

FILED
December 23, 2020
INDIANA UTILITY
REGULATORY COMMISSION

STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

**PETITION OF THE CITY OF CRAWFORDSVILLE,)
INDIANA, BY AND THROUGH ITS MUNICIPAL)
ELECTRIC UTILITY, CRAWFORDSVILLE)
ELECTRIC LIGHT AND POWER, FOR APPROVAL)
OF A NEW SCHEDULE OF RATES AND CHARGES)
FOR ELECTRIC SERVICE AND FOR APPROVAL)
TO MODIFY ITS ENERGY COST ADJUSTMENT)
PROCEDURES)**

CAUSE NO. 45420

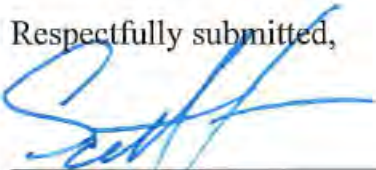
INDIANA OFFICE OF UTILITY CONSUMER COUNSELOR

PUBLIC'S EXHBIT NO. 1

**TESTIMONY OF OUCC WITNESS
CALEB R. LOVEMAN**

December 23, 2020

Respectfully submitted,



Scott C. Franson
Attorney No. 27839-49
Deputy Consumer Counselor

TESTIMONY OF OUCC WITNESS CALEB R. LOVEMAN
CAUSE NO. 45420
CRAWFORDSVILLE ELECTRIC LIGHT AND POWER

I. INTRODUCTION

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

2 A: My name is Caleb R. Loveman, and my business address is 115 W. Washington St.,
3 Suite 1500 South, Indianapolis, Indiana 46204.

4 **Q: By whom are you employed and in what capacity?**

5 A: I am employed as a Utility Analyst in the Indiana Office of Utility Consumer
6 Counselor's ("OUCC") Electric Division. A summary of my educational background
7 and experience is included in Appendix A attached to my testimony.

8 **Q: What is the purpose of your testimony?**

9 A: I provide my analysis and make recommendations on multiple proposals in
10 Crawfordsville Electric Light and Power's ("CEL&P" or "Petitioner") case-in-chief. I
11 also introduce and provide a brief summary of other OUCC witnesses in this case and
12 incorporate their recommendations regarding specific revenue and expense
13 adjustments, as well as adjustments to CEL&P's Capital Improvement Plan ("CIP")
14 into the OUCC's schedules. Further, I provide a brief overview of this Cause.

15 Specifically, I address CEL&P's proposed: (1) annual Operating Fund
16 contribution; (2) uncollectible accounts expense; (3) Payment in Lieu of Taxes
17 ("PILT") contribution; (4) advertising expense; (5) interest income; (6) expenses
18 related to small projects done for the City of Crawfordsville ("City"); and (7) Utility
19 Receipts Tax ("URT"). Ultimately, I recommend:

- 1 (1) Denying CEL&P's request for a \$1,690,038 annual Operating Fund
2 contribution amount;
- 3 (2) Accepting CEL&P's proposed \$20,000 uncollectible accounts expense;
- 4 (3) Accepting my calculation of CEL&P's \$229,463 PILT contribution
5 amount;
- 6 (4) Removing certain advertising expenses totaling \$26,393 from the test year;
- 7 (5) Including interest income of \$11,289 as an offset to the overall revenue
8 requirement;
- 9 (6) Removing expenses totaling \$30,458 from the test year related to small
10 projects done for the City; and
- 11 (7) Adjusting CEL&P's proposed URT adjustment to \$530,781, based on the
12 OUCC's proposed revenue requirement.

13 **Q: Please describe the review and analysis you conducted in order to prepare your**
14 **testimony.**

15 A: I reviewed CEL&P's petition, testimony and exhibits, workpapers, Minimum Standard
16 Filing Requirements ("MSFR"), audit package responses, and responses to OUCC
17 discovery. I reviewed CEL&P's prior rate case, Cause No. 44684, including the
18 Settlement Agreement between the OUCC and CEL&P, and the Indiana Utility
19 Regulatory Commission's ("Commission" or "IURC") Final Order dated April 13,
20 2016. I reviewed CEL&P's temporary rate rider case, Cause No. 45429, and the
21 Commission's Final Order dated September 29, 2020. I reviewed portions of the
22 Indiana Code ("Ind. Code") and the Indiana Administrative Code ("IAC").

1 **Q: Have you prepared schedules to accompany your testimony?**

2 A: Yes. I prepared the following schedules reflecting issues OUCC witnesses address in
3 this Cause:

4 Schedule CRL-1 - Revenue Requirement, Revenue Conversion Factor, and
5 Comparison of CEL&P and OUCC Income Statement
6 adjustments;

7 Schedule CRL-2 - Comparative Balance Sheets as of December 31, 2018, and
8 February 29, 2020;

9 Schedule CRL-3 - Net Operating Income Statement for the periods ending
10 December 31, 2018, and February 29, 2020;

11 Schedule CRL-4 - Pro-Forma Net Operating Income Adjustments and Adjustment
12 Schedules;

13 Schedule CRL-5 - Summary of Net Operating Income Adjustments and
14 Adjustment Schedules;

15 Schedule CRL-6 - OUCC's adjustments to CEL&P's CIP and Extensions and
16 Replacements; and

17 Schedule CRL-7 - OUCC's calculation of CEL&P's working capital needs.

18 **Q: To the extent you do not address a specific item or adjustment, should that be
19 construed to mean you agree with Petitioner's proposal?**

20 A: No. Excluding any specific adjustments or amounts CEL&P proposes does not indicate
21 my approval of those adjustments or amounts. Rather, the scope of my testimony is
22 limited to the specific items addressed herein.

II. OUCC WITNESSES

23 **Q: Please introduce the other OUCC witnesses in this Cause.**

24 A: The following OUCC witnesses provide testimony regarding the following issues:

25 **Michael D. Eckert** analyzes and provides recommendations on CEL&P's proposed
26 accelerated vegetation management expense. (Public's Exhibit No. 2)

1 **Anthony A. Alvarez** analyzes and provides recommendations on CEL&P's proposed
2 CIP and CEL&P's Extensions and Replacements revenue requirement. (Public's
3 Exhibit No. 3)

4 **Kaleb G. Lantrip** addresses CEL&P's proposed adjustments to: 1) its CIP; 2) labor
5 expense; 3) employee benefits expenses; 4) Federal Insurance Contributions Act tax
6 expense; 5) vegetation management expense; and 6) non-recurring expenses and
7 amortized rate case expense. (Public's Exhibit No. 4)

8 **Lauren M. Aguilar** analyzes and addresses CEL&P's electric vehicle rate proposal.
9 (Public's Exhibit No. 5)

10 **Sergio G. Hunt** analyzes and provides recommendations on CEL&P's proposed cost
11 of service study and rate design. (Public's Exhibit No. 6)

III. **OVERVIEW OF CEL&P'S CASE AND OUCC REVENUE**

REQUIREMENTS

12 **Q: What relief does Petitioner seek?**

13 **A:** In this proceeding, Petitioner requests a two-phase revenue increase resulting in a total
14 revenue increase of \$6,207,252.¹ This amount is inclusive of the temporary rate rider
15 adjustment the Commission approved in Cause No. 45429.² In addition to the
16 temporary rate rider approved in Cause No. 45429, Petitioner's proposed Phase 1
17 overall revenue increase is \$2,034,511³ and proposed Phase 2 overall revenue increase
18 is \$3,219,886.⁴

¹ Direct Testimony of Jennifer Z. Wilson, Attachment JZW-2, p. 14.

² See Commission Final Order in Cause No. 45429, dated September 29, 2020, p. 3.

³ 10-23-2020 Corrected Direct Testimony of Joseph A. Mancinelli, p. 41, Table JAM-14, line 8, column (f) – column (d).

⁴ *Id.* line 8, column (i) – column (f).

1 **Q: What revenue requirement did the Commission approve in CEL&P's most recent**
2 **base rate case?**

3 A: The Commission's Order in Cause No. 44684, dated April 13, 2016, authorized a
4 \$37,016,872 annual revenue requirement, which was an increase of \$3,580,142, or
5 10.77%.⁵

6 **Q: Was there an error in Petitioner's Cause No. 44684 rate calculation that affected**
7 **its ability to recover its authorized revenue requirement?**

8 A: Yes. According to CEL&P witness Phillip R. Goode, due to a mathematical error in
9 the tariffed rate calculation by CEL&P's previous rate consultant, CEL&P under
10 collected approximately \$2.98 million from August 2016 to January 2020.⁶ CEL&P
11 filed, and the Commission approved in Cause No. 45429, a temporary rate rider to
12 correct this error and allow CEL&P an opportunity to begin collecting the authorized
13 revenue requirement on a going forward basis until its new base rates are established
14 in this Cause. CEL&P did not seek lost revenue recovery due to this error.⁷ The OUCC
15 did not oppose the temporary rate rider.

⁵ See Commission Final Order in Cause No. 44684, dated April 13, 2016, p. 7.

⁶ 9-9-2020 Corrected Direct Testimony of Phillip R. Goode, pp. 8-13.

⁷ *Id.* at 12, lines 3-11.

1 **Q: What overall annual revenue requirement does the OUCC recommend in this**
2 **Cause?**

3 A: The OUCC recommends a \$37,970,705 overall revenue requirement. This is an
4 increase of \$3,277,187, or 9.53%.

IV. OPERATING FUND BALANCE

5 **Q: Has CEL&P requested authority to increase funding for its Operating Fund**
6 **Balance?**

7 A: Yes. CEL&P witness Jennifer Z. Wilson proposes including \$1,690,038 as part of its
8 annual revenue requirement to annually fund CEL&P's Operating Fund Balance to
9 \$8,684,350.⁸

10 **Q: What justification does CEL&P provide for this annual funding revenue**
11 **requirement?**

12 A: Ms. Wilson references the Moody's Investors Service Rating Methodology which
13 includes an evaluation on the Financial Strength of a municipal electric utility. An "A"
14 rated utility will have between 35 and 150 days cash on hand under this rating
15 methodology. According to Ms. Wilson, CEL&P had 20 days of cash on hand in its
16 Operating Fund as of February 29, 2020.⁹ Ms. Wilson then uses a 90-Day Factor of
17 adjusted Operations and Maintenance ("O&M") Expenses and Taxes Other Than
18 Income Taxes divided by four years to arrive at the proposed \$1,690,038 annual
19 funding amount.¹⁰ Ms. Wilson explains CEL&P's management believes the 90-Day
20 Factor of total operating expense to be a reasonable support to the financial integrity of
21 CEL&P's relatively small utility system and to mitigate cash flow problems.¹¹

⁸ Direct Testimony of Jennifer Z. Wilson, p. 14, lines 19-23.

