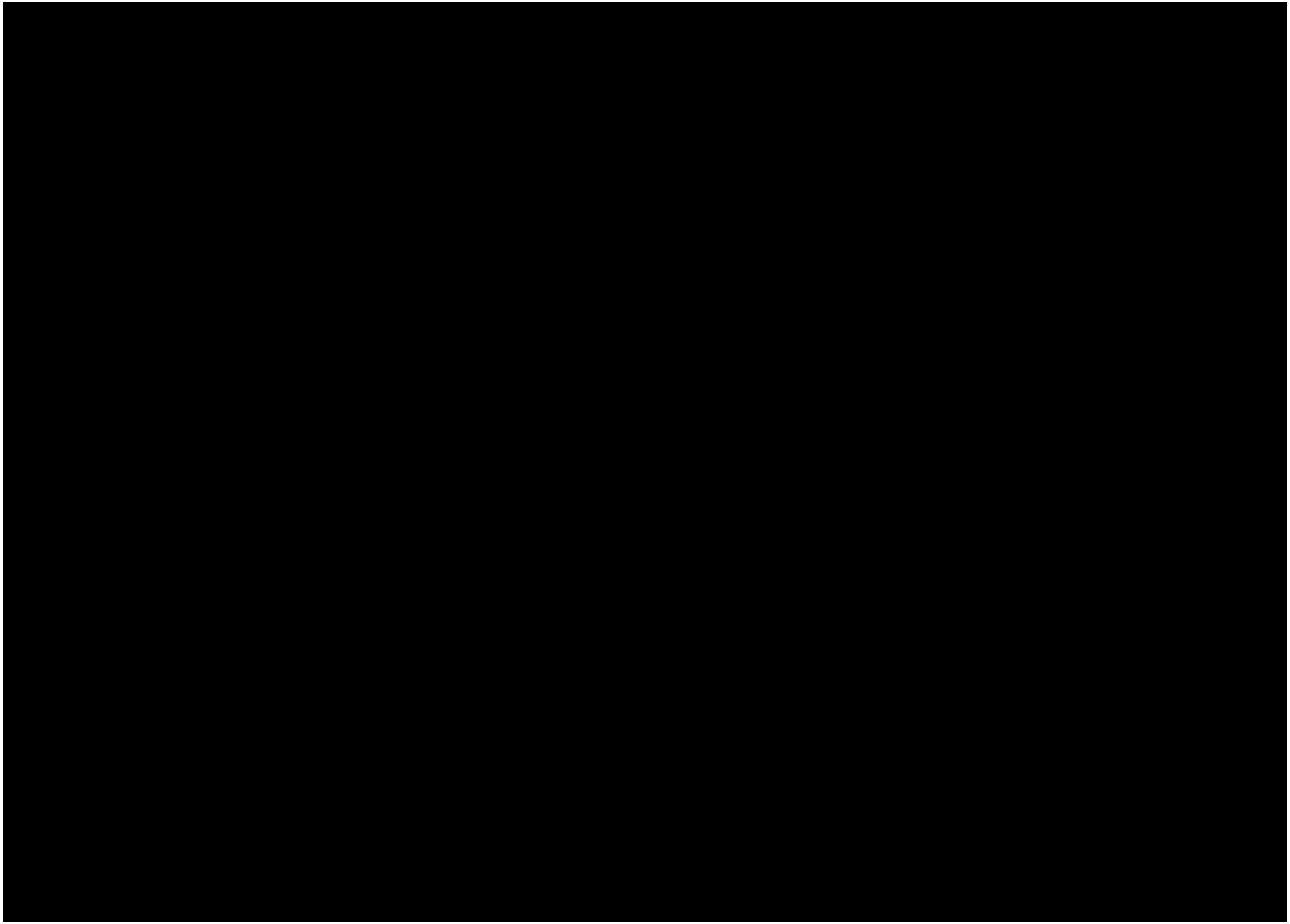
	2019	2020	2021
PPL Corporation (PPL)	[redacted]		
PPL Electric Utilities Corporation (EU)	[redacted]		

Financial Metrics, continued

	2019	2020	2021
LG&E and KU Energy LLC (LKE)			
CFO / Total Debt	15.1%	15.8%	16.4%
CFO - Dividends / Total Debt	11.0%	11.3%	12.0%
CFO + Interest / Interest	4.6x	4.5x	4.5x
Total Debt / Total Capital	52.3%	51.5%	50.8%
Kentucky Utilities Company (KU)			
CFO / Total Debt	22.2%	23.0%	22.6%
CFO - Dividends / Total Debt	13.7%	12.3%	12.8%
CFO + Interest / Interest	6.3x	6.1x	5.9x
Total Debt / Total Capital	37.5%	37.1%	37.3%
Louisville Gas and Electric Company (LG&E)			
CFO / Total Debt	21.9%	22.8%	21.3%
CFO - Dividends / Total Debt	14.8%	12.6%	11.8%
CFO + Interest / Interest	6.2x	6.2x	5.9x
Total Debt / Total Capital	38.7%	38.2%	38.4%

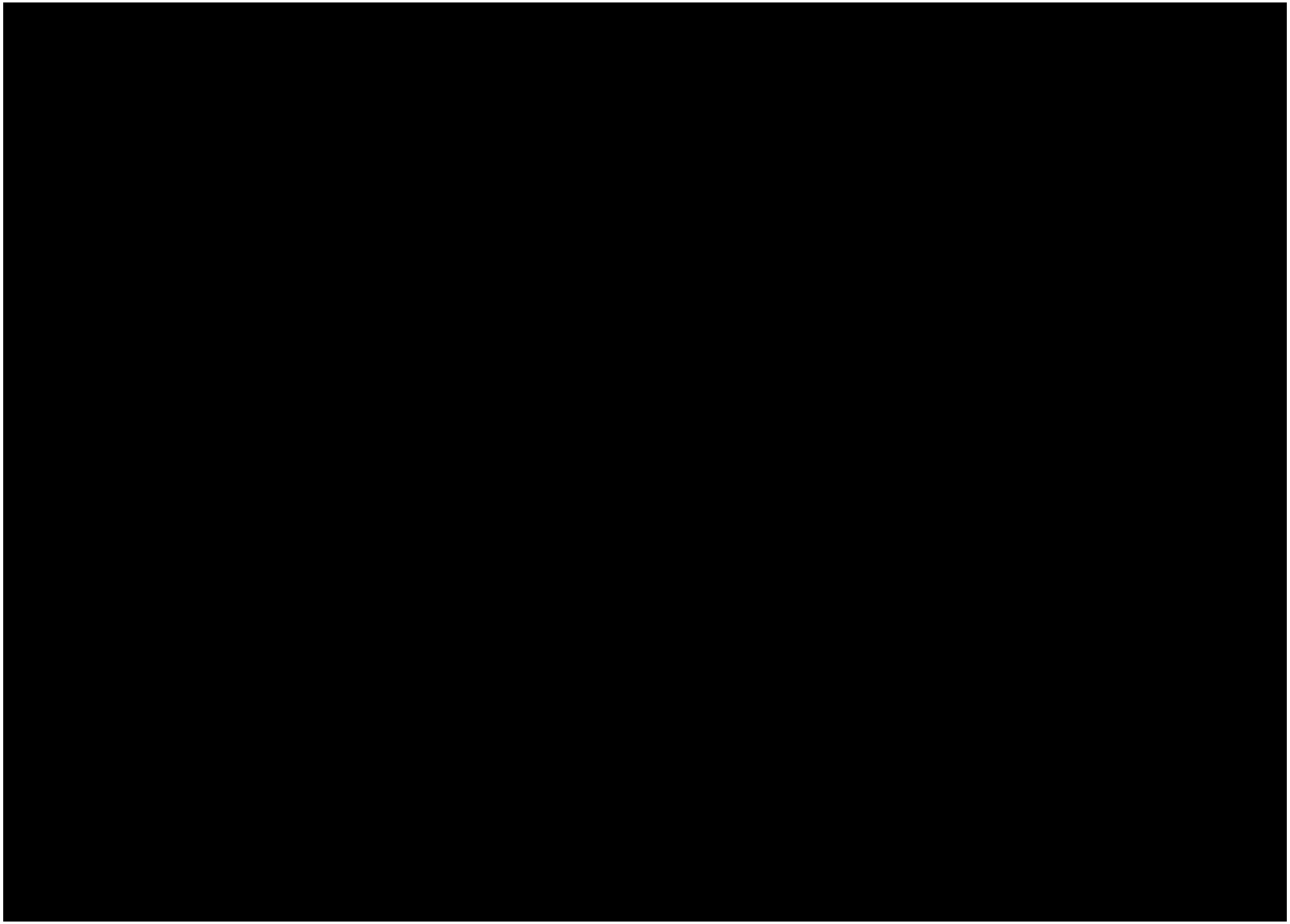
Financial Metrics Details

PPL Corporation



Financial Metrics Details

PPL Electric Utilities Corporation



Financial Metrics Details

LG&E and KU Energy LLC

(Thousands of Dollars)	2019	2020	2021
Cash from Operations (CFO) / Total Debt			
Cash from Operations	$ 977,908	$ 1,061,534	$ 1,146,901
Adjustments	40,378	10,819	(21,327)
CFO - Adjusted	$ 1,018,286	$ 1,072,353	$ 1,125,573
Long-term Debt	$ 5,451,143	$ 4,929,124	$ 4,684,341
Short-term Debt	178,833	360,133	525,789
Intercompany Debt	805,341	1,225,205	1,418,649
Adjustments	295,869	252,734	215,878
Total Debt - Adjusted	$ 6,731,186	$ 6,767,195	$ 6,844,657
CFO / Total Debt	15.1%	15.8%	16.4%
CFO - Dividends / Total Debt			
CFO - Adjusted	$ 1,018,286	$ 1,072,353	$ 1,125,573
Less: Dividends to Parent	(275,000)	(306,600)	(305,200)
CFO - Dividends	$ 743,286	$ 765,753	$ 820,373
Total Debt - Adjusted	$ 6,731,186	$ 6,767,195	$ 6,844,657
CFO - Dividends / Total Debt	11.0%	11.3%	12.0%
CFO + Interest / Interest			
CFO - Adjusted	$ 1,018,286	$ 1,072,353	$ 1,125,573
Interest	284,429	304,183	322,196
CFO + Interest	$ 1,302,715	$ 1,376,536	$ 1,447,769
CFO + Interest / Interest	4.6x	4.5x	4.5x
Total Debt / Total Capital			
Total Debt - Adjusted	$ 6,731,186	$ 6,767,195	$ 6,844,657
Common Equity	4,949,014	5,102,164	5,280,894
Adjustments	1,194,114	1,273,040	1,347,047
Total Capital	$ 12,874,313	$ 13,142,399	$ 13,472,599
Total Debt / Total Capital	52.3%	51.5%	50.8%

Financial Metrics Details

Kentucky Utilities Company

(Thousands of Dollars)	2019	2020	2021
Cash from Operations (CFO) / Total Debt			
Cash from Operations	$ 576,221	$ 618,335	$ 635,360
Adjustments	20,700	6,438	(6,419)
CFO - Adjusted	$ 596,921	$ 624,773	$ 628,941
Long-term Debt	$ 2,620,596	$ 2,570,038	$ 2,572,863
Short-term Debt	36,534	118,147	189,554
Adjustments	31,108	25,228	18,061
Total Debt - Adjusted	$ 2,688,239	$ 2,713,413	$ 2,780,479
CFO / Total Debt	22.2%	23.0%	22.6%
CFO - Dividends / Total Debt			
CFO - Adjusted	$ 596,921	$ 624,773	$ 628,941
Less: Dividends to Parent	(229,100)	(290,600)	(273,300)
CFO - Dividends	$ 367,821	$ 334,173	$ 355,641
Total Debt - Adjusted	$ 2,688,239	$ 2,713,413	$ 2,780,479
CFO - Dividends / Total Debt	13.7%	12.3%	12.8%
CFO + Interest / Interest			
CFO - Adjusted	$ 596,921	$ 624,773	$ 628,941
Interest	113,348	121,700	129,386
CFO + Interest	$ 710,269	$ 746,474	$ 758,327
CFO + Interest / Interest	6.3x	6.1x	5.9x
Total Debt / Total Capital			
Total Debt - Adjusted	$ 2,688,239	$ 2,713,413	$ 2,780,479
Common Equity	3,586,392	3,660,671	3,741,072
Adjustments	894,079	939,088	938,901
Total Capital	$ 7,168,710	$ 7,313,172	$ 7,460,452
Total Debt / Total Capital	37.5%	37.1%	37.3%

Financial Metrics Details

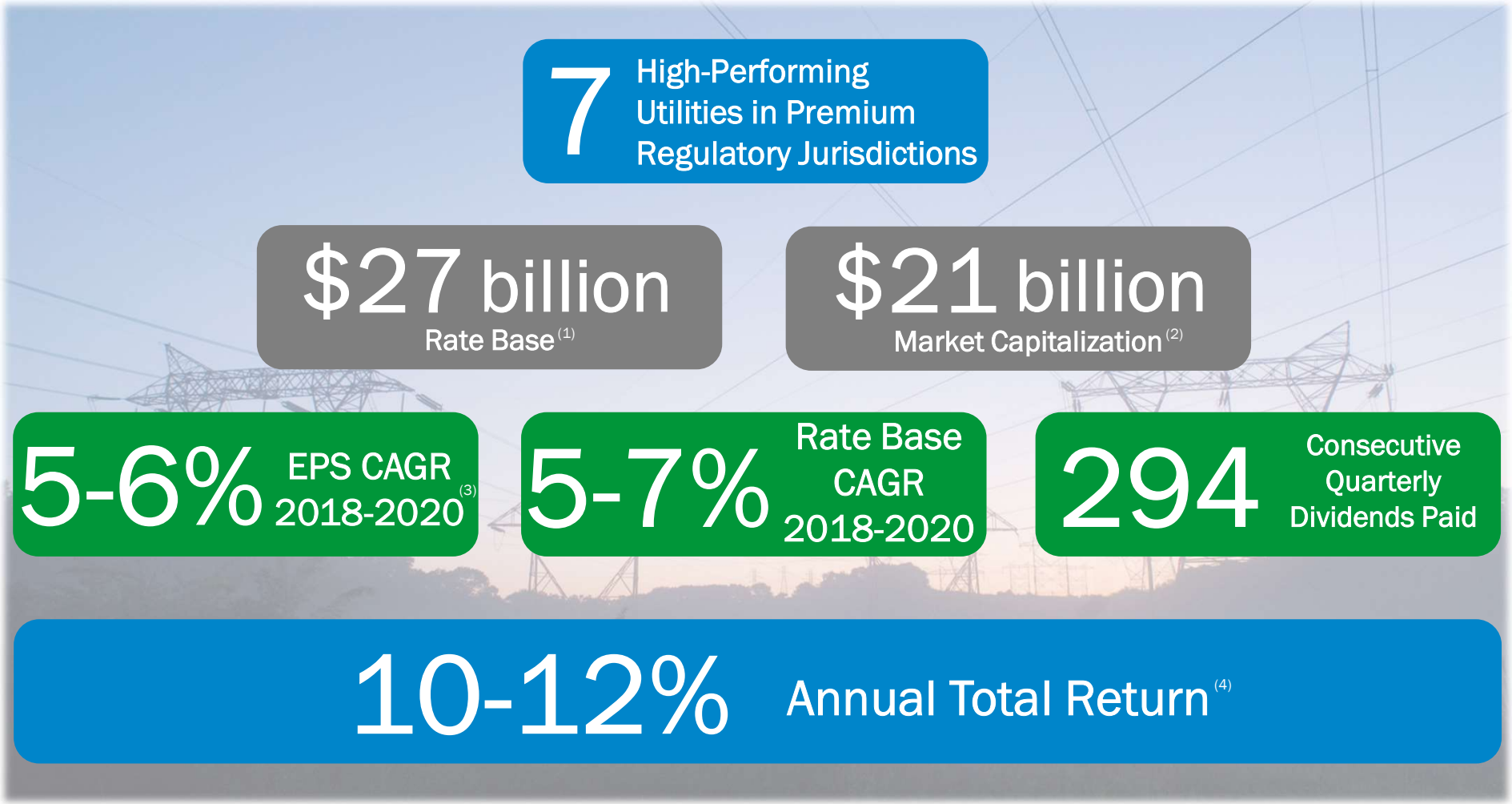
Louisville Gas and Electric Company

(Thousands of Dollars)	2019	2020	2021
Cash from Operations (CFO) / Total Debt			
Cash from Operations	$ 472,657	$ 513,214	$ 520,206
Adjustments	18,097	4,192	(17,201)
CFO - Adjusted	$ 490,754	$ 517,406	$ 503,005
Long-term Debt	$ 2,106,694	$ 2,109,326	$ 2,111,478
Short-term Debt	104,620	140,824	234,164
Adjustments	31,931	17,705	12,136
Total Debt - Adjusted	$ 2,243,245	$ 2,267,855	$ 2,357,777
CFO / Total Debt	21.9%	22.8%	21.3%
CFO - Dividends / Total Debt			
CFO - Adjusted	$ 490,754	$ 517,406	$ 503,005
Less: Dividends to Parent	(157,800)	(232,000)	(223,900)
CFO - Dividends	$ 332,954	$ 285,406	$ 279,105
Total Debt - Adjusted	$ 2,243,245	$ 2,267,855	$ 2,357,777
CFO - Dividends / Total Debt	14.8%	12.6%	11.8%
CFO + Interest / Interest			
CFO - Adjusted	$ 490,754	$ 517,406	$ 503,005
Interest	93,928	99,482	101,722
CFO + Interest	$ 584,682	$ 616,888	$ 604,727
CFO + Interest / Interest	6.2x	6.2x	5.9x
Total Debt / Total Capital			
Total Debt - Adjusted	$ 2,243,245	$ 2,267,855	$ 2,357,777
Common Equity	2,835,047	2,910,855	3,015,265
Adjustments	717,674	760,487	767,053
Total Capital	$ 5,795,966	$ 5,939,197	$ 6,140,095
Total Debt / Total Capital	38.7%	38.2%	38.4%

S&P Global Ratings

August 26, 2019

PPL Investment Proposition



(1) Actual as of December 31, 2018. Represents Regulatory Asset Value (RAV) for the U.K. and utility capitalization for Kentucky. U.K. based on exchange rate of $1.35/£.
(2) As of August 16, 2019. Does not reflect $1.2 billion of equity to be issued under the previously announced equity forward agreement entered into May 2018.
(3) EPS growth rate based on the midpoint of the original 2018 ongoing earnings guidance range of $2.20 - $2.40 per share.
(4) Annual total return is the combination of projected annual EPS growth and dividend yield as of August 16, 2019.

Premium Regulatory Jurisdictions

Pennsylvania

PPL Electric Utilities

- FERC Formula Transmission Rates for ~50% of rate base
  - 11.68% allowed ROE
- Constructive Distribution Regulatory Mechanisms
  - Smart Meter Rider, Storm Cost Recovery, DSIC[1]
- Forward Test Year for Distribution rate cases
- Alternative Ratemaking[2]

Kentucky

Louisville Gas & Electric (LG&E) and Kentucky Utilities (KU)

- 9.725% allowed ROE
- Environmental Cost Recovery (ECR) Mechanism[3]
- Forward Test Year for base rate cases
- Fuel Adjustment Clause
- Gas Line Tracker

United Kingdom

WPD East and West Midlands, South West and South Wales

- Pre-approved plan with base revenues set for 8 years; through March 2023[4]
- Real-time recovery of capex
- Incentive revenues available for strong performance and innovation
- Mechanism to retain 70% of cost efficiencies

(1) DSIC – Distribution System Improvement Charge: automatic adjustment charge that enables PPL to recover certain infrastructure improvement costs between base rate cases.
(2) In June 2018, Pennsylvania passed Act 58, which allows for alternative ratemaking in the state.
(3) Kentucky ECR provides near real-time recovery for approved environmental projects on the coal fleet.
(4) RIIO-ED1 Price Control extends through March 31, 2023.

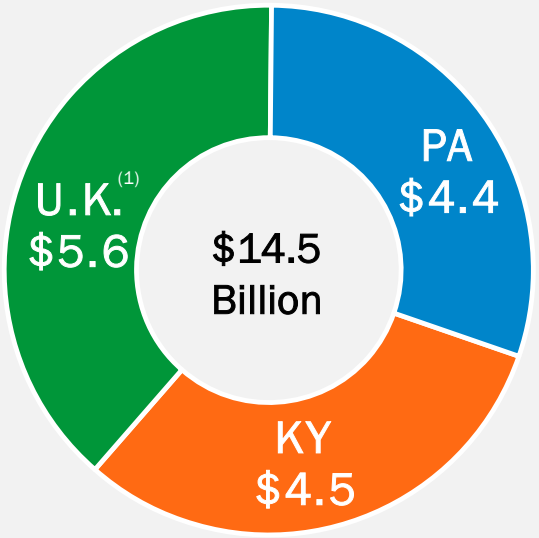
We're Investing in the Future

~$3 billion annually *Investing capital to modernize and strengthen grid resilience*

- Making the grid smarter and more resilient
- Strengthening physical and cyber security
- Connecting renewables
- Expanding solar
- Piloting new technology
- Optimizing KY generation fleet

Robust 5-Year Capital Plan (2019-2023)

($ in billions)



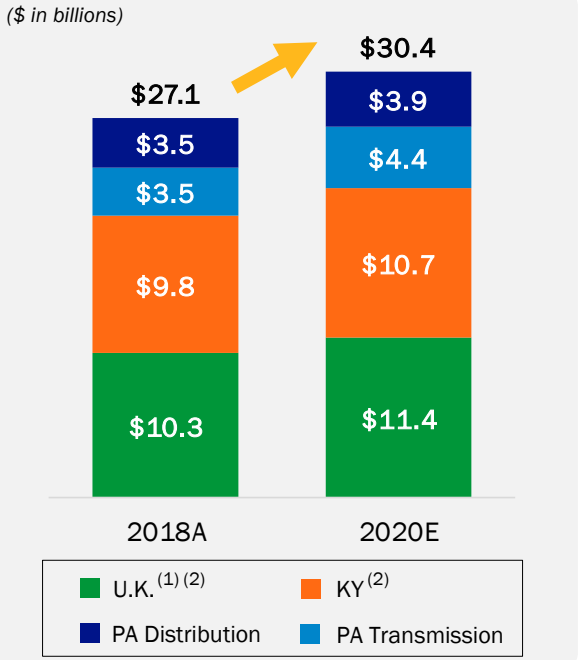
(1) U.K. capital plan is based on assumed exchange rates of $1.35/£ for 2019 and $1.40/£ for 2020-2023.

Prudent Investments, Timely Recovery Drive 5-6% EPS Growth Through 2020

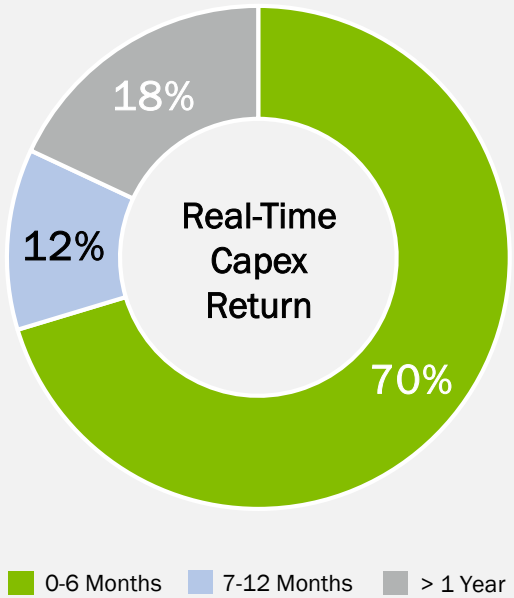
Strong Rate Base Growth

Supported by constructive regulatory recovery mechanisms

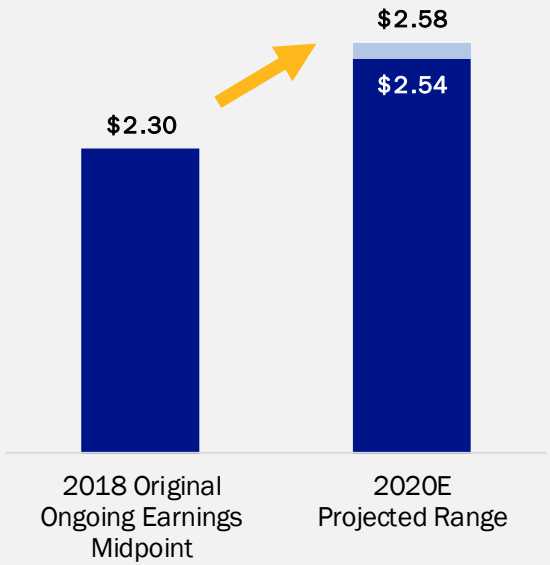
5-7% CAGR
Rate Base CAGR 2018-2020



~80% Capex
Earns Return within 1 year



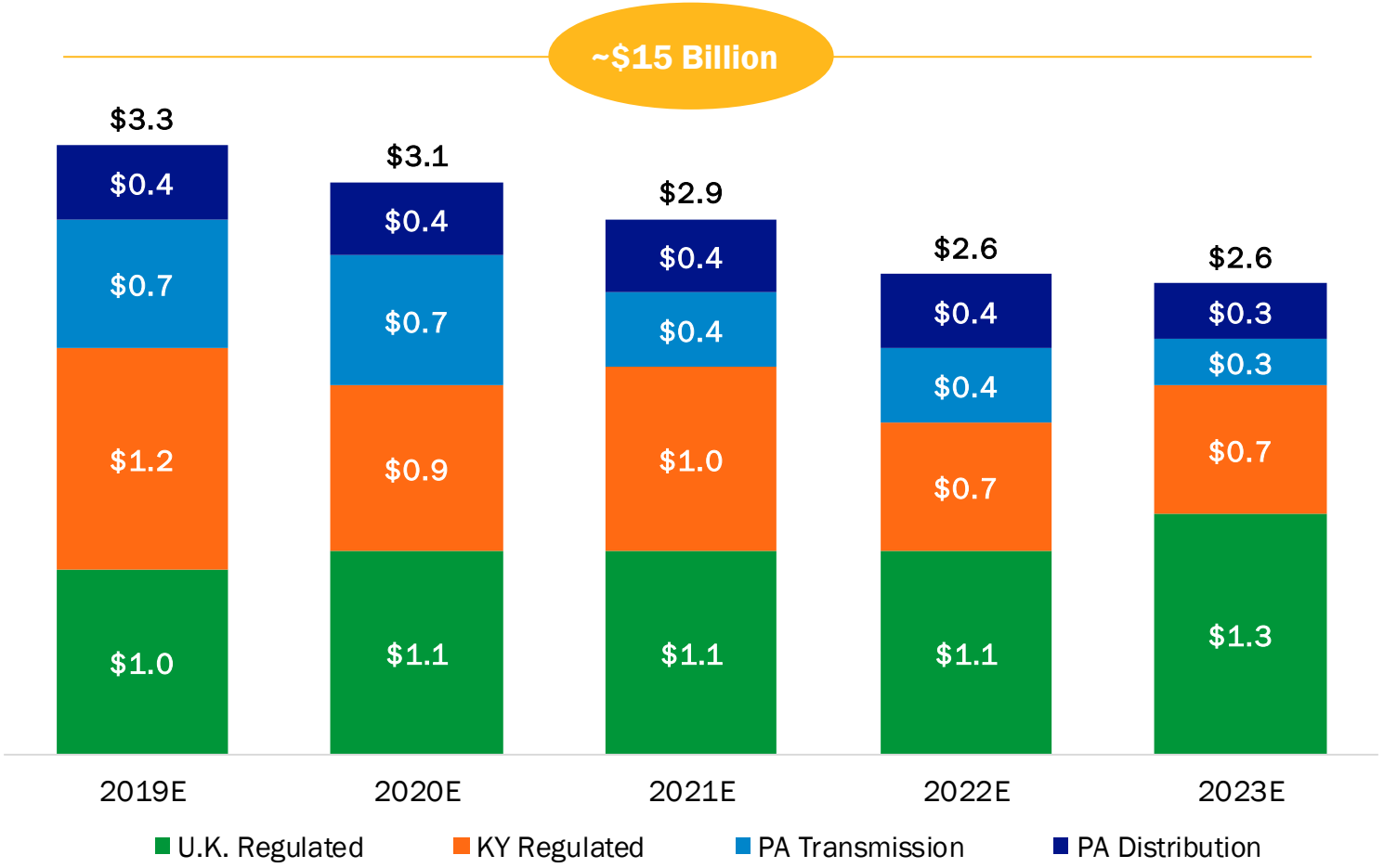
EPS Growth
2018-2020



(1) Based on exchange rate of $1.35/£ in all years for comparability purposes.
(2) Represents Regulatory Asset Value (RAV) for U.K. Represents utility capitalization for KY.

Capital Expenditure Plan

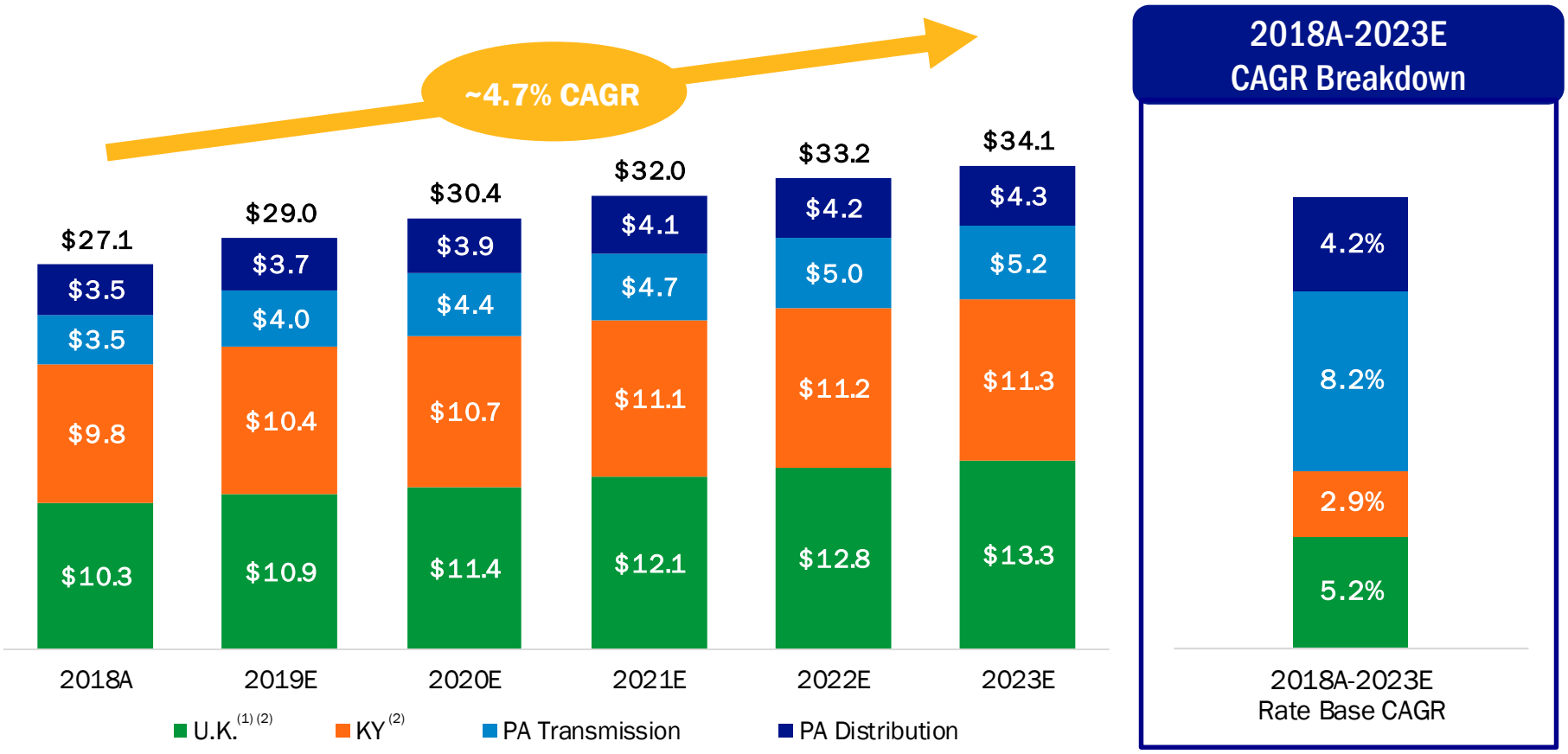
($ in billions)



Note: U.K. capital plan is based on assumed exchange rates of $1.35/£ for 2019 and $1.40/£ for 2020-2023.

Projected Rate Base Growth

($ in billions)



(1) Based on assumed exchange rate of $1.35/£ in all years for comparability purposes.
(2) Represents Regulatory Asset Value (RAV) for U.K. and utility capitalization for KY.

Pennsylvania Regulated Overview

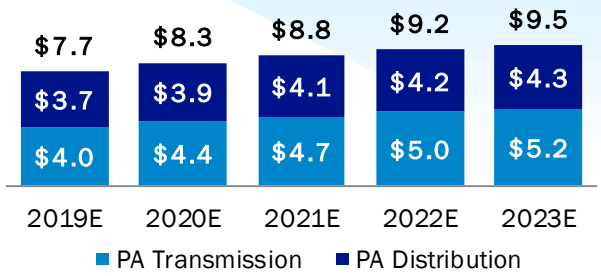
$7 billion
Rate Base [1]

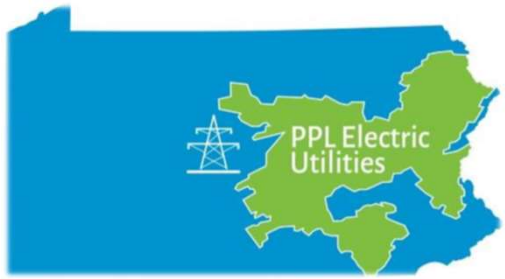
1.4 million
Customers

$4.4 billion
Capex Plan

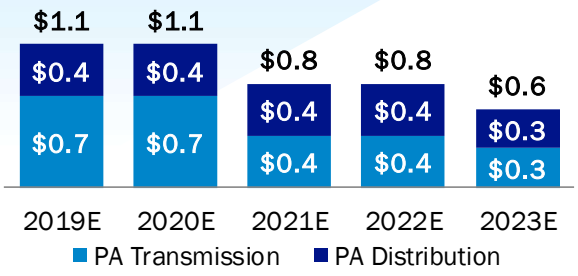
($ in billions)

6.3% CAGR 2018A-2023E





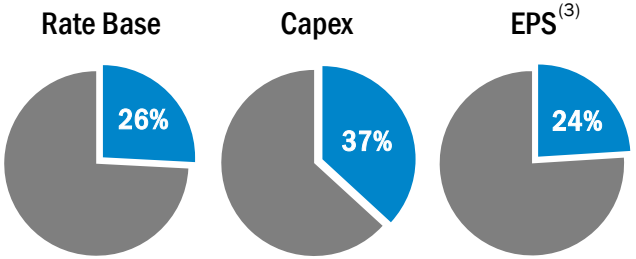
($ in billions)



PA Segment Highlights [1]

- Services provided:
  - Electric Distribution, Electric Transmission
- Service area: 10,000 square miles
- Electricity delivered: 37,497 GWh
- Operating revenues: $2.3 billion
- Net income: $431 million

PA Segment Proportion of PPL [2]



Regulatory Attributes

- FERC Formula Rates
- DSIC Mechanism [4]
- Smart Meter Rider
- Storm Cost Recovery
- Forward Test Year for Distribution rate cases
- Alternative Ratemaking
- Strong regulatory track record with PA PUC

(1) Actual as of December 31, 2018.
(2) Proportions based on 2018 year end actuals.
(3) Represents Earnings from Ongoing Operations, includes allocation from Corporate and Other for comparative purposes.
(4) DSIC – Distribution System Improvement Charge: automatic adjustment charge that enables PPL to recover certain infrastructure improvement costs between base rate cases.

Kentucky Regulated Overview

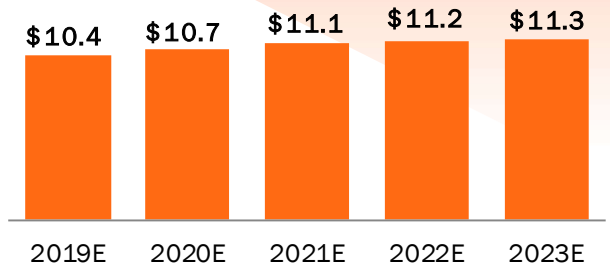
$9.8 billion
Rate Base [1]

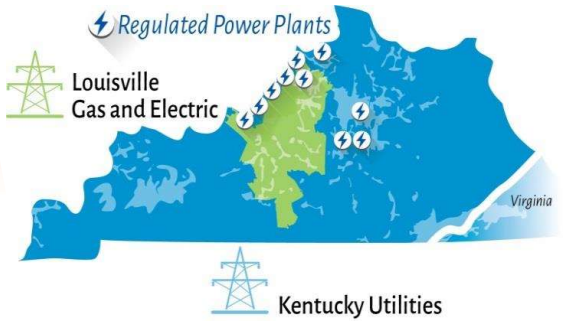
1.3 million
Customers

$4.5 billion
Capex Plan

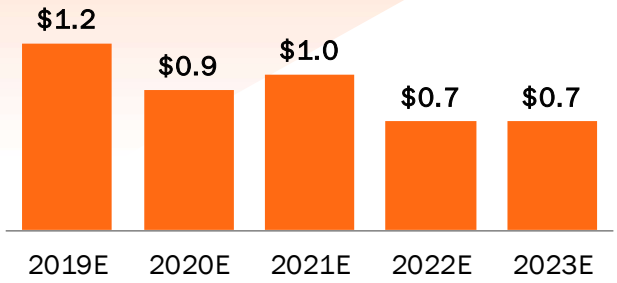
($ in billions)

2.9% CAGR 2018A-2023E





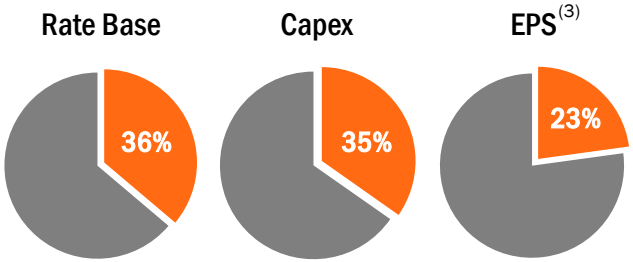
($ in billions)



KY Segment Highlights [1]

- Services provided:
  - Electric Distribution, Electric Transmission, Gas Distribution, Regulated Generation
- Service area: 9,400 square miles
- Electricity delivered: 33,650 GWh
- Operating revenues: $3.2 billion
- Net income: $411 million
- Operate approx. 8,000 MW of generation

KY Segment Proportion of PPL [2]



Regulatory Attributes

- Environmental Cost Recovery (ECR) Mechanism [4]
- Fuel Adjustment Clause
- Gas Line Tracker
- Forward Test Year for base rate cases
- Very competitive retail rates
- Strong regulatory track record with KPSC

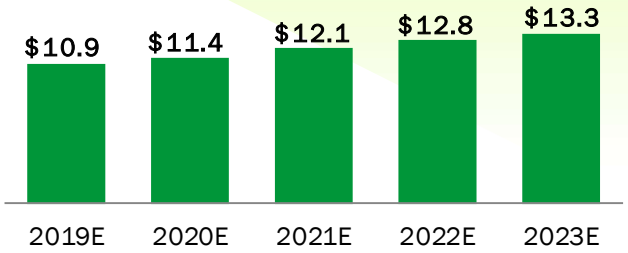
(1) Actual as of December 31, 2018. Represents utility capitalization for Kentucky.
(2) Proportions based on 2018 year end actuals.
(3) Represents Earnings from Ongoing Operations, includes allocation from Corporate and Other for comparative purposes.
(4) Kentucky ECR provides near real-time recovery for approved environmental projects on the coal fleet.

U.K. Regulated Overview

$10.3 billion [1]
Rate Base [2]

($ in billions)

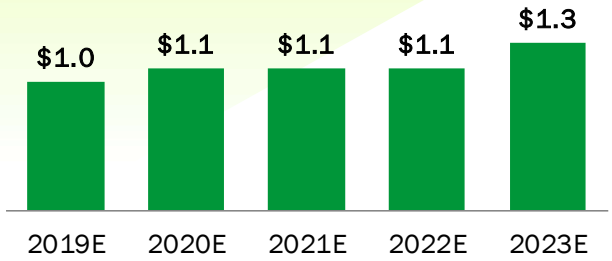
5.2% CAGR 2018A-2023E



7.9 million
Customers

$5.6 billion
Capex Plan [5]

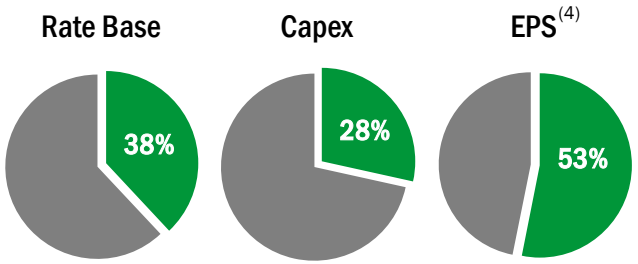
($ in billions)



U.K. Segment Highlights [1]

- Services provided:
  - Electric Distribution
- Service area: 21,600 square miles
- Electricity delivered: 74,181 GWh
- Operating revenues: $2.3 billion
- Net income: $1,114 million
- U.K.'s largest distribution network operator

U.K. Segment Proportion of PPL [3]



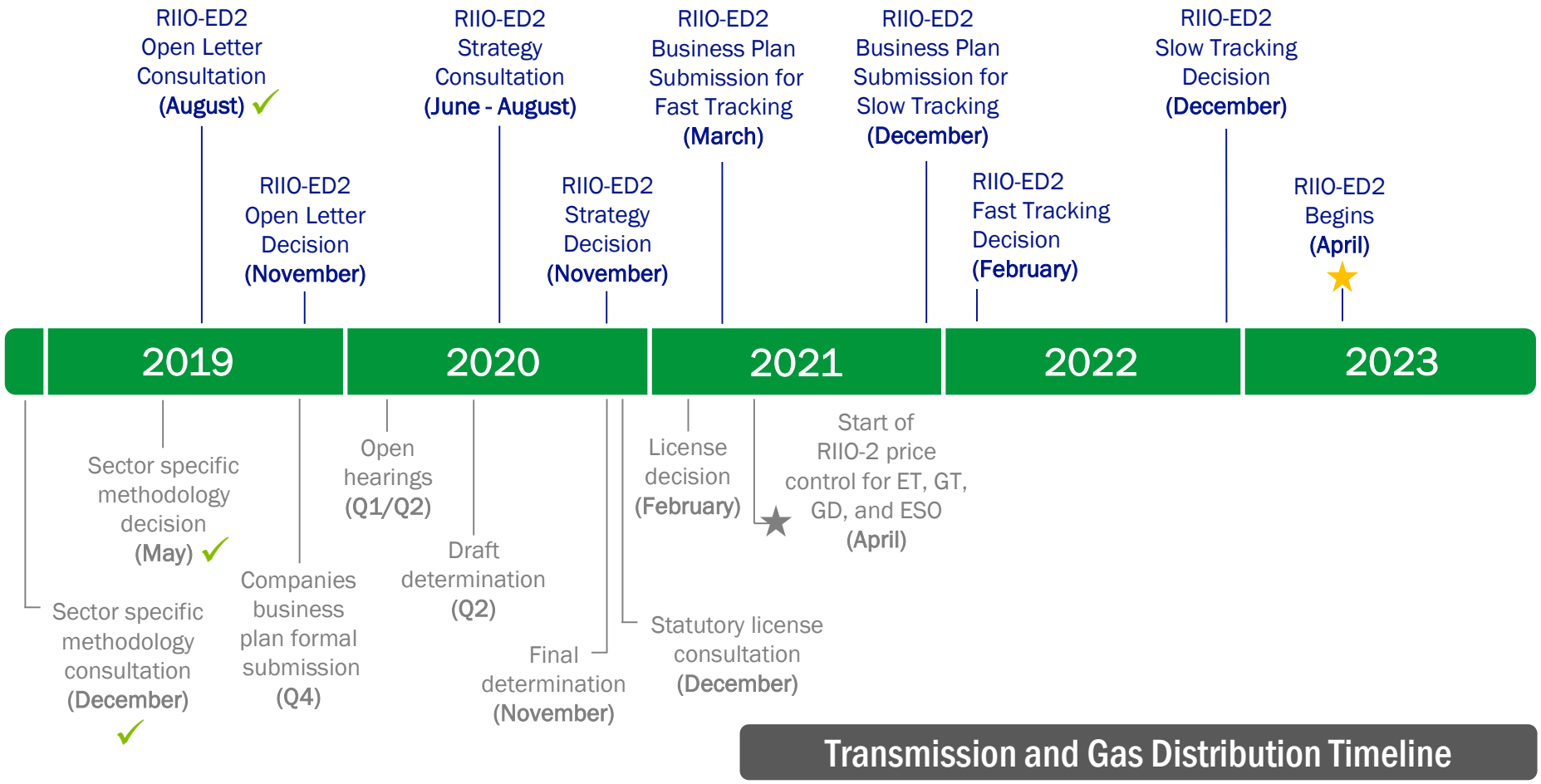
Regulatory Attributes

- Pre-approved plan with base revenues set for 8 years; through March 2023
- Accelerated recovery of RAV
- Inflation indexed revenue model
- Real-time recovery of capex
- Performance incentives drive improvement
- 70% of cost efficiencies retained by company
- Strong regulatory track record with Ofgem

(1) Actual as of December 31, 2018.
(2) Represents Regulatory Asset Value (RAV) for the U.K. For comparability reflects exchange rate of $1.35/£ for all years.
(3) Proportions based on 2018 year end actuals.
(4) Represents Earnings from Ongoing Operations, includes allocation from Corporate and Other for comparative purposes.
(5) Capital plan is based on assumed exchange rate of $1.35/£ for 2019 and $1.40/£ for 2020-2023.