⁹ *Id.* lines 8-15.

¹⁰ *Id.* lines 19-23; and Attachment JZW-2, p. 14.

¹¹ *Id.* at 15, lines 1-6.

1 Additionally, in response to Data Request (“DR”) 1.5, CEL&P considered the need to
2 respond to storm events and responding to fluctuating purchased power expenses in
3 developing the 90-day factor.¹²

4 **Q: Do you have concerns with CEL&P’s proposed annual funding of its Operating**
5 **Fund?**

6 A: Yes. I have various concerns with CEL&P’s proposed annual funding to its Operating
7 Fund. First, CEL&P’s Operating Fund calculation contains nearly all of the same
8 elements as a typical working capital calculation; however, rather than calculate
9 working capital correctly, CEL&P includes purchased power and taxes in its proposal.
10 These items are not included in a typical working capital calculation and serve only to
11 inflate CEL&P’s request. Second, CEL&P’s request for 90 days cash on hand is not in
12 line with its current Operating Fund ordinance. Third, as of February 29, 2020, CEL&P
13 had \$4,685,266 in combined restricted and unrestricted cash. This is an abundance of
14 cash and a request for more is excessive, particularly given the current economic
15 climate. Finally, with no outstanding debt, CEL&P has an even more limited need for
16 substantial cash reserves.

17 **Q: What supports your conclusion that CEL&P is using its proposed annual**
18 **operating fund requirement in place of working capital?**

19 A: The calculation Ms. Wilson uses to arrive at the annual funding amount is similar to a
20 working capital calculation.¹³ To calculate working capital, O&M expenses, excluding
21 purchased power and taxes, are divided by a cash on hand factor, typically 45 days,
22 which the OUCC and the Commission use, to arrive at the amount of cash on hand
23 required to pay for O&M over the 45 day period. This calculation shows the cash on

¹² See OUCC Attachment CRL-2, p. 4, CEL&P response to OUCC DR 1.5.

¹³ *Id.* Attachment JZW-2, p. 14.

1 hand that is needed to accommodate the lag between when a utility charges customers
2 for rendered utility service and when customers pay these charges. The only difference
3 between a working capital calculation and Ms. Wilson's calculation of CEL&P's
4 proposed operating funding requirement is Ms. Wilson includes Purchased Power and
5 Taxes Other Than Income Taxes in her calculation. These two expenses are not used
6 in the working capital calculation the Commission and the OUCC uses. Otherwise, Ms.
7 Wilson's calculation contains nearly all of the same components as a working capital
8 calculation.

9 Based on the 45-day method working capital calculation typically used in
10 Commission proceedings, CEL&P's Operating Fund is overfunded by \$1,191,817.¹⁴
11 Applying this metric alone, CEL&P should owe its customers a refund. However, I do
12 not recommend a refund in this Cause. It is reasonable to recognize CEL&P will need
13 to respond to future unknown events otherwise not provided for in its base rates. Mr.
14 Goode raises the COVID-19 pandemic as a source of strain on CEL&P's finances,¹⁵
15 and its response to OUCC DR 1.5 mentions unknown events such as storm damage
16 having the potential to impact CEL&P's finances.¹⁶ While CEL&P does not quantify
17 the impact of these unknowns, a reasonable level of cash reserves will assist CEL&P
18 in addressing some level of future unknowns without the need to seek additional rate
19 relief. As such, based on the information available at this time, I conclude CEL&P's
20 cash reserves are adequate and CEL&P does not require an increase to its annual
21 Operating Fund.

¹⁴ See OUCC Attachment CRL-1, Schedule 7.

¹⁵ 9-9-2020 Corrected Direct Testimony of Phillip R. Goode, pp. 12-13.

¹⁶ See OUCC Attachment CRL-2, p. 4, CEL&P response to OUCC DR 1.5.

1 **Q: Does CEL&P currently have an ordinance establishing its Operating Fund?**

2 A: Yes. As provided in response to OUCC discovery, Section 12, pages 19-20 of
3 Crawfordsville Ordinance No. 46, 1981, established CEL&P's current "Operation and
4 Maintenance Fund." This ordinance establishes that CEL&P shall have a sufficient
5 balance to pay the expenses of operation, repair, and maintenance for the next
6 succeeding one calendar month.¹⁷ While the City of Crawfordsville saw it fit to
7 establish an Operation and Maintenance Fund based on one month's worth of cash
8 reserves, CEL&P now seeks an annual operating fund requirement based on its
9 calculation of 90 days cash on hand. The substantial difference between CEL&P's
10 Ordinance and the 90-Day factor Ms. Wilson proposes is notable and shows CEL&P
11 is seeking a funding level its own municipal government did not establish.

12 **Q: Does CEL&P have access to significant cash on hand resources?**

13 A: Yes. As of February 29, 2020, CEL&P had \$4,685,266 in combined restricted and
14 unrestricted cash. Of this amount, CEL&P has access to its \$1,924,200 Operating Fund
15 and its \$2,299,333 Depreciation Fund. Combined, these two accounts total
16 \$4,223,533.¹⁸ Having access to these considerable cash on hand resources means
17 CEL&P has sufficient resources to respond to future unknowns, such as system damage
18 related to storm events or COVID-19 pandemic costs.

19 **Q: Does CEL&P have any outstanding debt?**

20 A: No. As of this filing, CEL&P has no outstanding debt. In the absence of debt for which
21 CEL&P would need cash on hand to make principal and interest payments and to fund
22 a debt service reserve fund, if required, it relies upon various publications by rating

¹⁷*Id.*, p. 5, CEL&P response to OUCC DR 4.15; and OUCC Attachment CRL-3, pp. 19-20.

¹⁸ Direct Testimony of Jennifer Z. Wilson, Attachment JZW-2, p. 2.

1 agencies and comparative financial reports in an attempt to justify its request. CEL&P
2 responded to OUCC DR 1.4 with three documents: (1) US Municipal Utility Revenue
3 Debt, a rating methodology by Moody's; (2) U.S. Public Power: Peer Review, a
4 comparison of the recent financial performance of wholesale and retail public power
5 systems, and rural electric cooperatives; and (3) U.S. Public Power Rating Criteria, a
6 rating methodology by Fitch Ratings.¹⁹ CEL&P references these documents as support
7 for its request for 90 days cash on hand.

8 CEL&P's support is inadequate. Both Moody's and Fitch Ratings include
9 outstanding debt as part of their ratings calculations. With no debt, CEL&P's relative
10 financial health cannot be determined or even estimated by these rating methodologies.
11 For example, Moody's shows Annual Debt Service Coverage is 15%, Debt to
12 Operating Revenues is 10%, and Debt Service Revenue Requirement is 5% of its
13 Municipal Utility Scorecard calculation.²⁰ In total, at least 30% of Moody's ratings
14 calculation includes total debt. Although Moody's Municipal Utility Scorecard
15 calculation is not used to determine the final utility credit rating, it is used as a standard
16 platform and starting point in its more thorough and detailed evaluations.²¹ It is
17 unreasonable to compare CEL&P to other utilities evaluated using the methodologies
18 used in these documents and scenarios when CEL&P has no debt and it is unknown
19 how it would be rated by the various rating agencies. Neither of these agencies currently
20 rate CEL&P. CEL&P's credit rating is not in question. CEL&P's offered justification

¹⁹ See OUCC Attachment CRL-2, pp. 2-3, CEL&P response to DR 1.4.

²⁰ *Id.* CEL&P response to DR 1.4, Attachment 1.4a, p. 6.

²¹ *Id.* CEL&P response to DR 1.4, Attachment 1.4a, pp. 5-6.

1 for its Operating Fund request is inadequate and does not credibly support its proposed
2 revenue requirement increase.

3 **Q: What does Ind. Code § 8-1.5-3-8 state regarding utility operating funds?**

4 A: In pertinent part, Ind. Code § 8-1.5-3-8 states that a municipal utility is permitted to set
5 “reasonable and just rates and charges for services” that produce sufficient revenue to:

6 (1) pay all the legal and other necessary expenses incident to the operation of
7 the utility, including:

- 8 a) maintenance costs;
- 9 b) operating charges;
- 10 c) upkeep;
- 11 d) repairs;
- 12 e) depreciation;
- 13 f) interest charges on bonds or other obligation, including leases; and
- 14 g) costs associated with acquisition of utility property under IC 8-1.5-
15 2;

16 (2) provide a sinking fund for the liquidation of bonds or other obligation,
17 including leases;

18 (3) provide a debt service reserve for bonds or other obligations, including
19 leases, in an amount established by the municipality, not to exceed the
20 maximum annual debt service on the bonds or obligations or the maximum
21 annual lease rentals;

22 (4) provide adequate money for working capital;

23 (5) provide adequate money for making extensions and replacements to the
24 extent not provided for through depreciation in subdivision (1); and

25 (6) provide money for the payment of any taxes that may be assessed against
26 the utility...

27 **Q: What do you conclude and recommend regarding CEL&P's proposed annual
28 funding of its Operating Fund?**

29 A: CEL&P has not provided sufficient evidence showing its needs a \$1,690,038 annual
30 ratepayer contribution to its Operating Fund in order to arrive at a 90-day cash on hand
31 amount of \$8,684,350. On the contrary, CEL&P's current resources are such that it has
32 sufficient cash on hand to respond to any future unknown events. Therefore, I

1 recommend the Commission deny CEL&P's request to include \$1,690,038 to annually
2 fund its Operating Fund as part of its revenue requirement.

V. UNCOLLECTIBLE ACCOUNTS EXPENSE

3 **Q: Does CEL&P propose an adjustment to its test year uncollectible accounts**
4 **expense?**

5 A: Yes. CEL&P proposes a \$20,000 pro forma uncollectible accounts expense. This
6 results in a \$146,464 increase from the test year.

7 **Q: Please explain how CEL&P calculated its adjustment to its uncollectible accounts**
8 **expense.**

9 A: During the test year CEL&P made an audit adjusting entry in the amount of
10 \$296,464.10 to its accumulated provision for uncollectible accounts to more closely
11 reflect accounts receivable that were more than 90 days old.²² This resulted in a credit
12 balance in the expense account, Customer Accounting Expense – Uncollectible
13 Accounts, of (\$126,464).²³ To arrive at the \$20,000 pro forma uncollectible CEL&P
14 proposes, CEL&P made a \$146,464 adjustment to increase the test year expense.²⁴

15 **Q: Do you accept CEL&P's proposed uncollectible expense adjustment?**

16 A: Yes. After my review of Petitioner's workpapers, MSFRs, historical bad debts, and
17 responses to OUCC discovery, I did not find any issue with CEL&P's adjustment.
18 CEL&P's pro forma uncollectible accounts expense amount is correct. I recommend
19 the Commission approve this amount.