U.K. Regulated: RIIO-2 Projected Timelines

Electricity Distribution Timeline(1)



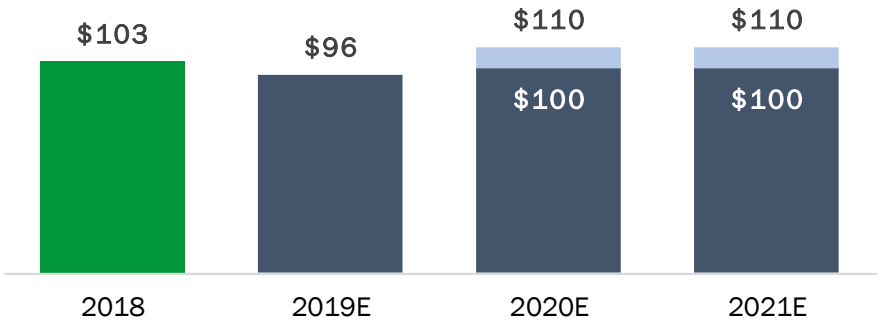
Transmission and Gas Distribution Timeline

(1) Ofgem will consult on the need for Fast Tracking in RIIO-ED2 as part of the strategy consultation in June 2020. The electricity distribution timeline shown here represents the events following an Ofgem decision that allows Fast Tracking.

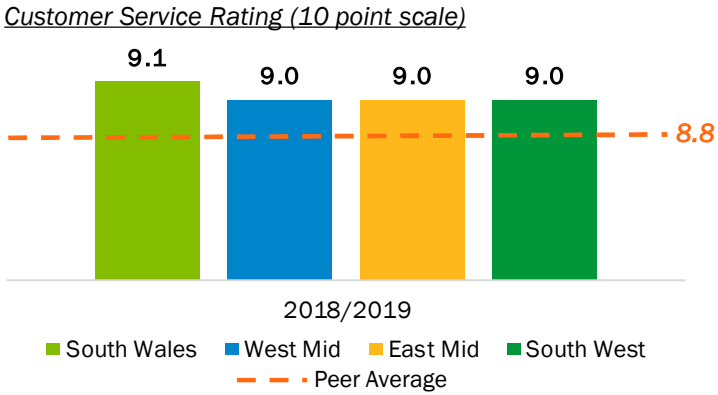
U.K. Regulated Incentive Revenues

WPD continues to demonstrate how premier network operators deliver value for customers and shareowners

Incentive Revenues (1)



Excellent Customer Satisfaction Ratings

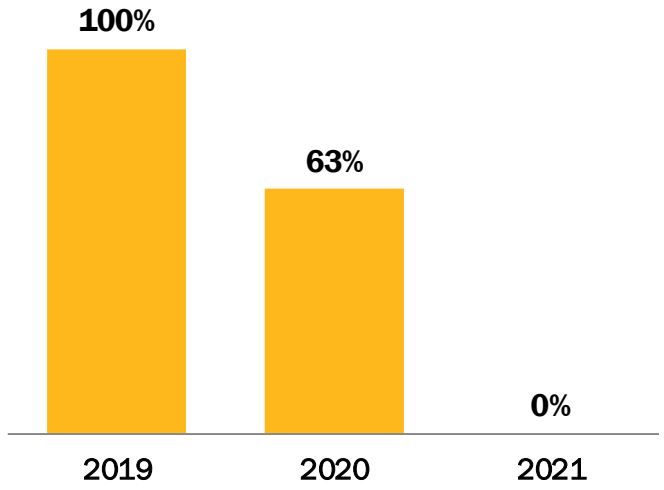


- WPD has the ability to earn annual incentive revenues for strong operational performance:
  - Customer Interruptions/Minutes Lost – rewards or penalizes DNOs for managing and reducing power outage frequency and duration.
  - The Broad Measure of Customer Service – rewards or penalizes DNOs based on supply interruptions, connections and general inquiries, complaints, stakeholder engagement, and delivery of social obligations.
  - Time to Connect – incentive rewards DNOs for reducing connection times against Ofgem targets.

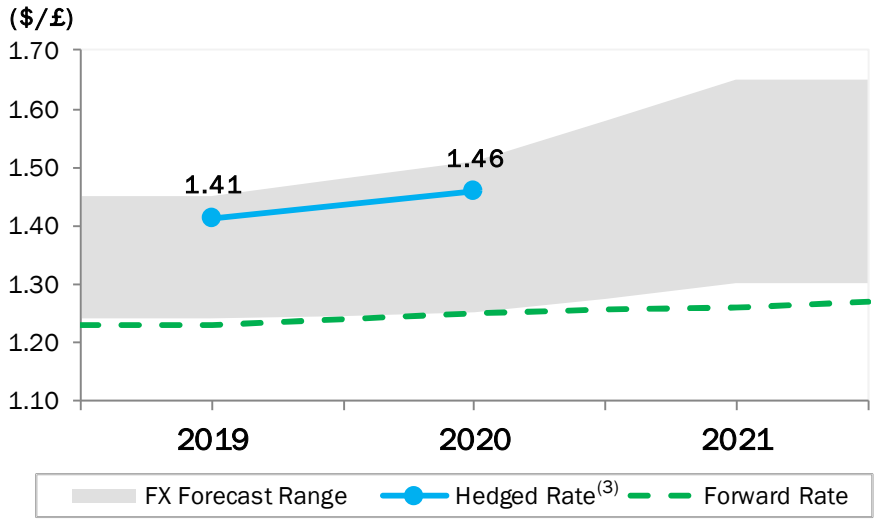
(1) Based on calendar year revenues on an exchange rate of $1.35/£ in all years for comparability purposes. Annual incentives are reflected in customer rates on a two-year lag from the time they are earned.

Foreign Currency Update

Foreign Currency Hedge Status [1]



Forward Foreign Currency Rates [2]



- Increased 2020 hedge position to 63% from 55% during Q2
- Continue to utilize options for incremental hedges; options represent about one-third of the hedge portfolio for 2020

(1) PPL's foreign currency hedge status as of July 31, 2019.
(2) Forward foreign currency rates sourced from Bloomberg as of July 31, 2019. Forecast range reflects views from up to 14 financial institutions and does not represent PPL's internal forecast. Not all institutions provide forecasts for all periods.
(3) Hedge rates reflect a combination of average-rate forwards and options. Average hedge rates based on the average forward rate and the average floor in the options.

Debt Maturities

($ in Millions)	2019	2020	2021	2022	2023	2024 and Beyond	Total
PPL Capital Funding	$0	$0	$0	$800	$600	$3,130	$4,530
PPL Electric Utilities[(1)]	0	100	400	474	90	2,675	3,739
LG&E and KU Energy	0	475	250	0	0	0	725
Louisville Gas & Electric[(1)]	40	0	292	0	0	1,692	2,024
Kentucky Utilities[(1)]	96	500	0	0	13	2,033	2,642
WPD plc	0	0	500	0	632	707	1,839
WPD Operating Companies[(2)]	0	189	0	0	884	4,624	5,697
Total	**$136**	**$1,264**	**$1,442**	**$1,274**	**$2,219**	**$14,861**	**$21,196**

Note: As of June 30, 2019.

(1) Amounts reflect the timing of any put option on municipal bonds that may be put by the holders before the bonds' final maturities.

(2) Includes WPD (East Midlands) plc, WPD (West Midlands) plc, WPD (South Wales) plc and WPD (South West) plc.

Liquidity Profile

Entity	Facility	Expiration Date	Capacity (Millions)	Borrowed (Millions)	Letters of Credit & Commercial Paper Issued (Millions)	Unused Capacity (Millions)
PPL Capital Funding	Syndicated Credit Facility	Jan-2024	$1,450	$0	$1,014	$436
	Bilateral Credit Facility	Mar-2020	100	0	15	85
			$1,550	$0	$1,029	$521
PPL Electric Utilities	Syndicated Credit Facility	Jan-2024	$650	$0	$186	$464
Louisville Gas & Electric	Syndicated Credit Facility	Jan-2024	$500	$0	$96	$404
Kentucky Utilities	Syndicated Credit Facility	Jan-2024	$400	$0	$0	$400
	Letter of Credit Facility	Oct-2020	198	0	198	0
			$598	$0	$198	$400
WPD	WPD plc Syndicated Credit Facility	Jan-2023	£210	£158	£0	£52
	WPD (South West) Syndicated Credit Facility	Jul-2021	245	0	0	245
	WPD (East Midlands) Syndicated Credit Facility	Jul-2021	300	81	0	219
	WPD (West Midlands) Syndicated Credit Facility	Jul-2021	300	33	0	267
	Uncommitted Credit Facilities		100	0	4	96
			£1,155	£272	£4	£879

Note: As of June 30, 2019.

PPL Investment Summary

- Pure-play regulated business operating in premium jurisdictions
- Exceptional operational performance and history of prudent investments support constructive regulatory relationships
- Significant, low-risk investment opportunities that advance a cleaner energy future
- Solid, secure dividend with commitment to future growth and an attractive 5.6% dividend yield[(1)]
- Proven track record of delivering commitments to shareowners and customers

(1) Dividend yield as of August 16, 2019.

Sustainability Highlights

PPL's Sustainability Commitments

Energy and Environment

Advance a cleaner energy future

Encourage responsible stewardship in partnership with our customers and stakeholders to have a sustainable environmental impact

Build tomorrow's energy infrastructure

Invest in tomorrow's energy infrastructure by developing a more reliable, resilient and efficient grid that enables continued progress and a cleaner energy future

Social Responsibility

Exceed customer expectations

Provide energy safely, reliably and in an environmentally responsible manner at the lowest reasonable cost

Foster an exceptional workplace

Cultivate success by energizing an inclusive, respectful and diverse workplace that rewards performance, fosters professional development, encourages employee engagement and enables employees to achieve their full potential

Strengthen communities

Empower the success of future generations by helping to build strong communities today

Governance and Management

Create extraordinary shareowner value

Create long-term value for shareowners through fiscal discipline, continuous improvement, environmental stewardship and enduring strategic investments

Drive best-in-sector operational performance

Excel in safety, reliability, customer responsiveness and energy efficiency while maintaining a culture that fosters innovation

70%
Goal to cut the company's carbon dioxide emissions from 2010 levels by 2050

900 MW
Approximate megawatts of coal capacity retired in Kentucky 2010 - 2018

547M kWh
Amount of electricity saved from energy efficiency programs across PPL's utilities

700
Number of electric vehicle users who participated in Electric Nation, a two-year trial of home charging in the U.K.

Delivering on our Sustainability Commitments

Energy and Environment

Carbon Reduction Commitment

Achieved	Goal
~52% ↓	70% ↓
2010 - 2018	2010 - 2050

Water Conservation

89% Amount of water recycled and reused

Sustainable Investments

Over 5GW Amount of solar and wind connected to local networks as PPL works to enable more distributed energy resources

Continuous Performance Review

- Dedicated Board Committee
- Sustainability Report
- Climate Assessment Report
- EEI ESG Report
- CDP Survey

Social Responsibility

Workplace Equality

100% Perfect Score on the Human Rights Campaign Foundation's Corporate Equality Index for LGBTQ workplace equality (PA operations 2017-2019)

Giving Back to our Communities

$12 MILLION Total Charitable Giving in 2018

78,000 Number of Employee Volunteer Hours in 2018

Supplier Diversity

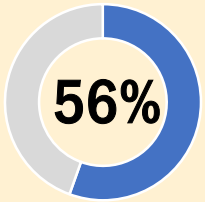
$212 MILLION Total corporate spend on diverse suppliers in 2018

Governance and Management

2018 Awards for Excellence

- **Best Places to Work by Forbes Magazine**
- **Safety** – PPL Electric recognized for exceptionally low injury rates
- **Reliability** – PPL Electric ranked top 10 nationally by IEEE; WPD attained Customer Service Excellence Award for 26th consecutive year
- **Customer Service** – Ranked highest for residential customer satisfaction in both PA and KY in respective regions; WPD ranked highest in in Ofgem's BMCS for 7th year in a row

Board Diversity



Added to our gender diversity in 2018

Diverse board members
Based on gender and ethnicity

Ensuring Cyber and Physical Security

PPL continues to make significant investments to strengthen defensive capabilities and enhance grid reliability and resiliency

PA Sustainability Highlights

Policies Driving Sustainable Investments

Alternative Ratemaking

- Recently approved legislation supported by PPL Electric grants PA utilities the option to propose different ratemaking structures, such as decoupling and performance-based rates, as we adapt our grid to new technologies and new customer expectations

Integration of Distribution Energy Resources

- PPL continues to advocate for funding levels that allow federal agencies to fund additional research and development grants and effectively administer current projects like PPL Electric's Keystone Solar Future Project

Notable Achievements

5.5 MILLION MINUTES — Customer minutes saved by installing ~114 motor-operated switches on higher-voltage transmission grid, which prevent sustained interruptions

98% — Percentage of transformer oil recycled by PPL Electric

Avian Protection Plan — Adopted a comprehensive plan to protect birds from coming in contact with electrical equipment & power lines

PPL Electric's ESG Commitments in Action

A support engineer dons virtual reality headgear as part of a pilot program simulating substation construction and troubleshooting

PPL Electric has converted 30% of its bucket trucks to electric lift bucket trucks, which reduces idling and diesel fuel usage

The company's goal is to equip all 277 bucket trucks with the technology by the end of 2025

Investing in a Smarter, More Resilient Grid

Advancing Meter Technology

- PPL Electric reached a major milestone by installing more than 1.3 million new meters that enable better management of power usage, more accurate outage reporting, and new functionality that improves customer service

Ensuring Safety For All

- Deployed a system called ArcSense, which accurately detects the fault from a downed power line. ArcSense automatically trips protective relays, cutting power to the downed line. PPL expects about 1,500 locations across the service territory will have ArcSense by end of 2019

KY Sustainability Highlights

PPL Generation in Kentucky

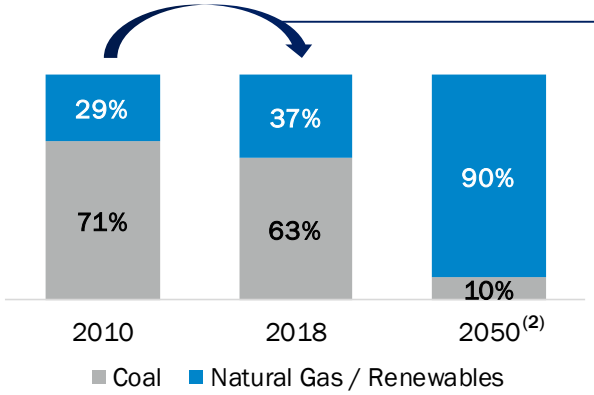
State Regulatory Environment

- Affordable, reliable coal generation remains a significant contributor to state's economy; leads to supportive state policies
- Gradual, economic retirement of coal generation planned in line with "least cost" standard
- No statewide renewable portfolio standard; customer demand and demonstration projects driving renewable development

Adapting Our Fleet

- KY retired 900MW of coal between 2010-2018 and ~300MW in Q1 2019
- Expect CO_2 emissions will meet objectives of 2°C scenario as outlined in PPL's 2017 Climate Assessment Report (1)

Our Changing Generation Composition



2010 - 2018

▼10% decrease in coal capacity (MW)

▲28% increase in natural gas / renewables capacity (MW)

Notable Achievements

29% DECREASE — Reduction in interruptions of electric service for LG&E and KU customers since 2011

49% — Percentage of gypsum byproduct that is beneficially reused by LG&E and KU

since 1995 — LG&E and KU have been a corporate sponsor of the Ohio River Sweep, where employee volunteers remove litter and debris from the banks of the Ohio River

Advancing a Cleaner Energy Future

Advancing Solar in Kentucky

- The first 500kW section of LG&E and KU's new Solar Share facility is expected to become operational this summer

Green Energy Tariff

- Promotes renewable energy growth and economic development in Kentucky by providing customers with more options to support development of renewable energy resources

Technology and Innovation – Energy Storage

- Collaboration with the Electric Power Research Institute (EPRI), allows LG&E and KU to develop, test and evaluate the potential benefits of energy storage and battery technologies resources

(1) Scenario focused on limiting global warming to below 2° Celsius.
(2) Represents potential generation mix based on a 55-year operating life under all 3 scenarios analyzed in PPL's 2017 Climate Assessment Report.

U.K. Sustainability Highlights

U.K. Initiatives Driving Sustainable Investments

U.K. Climate Change Targets

- To "reduce emissions by at least 80% of 1990 levels by 2050" (1)

Decarbonizing Heat

- The U.K. plans to "introduce a Future Homes standard, mandating the end of fossil fuel heating systems in all new homes from 2025" (2)

Move Away from Combustion Engine Vehicles

- Includes ending the sale of new conventional gasoline and diesel automobiles in the U.K. by 2040 (3)

WPD's ESG Commitments in Action

As part of a community energy project that could be the shape of things to come, WPD has carried out a new connection to Europe's largest community battery

A WPD lineworker completes a demonstration during a public safety event

Notable Achievements

88% Percent of WPD customers who have their power restored within one hour of a high-voltage fault

68% Percentage of total waste that is recycled by WPD

13% Reduction in WPD's business carbon footprint compared to 2012/13

Advancing a Cleaner Energy Future

Distribution System Operator - Flexibility

- Enhanced focus on building a smarter, more secure grid that has the flexibility to accommodate distributed energy resources and support new capacity via non-network solutions, such as energy storage and microgrids
- WPD has connected 186,000 sites providing over 9.3GW of distributed generation

Expanding Electric Vehicle Infrastructure

- WPD estimates it will have 1.3 million EVs on its network by 2028 requiring more than £0.5 billion of additional reinforcement

Heat Pump Forecasts

- WPD estimates 210,000 HPs to be installed on WPD's network by 2028, adding 320MW of peak demand. This would drive more than £100 million of additional network reinforcement by 2028

(1) U.K. Climate Change Act 2008.
(2) From the Chancellor of the Exchequers Spring Statement in the House of Commons on March 13, 2019.
(3) From the Chancellor of the Exchequers Spring Statement in the House of Commons on March 13, 2019, influenced by the Committee on Climate Change 2018 Progress Report to Parliament.

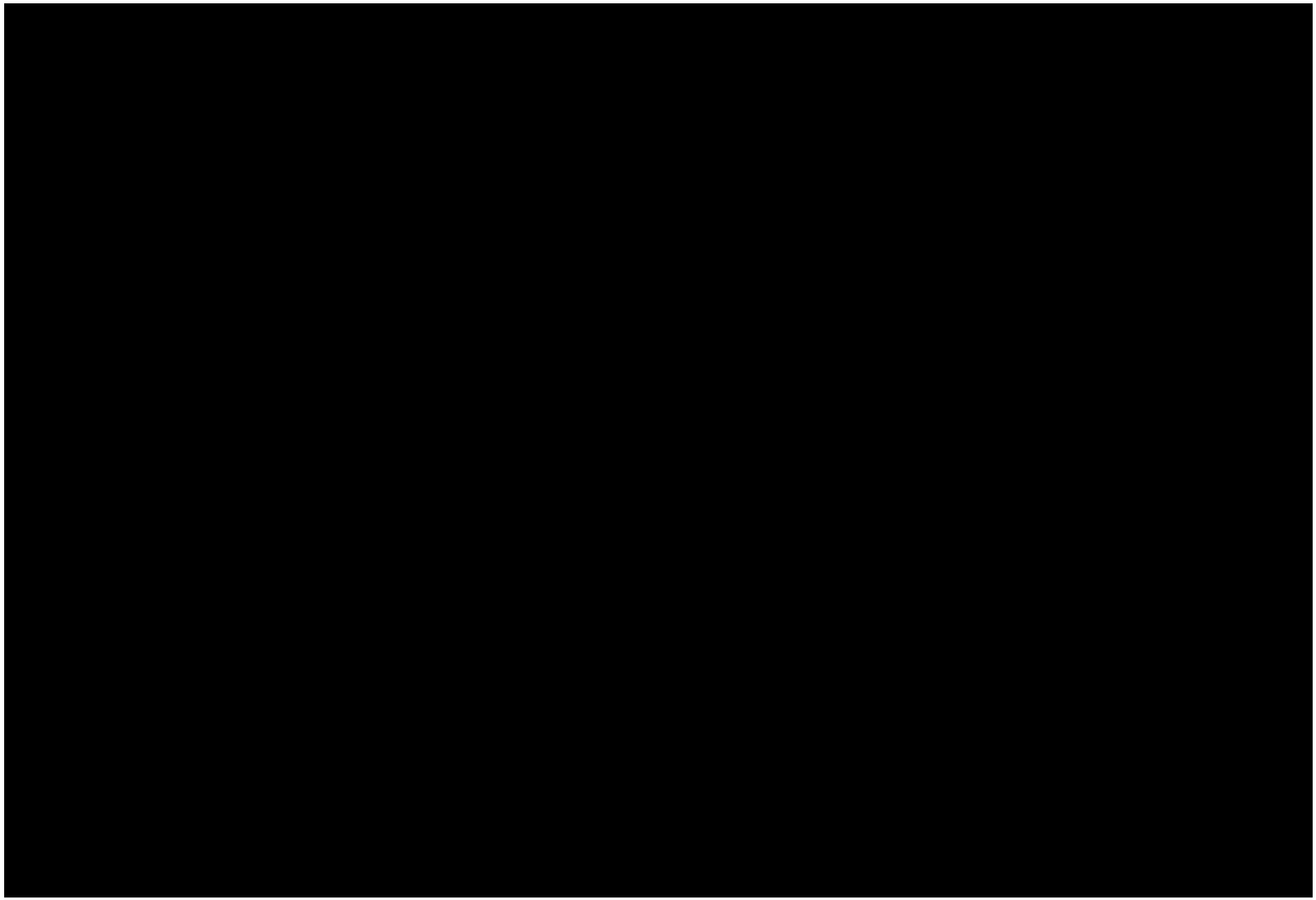
Financial Metrics

Financial Metrics

	2019	2020	2021
PPL Corporation (PPL)			
[redacted]			
PPL Electric Utilities Corporation (EU)			
[redacted]			
LG&E and KU Energy LLC (LKE)			
FFO / Total Debt	14.5%	15.4%	15.9%
Total Debt / EBITDA	5.1x	4.7x	4.6x
EBITDA / Interest	4.9x	5.1x	4.9x
Kentucky Utilities Company (KU)			
FFO / Total Debt	20.8%	22.5%	21.9%
Total Debt / EBITDA	3.7x	3.4x	3.3x
EBITDA / Interest	6.4x	6.5x	6.6x
Louisville Gas and Electric Company (LG&E)			
FFO / Total Debt	20.3%	21.5%	20.3%
Total Debt / EBITDA	3.9x	3.6x	3.6x
EBITDA / Interest	6.5x	6.8x	6.9x

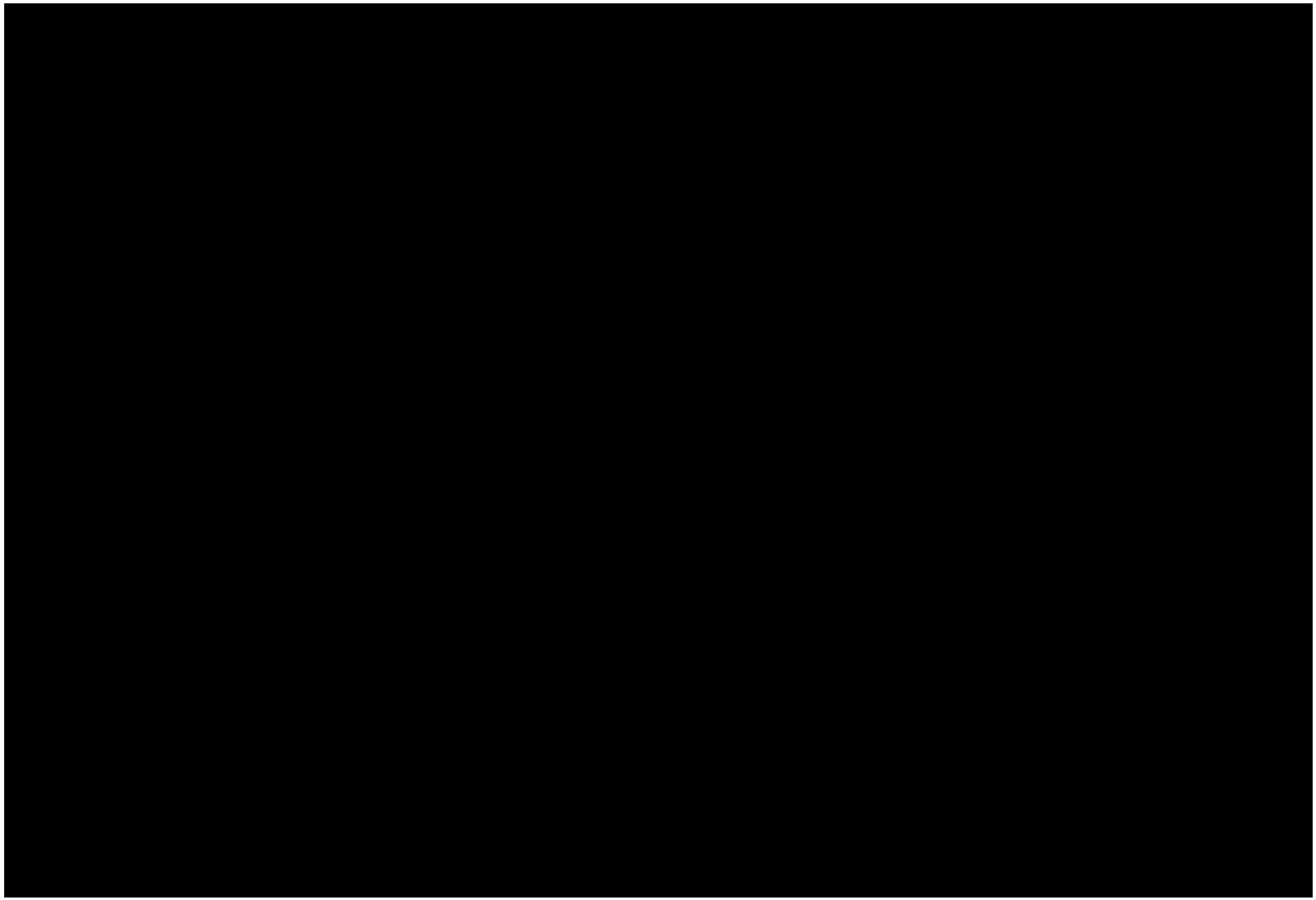
Financial Metrics Details

PPL Corporation



Financial Metrics Details

PPL Electric Utilities Corporation



Financial Metrics Details

LG&E and KU Energy LLC

(Thousands of Dollars)	2019	2020	2021
Funds from Operations (FFO) / Total Debt			
EBITDA - Unadjusted	$ 1,379,545	$ 1,488,116	$ 1,548,964
Current Income Taxes	3,232	(28,287)	(46,922)
Net Interest Expense	(265,975)	(284,680)	(306,164)
Adjustments	(93,680)	(88,797)	(62,729)
FFO - Adjusted	$ 1,023,121	$ 1,086,352	$ 1,133,149
Long-term Debt	$ 5,351,143	$ 4,829,124	$ 4,584,341
Short-term Debt	274,651	446,908	612,293
Intercompany Debt	805,341	1,225,205	1,418,649
Adjustments	643,833	566,758	501,695
Total Debt - Adjusted	$ 7,074,967	$ 7,067,994	$ 7,116,978
FFO / Total Debt	14.5%	15.4%	15.9%
Total Debt / EBITDA			
Total Debt - Adjusted	$ 7,074,967	$ 7,067,994	$ 7,116,978
EBITDA - Unadjusted	$ 1,379,545	$ 1,488,116	$ 1,548,964
Adjustments	18,581	11,003	7,127
EBITDA - Adjusted	$ 1,398,125	$ 1,499,119	$ 1,556,091
Total Debt / EBITDA	5.1x	4.7x	4.6x
EBITDA / Interest			
EBITDA - Adjusted	$ 1,398,125	$ 1,499,119	$ 1,556,091
Interest	$ 282,573	$ 296,782	$ 316,052
EBITDA / Interest	4.9x	5.1x	4.9x

Financial Metrics Details

Kentucky Utilities Company

(Thousands of Dollars)	2019	2020	2021
Funds from Operations (FFO) / Total Debt			
EBITDA - Unadjusted	$ 771,486	$ 822,870	$ 867,391
Current Income Taxes	(1,553)	(10,511)	(77,981)
Net Interest Expense	(111,339)	(118,776)	(126,218)
Adjustments	(62,254)	(54,611)	(31,935)
FFO - Adjusted	$ 596,340	$ 638,971	$ 631,258
Long-term Debt	$ 2,620,596	$ 2,570,038	$ 2,572,863
Short-term Debt	35,002	101,759	171,534
Adjustments	207,064	166,971	134,893
Total Debt - Adjusted	$ 2,862,662	$ 2,838,768	$ 2,879,291
FFO / Total Debt	20.8%	22.5%	21.9%
Total Debt / EBITDA			
Total Debt - Adjusted	$ 2,862,662	$ 2,838,768	$ 2,879,291
EBITDA - Unadjusted	$ 771,486	$ 822,870	$ 867,391
Adjustments	7,884	3,965	1,943
EBITDA - Adjusted	$ 779,370	$ 826,835	$ 869,334
Total Debt / EBITDA	3.7x	3.4x	3.3x
EBITDA / Interest			
EBITDA - Adjusted	$ 779,370	$ 826,835	$ 869,334
Interest	$ 122,215	$ 126,669	$ 132,562
EBITDA / Interest	6.4x	6.5x	6.6x

Financial Metrics Details

Louisville Gas and Electric Company

(Thousands of Dollars)	2019	2020	2021
Funds from Operations (FFO) / Total Debt			
EBITDA - Unadjusted	$ 607,522	$ 662,208	$ 688,312
Current Income Taxes	(1,396)	(18,220)	(60,386)
Net Interest Expense	(90,186)	(94,562)	(97,094)
Adjustments	(20,326)	(22,663)	(19,162)
FFO - Adjusted	$ 495,614	$ 526,763	$ 511,671
Long-term Debt	$ 2,006,694	$ 2,009,326	$ 2,011,478
Short-term Debt	201,639	233,174	323,541
Adjustments	231,377	205,243	183,744
Total Debt - Adjusted	$ 2,439,710	$ 2,447,744	$ 2,518,763
FFO / Total Debt	20.3%	21.5%	20.3%
Total Debt / EBITDA			
Total Debt - Adjusted	$ 2,439,710	$ 2,447,744	$ 2,518,763
EBITDA - Unadjusted	$ 607,522	$ 662,208	$ 688,312
Adjustments	11,447	8,612	7,325
EBITDA - Adjusted	$ 618,969	$ 670,820	$ 695,637
Total Debt / EBITDA	3.9x	3.6x	3.6x
EBITDA / Interest			
EBITDA - Adjusted	$ 618,969	$ 670,820	$ 695,637
Interest	$ 95,907	$ 98,771	$ 100,638
EBITDA / Interest	6.5x	6.8x	6.9x

LOUISVILLE GAS AND ELECTRIC COMPANY

Response to First Request for Information of the
United States Department of Defense and All Other Federal Executive Agencies
Dated January 8, 2021

Case No. 2020-00350

Question No. 37

Responding Witness: Daniel K. Arbough / Robert M. Conroy

Q-1-37. Please identify the common equity ratio and return on equity approved in LGE's last fully litigated rate case for its Kentucky retail operations.

A-1-37. See the Commission's Order issued April 30, 2019 in Case No. 2018-00295.

LOUISVILLE GAS AND ELECTRIC COMPANY

Response to First Request for Information of the
United States Department of Defense and All Other Federal Executive Agencies
Dated January 8, 2021

Case No. 2020-00350

Question No. 38

Responding Witness: Daniel K. Arbough

Q-1-38. Please provide copies of all credit reports published by Standard & Poor's ("S&P"), Moody's and Fitch Ratings for LGE and their parent company issued over the last two years.

A-1-38. The LG&E rating agency reports have been provided in the response to AG/KIUC 1-104. The reports for LG&E and KU Energy LLC are attached. Fitch no longer rates these entities per the Companies' request.

MOODY'S
INVESTORS SERVICE

CREDIT OPINION
25 October 2019

Update

Rate this Research

RATINGS

LG&E and KU Energy LLC

Domicile	Louisville, Kentucky, United States
Long Term Rating	Baa1
Type	LT Issuer Rating
Outlook	Stable

Please see the ratings section at the end of this report for more information. The ratings and outlook shown reflect information as of the publication date.

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» *Contacts continued on last page*

CLIENT SERVICES

Americas	1-212-553-1653
Asia Pacific	852-3551-3077
Japan	81-3-5408-4100
EMEA	44-20-7772-5454

LG&E and KU Energy LLC

Update to credit analysis

Summary

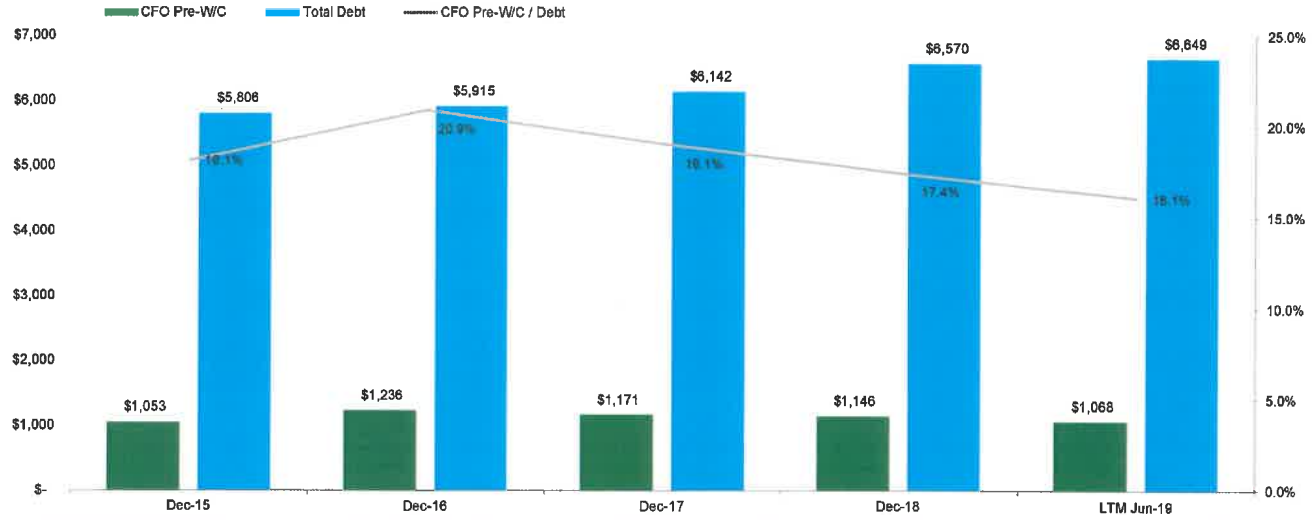
LG&E and KU Energy LLC's (LKE) is an intermediate holding company of two vertically-integrated utilities: Louisville Gas & Electric Company (LG&E) and Kentucky Utilities Company (KU). LKE is owned by PPL Corporation (PPL). LKE's credit reflects the supportive regulatory relationships in the states of Kentucky and Virginia, where its utility subsidiaries operate. Both subsidiaries have stable utility operations that have produced relatively consistent credit metrics historically. LG&E and KU contribute approximately 17% and 23%, respectively, of the cash flow to its diversified and low business risk ultimate parent company, PPL. LG&E and KU's large capital investment plans may pressure certain credit metrics, which will impact LKE's ratio of cash flow from operations before changes in working capital (CFO pre-WC) to debt to be in a 16% to 18% range, which is slightly weaker than its historical level. To a lesser extent, LG&E and KU's positive factors are also somewhat offset by a lack of fuel and geographic diversity. We also consider the degree of structural subordination that exists at LKE relative to substantial amounts of debt at its operating utility subsidiaries.

We view the Kentucky regulatory environment, where both KU and LG&E operate, to be supportive due to its transparent and credit supportive framework. A minor portion of KU's utility operations is in Virginia and is regulated by the Virginia State Corporation Commission (SCC). We also view the regulatory environment in Virginia to be supportive. LKE's subsidiaries have various tracker mechanisms allowed by the commissions and they provide a relatively timely recovery of the company's investment costs.

Both utilities have been active with general rate cases recently. In April 2019, KU and LG&E reached a settlement for an electric rate case and approved by the Kentucky Public Service Commission (KPSC). In July 2019, KU filed for an electric rate case in Virginia, requesting a $13 million rate increase. Its last rate case in Virginia concluded in May 2018. The final decision from the Virginia State Corporation Commission (SCC) is expected by April 2020.

Exhibit 1

Historical CFO Pre-WC, Total Debt and CFO Pre-WC to Debt *($MM)*



Source: Moody's Financial Metrics

Credit strengths

» Supportive regulatory environments in Kentucky and Virginia

» Adequate financial profile with transparent and predictable cash flows

Credit challenges

» Slightly pressured credit metrics due to large capital investment program

» High coal concentration for its power generation fuel

» Moderate carbon transition risk

Rating outlook

The stable outlook reflects our expectation that the regulatory environment in Kentucky and Virginia will remain supportive and consistent. The stable outlook also incorporates our view that LKE will continue to generate stable cash flow and adequate financial metrics, including a ratio of CFO pre-WC to debt in the 16%-18% range while its utilities execute a large capital investment program. It also considers the stable outlook of PPL.

Factors that could lead to an upgrade

LKE's rating could be upgraded if its financial metrics increase, including CFO pre-WC to debt is higher than 20% on a sustained basis. A rating upgrade would likely require an upgrade at the utility operating subsidiaries or a material reduction of debt at LKE. However, it is unlikely that LKE's rating will be upgraded while the subsidiaries are in the midst of executing on large capital investment programs.

Factors that could lead to a downgrade

LKE's ratings could be downgraded if one or both of the subsidiaries experience negative rating actions or a significant deterioration in the credit supportiveness of the regulatory environments. Additionally, LKE's rating could be downgraded if its financial metrics deteriorate, such that CFO pre-WC to debt declines below 16% for an extended period of time. LKE's rating could also be downgraded if there is a material increase in LKE debt levels.

Key indicators

Exhibit 2
LG&E and KU Energy LLC [1]

	Dec-15	Dec-16	Dec-17	Dec-18	LTM Jun-19
CFO Pre-W/C + Interest / Interest	6.4x	6.4x	6.1x	5.6x	5.1x
CFO Pre-W/C / Debt	18.1%	20.9%	19.1%	17.4%	16.1%
CFO Pre-W/C – Dividends / Debt	14.4%	15.6%	12.5%	12.8%	11.9%
Debt / Capitalization	49.3%	48.2%	53.3%	53.8%	53.2%

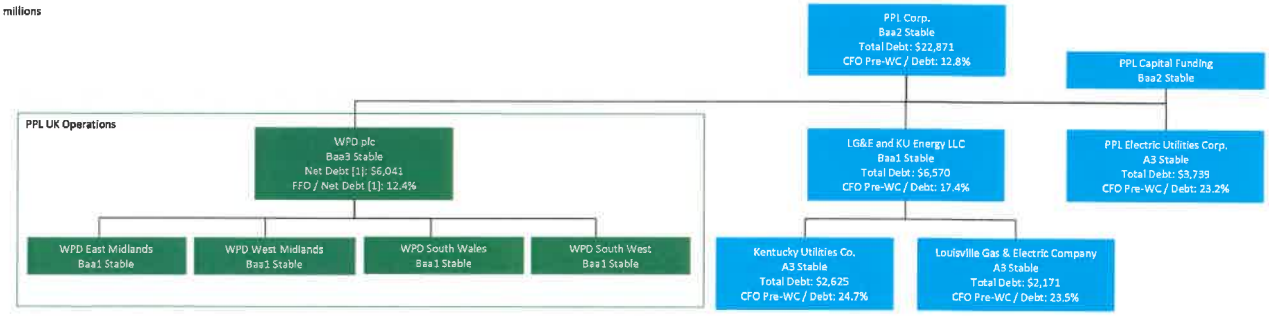
[1]All ratios are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations. Financial Metrics™
Source: Moody's Financial Metrics

Profile

LG&E and KU Energy LLC (LKE) is an intermediate holding company with two fully regulated operating subsidiaries: Louisville Gas and Electric Company (LG&E, A3 stable) and Kentucky Utilities (KU, A3 stable). LG&E and KU are engaged in the generation, transmission and distribution of electricity and the storage, distribution and sale of natural gas in Kentucky. LKE provides transmission and distribution services to approximately 969,000 electricity customers and 328,000 natural gas customers predominantly in Kentucky.

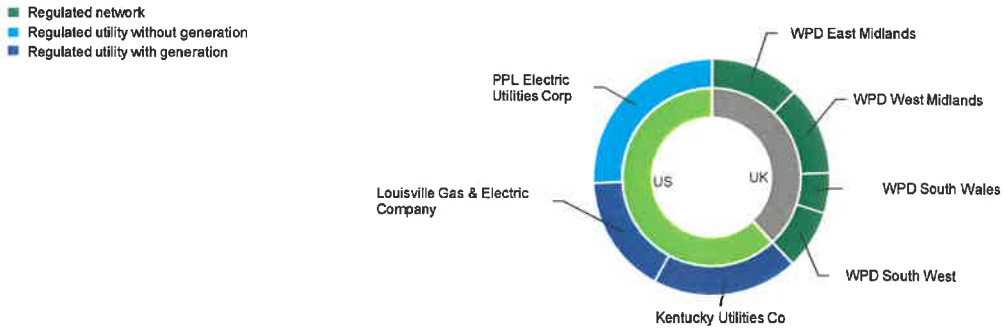
LKE is wholly owned by PPL Corporation (PPL, Baa2 stable), a diversified utility holding company headquartered in Allentown, PA.

Exhibit 3
Organizational Structure
As of 12/31/2018
$ in millions



[1] As of 3/31/2019; CFO Pre-WC to Debt is not a key metric we use for WPD and subsidiaries. WPD and subsidiaries are assessed under the Regulated Electric and Gas Networks Industry Grid
[2] Metrics are based on 'adjusted' financial data and incorporate Moody's Global Standard Adjustments for non-financial corporations.
Source: Moody's Financial Metrics, Company

Exhibit 4
PPL's rate base breakdown between the US and UK jurisdictions



Source: Company Reports

Detailed credit considerations

Constructive rate case outcomes in Kentucky and Virginia

The regulatory framework in Kentucky is supportive for long-term credit quality. The KPSC has authorized various tracker mechanisms, allowing timely cost recovery for utility investments outside of a rate case, credit positive since LG&E and KU are going through large capital expenditure plans. The operating utility subsidiaries' tracker mechanisms include a Fuel Adjustment Clause (FAC), an Environmental Cost Recovery Surcharge (ECR) and a Demand-Side Management (DSM) Cost Recovery Mechanism. LKE utilities do not have a decoupling mechanism in place, which subjects their revenue to some volatility. The lack of a decoupling mechanism is less of an issue for non-weather related demand fluctuations because the utilities have the DSM mechanism.

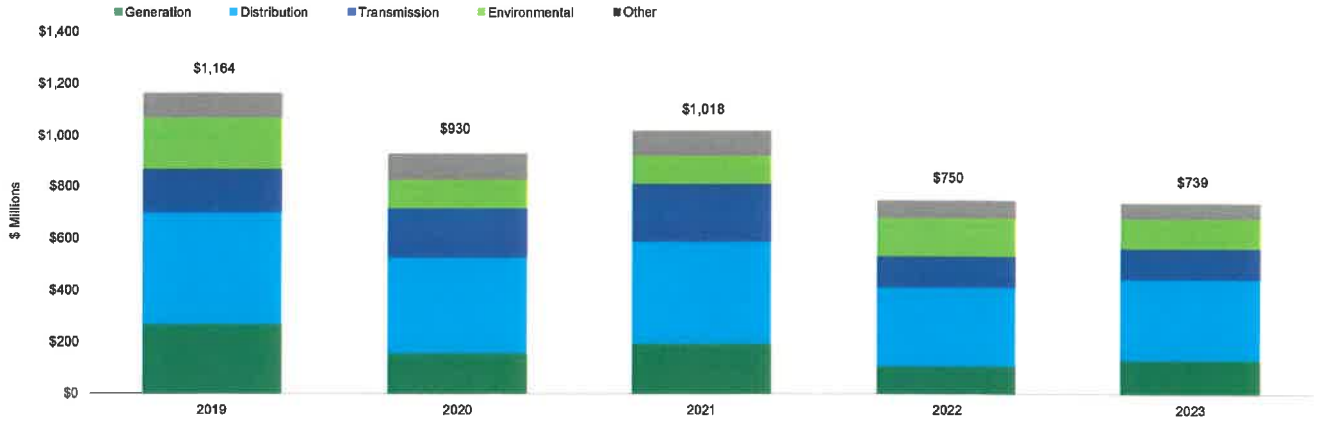
Both KU and LG&E completed their last Kentucky rate case in April 2019. The case was settled and the combined electric and gas rate increase of approximately $77 million was approved by the KPSC. The increase was based on a 9.73% return on equity but the settlement did not disclose the allowed equity layer incorporated in the increase.