²² See Attachment CRL-2, p. 1, CEL&P response to OUCC DR 1.1.

²³ Direct Testimony of Jennifer Z. Wilson, Attachment JZW-2, p. 10; and Petitioner's Response to MSFR 170 IAC 1-5-8 (a) 7, Exhibit 6-J, Account 904.000 - CUSTOMER RECORDS/UNCOLLECTIBLE ACCOUNTS.

²⁴ Direct Testimony of Jennifer Z. Wilson, Attachment JZW-2, p. 10

VI. PAYMENT IN LIEU OF TAXES

1 **Q: Does CEL&P propose an adjustment to its PILT contribution amount?**

2 A: Yes. CEL&P proposes a \$230,000 pro forma PILT amount. This results in a \$195,000
3 decrease from the test year.²⁵

4 **Q: Does your PILT calculation match CEL&P's?**

5 A: No. After reviewing CEL&P's calculation, CEL&P did not multiply the construction
6 work in progress ("CWIP") amount by the percentage of CEL&P's operations inside
7 the City. All other amounts CEL&P used and calculated in its calculations are correct.

8 **Q: How did you calculate CEL&P's PILT contribution amount?**

9 A: First, I verified CEL&P's net utility plant in service and CWIP amounts. I adjusted
10 both of these amounts by the percentage of CEL&P's operations inside the City. I then
11 multiplied this combined amount by the City's 1.5615 gross corporate tax rate,
12 resulting in a \$229,463 PILT. This is a decrease of \$537 from CEL&P's proposed
13 \$230,000 amount, and results in a \$195,537 decrease from CEL&P's test year. I
14 recommend the Commission approve my calculated PILT amount.

VII. ADVERTISING EXPENSE

15 **Q: Does CEL&P propose an adjustment relating to advertising expense in the test**
16 **year?**

17 A: No. CEL&P includes \$37,081 in advertising expense in the test year. CEL&P did not
18 make an adjustment to remove any advertising expense from its test year expenses,
19 despite the language in Ind. Code § 8-1-2-6(c) or 170 IAC 1-3-3. Ind. Code § 8-1-2-
20 6(c) which states:

²⁵ *Id.* at 11.

1 In determining the amount of allowable operating expenses of a utility,
 2 the commission may not take into consideration or approve any expense
 3 for institutional or image building advertising, charitable contributions,
 4 or political contributions.

5 170 IAC 1-3-3 states:

6 Advertising Allowed. (A) No advertising expenditure of a public utility
 7 shall be taken into consideration by the commission for the purposes of
 8 establishing rates unless such advertising **will produce a material**
 9 **benefit for the ratepayers** [Emphasis Added].

10 **Q: What do you recommend regarding CEL&P's proposed advertising expense?**

11 A: I recommend removing \$26,393 of advertising expense from CEL&P's test year. In
 12 Exhibit 6-U, CEL&P's response to MSFR 170 IAC 1-5-8(a)(25), CEL&P breaks down
 13 its advertising expense into the following line items:

BILLING PRACTICES
CONSERVATION
EXPLANATION OF RATES
OTHER
PUBLIC HEALTH & SAFETY
PUBLIC HEALTH & SAFETY & BILLING PRACTICES

14 I recommend denying cost recovery of advertising expense associated with all line
 15 items listed above, except advertising expense associated with the line item descriptor
 16 "public health and safety." Public health and safety advertising benefits ratepayers by
 17 showing proper safety procedures in dangerous situations. Although I recommend
 18 allowing recovery of advertising expense associated with the line item descriptor
 19 "public health and safety," I do not recommend allowing recovery of advertising
 20 expense associated with the line item descriptor, "public health & safety & billing
 21 practices." This is because CEL&P was unable to break down the line item amounts
 22 into the two categories mentioned in the descriptor, "public health & safety" and

1 “billing practices.”²⁶ The inability to distinguish the public health and safety spending
2 portion from the total makes the entirety of these line item amounts unmeasurable for
3 recovery. Therefore, I recommend removing \$26,393 in advertising expense from the
4 test year. This \$26,393 figure includes advertising expense associated with all line item
5 descriptors listed above except “public health & safety.”

VIII. INTEREST INCOME

6 **Q: How does the OUCC treat interest income?**

7 A: The OUCC includes interest income as an offset to the revenue requirement. During
8 the test year, CEL&P had \$11,829 in interest income.²⁷

9 **Q: Did CEL&P include interest income as an offset to its revenue requirement?**

10 A: No, it did not.

11 **Q: What do you recommend?**

12 A: I recommend including \$11,829 in interest income as an offset to CEL&P's revenue
13 requirement, as these monies are earned from the bank balance generated by collection
14 of rates from ratepayers.

IX. SMALL PROJECTS DONE FOR THE CITY

15 **Q: Did CEL&P identify expenses related to small projects done for the City?**

16 A: Yes. In response to OUCC Audit Request #36, CEL&P identified \$30,458 in expenses
17 related to hanging banners and other small projects for the City. CEL&P also stated it
18 tracks these costs but does not bill the City for them.²⁸

²⁶ See OUCC Attachment CRL-2, p. 6, CEL&P response to DR 8.3.

²⁷ Direct Testimony of Jennifer Z. Wilson, Attachment JZW-2, p. 5.

²⁸ See OUCC Attachment CRL-4, p. 8, CEL&P response to audit request 36.

1 **Q: Do you have concerns with these expenses?**

2 A: Yes. These various projects are completed for the City and are not related to providing
3 safe and reliable electric utility service. These costs should not be recovered from
4 ratepayers through rates. If CEL&P wishes to recover these expenses, it should bill the
5 City directly.

6 **Q: What do you recommend?**

7 A: I recommend removing the \$30,458 in expenses related to the small projects completed
8 for the City from the test year.

X. URT

9 **Q: Please describe how you arrived at your URT adjustment.**

10 A: My recommended URT amount is based on the lower increase in revenue requirement
11 the OUCC proposes, resulting in a different amount than Petitioner proposed. I used
12 the statutory 1.4% tax on gross sales receipts to arrive at a \$45,881 increase to the test
13 year URT. This is a \$41,027 decrease from Petitioner's proposed \$86,908 increase to
14 URT. The OUCC's total recommended URT amount is \$530,781.

XI. RECOMMENDATIONS

15 **Q: What do you recommend?**

16 A: Based on my analysis described above, I recommend the Commission:
17 1) Deny CEL&P's request for a \$1,690,038 annual Operating Fund contribution;
18 2) Approve CEL&P's \$20,000 uncollectible accounts expense proposal;
19 3) Require CEL&P update its PILT contribution to \$229,463;
20 4) Require CEL&P remove \$26,393 in advertising expense from its test year;

1 5) Require CEL&P include \$11,829 in interest income from its test year as an offset
2 to its revenue requirement;

3 6) Require CEL&P remove \$30,458 in expenses related to small projects done for the
4 City from its test year; and

5 7) Require CEL&P set its URT at \$530,781.

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

7 A: Yes.

APPENDIX A – Qualifications of Caleb R. Loveman

1 **Q: Please summarize your educational background and experiences.**

2 A: I graduated from Franklin University in 2015 with a Bachelor of Science in Accounting.

3 From 2016 to 2019, I owned and operated an E-commerce business. In this role I was

4 responsible for all the accounting, finance, and tax related functions of the business. During

5 this time, I also worked as a Staff Accountant for Legacy Administration Services, LLC

6 and as a Financial Analyst for Cummins, Inc. I began my career with the OUCC in July

7 2019 as a Utility Analyst in the Electric Division. I review Indiana utilities' requests for

8 regulatory relief filed with the Commission. I also prepare and present testimony based on

9 my analyses and make recommendations to the Commission on behalf of Indiana utility

10 consumers. Since joining the OUCC, I have attended "The Basics" Practical Regulatory

11 Training for the Electric Industry, sponsored by the National Association of Regulatory

12 Utility Commissioners ("NARUC") and the New Mexico State University Center for

13 Public Utilities, in Albuquerque, New Mexico. I have also attended the 2019 Indiana

14 Energy Association ("IEA") Energy Conference and the 2019 Indiana Energy Conference


15 presented by the Indiana Industrial Energy Consumers, Inc. ("INDIEC").

16 **Q: Have you previously filed testimony in other Commission proceedings?**

17 A: Yes.

AFFIRMATION

I affirm, under the penalties for perjury, that the foregoing representations are true.



Caleb R. Loveman
Utility Analyst I
Indiana Office of Utility Consumer Counsel

Cause No. 45420
Crawfordsville Electric Light and Power

Date: December 23, 2020

**Crawfordsville Electric Light and Power
Cause Number 45420**

**Comparison of Petitioner's and the OUCC's
Revenue Requirements**

<u>Revenue Requirement</u>	<u>Per Petitioner</u>	<u>Per OUCC</u>	<u>Sch. Ref.</u>	<u>OUCC More/(Less)</u>
Purchased Power	\$ 27,492,095	\$ 27,492,095	5-3	\$ -
Operations and Maintenance Expense	6,295,538	5,859,062	4*	(436,476)
Extensions and Replacements	4,432,804	\$ 3,694,004	6	(738,801)
Taxes Other Than Income Tax and new URT	949,767	937,373	4	(12,394)
Annual Operating Fund Balance Funding	1,690,038	-	7	(1,690,038)
Other Revenues and Interest Income	-	(11,829)	3	(11,829)
Revenue Requirement	\$ 40,860,242	\$ 37,970,705		(2,889,538)
Plus: URT Amt. on Adjustments	86,908	45,881	5-10	(41,027)
Total Revenue Requirement	40,947,150	38,016,585		(2,930,565)
Pro-forma Present Rate Revenues	34,739,398	34,739,398	4	-
Less: Other Operating Revenues	365,455	365,455		-
Adjustable Operating Revenues	34,373,943	34,373,943		-
Recommended Pro-forma Revenue Increase	<u>\$ 6,207,752</u>	<u>\$ 3,277,187</u>		<u>\$ (2,930,565)</u>
Recommended % Increase/(Decrease)	<u>18.06%</u>	<u>9.53%</u>		