The KPSC also approved to terminate the Tax Cuts and Jobs Act (TCJA) bill credit mechanism which was used to reduce both electric and gas rates to reflect the impact of the tax reform. With the new rates from the latest rate cases were implemented, the termination was approved. This represented a total annual revenue increase of $114 million for KU and $73 million for LG&E, effective as of May 2019.

High capital investment plan over the next five years

LG&E and KU are currently in the midst of a large capital investment plan and expect to spend approximately $4.6 billion including mechanism spending combined over the next five years. Both companies' capitalization for ratemaking purpose value estimated around $7.4 billion, excluding mechanism capitalization. Approximately $1.8 billion will be spent on distribution facilities, $855 million on generating facilities, $682 million on environmental, $823 million transmission facilities, and $425 million on other expenses. The total projected capital investment represents about 37% of LKE's net book value of property, plant and equipment, which was about $12.6 billion at the end of 2018.

Exhibit 5
Projected Capital Investment Plan



Source: Company Reports

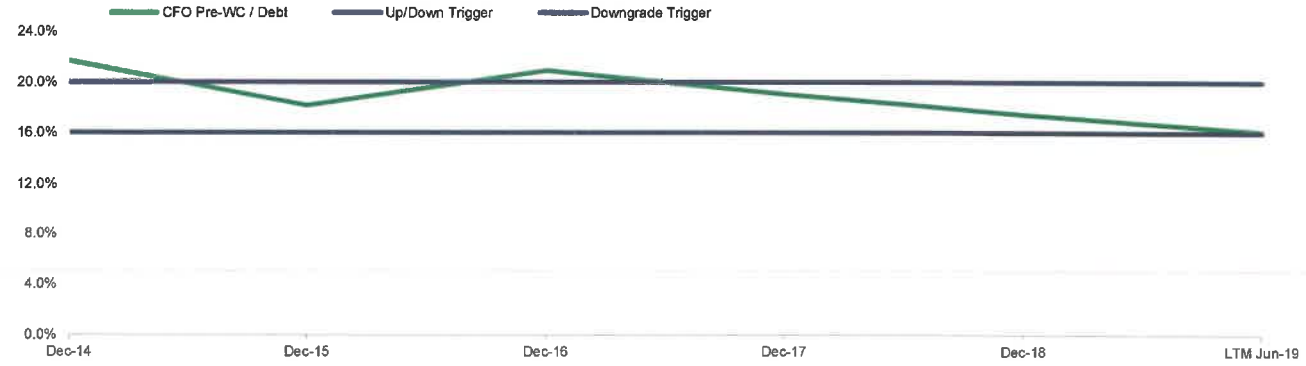
We expect cost recovery risk related to the large capital investment to be meaningfully moderated by Kentucky's supportive regulatory environment, especially regarding the environmental expenditures through the ECR. The KPSC is also authorized to grant return on construction work in progress (CWIP) in rate case proceedings, a credit positive. Moreover, the ECR minimizes regulatory lag for investments associated with coal combustion waste. The terms of the ECR allow the LKE utilities to receive a return on and of investments two months after the capital is deployed. We view this to be credit supportive compared to the traditional rate-making process where there would be longer regulatory lag due to the length of the construction period and subsequent rate case proceedings.

Adequate financial profile, but slightly pressured credit metrics

LKE has historically maintained a consistent financial profile with its ratio of CFO pre-WC to debt. However, we expect metrics to weaken, moving closer to the mid-teens range over the next 12-18 months. As of the last twelve month (LTM) period ending 30 June 2019, CFO pre-WC to debt was 16.1% and 18.6% on average for the past three years. The decline in metrics is caused by elevated capital investments as well as the negative impact of tax reform. However, existing cost recovery mechanisms should result in timely recovery of investments and should help LKE maintain its key credit metrics within the adequate ranges. Also, a capital contribution received from PPL of approximately $63 million as of LTM 30 June 2019 has slightly helped mitigate the pressure on its cash flow.

Exhibit 6

LKE's Historical CFO pre-WC to Debt vs Financial Metric Upgrade/Downgrade Thresholds



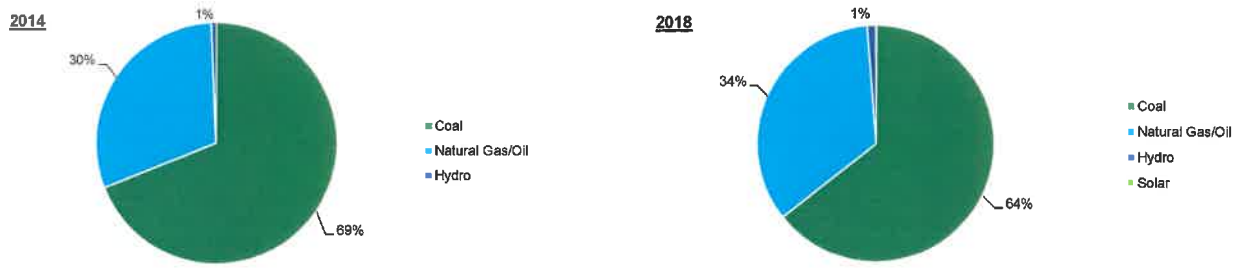
Source: Moody's Financial Metrics

Environmental, social and governance considerations

LKE has moderate carbon transition risk within the US regulated utility sector because it is a vertically integrated intermediate holding company although its regulated utilities have a large, fossil based generation capacity. Kentucky's political and regulatory environment is supportive of coal mining and related industries. LKE has a total generation capacity of 8.0 GW, and 5.2 GW (64%) is coal-fired, which provides the majority (81%) of the electricity generation output. The remaining 19% of the electricity generating output is comprised mainly of gas/oil-fired, hydro, and solar facilities. Over the last two years, LKE's fuel mix improved with the addition of the 660-MW gas-fired combined-cycle power plant at Cane Run, replacing older retired coal-fired power plants Tyrone and Green River as well as the Cane Run coal plant. Due to environmental requirements and energy efficiency measures, KU retired two older coal units at the E.W Brown plant in the first quarter of 2019 with a combined capacity of ~300 MW.

Exhibit 7

LKE Generation Mix (MW)



Source: Company reports

Fuel concentration in coal is typically considered to be a significant credit negative. However, we do not view LKE's high reliance on coal to be as negative as some other companies because the state of Kentucky is very supportive of the coal industry. This support is evidenced by the ECR, which provides the company with credit supportive terms for its investments in coal-related environmental

expenditures. However, LKE is exposed to the risk of potentially needing to make a more rapid transition to clean energy in the future if carbon policies change.

Liquidity analysis

We expect LKE to maintain an adequate liquidity profile over the next 12-18 months. Although the utilities has an elevated capital investment program over the next few years, we anticipate their liquidity will be supported by relatively stable and predictable cash flows and good access to capital markets.

LKE subsidiaries have separate credit facilities. LG&E's liquidity is supported by a $500 million syndicated credit facility that expires in January 2024. As of 30 June 2019, the credit facility had $404 million of available capacity. LG&E had a $200 million term loan facility that was set to expire in October 2019. In April 2019, LG&E issued $400 million of first mortgage bonds due 2049. The proceeds were used to repay commercial paper and LG&E's term loan. KU's liquidity is supported by a separate $400 million syndicated credit facility that expires in January 2024 and a $198 million letter of credit facility expiring in October 2020. As of 30 June 2019, the credit facility had $400 million of available capacity. Both credit facilities contain one financial covenant, a limitation on the ratio of debt to capitalization of 70%, which they were in compliance with at the end of the second quarter of 2019. The facilities do not contain material adverse change clause.

LKE's $75 million syndicated credit facility expired on 30 October 2018, further weakening LKE's liquidity position.

Over the LTM period ending 30 June 2019, LKE generated consolidated cash flow from operations of approximately $920 million, spent about $1.1 billion in capital investments and paid $278 million in dividends, resulting in a negative free cash flow of approximately $441 million. Due to the high level of planned capital investments of the LKE subsidiaries, we expect LKE to remain in a negative free cash flow position over the next 12-18 months.

LKE's next long-term debt maturity is $475 million senior notes due in November 2020.

Structural considerations

As an intermediate holding company, the current rating at LKE factors in the degree of structural subordination that exists relative to the debt outstanding at the operating utilities, KU and LG&E. Of the approximate $6.2 billion of consolidated long-term debt, $1.6 billion, or 26%, is issued at the LKE level. The consolidated credit profile of PPL also influences LKE's rating.

Rating methodology and scorecard factors

Exhibit 8
Rating Factors
LG&E and KU Energy LLC

Regulated Electric and Gas Utilities Industry Scorecard [1][2]	Current LTM 6/30/2019		Moody's 12-18 Month Forward View As of Date Published [3]	
Factor 1 : Regulatory Framework (25%)	**Measure**	**Score**	**Measure**	**Score**
a) Legislative and Judicial Underpinnings of the Regulatory Framework	A	A	A	A
b) Consistency and Predictability of Regulation	A	A	A	A
Factor 2 : Ability to Recover Costs and Earn Returns (25%)				
a) Timeliness of Recovery of Operating and Capital Costs	Baa	Baa	Baa	Baa
b) Sufficiency of Rates and Returns	A	A	A	A
Factor 3 : Diversification (10%)				
a) Market Position	Baa	Baa	Baa	Baa
b) Generation and Fuel Diversity	Baa	Baa	Baa	Baa
Factor 4 : Financial Strength (40%)				
a) CFO pre-WC + Interest / Interest (3 Year Avg)	5.8x	A	4.5x - 5.5x	A
b) CFO pre-WC / Debt (3 Year Avg)	18.6%	Baa	16% - 18%	Baa
c) CFO pre-WC – Dividends / Debt (3 Year Avg)	13.1%	Baa	12% - 14%	Baa
d) Debt / Capitalization (3 Year Avg)	51.7%	Baa	52% - 54%	Baa
Rating:				
Scorecard-Indicated Outcome Before Notching Adjustment		Baa1		Baa1
HoldCo Structural Subordination Notching		-1		-1
a) Scorecard-Indicated Outcome		Baa2		Baa2
b) Actual Rating Assigned		Baa1		Baa1

[1] All ratios are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.
[2] As of 6/30/2019(L)
[3] This represents Moody's forward view; not the view of the issuer; and unless noted in the text, does not incorporate significant acquisitions and divestitures.
Source: Moody's Financial Metrics

Appendix

Exhibit 9

Cash Flow and Credit Metrics [1]

CF Metrics	Dec-15	Dec-16	Dec-17	Dec-18	LTM Jun-19
As Adjusted					
FFO	1,061	1,177	1,129	1,069	1,108
+/- Other	(8)	59	42	77	(40)
CFO Pre-WC	1,053	1,236	1,171	1,146	1,068
+/- ΔWC	135	(33)	20	80	39
CFO	1,188	1,203	1,191	1,226	1,107
- Div	219	316	402	302	278
- Capex	1,230	813	915	1,141	1,100
FCF	(261)	74	(126)	(217)	(271)
(CFO Pre-W/C) / Debt	18.1%	20.9%	19.1%	17.4%	16.1%
(CFO Pre-W/C - Dividends) / Debt	14.4%	15.6%	12.5%	12.8%	11.9%
FFO / Debt	18.3%	19.9%	18.4%	16.3%	16.7%
RCF / Debt	14.5%	14.6%	11.8%	11.7%	12.5%
Revenue	3,115	3,141	3,156	3,214	3,176
Cost of Good Sold	1,034	948	923	985	941
Interest Expense	195	227	230	251	261
Net Income	333	429	318	318	316
Total Assets	14,190	14,475	14,906	15,528	15,630
Total Liabilities	9,673	9,852	10,384	10,844	10,792
Total Equity	4,517	4,623	4,522	4,684	4,838

[1] All figures and ratios calculated using Moody's estimates & standard adjustments. Periods are Financial Year-End unless indicated otherwise. LTM = Last Twelve Months
Source: Moody's Financial Metrics

Exhibit 10

Peer Comparison Table [1]

	LG&E and KU Energy LLC			Vectren Utility Holdings, Inc.			Alliant Energy Corporation			Kentucky Utilities Co.			Louisville Gas & Electric Company		
	Baa1 Stable			A2 Negative			(P)Baa1 Negative			A3 Stable			A3 Stable		
(In US millions)	FYE Dec-17	FYE Dec-18	LTM Jun-19	FYE Dec-17	FYE Dec-18	LTM Jun-19	FYE Dec-17	FYE Dec-18	LTM Jun-19	FYE Dec-17	FYE Dec-18	LTM Jun-19	FYE Dec-17	FYE Dec-18	LTM Jun-19
Revenue	3,156	3,214	3,176	1,383	1,441	1,440	3,382	3,535	3,580	1,744	1,760	1,731	1,453	1,496	1,486
CFO Pre-W/C	1,171	1,146	1,068	418	407	318	942	974	1,005	699	648	627	566	510	526
Total Debt	6,142	6,570	6,649	1,815	1,951	2,086	5,906	6,687	7,188	2,440	2,625	2,678	1,984	2,171	2,146
CFO Pre-W/C / Debt	19.1%	17.4%	16.1%	23.0%	20.8%	15.2%	15.9%	14.6%	14.0%	28.6%	24.7%	23.4%	28.5%	23.5%	24.5%
CFO Pre-W/C – Dividends / Debt	12.5%	12.8%	11.9%	16.2%	14.3%	11.6%	11.2%	10.0%	9.6%	19.4%	15.3%	15.9%	18.9%	16.3%	17.7%
Debt / Capitalization	53.3%	53.8%	53.2%	45.4%	45.1%	46.3%	51.3%	52.2%	53.3%	37.7%	38.7%	38.3%	39.1%	39.7%	38.7%

[1] All figures & ratios calculated using Moody's estimates & standard adjustments. FYE = Financial Year-End. LTM = Last Twelve Months. RUR* = Ratings under Review, where UPG = for upgrade and DNG = for downgrade
Source: Moody's Financial Metrics

Ratings

Exhibit 11

Category	Moody's Rating
LG&E AND KU ENERGY LLC	
Outlook	Stable
Issuer Rating	Baa1
Senior Unsecured	Baa1
PARENT: PPL CORPORATION	
Outlook	Stable
Issuer Rating	Baa2
KENTUCKY UTILITIES CO.	
Outlook	Stable
Issuer Rating	A3
First Mortgage Bonds	A1
Senior Secured	A1
Sr Unsec Bank Credit Facility	A3
Bkd LT IRB/PC	A1
Commercial Paper	P-2
Bkd Other Short Term	P-2
LOUISVILLE GAS & ELECTRIC COMPANY	
Outlook	Stable
Issuer Rating	A3
First Mortgage Bonds	A1
Senior Secured	A1
Sr Unsec Bank Credit Facility	A3
Bkd LT IRB/PC	A1
Commercial Paper	P-2
Bkd Other Short Term	P-2

Source: Moody's Investors Service

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CREDIT OPINION
23 October 2020

Update

Rate this Research

RATINGS

LG&E and KU Energy LLC

Domicile	Louisville, Kentucky, United States
Long Term Rating	Baa1
Type	LT Issuer Rating
Outlook	Stable

Please see the ratings section at the end of this report for more information. The ratings and outlook shown reflect information as of the publication date.

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LG&E and KU Energy LLC

Update to credit analysis

Summary

LG&E and KU Energy LLC (LKE) is an intermediate holding company of two vertically integrated utilities: Louisville Gas & Electric Company (LG&E) and Kentucky Utilities Company (KU). LKE is wholly owned by PPL Corporation (PPL). LKE's credit strengths include its supportive regulatory environments in the states of Kentucky and Virginia, where its utility subsidiaries operate. Historically, both subsidiaries have produced relatively consistent credit metrics from stable utility operations. LG&E and KU contribute approximately 19% and 22%, respectively, of the cash flow of its ultimate parent company, PPL. LG&E and KU's large capital investment plans may pressure credit metrics, which will cause LKE's ratio of cash flow from operations before changes in working capital (CFO pre-WC) to debt to be in a 16% to 18% range, which is slightly weaker than historical levels. To a lesser extent, LG&E and KU's positive credit factors are somewhat offset by a lack of fuel and geographic diversity. We also consider the degree of structural subordination that exists at LKE relative to a substantial amount of debt at its operating utility subsidiaries.

The supportive regulatory environment of Kentucky, where both KU and LG&E operate, has a transparent recovery framework under the Kentucky Public Service Commission (KPSC). A minor portion of KU's utility operations is in Virginia and is regulated by the Virginia State Corporation Commission (VSCC). We also view the regulatory environment in Virginia to be supportive. LKE's subsidiaries have various tracker mechanisms allowed by the commissions and they provide relatively timely recovery of the company's investment costs.

Recent developments

In August 2020, PPL announced that it had initiated a process to sell its utility assets in the United Kingdom that have a total estimated rate base of around $10 billion and approximately $8 billion of debt. If PPL is successful in divesting its UK assets, we estimate its Kentucky operations will proportionally increase to more than half of rate base from around 37%. Due to their vertically integrated utility business model with coal as the primary fuel source for its generation in Kentucky, we would view PPL's overall business risk to be higher.

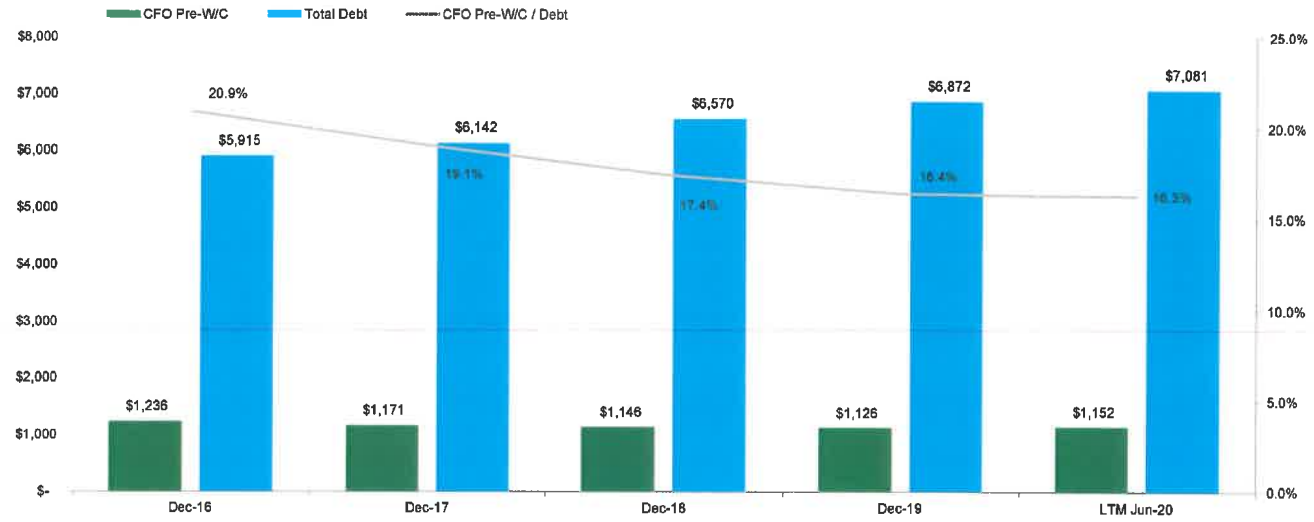
The rapid spread of the coronavirus outbreak, severe global economic shock and asset price volatility are creating a severe and extensive credit shock across many sectors, regions and markets. The combined credit effects of these developments are unprecedented. We regard the coronavirus outbreak as a social risk under our ESG framework, given the substantial implications for public health and safety.

We expect LKE to be relatively resilient to recessionary pressures related to the coronavirus because of its rate regulated business model and timely cost recovery mechanisms.

Nevertheless, we are watching for electricity usage declines, utility bill payment delinquency, and the regulatory response to counter these effects on earnings and cash flow. As events related to the coronavirus continue, we are taking into consideration a wider range of potential outcomes, including more severe downside scenarios. The effects of the pandemic could result in financial metrics that are weaker than expected; however, we see these issues as temporary and not reflective of the long-term financial profile or credit quality of LKE.

Exhibit 1

Historical CFO Pre-WC, Total Debt and CFO Pre-WC to Debt ($ MM)



Source: Moody's Financial Metrics

Credit strengths

» Supportive regulatory frameworks in Kentucky and Virginia

» Adequate financial profile with transparent and predictable cash flows

Credit challenges

» Slightly pressured credit metrics due to utility subsidiaries' large capital investment program

» High coal concentration for its power generation fuel

» Moderate carbon transition risk

Rating outlook

LKE's stable outlook reflects our expectation that the regulatory environments in Kentucky and Virginia will remain supportive and consistent. The stable outlook also incorporates our view that LKE will continue to generate predictable cash flow and adequate financial metrics, including a ratio of CFO pre-WC to debt in the 16%-18% range as its utilities execute a large capital investment program. It also considers the stable outlook of parent company PPL.

Factors that could lead to an upgrade

LKE's rating could be upgraded if its financial metrics increase, including CFO pre-WC to debt above 20% on a sustained basis. A rating upgrade would likely require an upgrade of its utility operating subsidiaries or a material reduction of debt at LKE. However, it is unlikely that LKE's rating will be upgraded while the subsidiaries are in the midst of large capital investment programs.

Factors that could lead to a downgrade

LKE's ratings could be downgraded if one or both of the subsidiaries experience negative rating actions or a significant deterioration in the credit supportiveness of the regulatory environments. Additionally, LKE's rating could be downgraded if its financial metrics deteriorate, such that CFO pre-WC to debt declines below 16% for an extended period of time. LKE's rating could also be downgraded if there is a material increase in LKE debt levels.

Key indicators

Exhibit 2
LG&E and KU Energy LLC [1]

	Dec-16	Dec-17	Dec-18	Dec-19	LTM Jun-20
CFO Pre-W/C + Interest / Interest	6.4x	6.1x	5.6x	5.2x	5.3x
CFO Pre-W/C / Debt	20.9%	19.1%	17.4%	16.4%	16.3%
CFO Pre-W/C – Dividends / Debt	15.6%	12.5%	12.8%	11.9%	11.9%
Debt / Capitalization	48.2%	53.3%	53.8%	53.5%	53.7%

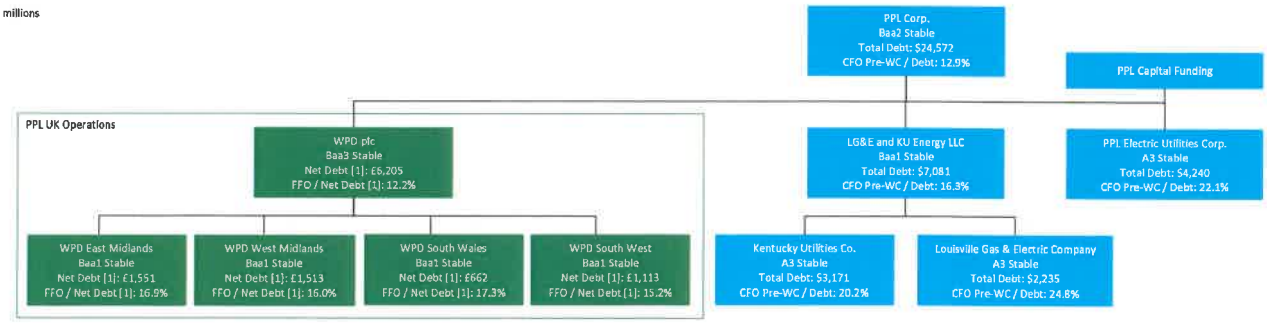
[1]All ratios are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.
Source: Moody's Financial Metrics

Profile

LG&E and KU Energy LLC (LKE) is an intermediate holding company with two fully regulated operating subsidiaries: Louisville Gas and Electric Company (LG&E, A3 stable) and Kentucky Utilities (KU, A3 stable). LG&E and KU are engaged in the generation, transmission and distribution of electricity and the storage, distribution and sale of natural gas in Kentucky. LKE provides transmission and distribution services to approximately 976,000 electricity customers and 329,000 natural gas customers predominantly in Kentucky.

LKE is wholly owned by PPL Corporation (PPL, Baa2 stable), a diversified utility holding company headquartered in Allentown, PA.

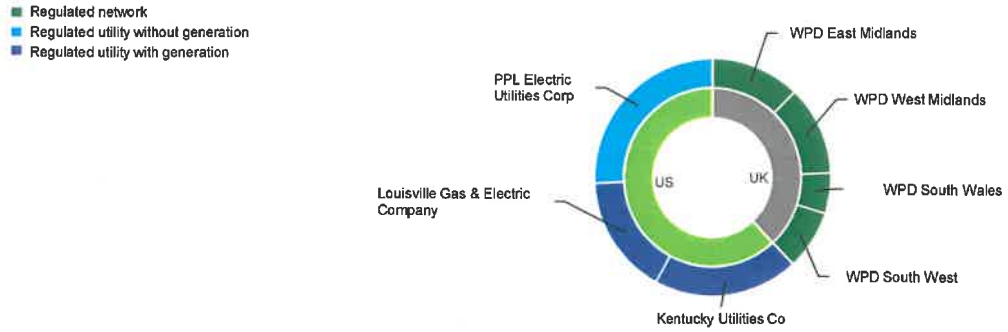
Exhibit 3
Organizational Structure
As of LTM 30 June 2020
$ in millions



[1] As of 3/31/2020; CFO Pre-WC to Debt is not a key metric we use for WPD and subsidiaries. WPD and subsidiaries are assessed under the Regulated Electric and Gas Networks Industry Grid.
[2] Metrics are based on 'adjusted' financial data and incorporate Moody's Global Standard Adjustments for non-financial corporations.
Source: Moody's Financial Metrics

Exhibit 4

PPL's rate base breakdown between the US and UK jurisdictions



Source: Company Reports

Detailed credit considerations

Supportive regulatory environments in Kentucky and Virginia

We view the regulatory frameworks provided by Kentucky and Virginia to be supportive. The KPSC has approved various tracker mechanisms that provide timely recovery of costs outside of a general rate case. Some of the authorized tracker mechanisms include a Fuel Adjustment Clause (FAC), an Environmental Cost Recovery Surcharge (ECR), a Gas Supply Clause (GSC), a Gas Line Tracker (GLT), and a Demand-Side Management (DSM) Cost Recovery Mechanism. The Kentucky operating utilities do not have decoupling mechanisms in place, which subjects LG&E and KU's revenue to some volatility. However, the impact on its revenue due to non-weather related demand fluctuations is minimized because of the DSM mechanism.

Both KU and LG&E completed their last Kentucky rate case in April 2019. The case was settled and the combined electric and gas rate increase of approximately $77 million was approved by the KPSC. The increase was based on a 9.725% return on equity but the settlement did not disclose the allowed equity layer incorporated in the increase.

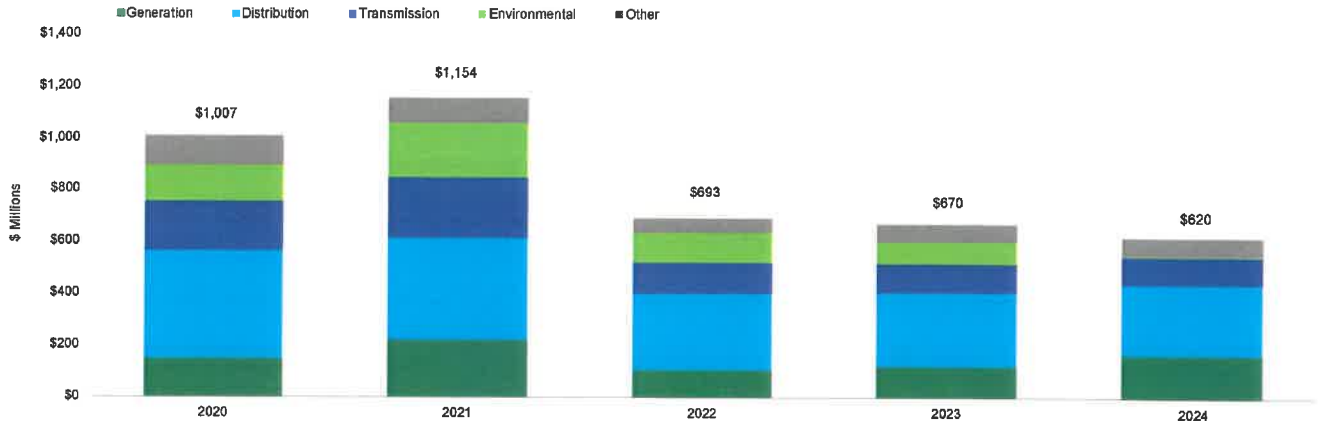
The KPSC also approved the termination of the Tax Cuts and Jobs Act (TCJA) bill credit mechanism which was used to reduce both electric and gas rates to reflect the impact of tax reform. When the new rates from the latest rate cases were implemented, the termination became effective. This represented a total annual revenue increase of $114 million for KU and $73 million for LG&E, effective as of May 2019.

In July 2019, KU filed for an electric rate case in Virginia, requesting a revenue increase of approximately $13 million. KU also requested an allowed ROE of 10.5% and an equity layer of 54.04%. In April 2020, the VSCC authorized a rate increase of $9 million under a settlement that did not specify the allowed ROE and equity layer.

Large capital investment plan over the next five years

LG&E and KU are currently in the midst of a large capital investment plan and expect to spend approximately $4.1 billion including capital investments that are recovered under rate adjustment mechanisms combined over the next five years. Both companies' capitalization for ratemaking purposes is estimated around $10 billion. Approximately $1.7 billion will be spent on distribution facilities, $763 million on generating facilities, $549 million on environmental, $764 million transmission facilities, and $407 million on other expenses. The total projected capital investment represents about 32% of LKE's net book value of property, plant and equipment, which was about $13 billion at the end of 2019.

Exhibit 5
Projected Capital Investment Plan



Source: Company Reports

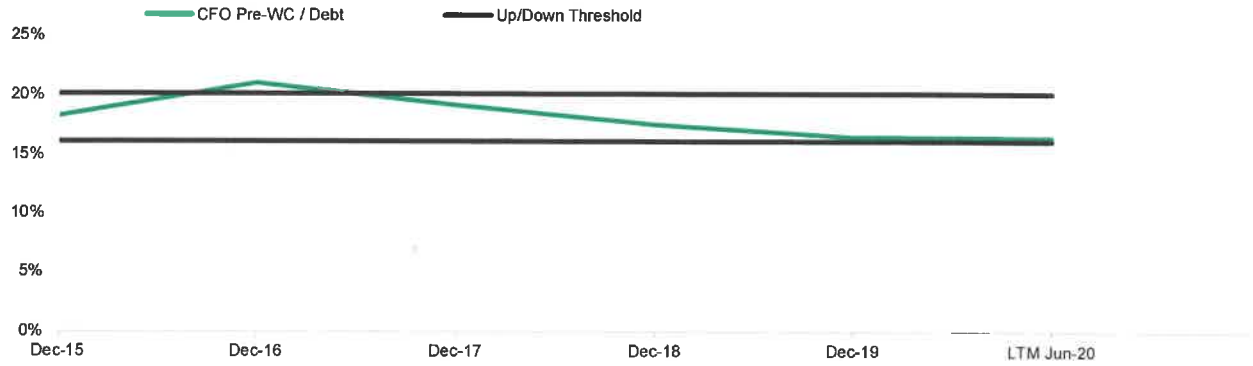
We expect cost recovery risk related to this large capital investment to be meaningfully moderated by Kentucky's supportive regulatory environment, especially regarding environmental expenditures through the ECR. The KPSC is also authorized to grant a return on construction work in progress (CWIP) in rate case proceedings, a credit positive. Moreover, the ECR minimizes regulatory lag for investments associated with coal combustion waste. The terms of the ECR allow the LKE utilities to receive a return on and of investments two months after the capital is deployed. We view this to be credit supportive compared to a traditional rate making process where there would be longer regulatory lag due to the length of the construction period and subsequent rate case proceedings.

Adequate financial profile, but slightly pressured credit metrics

Historically, LKE has maintained a consistent financial profile with its ratio of CFO pre-WC to debt in the high teens range. However, we expect metrics to be weaker, closer to the mid-teens range, over the next 12-18 months. Furthermore, it is possible that metrics may weaken further due the negative impact of the COVID pandemic. However, we do not expect the impact to be material because the utilities experienced an increase in residential usage while commercial and industrial customer usage declined. In 2019, residential sales generated approximately 40% of KU and LG&E's total revenue while commercial and industrial sales contributed the remainder.

As of the last twelve month (LTM) period ending 30 June 2020, CFO pre-WC to debt was 16.3%, or 17.6% on average for the past three years. The decline in metrics has been caused for the most part by elevated capital investments. However, existing cost recovery mechanisms should result in timely recovery of investments and help LKE maintain its key credit metrics within the adequate ranges.

Exhibit 6
LKE's Historical CFO pre-WC to Debt vs Financial Metric Upgrade/Downgrade Thresholds



The financial metric threshold indicated are one of several factors that could result in an upgrade or downgrade of the ratings if they are above or below that level for a sustained period.
Source: Moody's Financial Metrics

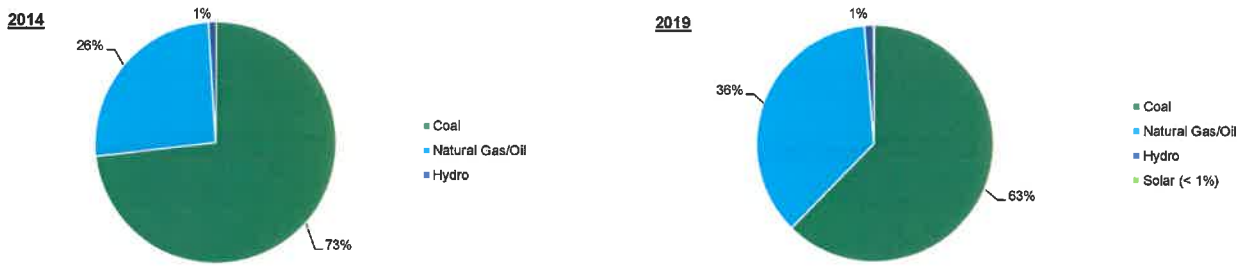
ESG considerations

Environmental

LKE has moderate carbon transition risk within the US regulated utility sector because it is a vertically integrated intermediate holding company with regulated utilities that have a large, fossil based generation capacity. Kentucky's political and regulatory environment is supportive of coal mining and related industries. LKE has a total generation capacity of 7.6 GW, and 4.7 GW (62%) is coal-fired, which provides the majority (79%) of the electricity generation output. The remaining 21% of the output is comprised mainly of gas/oil-fired, hydro, and solar facilities. Over the last two years, LKE's fuel mix improved with the addition of the Cane Run 660-MW gas-fired combined-cycle power plant, replacing the older retired coal-fired power plants Tyrone and Green River as well as the Cane Run coal plant. Due to environmental requirements and energy efficiency measures, KU retired two older coal units at the EW Brown plant in the first quarter of 2019 with a combined capacity of 272 MW.

LG&E and KU received approval from the KPSC to develop a 4 MW solar facility to service a solar share program. The solar share program is a voluntary program that allows customers to subscribe capacity in the solar share facility. In January 2020, LG&E and KU requested approval from the KSPC for the purchase of 100 MW of solar power in connection with the green tariff option established in the most recent Kentucky rate cases. KSPC has approved the solar contract subject to changes. LG&E and KU will purchase the initial 20 years of output of a proposed third-party solar generation facility and resell the majority of the power as renewable energy to two large industrial customers and use the remaining power for other customers.

Exhibit 7
LKE Generation Mix (MW)



Source: Company reports

Fuel concentration in coal is typically considered to be a significant credit negative. However, we do not view LKE's high reliance on coal to be as negative as some other companies because the state of Kentucky is very supportive of the coal industry. This support is evidenced by the ECR, which provides the company with credit supportive terms for its investments in coal-related environmental expenditures. However, LKE is exposed to the risk of potentially needing to make a more rapid transition to clean energy in the future if carbon policies change.

PPL has enhanced transparency and disclosure, especially related to its environmental risks, over the last three years. PPL has published a 2019 sustainability report and has also set a more aggressive carbon reduction goal of at least 80% from 2010 levels by 2050 and has accelerated its previous 70% goal by 10 years to 2040. It also reiterated the assessment outcome for considering a two-degree scenario analysis based on the recommendations of the Task Force on Climate Related Financial Disclosure (TCFD). Under these carbon regulation policy scenarios, PPL's analysis indicated that the CO2 emissions from the company's Kentucky utilities' generation assets would be reduced 45-90% from 2005 levels by 2050.

Social

Social risks are primarily related to the Kentucky utilities customer and regulatory relations as well as demographic and societal trends. LG&E and KU's regulatory environment as well as its interaction with the KPSC and VSCC are important in considering the companies' social risk. Also, the safety and reliability of its operations are extremely important for its social considerations. Given recent developments related to the COVID-19 pandemic, there is a possibility of increasing social risk longer term as the affordability of the utility bill and prolonged recessionary impact have a negative impact on LG&E and KU.

Governance

As an intermediate holding company of PPL, corporate governance considerations include the financial policy and risk management of the parent company. We note that a stable financial position is an important characteristic for managing environmental and social risks.

Liquidity analysis

We expect LKE to maintain an adequate liquidity profile over the next 12-18 months. Although the utilities have an elevated capital investment program over the next few years, we anticipate their liquidity will be supported by relatively stable and predictable cash flow and good access to capital markets.

LKE subsidiaries have separate credit facilities. LG&E's liquidity is supported by a $500 million syndicated credit facility that expires in January 2024. As of 30 June 2020, the credit facility had $500 million of available capacity. KU's liquidity is supported by a separate $400 million syndicated credit facility that expires in January 2024. As of 30 June 2020, the credit facility had $400 million of available capacity. Both credit facilities contain one financial covenant, a limitation on the ratio of debt to capitalization of 70%, which they were in compliance with at the end of the second quarter of 2020. The facilities do not contain material adverse change clause.

Over the LTM period ending 30 June 2020, LKE generated consolidated cash flow from operations of approximately $1.2 billion, spent about $1.1 billion in capital investments and paid $311 million in dividends, resulting in a negative free cash flow of approximately $220 million. Due to the high level of planned capital investments at the LKE subsidiaries, we expect LKE to remain in a negative free cash flow position over the next 12-18 months.

LKE's next long-term debt maturity is $250 million senior notes due in October 2021.

Structural considerations

As an intermediate holding company, the current rating at LKE factors in the degree of structural subordination that exists relative to the debt outstanding at the operating utilities, KU and LG&E. We estimate the percentage of parent debt at LKE to be approximately 22% of the total consolidated debt by subtracting the long-term debt at KU and LG&E from the total long-term debt at LKE. We note that $650 million of the estimated parent debt is intercompany debt. The consolidated credit profile of PPL also influences LKE's rating.

Rating methodology and scorecard factors

Exhibit 8
Rating Factors
LG&E and KU Energy LLC

Regulated Electric and Gas Utilities Industry Scorecard [1][2]	Current LTM 6/30/2020		Moody's 12-18 Month Forward View As of Date Published [3]	
Factor 1 : Regulatory Framework (25%)	**Measure**	**Score**	**Measure**	**Score**
a) Legislative and Judicial Underpinnings of the Regulatory Framework	A	A	A	A
b) Consistency and Predictability of Regulation	A	A	A	A
Factor 2 : Ability to Recover Costs and Earn Returns (25%)				
a) Timeliness of Recovery of Operating and Capital Costs	Baa	Baa	Baa	Baa
b) Sufficiency of Rates and Returns	A	A	A	A
Factor 3 : Diversification (10%)				
a) Market Position	Baa	Baa	Baa	Baa
b) Generation and Fuel Diversity	Baa	Baa	Baa	Baa
Factor 4 : Financial Strength (40%)				
a) CFO pre-WC + Interest / Interest (3 Year Avg)	5.5x	A	5x - 5.5x	A
b) CFO pre-WC / Debt (3 Year Avg)	17.1%	Baa	16% - 18%	Baa
c) CFO pre-WC – Dividends / Debt (3 Year Avg)	12.5%	Baa	11% - 13%	Baa
d) Debt / Capitalization (3 Year Avg)	53.7%	Baa	51% - 54%	Baa
Rating:				
Scorecard-Indicated Outcome Before Notching Adjustment		Baa1		Baa1
HoldCo Structural Subordination Notching		-1		-1
a) Scorecard-Indicated Outcome		Baa2		Baa2
b) Actual Rating Assigned		Baa1		Baa1

[1] All ratios are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.
[2] As of 6/30/2020(L)
[3] This represents Moody's forward view; not the view of the issuer; and unless noted in the text, does not incorporate significant acquisitions and divestitures.
Source: Moody's Financial Metrics

Appendix

Exhibit 9
Cash Flow and Credit Metrics [1]

CF Metrics	Dec-16	Dec-17	Dec-18	Dec-19	LTM Jun-20
As Adjusted					
FFO	**1,177**	**1,129**	**1,069**	**1,155**	**1,172**
+/- Other	59	42	77	(29)	(20)
CFO Pre-WC	**1,236**	**1,171**	**1,146**	**1,126**	**1,152**
+/- ΔWC	(33)	20	80	(40)	5
CFO	**1,203**	**1,191**	**1,226**	**1,086**	**1,157**
- Div	316	402	302	308	311
- Capex	813	915	1,141	1,117	1,066
FCF	**74**	**(126)**	**(217)**	**(339)**	**(220)**
(CFO Pre-W/C) / Debt	20.9%	19.1%	17.4%	16.4%	16.3%
(CFO Pre-W/C - Dividends) / Debt	15.6%	12.5%	12.8%	11.9%	11.9%
FFO / Debt	19.9%	18.4%	16.3%	16.8%	16.6%
RCF / Debt	14.6%	11.8%	11.7%	12.3%	12.2%
Revenue	3,141	3,156	3,214	3,206	3,154
Cost of Good Sold	944	923	985	871	783
Interest Expense	227	230	251	268	270
Net Income	429	318	318	456	450
Total Assets	14,475	14,906	15,528	15,931	16,136
Total Liabilities	9,852	10,384	10,844	11,028	11,153
Total Equity	4,623	4,522	4,684	4,903	4,983

[1] All figures and ratios calculated using Moody's estimates & standard adjustments. Periods are Financial Year-End unless indicated otherwise. LTM = Last Twelve Months
Source: Moody's Financial Metrics

Exhibit 10
Peer Comparison Table [1]

	LG&E and KU Energy LLC			Vectren Utility Holdings, Inc.			Progress Energy, Inc.			Pepco Holdings, LLC		
	Baa1 Stable			A3 Stable			Baa1 Stable			Baa2 Stable		
	FYE	FYE	LTM	FYE	FYE	LTM	FYE	FYE	LTM	FYE	FYE	LTM
(In US millions)	Dec-18	Dec-19	Jun-20	Dec-18	Dec-19	Jun-20	Dec-18	Dec-19	Jun-20	Dec-18	Dec-19	Jun-20
Revenue	3,214	3,206	3,154	1,441	1,433	1,405	10,728	11,202	10,806	4,798	4,806	4,674
CFO Pre-W/C	1,146	1,126	1,152	407	339	486	2,574	3,482	3,448	1,095	1,217	1,136
Total Debt	6,570	6,872	7,081	1,959	2,185	2,223	21,146	22,520	22,912	6,415	6,859	6,992
CFO Pre-W/C / Debt	17.4%	16.4%	16.3%	20.8%	15.5%	21.9%	12.2%	15.5%	15.0%	17.1%	17.7%	16.3%
CFO Pre-W/C – Dividends / Debt	12.8%	11.9%	11.9%	14.2%	13.3%	18.8%	11.0%	15.5%	15.0%	12.0%	10.1%	8.0%
Debt / Capitalization	53.8%	53.5%	53.7%	45.3%	45.9%	45.5%	54.0%	53.1%	52.6%	34.8%	35.5%	35.3%

[1] All figures & ratios calculated using Moody's estimates & standard adjustments. FYE = Financial Year-End. LTM = Last Twelve Months. RUR* = Ratings under Review, where UPG = for upgrade and DNG = for downgrade
Source: Moody's Financial Metrics

Ratings

Exhibit 11

Category	Moody's Rating
LG&E AND KU ENERGY LLC	
Outlook	Stable
Issuer Rating	Baa1
Senior Unsecured	Baa1
PARENT: PPL CORPORATION	
Outlook	Stable
Issuer Rating	Baa2
KENTUCKY UTILITIES CO.	
Outlook	Stable
Issuer Rating	A3
First Mortgage Bonds	A1
Senior Secured	A1
Sr Unsec Bank Credit Facility	A3
Bkd LT IRB/PC	A1
Commercial Paper	P-2
Bkd Other Short Term	P-2
LOUISVILLE GAS & ELECTRIC COMPANY	
Outlook	Stable
Issuer Rating	A3
First Mortgage Bonds	A1
Senior Secured	A1
Sr Unsec Bank Credit Facility	A3
Bkd LT IRB/PC	A1
Commercial Paper	P-2
Bkd Other Short Term	P-2

Source: Moody's Investors Service

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LG&E And KU Energy LLC

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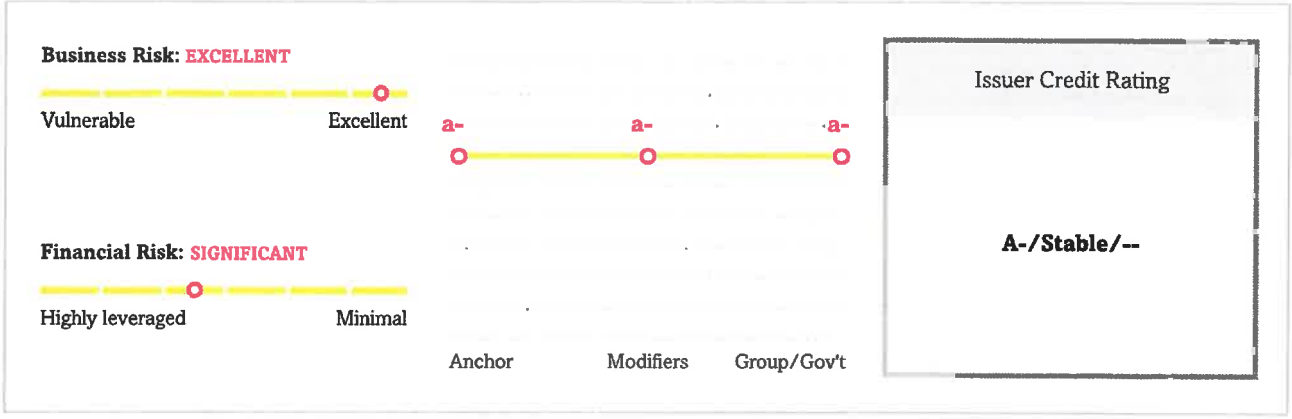
LG&E And KU Energy LLC



Credit Highlights

Overview

Key strengths	Key risks
Regulated, vertically integrated electric and natural gas distribution operations in Kentucky.	Generation capacity is about 70% coal-fired and natural gas.
Generally constructive and stable regulatory framework.	Tax reform results in lower cash flow measures through 2019.
Balanced capital structure that supports the financial risk profile.	Elevated capital spending in part for environmental compliance.
	Geographic concentration mostly in Kentucky and customer base of about 1.3 million.