Revenue Conversion Factor

Revenue Increase/(Decrease	100.000%	3,277,187
Less: Indiana Utility Receipts Tax	1.400%	45,881
Revenue Conversion factor	<u>98.600%</u>	<u>\$ 3,231,307</u>

* *Pro-forma* Present Rates O&M Expense (Sch 4)
Less: Purchased Power (Sch 5-1)

**Crawfordsville Electric Light and Power
Cause Number 45420**

**Comparison of Petitioner's and the OUCC's
Operating Adjustments**

<u>Operating Adjustments</u>	<u>Per Petitioner</u>	<u>Per OUCC</u>	<u>Sch. Ref.</u>	<u>OUCC More/(Less)</u>
<u>Operating Revenue:</u>				
Customer Class Reclassification	\$ (75,235)	\$ (75,235)	5-1	0
Total Operating Revenue Adjustments	<u>\$ (75,235)</u>	<u>\$ (75,235)</u>		<u>-</u>
<u>Operating Expense:</u>				
Purchased Power Expense	\$145,648	\$145,648	5-2 and 5-3	-
Labor Expense	111,869	(24,290)	5-4	(136,159)
PERF Expense	28,061	10,702	5-8	(17,359)
Nonrecurring Expenses	(192,890)	(192,890)	5-5	-
Rate Case Expense Amortization	127,854	106,250	5-6	(21,604)
Vegetation Management Expense	412,475	210,622	5-7	(201,853)
Uncollectible Expense	146,464	146,464	5-12	-
FICA Taxes	19,417	7,560	5-9	(11,857)
Payment in Lieu of Taxes Adjustment	(195,000)	(195,537)	5-11	(537)
Advertising Expense	0	(26,393)	5-13	(26,393)
City of Crawfordsville Expenses	0	(30,458)	5-14	(30,458)
Charitable Contributions	-	(2,650)	5-15	(2,650)
Total Operating Expense	<u>603,898</u>	<u>\$155,028</u>		<u>(448,870)</u>
Total Adjustments	<u>\$ (679,133)</u>	<u>\$ (230,263)</u>		<u>\$ 448,870</u>

**Crawfordsville Electric Light and Power
Cause Number 45420**

**Comparative Balance Sheets
As of December 31, 2018 and February 29, 2020**

<u>Description:</u>	December 31, 2018	February 29, 2020
<u>Assets</u>		
Utility Plant:		
Utility Plant in Service	\$ 45,668,386	\$ 46,497,417
Construction Work in Progress	186,627	688,733
Less: Accumulated Depreciation	(30,713,333)	(31,717,715)
Net Utility Plant in Service	15,141,680	15,468,435
Restricted Assets:		
Depreciation Fund	2,543,030	2,299,333
Meter Deposit Fund	293,226	285,276
Cash Reserve - Cash	61,263	176,457
Total Restricted Assets	2,897,519	2,761,066
Current Assets:		
Operating Fund - Cash	1,903,377	1,924,200
Accounts Receivable - Electric Services	1,127,500	824,698
Accounts Receivable	120,917	81,235
Accumulated Provision for Uncollectible Accounts	(357,837)	(222,959)
Prepaid Assets	104,081	79,226
Inventory	265,556	314,317
Deferred Debits	259,578	259,418
Total Current Assets	3,423,172	3,260,135
Total Assets	\$ 21,462,371	\$ 21,489,636

**Crawfordsville Electric Light and Power
Cause Number 45420**

**Comparative Balance Sheets
As of December 31, 2018 and February 29, 2020**

<u>Description:</u>	<u>December 31, 2018</u>	<u>February 29, 2020</u>
<u>Liabilities</u>		
Equity		
Retained Earnings	\$ 12,783,432	\$ 13,099,253
Current Period Earnings	462,648	(694)
Total Equity Capital	13,246,080	13,098,559
Contributions in Aid of Construction		
Contributions in Aid of Construction	1,046,431	1,046,431
Federal Grants	142,170	142,170
Total Contributions in Aid of Construction	1,188,601	1,188,601
Current and Accrued Liabilities		
Indiana Municipal Power Agency Payable	4,200,520	4,220,703
Accounts Payable	104,935	86,347
Payroll Liabilities	-	124,404
Customer Deposits	287,901	276,139
Net Pension Liability	1,731,673	1,709,440
Taxes Payable	100,676	183,373
Miscellaneous Accrued Liabilities	70,068	147,737
Total Current and Accrued Liabilities	6,495,773	6,748,143
Deferred Credits		
Deferred Inflow of Resources (Pension)	517,124	439,540
Pensions and Benefits Reserve		
	14,793	14,793
Total Liabilities and Equity	\$ 21,462,371	\$ 21,489,636

**Crawfordsville Electric Light and Power
Cause Number 45420**

**Comparative Income Statements
For the Twelve Months Ended December 31, 2018 and February 29, 2020**

<u>Description:</u>	<u>Twelve Months Ended December 31, 2018</u>	<u>Twelve Months Ended February 29, 2020</u>
Operating Revenue		
Sales of Electricity	\$ 36,194,285	\$ 34,448,743
Forfeited Discounts	147,186	159,003
Miscellaneous Service Revenue	44,362	35,378
Other Electric Revenues	151,699	171,074
Total Operating Revenues	<u>36,537,532</u>	<u>34,814,198</u>
Operating Expenses		
Power Production Expenses		
Purchased Power	28,589,996	27,346,012
Transmission Expenses	-	100,924
Distribution Expenses		
Distribution Operations	552,770	606,657
Distribution Maintenance	1,195,046	1,401,656
Customer Accounts Expenses		
Customer Accounting Expense	720,600	468,779
Customer Service Expense	281,390	277,462
Sales Expense	33,398	44,214
Administrative and General Expenses	2,532,952	2,762,013
Total O&M Expense	<u>33,906,152</u>	<u>33,007,717</u>
Depreciation Expense	<u>1,098,312</u>	<u>1,120,614</u>
Taxes		
FICA Taxes	198,950	215,445
Contribution in Lieu of Taxes	425,000	425,000
Utility Receipts Tax	507,500	484,900
Other Taxes	21	5
Total Taxes Other Than Income Taxes	<u>1,131,471</u>	<u>1,125,350</u>
Total Operating Expenses	<u>36,135,935</u>	<u>35,253,681</u>
Net Operating Income	<u>401,597</u>	<u>(439,483)</u>
Other Income (Expense)		
Interest Income	11,661	11,829
Contract Revenue	75,696	163,754
Miscellaneous Revenue	13,253	2,684
Contract Work Expense	(26,560)	(38,952)
Miscellaneous Income Deductions	(676)	(676)
Loss on Asset Disposal	(12,323)	(33,372)
Total Other Income (Expense)	<u>61,051</u>	<u>105,267</u>
Net Income	<u>\$462,648</u>	<u>(\$334,216)</u>

**Crawfordsville Electric Light and Power
Cause Number 45420**

Pro-forma Net Operating Income Statement

Description:	Year Ended 2/29/2020	Adjustments	Sch Ref	Pro-forma Present Rates	Adjustments	Sch Ref	Pro-Forma Proposed Rates
Sales of Electricity	\$ 34,448,743			\$ 34,373,943	\$ 3,277,187	1	\$ 37,651,130
		\$ (75,235)	5-1				
		435	5-2				
Other Operating Revenue	365,455			365,455			365,455
Total Operating Revenues	<u>34,814,198</u>	<u>(74,800)</u>		<u>34,739,398</u>	<u>3,277,187</u>		<u>38,016,585</u>
O&M Expense							
Purchased Power	27,346,012			27,492,095			27,492,095
		146,083	5-3				
Distribution Operations and Maintenance	2,109,237			2,286,290			2,286,290
		(11,546)	5-4				
		210,622	5-7				
		(22,023)	5-5				
Customer Accounts and Service	790,455			874,083			874,083
		(5,985)	5-4				
		146,464	5-12				
		(26,393)	5-13				
		(30,458)	5-14				
General and Administrative	2,762,013			2,698,689			2,698,689
		106,250	5-6				
		10,702	5-8				
		(6,759)	5-4				
		(170,867)	5-5				
		(2,650)	5-15				
Depreciation Expense	1,120,614			1,120,614			1,120,614
Taxes							
FICA Taxes	215,445	7,560	5-9	223,005			223,005
Contribution in Lieu of Taxes	425,000	(195,537)	5-11	229,463			229,463
Utility Receipts Tax	484,900			484,900	45,881	5-10	530,781
Other Taxes	5			5			5
Total Operating Expenses	<u>35,253,681</u>	<u>155,463</u>		<u>35,409,144</u>	<u>45,881</u>		<u>35,455,025</u>
Net Operating Income	<u>\$ (439,483)</u>	<u>\$ (230,263)</u>		<u>\$ (669,746)</u>	<u>\$ 3,231,307</u>		<u>\$ 2,561,561</u>

Crawfordsville Electric Light and Power
Cause Number 45420

Operating Adjustments

(1)

Change in Revenues from Customer Reclassification (Per Petitioner)

Description:

Pro-forma Revenue	\$ 24,686,541
Less: Test Year Revenue	<u>(24,761,776)</u>
Adjustment Increase (Decrease)	<u>\$ (75,235)</u>

(2)

Changes in Revenue from Purchased Power (Per Petitioner)

Description:

Pro-forma Revenue	\$ 9,107,810
Less: Test Year Revenue	<u>9,107,375</u>
Adjustment Increase (Decrease)	<u>\$ 435</u>

(3)

Purchased Power (Per Petitioner)

Description:

Pro-forma Adjustment to Purchased Power Billings	\$ 27,492,095
Less: Test Year Costs	<u>(27,346,012)</u>
Adjustment Increase (Decrease)	<u>\$ 146,083</u>

(4)

Pro-Forma Labor Expense (per OUCC)

Description:	T&D Operation	T&D Maintenance	Customer Accounts	Admin & General	Total
Pro-Forma Labor Expense	\$ 425,961	\$ 791,276	\$ 630,946	\$ 712,588	\$ 2,560,771
Less: Test Year Expense	<u>(430,001)</u>	<u>(798,782)</u>	<u>(636,931)</u>	<u>(719,347)</u>	<u>(2,585,061)</u>
Adjustment Increase (Decrease)	<u>\$ (4,040)</u>	<u>\$ (7,506)</u>	<u>\$ (5,985)</u>	<u>\$ (6,759)</u>	<u>\$ (24,290)</u>

(5)

Remove Non-recurring Expenses (Per Petitioner)

Description:

Remove 2/3 of Relay Testing Invoice	\$ (22,023)
Remove Exploratory Cost of Service Study	<u>(170,867)</u>
Adjustment Increase (Decrease)	<u>\$ (192,890)</u>

(6)

Total Rate Case Expense (Per OUCC)

Description:

Total Rate Case Expense	\$511,414
Remove Cause No. 44684 Cost of Service Study Expense	(86,414)
Total Rate Case Expense	<u>\$425,000</u>
Amortization Period: (4 years)	<u>4</u>
Adjustment Increase (Decrease)	<u>\$106,250</u>

Crawfordsville Electric Light and Power
Cause Number 45420

Operating Adjustments

(7)

Accelerated Vegetation Management Expense (Per OUCC)

Description:

Pro Forma Vegetation Management Expense	\$458,147
Less: Test Year Expense	<u>(247,525)</u>
Adjustment Increase (Decrease)	<u>\$ 210,622</u>

(8)

PERF Expense (Per OUCC)

Description:

Pro Forma PERF Expense	\$ 314,289
Less: Test Year Expense	<u>(303,587)</u>
Adjustment Increase (Decrease)	<u>\$ 10,702</u>

(9)

FICA Taxes (Per OUCC)

Description:

OUCC Pro-Forma FICA Tax Expense Adjustment	223,005
Less: Test Year Expense Amount	<u>(215,445)</u>
Adjustment Increase (Decrease)	<u>\$ 7,560</u>

(10)

Utility Receipts Tax (per OUCC)

Description:

OUCC Recommended Revenue Increase	\$3,277,187
Times: Utility Receipts Tax Rate	<u>1.40%</u>
Adjustment Increase (Decrease)	<u>\$45,881</u>

(11)

Payment In Lieu of Taxes (per OUCC)

Description:

Net Utility Plant in Service as of February 29, 2020	\$ 14,779,702
Times: Inside City Multiplier	<u>95.00%</u>
Inside City Utility Plant in Service	14,040,717
Add: Construction Work in Progress*Inside City Multiplier	<u>654,296</u>
Estimated Inside City Net Utility Plant	14,695,013
Times: Gross Corporate Tax Rate (per \$100 Assessed Valuation)	<u>1.5615</u>
Pro Forma Contribution in Lieu of Property Taxes	229,463
Less: Test Year	<u>(425,000)</u>
Adjustment Increase (Decrease)	<u>\$ (195,537)</u>

(12)

Uncollectible Expense (per Petitioner)

Description:

Pro Forma Uncollectible Expense	\$20,000
Less: Test Year Expense	<u>126,464</u>
Adjustment Increase (Decrease)	<u>\$146,464</u>

Crawfordsville Electric Light and Power
Cause Number 45420

Operating Adjustments

(13)

Advertising Expense (per OUCC)

Description:

Pro Forma Advertising Expense

Less: Test Year Expense

Adjustment Increase (Decrease)

\$ -
(26,393)

\$ (26,393)

(14)

City of Crawfordsville Expense (per OUCC)

Description:

Pro Forma City of Crawfordsville Project Expenses

Less: Test Year Expense

Adjustment Increase (Decrease)

\$ -
(30,458)

\$ (30,458)

(15)

Charitable Contributions (Per OUCC)

Description:

Pro Forma Uncollectible Expense

Less: Test Year Expense

Adjustment Increase (Decrease)

\$ -
(2,650)

\$ (2,650)

**Crawfordsville Electric Light and Power
Cause Number 45420**

OUCC Extensions and Replacements

Project Descriptions	2021	2022	2023	2024	2025	2026	Total
50% down payment on Memorial Drive Substation Transformer	\$ 628,595						\$ 628,595
20% down payment on Memorial Drive Substation Distribution Switchgear	137,148						137,148
AMI metering system	192,691	\$ 195,379	\$ 198,115	\$ 200,901	\$ 203,739	\$ 206,628	1,197,453
Transformer Oil Containment at Kentucky Street substation	184,175						184,175
Build Transmission Line from Spann Ave. to Memorial Drive Substations		1,547,641	1,737,397				3,285,038
Build Transmission Line from Memorial Drive to Kentucky St. Substations		608,004	682,123				1,290,127
Memorial Drive Substation (138kV Tap, Transformer, Switchgear, Breakers)		2,867,556	716,182				3,583,738
Transmission Line Relay System Replacement at Spann Ave. Substation			153,666				153,666
Transmission Line Relay System Replacement at Kentucky St. Substation			153,666				153,666
Rebuild Transmission Line from Big Four Arch to Dry Branch Rd Substations				2,790,233			2,790,233
Rebuild Transmission Line from Dry Branch Rd to Spann Ave. Substations				1,239,796			1,239,796
Transmission Line Relay System Replacement at Big Four Arch Substation				158,178			158,178
Transmission Line Relay System Replacement at Dry Branch Substation				158,178			158,178
GIS System Upgrades				27,368			27,368
Rebuild Transmission Line from PSI to Big Four Arch Substations					4,869,308		4,869,308
13.8 kV Switchgear replacement at Spann Avenue substation						205,203	205,203
SCADA upgrades and Capacitor controls at Kentucky Street, Spann Ave., and Big Four Arch substations						171,003	171,003
Rebuild Holiday Inn feeder circuit over Sugar Creek toward the Power Plant						153,010	153,010
Vehicle Additions (#10 42' Aerial Lift Truck)						154,372	154,372
Vehicle Fleet Additions (Fiber Splicing Trailer)						32,163	32,163
Switchgear relay upgrades at Big Four Arch Road substation						1,123,147	1,123,147
Replace 75 kW indoor generator at Utility office with a new 200 kVA generator set with sound attenuation (Engineering, Materials and Labor)						191,111	191,111
Transmission Line Relay System Replacement at PSI Substation						167,613	167,613
Replace under sized conductor; BF 302 circuit						210,952	210,952
Replace (2) 138 kV OCB's with 138 kV SF6 breakers at Kentucky Street Substation						388,108	388,108
Replace (3) 138 kV Air Break Switches at Kentucky Street Substation						100,759	100,759
#2 Switchgear Relay Upgrades at Kentucky Street Substation						150,483	150,483
Digger Derek						402,040	402,040
Total Capital Improvement Plan	\$ 1,142,609	\$ 5,218,580	\$ 3,641,149	\$ 4,574,654	\$ 5,073,047	\$ 3,656,592	\$ 23,306,631
Less: Funding from Depreciation Fund	(1,142,609)						(1,142,609)
Extensions and Replacements	\$ -	\$ 5,218,580	\$ 3,641,149	\$ 4,574,654	\$ 5,073,047	\$ 3,656,592	\$ 22,164,022
Six Year Average Annual Extensions and Replacements (2021-2026)							\$ 3,694,004

Crawfordsville Electric Light and Power
Cause Number 45420

Working Capital Calculation

<u>Description:</u>	<u>Amount</u>
Adjusted Operations and Maintenance Expense	\$5,859,062
45 Day Factor (360/45)	8
Total Working Capital Requirement	<u>\$ 732,383</u>
Less: Operating Fund Balance (as of 2/29/20)	1,924,200
Working Capital Requirement	(1,191,817)
Recommended Amount	<u><u>\$ -</u></u>

Q 1.1: Please refer to Attachment JZW-2, page 5. Please explain what caused the uncollectible accounts expense to result in a total credit balance of \$126,464 for February 29, 2020.

Response: The Test Year includes an audit adjusting entry that credits the account by \$296,464.10 to bring CEL&P's accumulated provision for uncollectible accounts down to a level that more closely reflected the balance of accounts receivable that was more than ninety days past due as of December 31, 2019.

As can be seen on Attachment JZW-2, page 2, the Accumulated Provision for Uncollectible Accounts decreased from \$357,837 as of December 31, 2018, to \$202,000 as of December 31, 2019. As of November 30, 2019, the Accumulated Provision for Uncollectible Accounts had increased been \$534,673 prior to the audit adjustment. The audit adjusting entry was made in the amount of \$296,464.10 as a debit to Accumulated Provision for Uncollectible Accounts with the corresponding credit to Customer Accounting Expense – Uncollectible Accounts.

Q 1.4: On page 15 of her testimony, Ms. Wilson “A common metric for determining appropriate operating reserve levels for a utility is a specified number of days or months of operating expenses, which is anywhere from 45 to 150 days. CEL&P management believes that an operating reserve of 90 days of total operating expenses is reasonable to support the financial integrity of its relatively small utility system and to mitigate potential cash flow problems.” Please explain how this is a “common metric” and provide any supporting documentation to support demonstrating how this is a “common metric.”

Response: Municipalities that issue bonds secured by utility revenues commonly include a covenant in the authorizing document for the bonds that provides for a minimum time period (expressed in months or days) of operation and maintenance expenses to be maintained in the utility’s operation and maintenance account. Rating agencies and purchasers of bonds incorporate this covenant in their financial analysis of utilities to ensure that rates and charges of a utility will adequately support ongoing operation and maintenance and expenses and leave a utility positioned to respond to unexpected expenses or fluctuations in revenue. These are the metrics that rating agencies use to measure the credit worthiness of utilities. .

While CEL&P does not presently have any outstanding debt, since it does not include a return component in its rates, the only means the utility has to raise capital is short term borrowing or bond issuances. Therefore, it is important for CEL&P to maintain reserves that are sufficient in the eyes of banks and the bond market. Failure to build in adequate reserves now could mean the utility would have to again restructure rates prior to issuing additional debt. Even though CEL&P doesn’t have debt, they want to be a well-run utility that meets its payment obligations. Also, it is important to note that as a member of the Indiana Municipal Power Agency ("IMPA"), CEL&P's power sales contract (along with the Power Sales Contracts of the other members) serve as the "collateral" for IMPA's bond obligations, since these contracts are IMPA's primary source of revenue (*see also* [IC 8-1-2.2-11](#)). IMPA's presently outstanding Power System Revenue Bonds total \$1.4 billion (see IMPA's 2019 Annual Report at p. 22: <https://www.impa.com/MediaLibraries/IMPA2017/Financial-Materials/2019-Financials-FINAL.pdf>). Therefore, it is particularly important that IMPA's members, particularly its largest members like CEL&P, maintain their financial integrity.

See also attached list of supporting documentation related to cash and liquidity of electric utilities and utilities in general:

- **Attachment DR-1.4a:** *US Municipal Utility Revenue Debt* rating methodology from Moody’s Investors Service, which includes “Days Cash on Hand” as a metric in evaluating an entity’s financial strength.
- **Attachment DR-1.4b:** *U.S. Public Power: Peer Review* from Fitch Ratings, which includes median “Days Cash on Hand” for retail electric utilities in 2019 of 100 and 250 days for BBB-rated issuers and AA-rated issuers, respectively.