LG&E and KU Energy LLC (LKE) utilities operate under a credit supportive regulatory framework The company's utilities benefit from numerous regulatory mechanisms including projected test periods, rate riders for environmental investment cost recovery, purchased power, fuel, and natural gas, and formulaic transmission rates.

LKE's debt leverage will remain elevated. Debt leverage, as indicated by debt to EBITDA, is expected to remain elevated in the mid- to high-4x over the next few years, supported in part by timely cost recovery.

Capital spending will remain elevated due to environmental compliance spending. Environmental compliance requirements regarding coal combustion waste and its byproducts are driving elevated capital spending.

Outlook: Stable

The stable rating outlook on LKE reflects that of its 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 consistently fell below 13% 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 ratings 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 margins decline from the impact of tax reform, with margin growth in 2019 and beyond resuming as a result of various recovery mechanisms and rate cases.
- Capital expenditures of approximately $1.3 billion in 2019 for generation upgrades and transmission investments.
- All debt maturities are refinanced.

Key Metrics

	2018E	2019E	2020E
Adjusted FFO to debt (%)	14-16	14.5-16.5	16.5-18.5
Adjusted FFO cash interest coverage (x)	5.3-5.9	5.3-5.9	5.7-6.3
Adjusted debt to EBITDA (x)	4.7-5.1	4.7-5.1	4.2-4.6

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

Base-case projections

- Gross margin increases from modest sales growth and cost recovery through various rate mechanisms.
- Debt to EBITDA in the 4x-5x range, indicating greater use of debt leverage.
- Adjusted FFO to debt expected to be roughly 15% in 2019 with improvement over time as LKE benefits from incremental cost recovery.

Company Description

LKE is an intermediate holding company that owns two utilities providing electric and natural gas utility service to 1.3 million customers primarily in Kentucky.

Business Risk: Excellent

Our assessment of LKE's business risk profile incorporates the business strengths of its wholly owned subsidiaries Louisville Gas & Electric Co. (LG&E) and Kentucky Utilities Co. (KU). These utilities provide regulated, vertically integrated electric and natural gas distribution services primarily across Kentucky, with smaller service territories in Tennessee and Virginia. The geographic concentration in Kentucky is partly offset by the large customer base of about 1.3 million electric and natural gas customers. The company's customer base consists mostly of residential and commercial customers, mitigating the impact of fluctuations in demand and resulting in stable and predictable cash flows.

Moreover, the company benefits from numerous regulatory mechanisms, including forecast test years, environmental investment cost recovery, purchased power, fuel, and gas surcharges, and formulaic transmission rates. The utilities' low rates are derived from relatively safe and reliable coal-fired generation and regulatory lag is partly limited by the timely recovery of costs.

Peer comparison

LKE is in line with regulated vertically integrated electric and natural gas distribution utility peers like Integrys Holding Inc., NV Energy (NVE), and Evergy Inc. In terms of scale, LKE is comparable to NVE, which has 1.2 million electric customers and 200,000 natural gas customers, Evergy Inc., which has 1.6 million electric customers, and Intergys, which has 1.8 million natural gas customers and 500,000 electric customers. The regulatory environment for LKE is considered more supportive than that for NVE because of Nevada's heightened politicization of utility-related policies, including long-term energy generation planning. LKE's operations are in line with Integrys and Evergy because all of them benefit from supportive cost recovery mechanisms and constructive regulatory environments.

Table 1

Peer Comparison

Industry sector: electric

	LG&E and KU Energy LLC	Integrys Holding Inc	NV Energy Inc.	Evergy Inc.
Rating as of Jan. 15, 2019	A-/Stable/--	A-/Stable/A-2	A/Stable/NR	A-/Stable/A-2
	--Fiscal year ended Dec. 31, 2017--			
(Mil. $)				
Revenues	3,156.0	3,264.9	3,016.0	2,571.0
EBITDA	1,452.1	1,132.2	1,243.7	1,155.5
FFO	1,095.0	942.4	950.7	929.4
Net income from continuing operations	316.0	390.4	344.0	323.9
Cash flow from operations	1,129.1	895.7	922.7	912.9

Table 1

Peer Comparison (cont.)

Industry sector: electric

	LG&E and KU Energy LLC	Integrys Holding Inc	NV Energy Inc.	Evergy Inc.
Capital expenditures	893.7	998.7	466.8	759.0
Free operating cash flow	235.4	(103.0)	455.9	153.9
Discretionary cash flow	(166.6)	(103.0)	(190.1)	(75.0)
Cash and short-term investments	30.0	19.3	62.0	3.4
Debt	6,562.0	4,460.8	5,294.3	4,938.0
Equity	4,563.0	4,103.1	3,631.0	3,860.4
Adjusted ratios				
EBITDA margin (%)	46.0	34.7	41.2	44.9
Return on capital (%)	7.3	8.3	7.9	7.2
EBITDA interest coverage (x)	5.3	5.6	4.2	5.0
FFO cash interest coverage (X)	6.7	8.2	5.4	7.1
Debt/EBITDA (x)	4.5	3.9	4.3	4.3
FFO/debt (%)	16.7	21.1	18.0	18.8
Cash flow from operations/debt (%)	17.2	20.1	17.4	18.5
Free operating cash flow/debt (%)	3.6	(2.3)	8.6	3.1
Discretionary cash flow/debt (%)	(2.5)	(2.3)	(3.6)	(1.5)

FFO--Funds from operations.

Table 2

Peer Metrics

	LG&E and KU Energy LLC	Integrys Holding Inc	NV Energy Inc.	Evergy, Inc.
Long-term (foreign currency)	A-/Stable	A-/Stable	A/Stable	A-/Stable
Short-term (foreign currency)		A-2	NR	A-2
Business risk profile	Excellent	Excellent	Strong	Excellent
Financial risk profile	Significant	Significant	Significant	Significant
Anchor	a-	a-	bbb	a-
Capital structure	Neutral	Neutral	Neutral	Neutral
Liquidity	Adequate	Adequate	Adequate	Adequate
Financial policy	Neutral	Neutral	Neutral	Neutral
Management/governance	Satisfactory	Satisfactory	Satisfactory	Satisfactory
Comparable rating analysis	Neutral	Neutral	Neutral	Neutral
Stand-alone credit profile	a-	a-	bbb	a-
GRM adjustment	0	0	+3	0
Issuer credit rating	A-	A-	A	A-

GRM--Group rating methodology. NR--Not rated.

Financial Risk: Significant

Under our base-case scenario, we anticipate that LKE's stand-alone adjusted FFO to debt will be in the 14%-16% range in 2019. Over the next few years we expect FFO to debt to improve to the 16%-18% range as the company benefits from recovery mechanisms like the environmental cost rider, as well as formulaic transmission rates and forward test years for rate cases. We expect adjusted debt to EBITDA to be in 4.5x-5x range, indicating debt leverage within the benchmark range of an aggressive financial risk profile.

We utilize our medial volatility table, which reflects more relaxed benchmarks than most corporate issuers. This reflects the company's steady cash flow and rate-regulated utility operations and effective regulatory risk management.

Table 3

Financial Summary

Industry sector: electric

	--Fiscal year ended Dec. 31--				
	2017	**2016**	**2015**	**2014**	**2013**
Rating history	A-/Stable/--	A-/Stable/--	A-/Stable/--	BBB/Watch Pos/--	BBB/Stable/--
(Mil. $)					
Revenues	3,156.0	3,141.0	3,115.0	3,168.0	2,976.0
EBITDA	1,452.1	1,418.6	1,286.3	1,148.9	1,112.4
FFO	1,095.0	1,163.9	1,046.5	1,171.9	930.6
Net income from continuing operations	316.0	429.0	364.0	344.0	345.0
Cash flow from operations	1,129.1	1,077.8	1,089.5	1,018.9	1,012.5
Capital expenditures	893.7	792.7	1,211.3	1,273.5	1,445.5
Free operating cash flow	235.4	285.2	(121.8)	(254.6)	(433.0)
Discretionary cash flow	(166.6)	(30.8)	(340.8)	(690.6)	(687.0)
Cash and short-term investments	30.0	13.0	30.0	21.0	35.0
Debt	6,562.0	6,355.8	6,353.1	5,857.9	5,432.4
Equity	4,563.0	4,667.0	4,517.0	4,248.0	4,150.0
Adjusted ratios					
EBITDA margin (%)	46.0	45.2	41.3	36.3	37.4
Return on capital (%)	7.3	7.5	7.0	6.8	7.3
EBITDA interest coverage (x)	5.3	5.2	5.5	5.3	5.9
FFO cash interest coverage (x)	6.7	7.3	7.9	8.9	8.2
Debt/EBITDA (x)	4.5	4.5	4.9	5.1	4.9
FFO/debt (%)	16.7	18.3	16.5	20.0	17.1
Cash flow from operations/debt (%)	17.2	17.0	17.1	17.4	18.6
Free operating cash flow/debt (%)	3.6	4.5	(1.9)	(4.3)	(8.0)
Discretionary cash flow/debt (%)	(2.5)	(0.5)	(5.4)	(11.8)	(12.6)

FFO--Funds from operations.

Liquidity: Adequate

We assess LKE's stand-alone liquidity as adequate because we believe its liquidity sources will likely cover uses by more than 1.1x over the next 12 months and meet cash outflows even if EBITDA declines 10%.

We believe LKE 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
• Combined revolving credit facility availability of $975 million. • Estimated cash FFO of about $1 billion.	• Capital spending of approximately $1.3 billion. • Dividends of $282 million. • Debt maturities of $618 million.

Debt maturities

- 2019: $430 million
- 2020: $975 million
- 2021: $250 million
- 2022: $0

Covenant Analysis

Compliance expectations

As of Sept. 30, 2018, LKE was in compliance with the financial covenants in its credit facilities and had sufficient cushion. Under our base-case scenario, we expect LKE will remain in compliance with these covenants, especially given the stability of regulated utility operations. We expect that even if EBITDA declines 10% the company would not violate its covenants.

Requirements

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

Environmental, Social, And Governance

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

LKE is the intermediate holding company of LG&E and KU, both of which have generating assets. Most of the total generation capacity--about 8,000 megawatts--is from coal and natural gas, which represents an environmental risk factor. However, by 2050, holding company PPL intends to reduce its carbon footprint by 70%. In Kentucky, the company is seeking a green energy tariff that would incentivize renewable energy. The company expects to replace much of its coal-based generation with a combination of natural gas and renewable generation.

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 LKE a core subsidiary of parent PPL Corp., reflecting our view the LKE 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. We assess the issuer credit rating on LKE as 'A-', in line with PPL's group credit profile of 'a-'.

Issue Ratings - Subordination Risk Analysis

Capital structure

LKE's capital structure consists of about $5 billion of debt of which priority debt is about $4 billion.

Analytical conclusions

The unsecured debt at LKE is rated one notch below the issuer credit rating because priority debt exceeds 50% of the company's consolidated debt, after which point LKE's debt could be considered structurally subordinated.

Reconciliation

Table 4

Reconciliation Of LG&E And KU Energy LLC Reported Amounts With S&P Global Ratings' Adjusted Amounts (Mil. $)

	--Rolling 12 months ended Sept. 30, 2018--									
LG&E and KU Energy LLC reported amounts.										
	Debt	**Shareholders' equity**	**Revenues**	**EBITDA**	**Operating income**	**Interest expense**	**EBITDA**	**Cash flow from operations**	**Dividends paid**	**Capital expenditures**
	5,885	4,708	3,223	1,329	860	226	1,329	966	303	1,139
S&P Global Ratings' adjustments										
Interest expense (reported)	--	--	--	--	--	--	(226)	--	--	--
Interest income (reported)	--	--	--	--	--	--	--	--	--	--
Current tax expense (reported)	--	--	--	--	--	--	(90)	--	--	--
Operating leases	69	--	--	25	5	5	20	20	--	--
Postretirement benefit obligations/deferred compensation	376	--	--	18	18	20	0	(10)	--	--
Surplus cash	(29)	--	--	--	--	--	--	--	--	--
Share-based compensation expense	--	--	--	9	--	--	9	--	--	--
Power purchase agreements	106	--	--	9	7	7	2	2	--	2
Asset retirement obligations	250	--	--	18	18	18	(6)	32	--	--
Debt - Accrued interest not included in reported debt	73	--	--	--	--	--	--	--	--	--
Debt - Issuance cost	27	--	--	--	--	--	--	--	--	--
EBITDA - other income/(expense)	--	--	--	24	24	--	24	--	--	--
EBITDA - other	--	--	--	(19)	(19)	--	(19)	--	--	--
D&A - other	--	--	--	--	(18)	--	--	--	--	--
Interest expense - other	--	--	--	--	--	5	(5)	--	--	--
Total adjustments	873	0	0	84	35	56	(292)	44	0	2
S&P Global Ratings' adjusted amounts										
	Debt	**Equity**	**Revenues**	**EBITDA**	**EBIT**	**Interest expense**	**Funds from Operations**	**Cash flow from operations**	**Dividends paid**	**Capital expenditures**
	6,758	4,708	3,223	1,413	895	282	1,037	1,010	303	1,141

D&A--Depreciation and amortization.

Ratings Score Snapshot

Issuer Credit Rating

A-/Stable/--

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 8, 2019)

LG&E and KU Energy LLC	
Issuer Credit Rating	A-/Stable/--
Senior Unsecured	BBB+
Issuer Credit Ratings History	
01-Jun-2015	A-/Stable/--
10-Jun-2014	BBB/Watch Pos/--
15-Apr-2011	BBB/Stable/--
Related Entities	
Kentucky Utilities Co.	
Issuer Credit Rating	A-/Stable/A-2
Commercial Paper	
Local Currency	A-2
Senior Secured	A
Louisville Gas & Electric Co.	
Issuer Credit Rating	A-/Stable/A-2
Commercial Paper	
Local Currency	A-2
Senior Secured	A
PPL Capital Funding Inc.	
Issuer Credit Rating	A-/Stable/A-2
PPL Corp.	
Issuer Credit Rating	A-/Stable/A-2

Ratings Detail (As Of February 8, 2019) (cont.)	
PPL Electric Utilities Corp.	
Issuer Credit Rating	A-/Stable/A-2
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-
Western Power Distribution PLC	
Issuer Credit Rating	A-/Stable/A-2
Senior Unsecured	BBB+
Western Power Distribution (South Wales) PLC	
Issuer Credit Rating	A-/Stable/A-2
Senior Unsecured	A-
Western Power Distribution (South West) PLC	
Issuer Credit Rating	A-/Stable/A-2
Senior Unsecured	A-
Western Power Distribution (West Midlands) PLC	
Issuer Credit Rating	A-/Stable/A-2
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.

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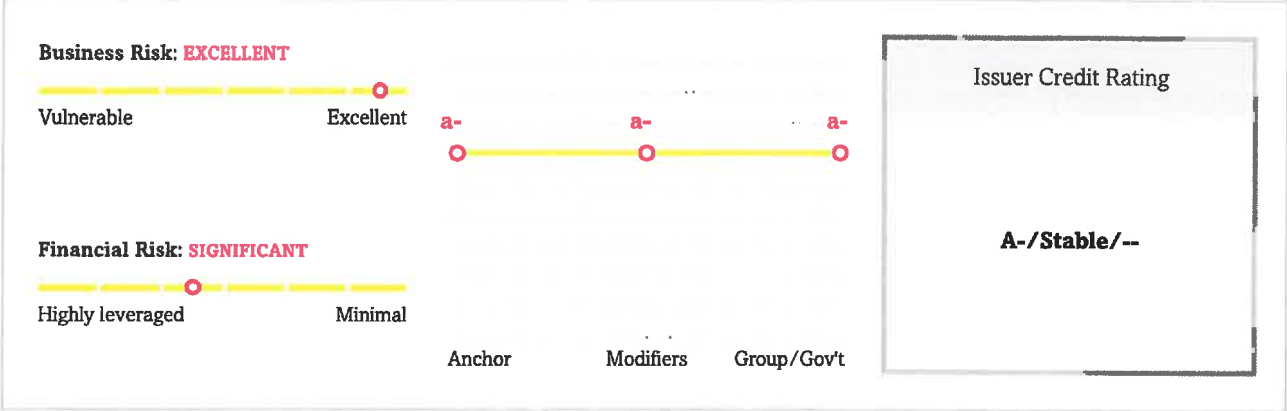
LG&E And KU Energy LLC



Credit Highlights

Overview

Key strengths	Key risks
Regulated, vertically integrated electric and natural gas distribution operations in Kentucky.	Generation capacity currently about 70% coal-fired and natural gas.
Generally constructive and stable regulatory framework.	Lower cash flow measures after flowing through U.S. tax-reform-related rate credits.
Balanced capital structure that supports the financial risk profile.	Elevated capital spending in part for environmental compliance.
	Geographic concentration mostly in Kentucky and customer base of about 1.3 million.

LG&E and KU Energy LLC (LKE) utilities operate under a credit-supportive regulatory framework. LKE's utilities benefit from numerous regulatory mechanisms including projected test periods; rate riders for environmental investment cost recovery, purchased power, fuel, and natural gas; and formulaic transmission rates.

LKE's debt leverage will remain elevated. We expect debt leverage, as indicated by debt to EBITDA, to remain elevated in the low-5x area over the next few years.

Capital spending will remain elevated due to environmental compliance spending. Environmental compliance requirements regarding coal-combustion waste and its byproducts are driving elevated capital spending.

Outlook: Stable

The stable rating outlook on LKE reflects that of its parent PPL Corp. (PPL) over the next 24 months. We base the outlook on our assessment of PPL's excellent business risk profile, which is at the upper end of the range, and significant financial risk profile, which is at the lower end of the range. Under S&P Global Ratings' base case scenario, PPL's adjusted funds from operations (FFO) to debt will average about 14%, and adjusted debt to EBITDA will remain elevated at about 5x.

Downside scenario

We could lower the ratings on PPL and its subsidiaries over the next 24 months if core credit ratios weakened such that adjusted FFO to debt consistently stays below 13% and business risk remains unchanged.

Upside scenario

Given our assessment of business risk and our base case scenario for financial performance, we do not anticipate higher ratings during the outlook period. However, we could raise our ratings if PPL achieves adjusted FFO to debt of more than 18% on a consistent basis while maintaining the current level of business risk.

Our Base-Case Scenario

Assumptions

- Gross margin averages about 70% per year after growth and cost recovery through various rate mechanisms.
- EBITDA margin is roughly 40% per year.
- Capital spending averages about $1 billion for generation upgrades and transmission investments.
- Dividends of about $300 million per year
- Discretionary cash flow is negative, requiring external funding.
- All debt maturities are refinanced.

Key Metrics

	2020e	2021f	2022f
Adjusted FFO to debt (%)	14-16	13.5-15.5	13-15
Adjusted FFO cash interest coverage (x)	4.7-5.3	4.4-5.1	4.2-4.9
Adjusted debt to EBITDA (x)	5-5.5	5-5.5	5.2-5.7

e--Estimate. f----Forecast. FFO--Funds from operations.

Company Description

LKE is an intermediate holding company that owns two utilities providing electric and natural gas utility service to 1.3 million customers, primarily in Kentucky.

Business Risk: Excellent

Our assessment of LKE's business risk profile incorporates the business strengths of its wholly owned subsidiaries Louisville Gas & Electric Co. (LG&E) and Kentucky Utilities Co. (KU). These utilities provide regulated, vertically integrated electric and natural gas distribution services primarily across Kentucky, with smaller service territories in Tennessee and Virginia. The geographic concentration in Kentucky is partly offset by the large customer base of about 1.3 million electric and natural gas customers. The company's customer base consists mostly of residential and commercial customers, mitigating the impact of fluctuations in demand and resulting in stable and predictable cash flows.

Moreover, the company benefits from numerous regulatory mechanisms, including forecast test years, environmental investment cost recovery, purchased power, fuel, and gas surcharges, and formulaic transmission rates. The utilities' low rates are derived from relatively safe and reliable coal-fired generation and regulatory lag is partly limited by the timely recovery of costs.