- **Attachment DR1.4c:** *U.S. Public Power Rating Criteria* from Fitch Ratings, which includes “Cash Days on Hand” in its evaluation of an entity’s liquidity profile.

Q 1.5: Please explain how CEL&P determined that a 90-day operating reserve requirement is the proper amount of time?

Response: When determining the 90-day operating reserve requirement, CEL&P balanced its need for cash reserves with the financial impact to customers. The key factors creating need for cash reserve include (1) the need for CEL&P to respond to storm events and pay for large repairs, which can exceed \$2 million for a single event and (2) the need to respond to fluctuating purchased power expenses which are expected to average approximately \$2.3 million each month in the pro forma year. The 90-day factor allows CEL&P to mitigate cash flow problems for unexpected events and fluctuations, while the build-up to this factor over four years lessens the financial impact of CEL&P increasing its financial health on the ratepayers. See also response to Q. 1.4.

Q 4.15: Referring to CEL&P's operating fund. Please provide the ordinance or policy that establishes the operating fund and its guidelines for funding and parameters on spending.

Response: Please see Attachment DR 4.15 for Crawfordsville Ordinance No. 46, 1981 (see Section 12, p. 19 for the parameters of the operating and maintenance fund).

Q 8.3: Please refer to MSFR 170 IAC 1-5-8(a)(25), Exhibit 6-U, Column titled “Subject Matter Category.” For the lines with the subject matter category “PUBLIC HEALTH & SAFETY & BILLING PRACTICES” please separate each expense in this category such that individual expenses are labeled showing which relate to “public health and safety” and which relate to “billing practices.”

Response: For the categories labeled "Public Health & Safety & Billing Practices", these advertisements included information for both categories. Thus, there is not a way to break these expenses down further. The Montgomery County newspaper charges CEL&P a discounted advertising rate if the utility signs an annual advertising contract, which is why CEL&P has listed the charges as a flat rate. There were also two charges that were categorized incorrectly and those are highlighted and re-categorized in Attachment DR 8.3.



RATING METHODOLOGY US Municipal Utility Revenue Debt

This rating methodology replaces "US Municipal Utility Revenue Debt", last revised on December 15, 2014. We have updated some outdated links and removed certain issuer-specific information.

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Summary

This methodology explains how we evaluate the credit quality of essential service US municipal utility revenue bonds. The approach described in the methodology applies to six basic categories of municipal utilities: water distribution, gas distribution, electric distribution, sanitary sewerage, stormwater disposal, and solid waste disposal.¹

The primary factors that drive our credit analysis for these types of utilities are the size and health of the system and its service area, the financial strength of its operations, the legal provisions governing its management, and the strength of its rate management and regulatory compliance.

We intend for this methodology to help investors, municipalities, utilities, and other interested market participants understand how key quantitative and qualitative risk factors are likely to affect ratings in the municipal utility sector. This document does not offer an exhaustive treatment of all factors that are reflected in our ratings, but should enable the reader to understand the considerations that are usually most important for ratings in this sector. While reflecting many of the same core principles that we have used in assigning ratings to this sector for years, this methodology uses a scorecard that quantifies several factors that we previously evaluated in qualitative ways.

The purpose of the scorecard is to provide a reference tool that market participants can use to approximate most credit profiles within the US municipal utility sector. The scorecard provides summarized guidance for the factors that we generally consider most important in assigning ratings to these issuers. However, the scorecard is a summary that does not include every rating consideration. The weights the scorecard shows for each factor represent an approximation of their importance for rating decisions. In addition, the scorecard was built based on historical results, while our ratings are based on forward-looking expectations. As a result, we would not expect the scorecard-indicated rating to match the actual rating in every case.

¹ The methodologies used to assign ratings to municipal utility districts, global regulated water utilities, regulated electric and gas utilities, electric generation and transmission cooperatives, and waste to energy projects can be accessed using the link in the Related Research section of this report.

Introduction

This methodology covers debt secured by the revenues generated by US municipal utilities providing monopolistic services essential to public health and functional economies.

The security for a municipal utility revenue bond is typically defined in a bond resolution or a trust indenture, which acts as a contract between the utility and its bondholders. The resolution or indenture most often identifies the bond's security as a lien on the net revenues of the system after the payment of regular operating and maintenance expenses.

The sector is varied and fragmented. US municipal utilities provide many different services whose rates or fees can secure debt. The utilities mostly fall into one or more of six basic categories:

- 1) **Water utilities** take water from the ground, a river, a lake, or in special cases the ocean, treat it to a potable standard, and distribute it to customers for drinking, cleaning, and commercial, industrial, or agricultural uses. These utilities can be involved in any or all of the functions of water supply: water treatment, long-distance transmission, and retail water distribution. Some water utilities have no treatment capacity and purchase potable water wholesale.
- 2) **Gas utilities** take natural gas from a wholesale² pipeline, odorize it for safety detection, and pressurize it and deliver it to customers through a pipe network for uses such as heating, cooking, or commercial and industrial applications. Some municipal gas systems may encompass their own natural gas supplies.
- 3) **Electric utilities** purchase electricity³ from wholesale suppliers and deliver it to residential, commercial, and industrial customers for a wide range of power uses.
- 4) **Sanitary sewer** utilities collect and treat wastewater, discharging it into a waterway or injecting it underground, and landfilling or incinerating the residual sludge. Some sewer utilities with no treatment capacity gather wastewater and transmit it to another utility that treats it.
- 5) **Stormwater** utilities collect and treat rainwater before discharging it into a body of water such as an ocean or a river. While every city or county addresses stormwater drainage as an integral element of its streets and highways, the stormwater systems that require capital markets financing are typically large in scale and are necessary to avert flooding from heavy seasonal rainfall in hilly areas.
- 6) **Solid waste** utilities collect residential or commercial refuse and dispose of it through landfills, waste-to-energy plants, or other waste-disposal processes. A solid waste system can be complete or collection-only, relying on another municipal or private entity for long-haul removal and disposal through landfill or incineration.

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the ratings tab on the issuer/entity page on www.moodys.com for the most updated credit rating action information and rating history.

² This methodology covers gas distribution utilities. These utilities purchase their supply from providers covered under the regulated electric and gas utilities methodology, or other providers.

³ Only those municipal electric utilities that generate less than 20% of their own power are covered by this methodology. For more information on how we rate electric generation utilities, our methodologies for rating US public power electric utilities with generation ownership exposure and US municipal joint action agencies can be accessed using the link in the Related Research section of this report.

Defining the municipal utility universe

This methodology covers essential-service utilities that operate as departments, boards, or independent authorities of US states or local governments.

States and subdivisions of states, such as counties and cities, often issue bonds secured by the net revenues generated by a system operated directly under their auspices, such as a city water department. Other times, states or state subdivisions create an independent authority or special purpose district that operates the system and issues the bonds. This distinction is usually unimportant for rating purposes, although in some cases a separate authority has beneficial management expertise.

This methodology focuses on revenue bonds for essential-service functions. Other types of public utilities issue bonds backed by revenues charged for services such as telephone, cable television, or parking. These services are typically competitive and subject to greater elasticity in pricing and utilization. Bonds secured by revenues generated by these services are not rated under this methodology. Also not rated under this methodology are utility revenue bonds whose rating is ultimately based on a General Obligation guaranty. Lastly, the electric utilities covered under this methodology are typically retail distributors of electricity mostly generated elsewhere. Electric generation utilities, municipal waste-to-energy facilities, and US municipal joint action agencies are rated under separate methodologies.

The credit quality of essential-service utility revenue bonds is generally strong. The generally high ratings of the sector are a testament to numerous fundamental strengths, including:

- 1) The provision of essential services, usually in a government-protected monopoly
- 2) Typically unregulated and independent rate-setting authority
- 3) The ability to discontinue service to delinquent accounts and in many cases to put a lien on the property for nonpayment
- 4) Utility cost burdens that are typically low relative to household income and to tax burdens
- 5) A generally strong federal and state regulatory framework that is designed to keep utilities functioning in order to protect public health and achieve environmental goals
- 6) A "special revenue" designation that may insulate a utility from a parent's bankruptcy

A sparse history of default, bankruptcy, and serious financial distress helps to underpin the high ratings in this sector.

We see default situations as unusual and idiosyncratic, with limited relevance to the sector as a whole. We expect the very low rate of default in the sector to continue.

The Relationship Between General Obligation (GO) and Utility Revenue Bond Ratings

A municipality's GO credit quality may directly affect the strength of its associated utility systems. This section outlines the broad principles that apply when assessing the credit linkages between a municipality's GO and utility debt. These broad principles are meant to enhance transparency around our view of the relationship between related ratings and explain why, in most cases, the ratings of GO and associated utility revenue debt are and will remain relatively close.

Municipal utility debt is generally exposed to similar credit strengths and pressures as the GO and can thus expect to experience simultaneous credit improvement or deterioration. Examples of credit linkages between the GO and utility debt include:

- » Economy: Utility systems usually rely on a coterminous or overlapping economic base and service area.
- » Legal structure: Utility bond indentures sometimes contain events of default tied to the bankruptcy or insolvency of the general government.
- » Finances and Debt: Cash can often flow between the two entities, sometimes with a formal funding mechanism. Debt and other long-term liabilities are often paid by the same group of constituents. GO and utility issuers may also be exposed to the same pension plan.
- » Management and Governance: Management of the city and the utility may be the same or have close ties. For instance, city management may appoint the board of the utility or have the power to affect enterprise rates.
- » Capital Markets: The GO and the utility issuer may need to access the same capital markets for funding.

Because of these linkages, in most cases, ratings of a municipality's utility debt will typically be within two notches of its GO rating.

There are, however, cases where a utility's credit strength may be sufficiently independent from its associated GO rating to justify a larger notching difference. We expect these cases to be rare, and they would likely include several of the following characteristics:

- » An unusually weak GO rating which is driven by idiosyncratic factors less relevant to the utility's credit strength.
- » A non-coterminous service area, so that utility revenues are derived from a larger and more diversified base.
- » A closed loop flow of funds, wherein the GO issuer is unable to access utility revenues.
- » A strict separation of accounts and assets.
- » The absence of rating triggers tied to the GO credit quality in utility financings.
- » Separation of management and governance.

Conversely, a utility rating more than two notches below its associated GO generally has one or more of the following characteristics:

- » An unusually weak utility rating which is driven by factors less relevant to the general government's credit strength.
- » A utility service area that is narrower and less diverse than the municipality as a whole
- » A lack of expectation that the general government would transfer funds to assist a utility experiencing financial distress.
- » A strict separation of accounts and assets.
- » The absence of rating triggers tied to the utility credit quality in GO financings.
- » Separation of management and governance.

Essential service revenue bonds in bankruptcy

An important property of public utility revenue bonds is that they enjoy a potential moat from a general government's bankruptcy. Under Chapter 9 of the US bankruptcy code, a lien on "special revenue" bonds remains valid and enforceable even if the issuer is granted bankruptcy protection.

The potential survival through bankruptcy of a lien on the net revenues of a utility system is a key strength. When a debtor is granted bankruptcy protection, its unsecured assets are subject to an automatic stay, which freezes outflows unless approved by the bankruptcy judge. An asset secured by a lien that is not subject to the automatic stay enjoys a credit advantage over a related General Obligation credit that is subject to the stay.

Further, a special revenue bond is less susceptible to adjustment in bankruptcy if its lien leads to an interpretation of the bonds as enjoying secured status.

Although the bankruptcy code establishes these strengths of a special revenue bond, Chapter 9 remains largely untested. Case law offers few precedents, and only a handful of examples to support the assertion that a special revenue designation protects revenue bonds in bankruptcy.

The political reality is that utility systems are often major cash-generating assets that other stakeholders frequently would like to bring into bankruptcy negotiations. Moreover, bankruptcy judges in some cases have allowed the cash flows generated by special revenue systems to pay the legal costs of related parents in bankruptcy.

It is premature to conclude that utility revenue bonds are completely insulated from Chapter 9 bankruptcies, and the risks and costs of a general government bankruptcy remain considerable.

The Scorecard

The municipal utility scorecard (see Exhibit 1) is a tool providing a composite score of a utility's credit profile based on the weighted factors we consider most important, universal and measurable, as well as possible notching factors dependent on individual credit strengths and weaknesses. The scorecard is designed to enhance the transparency of our approach by identifying critical factors as a starting point for analysis, along with additional considerations that may affect the final rating assignment.

The scorecard is not a calculator. Its purpose is not to determine the final rating, but rather to provide a standard platform from which to begin viewing and comparing municipal utility credits. It, therefore, acts as a starting point for a more thorough and detailed analysis.

The scorecard-indicated rating will not match the actual rating in every case, for a number of reasons including the following:

- » Our methodology considers forward-looking expectations that may not be captured in historical data.
- » The scorecard is a summary that does not include every rating consideration.
- » In some circumstances, the importance of one factor may escalate and transcend its prescribed weight in this methodology.

EXHIBIT 1

Municipal Utility Scorecard Factors

Broad Scorecard Factors	Factor Weighting	Scorecard Subfactor	Subfactor Weighting
System Characteristics	30%	Asset Condition (Remaining Useful Life)	10%
		Service Area Wealth (Median Family Income)	12.5%
		System Size (O&M)	7.5%
Financial Strength	40%	Annual Debt Service Coverage	15%
		Days Cash on Hand	15%
		Debt to Operating Revenues	10%
Management	20%	Rate Management	10%
		Regulatory Compliance and Capital Planning	10%
Legal Provisions	10%	Rate Covenant	5%
		Debt Service Reserve Requirement	5%
Total	100%	Total	100%

We intentionally limited our scorecard metrics to major rating drivers that are common to most issuers. Outside of these drivers, we may adjust the scorecard score for a variety of "below-the-line" adjustments, which are more idiosyncratic factors that are likely not to apply to all issuers, but that can impact credit strength. The scorecard score is the result of the "above-the-line" score based quantitatively on the above-the-line factors, combined with any "below-the-line" notching adjustments. The scorecard score is a guideline for discussion, but does not determine the final rating. The rating is determined by a rating committee, which considers, but is not bound by, the scorecard score.

Discussion of Key Scorecard Factors

To arrive at a scorecard-indicated rating, we begin by assigning a score for each subfactor. We have chosen measures that act as proxies for a variety of different service area characteristics, financial conditions, and governance behaviors that can otherwise be difficult to measure objectively and consistently. Based on the scores and weights for each subfactor, a preliminary score is produced that translates to a given rating level.

We may then move the score up or down a certain number of rating notches based on additional "below-the-line" factors that we believe impact a particular utility's credit quality in ways not captured by the statistical portion of the scorecard. This is where analytical judgment comes into play. We may also choose to make adjustments to the historical inputs to reflect our forward-looking views of how these statistics may change.

The scorecard score, combined with below-the-line notching, then provides an adjusted score. This adjusted score is not necessarily the final rating. Because some utilities' credit profiles are idiosyncratic, one factor, regardless of its scorecard weight, can overwhelm other factors, and other considerations may prompt us to consider final ratings that differ from the scorecard-indicated rating.

Below, we discuss each factor and subfactor, as well as the below-the-line adjustments and other considerations that we analyze within each category of the methodology.

Factor 1: System Characteristics (30%)

EXHIBIT 2

System Characteristics (30%)

		Aaa	Aa	A	Baa	Ba	B and Below
Asset Condition (10%)	Net Fixed Assets/Annual Depreciation :	> 75 years	75 years ≥ n > 25 years	25 years ≥ n > 12 years	12 years ≥ n > 9 years	9 Years ≥ n > 6 Years	≤ 6 Years
System Size (7.5%)	Water and/or sewer / Solid Waste:	O&M > \$65M	\$65M ≥ O&M > \$30M	\$30M ≥ O&M > \$10M	\$10M ≥ O&M > \$3M	\$3M ≥ O&M > \$1M	O&M ≤ \$1M
	Stormwater:	O&M > \$30M	\$30M ≥ O&M > \$15M	\$15M ≥ O&M > \$8M	\$8M ≥ O&M > \$2M	\$2M ≥ O&M > \$750K	O&M ≤ \$750K
	Gas or Electric:	O&M > \$100M	\$100M ≥ O&M > \$50M	\$50M ≥ O&M > \$20M	\$20M ≥ O&M > \$8M	\$8M ≥ O&M > \$3M	O&M ≤ \$3M
Service Area Wealth (12.5%)		> 150% of US median	150% ≥ US median > 90%	90% ≥ US median > 75%	75% ≥ US median > 50%	50% ≥ US median > 40%	≤ 40% of US median

Why it matters

This factor on the scorecard measures a utility's capacity to fund its operations and capital needs based on the health of its capital assets, the size and diversity of its operations, and the strength and resources of its service base.

The scope of this factor is broad. Each of the subfactors contributes to an analysis of what magnitude of expenditures is necessary to keep the system functioning, and how large, diverse, and flexible the available resources are to meet those expenditures.

Subfactor 1a: Asset condition (10%)

Input: Net fixed assets divided by most recent year's depreciation, expressed in years

The condition of a utility's capital assets determines its ability to comply with environmental regulations and continue delivering adequate service with existing resources.

Depreciation is an accounting concept that acts as a proxy for the rate at which a utility's plant and equipment are aging. Central to our analysis of capital adequacy is an assessment of how utilities "fund depreciation," meaning make capital replacements and repairs to address aging plant and equipment.

The consequences of failing to fund depreciation can be costly. Implicit in this measure is the concept of deferred capital investment. Utilities that delay investing in their systems, replacing aging plant and equipment, and modernizing their facilities often find it more expensive to do so later. Capital investments are ordinarily more expensive when deferred.

Further, systems whose facilities deteriorate often run afoul of environmental regulations. The failure to fund depreciation, which will manifest as a declining useful remaining life, can lead to sewage overflows, inflow and infiltration problems, or non-compliant wastewater discharges, resulting in civil fines, litigation, or regulatory consent decrees. These are usually more expensive than funding depreciation through a prudent multi-year capital plan that replaces assets as they deteriorate or break down.

The inherent differences between types of utilities are manifested in their component parts, which can have very different useful lives. Because a solid waste utility is largely automotive-based, with collection vehicles and earthmoving equipment at the landfill, the useful life of its assets will be well under 20 years, compared to a water utility whose distribution mains and reservoir have useful lives of 40 to 100 years. We generally acknowledge and address these differences below the line.

For utilities whose asset condition ratios are not determinable, such as utilities that utilize cash accounting and do not report net fixed assets or depreciation, we are likely to assess the sufficiency of capital assets based on other available information.

Subfactor 1b: Service area wealth (12.5%)

Input: Median family income of the service area, expressed as a percentage of the US median

Most of the costs of operating a utility and maintaining its capital assets are borne by ratepayers. The income of the residents of the service base conveys the capacity of its ratepayers to bear higher rates to fund operations and capital upgrades. The median family income breakpoints in this scorecard are aligned with the ones in our US local government general obligation debt methodology.⁴

Utilities that serve lower-income ratepayers may have more difficulty implementing higher rates, if utility costs consume a considerable share of residents' budgets. The US Environmental Protection Agency (EPA) considers wastewater costs exceeding 2% of median household income to be a heavy burden, for example, a threshold that would be reached more quickly for a utility serving lower-income ratepayers.

We believe MFI is the best proxy for the wealth of a service base, but other indicators such as the poverty rate, unemployment, home foreclosures, per capita income, and median home value supplement our analysis of ratepayer capacity.

⁴ Our methodology for rating US local government general obligation debt can be accessed using the link in the Related Research section of this report.

Subfactor 1c: System size (7.5%)

Input: Most recent year operations and maintenance expenditures, expressed in dollars

Larger systems tend to be more diverse and enjoy economies of scale. The size of a system implies the flexibility and resilience not only of its operations, but also of its service base.

Small systems present a number of risks. They are less likely to have redundancies, which allow a system to shut down some of its operations in an emergency or to make repairs without interrupting service. Small standalone water or sewer systems will typically depend upon a single supply of water or a single sewage treatment plant. They are more likely to be exposed to a concentrated customer base. They are more susceptible to the departure of a single large customer. An unexpected capital need is likely to be more costly relative to its annual budget. The collective engineering and scientific expertise is likely to be less robust than a larger system's.

We use different breakpoints for different types of systems in this subfactor, recognizing that not all types of utilities have the same cost structure. For instance, an electric distribution system is more expensive to run than a stormwater system. A distribution-only water system is likely to have a lower, more predictable cost base, but also depend on an external system for water supply and pay prices largely out of its control.