Peer comparison

Table 1

Peer Comparison

Industry sector: electric				
	LG&E and KU Energy LLC	**Integrys Holding Inc.**	**NV Energy Inc.**	**Evergy Inc.**
Ratings as of March 4, 2020	**A-/Stable/--**	**A-/Stable/A-2**	**A/Stable/-**	**A-/Stable/A-2**
	--Fiscal year ended Dec. 31, 2018--	**--Fiscal year ended Dec. 31, 2018--**	**--Fiscal year ended Dec. 31, 2018--**	**--Fiscal year ended Dec. 31, 2018--**
(Mil. $)				
Revenue	3,214.0	3,344.7	3,039.2	4,275.9
EBITDA	1,372.1	992.4	1,119.5	1,696.9
Funds from operations (FFO)	1,096.3	834.8	846.7	1,414.4
Interest expense	267.6	185.6	275.9	339.7
Cash interest paid	229.9	156.5	272.9	283.4
Cash flow from operations	935.3	927.0	940.6	1,508.9
Capital expenditure	1,118.7	1,173.8	520.2	1,065.6
Free operating cash flow (FOCF)	(183.4)	(246.9)	420.4	443.3
Discretionary cash flow (DCF)	(485.4)	(246.9)	420.4	(1,074.0)
Cash and short-term investments	24.0	24.7	223.0	160.3
Debt	6,869.2	4,216.5	4,813.7	9,559.5
Equity	4,723.0	3,989.6	3,930.1	9,990.7
Adjusted ratios				
EBITDA margin (%)	42.7	29.7	36.8	39.7

Table 1

Peer Comparison (cont.)

Industry sector: electric

	LG&E and KU Energy LLC	Integrys Holding Inc.	NV Energy Inc.	Evergy Inc.
Ratings as of March 4, 2020	**A-/Stable/--**	**A-/Stable/A-2**	**A/Stable/-**	**A-/Stable/A-2**
	--Fiscal year ended Dec. 31, 2018--	**--Fiscal year ended Dec. 31, 2018--**	**--Fiscal year ended Dec. 31, 2018--**	**--Fiscal year ended Dec. 31, 2018--**
Return on capital (%)	7.4	7.8	7.6	6.3
EBITDA interest coverage (x)	5.1	5.3	4.1	5.0
FFO cash interest coverage (x)	5.8	6.3	4.1	6.0
Debt/EBITDA (x)	5.0	4.2	4.3	5.6
FFO/debt (%)	16.0	19.8	17.6	14.8
Cash flow from operations/debt (%)	13.6	22.0	19.5	15.8
FOCF/debt (%)	(2.7)	(5.9)	8.7	4.6
DCF/debt (%)	(7.1)	(5.9)	8.7	(11.2)

Source: S&P Global Ratings, company data.

Financial Risk: Significant

Under our base case scenario, we anticipate that LKE's stand-alone adjusted FFO to debt will be in the 14%-16% range in 2019. Over the next few years, we expect FFO to debt to improve to the 16%-18% range as the company benefits from recovery mechanisms like the environmental cost rider, as well as formulaic transmission rates and forward test years for rate cases. We expect adjusted debt to EBITDA to be in 4.5x-5x range, indicating debt leverage within the benchmark range of an aggressive financial risk profile.

We utilize our medial volatility table, which reflects more relaxed benchmarks as compared to most corporate issuers. This reflects the company's steady cash flow and rate-regulated utility operations and effective regulatory risk management.

Table 2

LG&E and KU Energy LLC -- Financial Summary

Industry Sector: Electric

	--Fiscal year ended Dec. 31--				
	2018	**2017**	**2016**	**2015**	**2014**
(Mil. $)					
Revenue	3,214.0	3,156.0	3,141.0	3,115.0	3,168.0
EBITDA	1,372.1	1,452.1	1,418.6	1,286.3	1,148.9
Funds from operations (FFO)	1,096.3	1,187.7	1,231.5	1,249.8	1,053.5
Interest expense	267.6	253.6	255.1	217.5	200.4

Table 2

LG&E and KU Energy LLC -- Financial Summary (cont.)

Industry Sector: Electric

	--Fiscal year ended Dec. 31--				
	2018	**2017**	**2016**	**2015**	**2014**
Cash interest paid	229.9	216.5	211.1	175.5	170.4
Cash flow from operations	935.3	1,120.7	1,047.5	1,079.8	1,022.5
Capital expenditure	1,118.7	893.7	792.7	1,211.3	1,273.5
Free operating cash flow (FOCF)	(183.4)	227.0	254.8	(131.5)	(251.0)
Discretionary cash flow (DCF)	(485.4)	(175.0)	(61.2)	(350.5)	(687.0)
Cash and short-term investments	24.0	30.0	13.0	30.0	21.0
Gross available cash	24.0	30.0	13.0	30.0	21.0
Debt	6,869.2	6,503.0	6,294.8	6,321.1	5,834.9
Equity	4,723.0	4,563.0	4,667.0	4,517.0	4,248.0
Adjusted ratios					
EBITDA margin (%)	42.7	46.0	45.2	41.3	36.3
Return on capital (%)	7.4	8.7	8.7	8.1	7.7
EBITDA interest coverage (x)	5.1	5.7	5.6	5.9	5.7
FFO cash interest coverage (x)	5.8	6.5	6.8	8.1	7.2
Debt/EBITDA (x)	5.0	4.5	4.4	4.9	5.1
FFO/debt (%)	16.0	18.3	19.6	19.8	18.1
Cash flow from operations/debt (%)	13.6	17.2	16.6	17.1	17.5
FOCF/debt (%)	(2.7)	3.5	4.0	(2.1)	(4.3)
DCF/debt (%)	(7.1)	(2.7)	(1.0)	(5.5)	(11.8)

Sources: S&P Global Ratings, company data.

Liquidity: Adequate

We assess LKE's stand-alone liquidity as adequate because we believe its liquidity sources will likely cover uses by more than 1.1x over the next 12 months and meet cash outflows even if EBITDA declines 10%.

We believe LKE 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
• Combined revolving credit facility availability of $975 million. • Estimated cash FFO of about $1 billion.	• Capital spending of approximately $1.3 billion. • Dividends of $282 million. • Debt maturities of $618 million.

Environmental, Social, And Governance

LKE's credit quality is more negatively influenced by environmental risk factors than peers given its significant exposure to coal-based power generation through utilities LG&E and KU. Most of the total generation capacity--about 8,000 MW--is from coal and natural gas. In Kentucky, the company is seeking a green energy tariff that would provide renewable energy incentives. Over the longer term, the company expects to replace much of its coal-based generation with a combination of natural gas and renewable generation. Social factors are neutral to our ESG assessment and are consistent with what we see across the industry for other publicly traded utilities. 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 LKE a core subsidiary of parent PPL Corp., reflecting our view the LKE 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. We assess the issuer credit rating on LKE as 'A-', in line with PPL's group credit profile of 'a-'.

Issue Ratings - Subordination Risk Analysis

Capital structure

LKE's capital structure consists of about $5 billion of debt of which priority debt is about $4 billion.

Analytical conclusions

The unsecured debt at LKE is rated one notch below the issuer credit rating because priority debt exceeds 50% of the company's consolidated debt, after which, LKE's debt could be considered structurally subordinated.

Reconciliation

Table 3

Reconciliation Of LG&E And KU Energy LLC Reported Amounts With S&P Global Ratings' Adjusted Amounts (Mil. $)

	--Fiscal year ended Dec. 31, 2019--					
LG&E and KU Energy LLC reported amounts						
	Debt	**EBITDA**	**Operating income**	**Interest expense**	**S&P Global Ratings' adjusted EBITDA**	**Cash flow from operations**
	6,539.0	1,388.0	841.0	257.0	1,466.0	938.0
S&P Global Ratings' adjustments						
Cash taxes paid	--	--	--	--	(29.0)	--

Table 3

Reconciliation Of LG&E And KU Energy LLC Reported Amounts With S&P Global Ratings' Adjusted Amounts (Mil. $) (cont.)						
Cash taxes paid: Other	--	--	--	--	--	--
Cash interest paid	--	--	--	--	(237.0)	--
Reported lease liabilities	55.0	--	--	--	--	--
Operating leases	--	25.0	2.2	2.2	(2.2)	22.8
Postretirement benefit obligations/deferred compensation	222.0	--	--	--	--	--
Accessible cash and liquid investments	(27.0)	--	--	--	--	--
Share-based compensation expense	--	9.0	--	--	--	--
Asset retirement obligations	169.9	17.0	17.0	17.0	--	--
Nonoperating income (expense)	--	--	(13.0)	--	--	--
Debt: Other	(35.0)	--	--	--	--	--
EBITDA: Other income/(expense)	--	27.0	27.0	--	--	--
Depreciation and amortization: Other	--	--	(27.0)	--	--	--
Total adjustments	384.8	78.0	6.2	19.2	(268.2)	22.8

S&P Global Ratings' adjusted amounts

	Debt	EBITDA	EBIT	Interest expense	Funds from operations	Cash flow from operations
	6,923.8	1,466.0	847.2	276.2	1,197.8	960.8

Sources: S&P Global Ratings, company data.

Ratings Score Snapshot

Issuer Credit Rating

A-/Stable/--

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

- General Criteria: Group Rating Methodology, July 1, 2019
- Criteria - Corporates - General: Corporate Methodology: Ratios And Adjustments, April 1, 2019
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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 March 20, 2020)*

LG&E and KU Energy LLC	
Issuer Credit Rating	A-/Stable/--
Senior Unsecured	BBB+
Issuer Credit Ratings History	
01-Jun-2015	A-/Stable/--
10-Jun-2014	BBB/Watch Pos/--
15-Apr-2011	BBB/Stable/--

*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.

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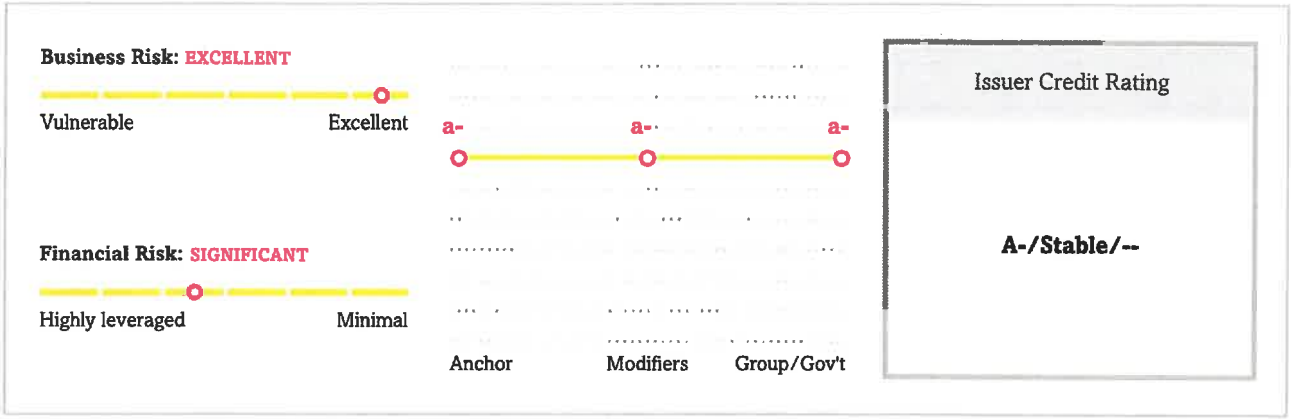
Summary:

LG&E And KU Energy LLC



Credit Highlights

Overview

Key strengths	Key risks
Regulated, vertically integrated electric and natural gas distribution operations in Kentucky.	Generation capacity is about 70% coal-fired and natural gas.
Generally constructive and stable regulatory framework.	Tax reform results in lower cash flow measures through 2019.
Balanced capital structure that supports the financial risk profile.	Elevated capital spending in part for environmental compliance.
	Geographic concentration mostly in Kentucky and customer base of about 1.3 million.

LG&E and KU Energy LLC (LKE) utilities operate under a credit-supportive regulatory framework.
The company's utilities benefit from numerous regulatory mechanisms including projected test periods, rate riders for environmental investment cost recovery, purchased power, fuel, and natural gas, and formulaic transmission rates.

LKE's debt leverage will remain elevated.
Debt leverage, as indicated by debt to EBITDA, is expected to remain elevated in the mid- to high-4x over the next few years, supported in part by timely cost recovery.

Capital spending will remain elevated due to environmental compliance spending.
Environmental compliance requirements regarding coal combustion waste and its byproducts are driving elevated capital spending.

Outlook: Stable

The stable rating outlook on LKE reflects that of its 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 consistently fell below 13% 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 ratings 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 margins decline from the impact of tax reform, with margin growth in 2019 and beyond resuming as a result of various recovery mechanisms and rate cases.
- Capital expenditures of approximately $1.3 billion in 2019 for generation upgrades and transmission investments.
- All debt maturities are refinanced.

Key Metrics

	2018E	2019E	2020E
Adjusted FFO to debt (%)	14-16	14.5-16.5	16.5-18.5
Adjusted FFO cash interest coverage (x)	5.3-5.9	5.3-5.9	5.7-6.3
Adjusted debt to EBITDA (x)	4.7-5.1	4.7-5.1	4.2-4.6

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

Base-case projections

- Gross margin increases from modest sales growth and cost recovery through various rate mechanisms.
- Debt to EBITDA in the 4x-5x range, indicating greater use of debt leverage.
- Adjusted FFO to debt expected to be roughly 15% in 2019 with improvement over time as LKE benefits from incremental cost recovery.

Company Description

LKE is an intermediate holding company that owns two utilities providing electric and natural gas utility service to 1.3 million customers primarily in Kentucky.

Business Risk: Excellent

Our assessment of LKE's business risk profile incorporates the business strengths of its wholly owned subsidiaries Louisville Gas & Electric Co. (LG&E) and Kentucky Utilities Co. (KU). These utilities provide regulated, vertically integrated electric and natural gas distribution services primarily across Kentucky, with smaller service territories in Tennessee and Virginia. The geographic concentration in Kentucky is partly offset by the large customer base of about 1.3 million electric and natural gas customers. The company's customer base consists mostly of residential and commercial customers, mitigating the impact of fluctuations in demand and resulting in stable and predictable cash flows.

Moreover, the company benefits from numerous regulatory mechanisms, including forecast test years, environmental investment cost recovery, purchased power, fuel, and gas surcharges, and formulaic transmission rates. The utilities' low rates are derived from relatively safe and reliable coal-fired generation and regulatory lag is partly limited by the timely recovery of costs.

Peer comparison

LKE is in line with regulated vertically integrated electric and natural gas distribution utility peers like Integrys Holding Inc., NV Energy (NVE), and Evergy Inc. In terms of scale, LKE is comparable to NVE, which has 1.2 million electric customers and 200,000 natural gas customers, Evergy Inc., which has 1.6 million electric customers, and Intergys, which has 1.8 million natural gas customers and 500,000 electric customers. The regulatory environment for LKE is considered more supportive than that for NVE because of Nevada's heightened politicization of utility-related policies, including long-term energy generation planning. LKE's operations are in line with Integrys and Evergy because all of them benefit from supportive cost recovery mechanisms and constructive regulatory environments.

Financial Risk: Significant

Under our base-case scenario, we anticipate that LKE's stand-alone adjusted FFO to debt will be in the 14%-16% range in 2019. Over the next few years we expect FFO to debt to improve to the 16%-18% range as the company benefits from recovery mechanisms like the environmental cost rider, as well as formulaic transmission rates and forward test years for rate cases. We expect adjusted debt to EBITDA to be in 4.5x-5x range, indicating debt leverage within the benchmark range of an aggressive financial risk profile.

We utilize our medial volatility table, which reflects more relaxed benchmarks than most corporate issuers. This reflects the company's steady cash flow and rate-regulated utility operations and effective regulatory risk management.

Liquidity: Adequate

We assess LKE's stand-alone liquidity as adequate because we believe its liquidity sources will likely cover uses by more than 1.1x over the next 12 months and meet cash outflows even if EBITDA declines 10%.

We believe LKE 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
• Combined revolving credit facility availability of $975 million. • Estimated cash FFO of about $1 billion.	• Capital spending of approximately $1.3 billion. • Dividends of $282 million. • Debt maturities of $618 million.

Debt maturities

- 2019: $430 million
- 2020: $975 million
- 2021: $250 million
- 2022: $0

Covenant Analysis

Compliance expectations

As of Sept. 30, 2018, LKE was in compliance with the financial covenants in its credit facilities and had sufficient cushion. Under our base-case scenario, we expect LKE will remain in compliance with these covenants, especially given the stability of regulated utility operations. We expect that even if EBITDA declines 10% the company would not violate its covenants.

Requirements

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

Environmental, Social, And Governance

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

LKE is the intermediate holding company of LG&E and KU, both of which have generating assets. Most of the total generation capacity--about 8,000 megawatts--is from coal and natural gas, which represents an environmental risk factor. However, by 2050, holding company PPL intends to reduce its carbon footprint by 70%. In Kentucky, the company is seeking a green energy tariff that would incentivize renewable energy. The company expects to replace much of its coal-based generation with a combination of natural gas and renewable generation.

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 LKE a core subsidiary of parent PPL Corp., reflecting our view the LKE 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. We assess the issuer credit rating on LKE as 'A-', in line with PPL's group credit profile of 'a-'.

Issue Ratings - Subordination Risk Analysis

Capital structure

LKE's capital structure consists of about $5 billion of debt of which priority debt is about $4 billion.

Analytical conclusions

The unsecured debt at LKE is rated one notch below the issuer credit rating because priority debt exceeds 50% of the company's consolidated debt, after which point LKE's debt could be considered structurally subordinated.

Ratings Score Snapshot

Issuer Credit Rating

A-/Stable/--

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

Business Risk Profile	Financial 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-

LOUISVILLE GAS AND ELECTRIC COMPANY

Response to First Request for Information of the
United States Department of Defense and All Other Federal Executive Agencies
Dated January 8, 2021

Case No. 2020-00350

Question No. 39

Responding Witness: Daniel K. Arbough

Q-1-39. Please state whether LGE's regulated electric retail operations has any off-balance sheet debt such as purchased power agreements and operating leases. If the answer is "yes," provide the amount of each off-balance sheet debt item and estimate the related imputed interest and amortization expense associated with these off-balance sheet debt equivalents specific to LGE's jurisdictional regulated retail electric operations.

A-1-39. LG&E does have one purchased power agreement with OVEC and a few small operating leases. The details are included in the attachment to Question No. 40.

LOUISVILLE GAS AND ELECTRIC COMPANY

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Case No. 2020-00350

Question No. 40

Responding Witness: Daniel K. Arbough

Q-1-40. To the extent not already provided, please provide in electronic format with all formulas intact, the calculation of LGE's credit metric calculations by Standard and Poor's and Moody's.

A-1-40. See attachment being provided in Excel format.

The attachment is being provided in a separate file in Excel format.

LOUISVILLE GAS AND ELECTRIC COMPANY

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Case No. 2020-00350

Question No. 41

Responding Witness: Daniel K. Arbough

Q-1-41. Please provide a detailed explanation of LGE's dividend payment and debt financing plans through the test period.

A-1-41. LG&E expects to pay dividends quarterly equal to 65% of the prior quarter's net income. Additional amounts may be paid to bring the capital structure to the targeted 53% equity structure. If the dividend payment results in the equity structure going well below the targeted 53%, an equity contribution is requested from LG&E and KU Energy. The company plans to finance its capital expenditures and working capital needs via the commercial paper market until the point in time when the balance of commercial paper is projected to remain significant enough to issue a long-term first mortgage bond. LG&E anticipates issuing $300 million of long-term first mortgage bonds in June 2021.

LOUISVILLE GAS AND ELECTRIC COMPANY

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Case No. 2020-00350

Question No. 42

Responding Witness: Daniel K. Arbough

Q-1-42. Please confirm that PPL Corporation or LGE are not on credit watch, review for downgrade, or have anything other than a "stable" outlook by any of the major ratings agencies. If this cannot be confirmed, please provide all reports in support of your response.

A-1-42. Confirmed.

LOUISVILLE GAS AND ELECTRIC COMPANY

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Case No. 2020-00350

Question No. 43

Responding Witness: Daniel K. Arbough

Q-1-43. Please identify the most recent year the average authorized ROE for all electric utilities was 10.0% or higher.

A-1-43. The Company has no way to determine when the average authorized ROE for all electric utilities was 10.0% or higher. However, based on the RRA Regulatory Focus dated October 20, 2020, the last time the full year average authorized ROE was 10% or higher for all electric utilities involved in a rate case proceeding was 2013 and the last time a quarterly report showed an average authorized ROE of 10% or higher for all electric utilities involved in a rate case proceeding was first quarter 2015.

LOUISVILLE GAS AND ELECTRIC COMPANY

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Case No. 2020-00350

Question No. 44

Responding Witness: Daniel K. Arbough

Q-1-44. Please identify the most recent year the average authorized ROE for vertically integrated electric utilities was 10.0% or higher.

A-1-44. The Company has no way to determine when the average authorized ROE for all vertically integrated electric utilities was 10.0% or higher. However, based on the RRA Regulatory Focus dated October 20, 2020, the last time the full year average authorized ROE was 10% or higher for all vertically integrated electric utilities involved in a rate case proceeding was 2012.

LOUISVILLE GAS AND ELECTRIC COMPANY

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Case No. 2020-00350

Question No. 45

Responding Witness: Daniel K. Arbough

Q-1-45. Please identify the most recent year the average authorized ROE for all gas utilities was 10.0% or higher.

A-1-45. The Company has no way to determine when the average authorized ROE for all vertically integrated electric utilities was 10.0% or higher. However, based on the RRA Regulatory Focus dated October 20, 2020, the last time the full year average authorized ROE was 10% or higher for all gas utilities involved in a rate case proceeding was 2010 and the last time a quarterly report showed an average authorized ROE of 10% or higher for all gas utilities involved in a rate case proceeding was third quarter 2016.

LOUISVILLE GAS AND ELECTRIC COMPANY

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Case No. 2020-00350

Question No. 46

Responding Witness: Adrien M. McKenzie

Q-1-46. For all of the subsidiary companies listed on pages 2-3 of Mr. McKenzie's Exhibit No. 12, please identify the most recently authorized common equity ratio and the date that it was approved.

A-1-46. Mr. McKenzie did not conduct a research study to identify the common equity ratios currently approved by regulators for each of the utility operating companies listed on pages 2 and 3 of Exhibit No. 12; nor was such a study necessary to support his conclusions and recommendations.

LOUISVILLE GAS AND ELECTRIC COMPANY

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Case No. 2020-00350

Question No. 47

Responding Witness: Daniel K. Arbough

Q-1-47. Please confirm that the average authorized ROE for general rate cases for electric utilities through September 2020 was 9.44%. If this cannot be confirmed, please provide a detailed explanation and source documents proving otherwise.

A-1-47. Confirmed based on the RRA Regulatory Focus dated October 20, 2020.

LOUISVILLE GAS AND ELECTRIC COMPANY

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Case No. 2020-00350

Question No. 48

Responding Witness: Daniel K. Arbough

Q-1-48. Please confirm that the average authorized ROE for general rate cases for gas utilities through September 2020 was 9.45%. If this cannot be confirmed, please provide a detailed explanation and source documents proving otherwise.

A-1-48. Confirmed based on the RRA Regulatory Focus dated October 20, 2020.