Utilities that are wholesalers to municipal government customers may exhibit operating stability not captured by size or service area wealth. Many of a utility's risks may be shifted to its municipal customers if their service contracts prevent these customers from switching providers or decreasing payments. If service contracts are so strongly worded and unconditional that municipal customers would have to pay the utility's debt service under any circumstances, then the utility's bonds may effectively represent a claim on the combined credit quality of the municipal governments.

For utilities that are exclusively wholesalers to municipal customers, we assess the customers' ("participants") credit quality, using our methodologies for general obligation bonds, lease revenue bonds, or other appropriate methodology determined by the nature of the participants' pledge to the utility.⁵ For bonds secured by a utility's net revenue pledge, we incorporate the strength of the municipal customers' credit quality as an important factor in the utility's revenue base. For utilities whose pledges are essentially a pass-through of the municipal customers' underlying pledges, we may rate their bonds using the Public Sector Pool Financings methodology, recognizing that bondholders enjoy a direct claim on the underlying municipalities' ability and willingness to pay.⁶

Below-the-line adjustments

Additional service area economic strength or diversity: We would use this adjustment, upward or downward, if the MFI statistic incompletely or inaccurately depicts that capacity of the service base to bear higher rates.

Significant customer concentration: A large exposure to a single user or industry, or a small number of users, poses substantial risks that might not be captured in MFI. We may adjust the scorecard rating down if a large share of a utility's revenues comes from one or a small number of customers, or from a single industry. We would be more likely to use this adjustment for volatile, unpredictable, and mobile industries than for longer-standing, more stable ones. We are less likely to consider a wholesale customer as a factor contributing to concentration, as it is purchasing on behalf of end-users.

⁵ Each of our methodologies for rating US local government general obligation debt and lease revenue bonds can be accessed using the link in the Related Research section of this report.

⁶ Our methodology for rating public sector pool financings can be accessed using the link in the Related Research section of this report.

Revenue per customer greatly over/under regional average: Revenue per customer conveys additional information about users' capacity for higher rates that might not be captured in MFI. We might adjust the above-the-line rating, upward or downward, if revenue per customer implies higher or lower ability to increase rates than MFI suggests.

Exposure to weather volatility, extreme conditions or market fluctuations: Large amounts of rain that infiltrate pipes or storms that destroy equipment are examples of credit risks that could result in below-the-line adjustments. Weather can also affect the prices that distribution systems pay third-party providers for electricity or natural gas.

Resource vulnerability: Water, gas, and electric distribution utilities sell a product whose availability can be limited or expensive in some cases. For instance, a water provider in a drought-stricken region may have to purchase expensive third-party water, and see declines in billable flow due to conservation efforts. We may adjust the scorecard rating down if the availability of water, an adequate gas supply, or a dependable source of electricity is vulnerable or in doubt.

Sizeable or insufficient capacity margin: Our useful remaining life calculation is designed to assess the quality of existing capital assets, but it does not measure the adequacy of a system's capacity relative to demand. Areas that are growing need more water, gas, and electricity, and place greater demands on wastewater and trash disposal utilities. Systems that are close to capacity may face greater capital costs to expand in the future, suggesting larger debt burdens and posing additional risks that we may adjust the scorecard downward for. Alternately, systems with ample capacity may be notched up, given the lack of capital spending requirements implied by the excess capacity. Further, excess capacity can sometimes imply a revenue-generating opportunity, since utilities can often sell their product or service to other parties. We are less likely to view excess capacity as a positive if it is caused by a declining user base.

Unusual depreciation practices relative to industry norms: Utilities typically have some flexibility to determine the depreciation schedules of their assets. Utilizing unreasonably long useful lives or employing other practices that distort depreciation schedules would also distort our remaining useful life calculation. We may notch a score down if an unreasonable depreciation schedule is inflating a utility's remaining useful life. Likewise, we may notch a score up if an unusually rapid depreciation schedule understates remaining useful life.

Factor 2: Financial Strength (40%)

EXHIBIT 3

Financial Strength (40%)	Aaa	Aa	A	Baa	Ba	B and Below
Annual Debt Service Coverage (15%)	> 2.00x	2.00x ≥ n > 1.70x	1.70x ≥ n > 1.25x	1.25x ≥ n > 1.00x	1.00x ≥ n > 0.70x	≤ 0.70x
Days Cash on Hand (15%)	> 250 Days	250 Days ≥ n > 150 Days	150 Days ≥ n > 35 Days	35 Days ≥ n > 15 Days	15 Days ≥ n > 7 Days	≤ 7 Days
Debt to Operating Revenues (10%)	< 2.00x	2.00x < n ≤ 4.00x	4.00x < n ≤ 7.00x	7.00x < n ≤ 8.00x	8.00x < n ≤ 9.00x	≥ 9.00x

Why it matters

The financial health of a utility determines its flexibility to respond to contingencies, resilience against potential short-term shocks, and cushion against a long-term unfavorable trend.

We measure utilities' financial health by looking at cash and other liquid reserves, the burden that debt places on operations, and the magnitude by which revenues are sufficient to meet expenditures.

Subfactor 2a: Annual debt service coverage (15%)

Input: Most recent year's net revenues divided by most recent year's debt service, expressed as a multiple

Debt service coverage is a core statistic assessing the financial health of a utility revenue system. The magnitude by which net revenues are sufficient to cover debt service shows a utility's margin to tolerate business risks or declines in demand while still assuring repayment of debt. Higher coverage levels indicate greater flexibility to withstand volatile revenues, unexpected outflows, or customer resistance to higher rates.

Utilities usually enter into a rate covenant under which they pledge to achieve a given level of debt service coverage each year. The covenant ensures that the utility utilizes its assets to generate sufficient income to pay bondholders.

The analysis of a utility system's debt service coverage demands ample context. If debt service escalates in future years, then the utility's current net revenues may be sufficient to cover debt service this year, but not in the future. Systems with greater revenue stability can operate comfortably at lower coverage levels. Systems with greater capital needs are likely to incur more debt, which will lead to increased debt service and decreased coverage. The debt service coverage calculation is the basis for a comprehensive analysis of a utility's financial flexibility and trend over the long term.

Rate covenants define a calculation method. These calculation methods vary, for example in the inclusion or exclusion of connection fees. Our coverage calculation will frequently differ from the coverage utilities report for purposes of complying with their rate covenants. Frequently, our analysis will consider several types of coverage, including maximum annual debt service (MADS) coverage, annual debt service coverage, coverage with and without connection fees, and coverage as calculated for the rate covenant. For entry on the scorecard, we include connection fees (when pledged) in revenues, recognizing that these are pledged revenues that are usually generated annually and are an important source of funding for expansion. If connection fees are particularly volatile, or if they represent an inordinate share of revenues, we may adjust below the line.

Subfactor 2b: Days cash on hand (15%)

Input: Unrestricted cash and liquid investments times 365 divided by operating and maintenance expenses, expressed in days

Cash is the paramount resource utilities have to meet expenses, cope with emergencies, and navigate business interruptions. Utilities with a lot of cash and cash equivalents are able to survive temporary disruptions and cash flow shortfalls without missing important payments. A large cash balance can also partially compensate for the lack of a debt service reserve fund. A low cash balance indicates poor flexibility to manage contingencies.

We include in this measure any cash or cash-equivalent that is both unrestricted and liquid. The measure does not include cash held in a debt service reserve fund, unspent bond proceeds, or cash that is restricted for capital.

Subfactor 2c: Debt to operating revenues (10%)

Input: Net debt divided by most recent year's operating revenues, expressed as a multiple

A utility's debt profile determines its leverage and fixed costs. Systems that carry a lot of debt have less ability to reduce costs if demand shrinks, and are generally more challenged to achieve higher debt service coverage.

A greater debt burden may also prohibit a utility from funding necessary capital upgrades, if a covenant prevents the issuer from incurring the debt necessary to fund those upgrades.

"Net debt" is a utility's long-term debt subtracted by debt service reserve funds.

Below-the-line adjustments

Debt service coverage (annual or MADS) below key thresholds: A debt service coverage ratio below 1 times is an important threshold, because coverage below 1 times indicates the utility is not fully covering debt service with income generated from operations. If a utility fails to achieve 1 times coverage, we may adjust the score down to reflect the financial imbalance of the utility's operations. Another key threshold that would likely prompt us to adjust the score down is if coverage were to fall below the utility's coverage covenant, even if that covenant is higher than 1 times. Management's willingness and ability to operate the system for bondholders' benefit is a crucial credit consideration, and a breach of covenant calls that willingness and ability into question. A coverage level that impedes the issuance of additional bonds under the utility's additional bonds covenant could also prompt us to adjust the score down, if we think it would prevent the utility from funding necessary capital upgrades.

Constrained liquidity position due to oversized transfers: It is common for utilities to transfer cash to their general governments regularly, either to share overhead costs, make payments in lieu of taxes for occupied property, or to help fund shared infrastructure. It is also common for parent governments to tap utilities' cash to fund General Fund operations. We may notch a utility's score down if these types of transfers are large and begin to strain its own liquidity. We are more likely to make this adjustment if the general government is operationally reliant on utility transfers and has the authority to increase them, particularly if the general government is struggling financially. Even if a utility has never transferred cash to its parent, such transfers remain a possibility⁷, one of the reasons for the relationship between a revenue rating and the GO rating of its general government.

Oversized capital needs: A utility with significant capital needs will likely need to incur additional debt not communicated in the existing debt metric. We may adjust the score downward for utilities under regulatory consent decree, or otherwise with great capital needs, that are likely to increase their debt levels.

Oversized adjusted net pension liability relative to debt, or significant actuarial required contribution underpayment: Employees of public utilities are usually members of a municipal pension plan. Most utilities either sponsor their own plan or participate in another entity's plan, and are responsible for funding their share of the plan's pension liabilities. We may adjust the score down if this liability is especially large, or if the utility has underfunded its contributions.

Significant exposure to puttable debt and/or swaps, or other unusual debt structure: The risks of a debt portfolio can be magnified if it is significantly composed of puttable debt. Utilities generally set rates with the intention of covering operating expenses and debt service in the current year. A debt put, accelerated amortization under a term-out, or other unexpected calls on a utility's resources can impose immediate and

⁷ Unless the utility's flow of funds is closed-loop. A closed-loop flow of funds is stronger than an open one for this reason.

substantial, unbudgeted cash outflows and upend that intention. We may notch a score down, potentially by several notches, if the composition of a debt portfolio, or cash-flow demands or unfavorable valuation of a swap, communicates a greater degree of risk than the existing debt metric.

Factor 3: Management (20%)

EXHIBIT 4

Management (20%)	Aaa	Aa	A	Baa	Ba	B and Below
Rate Management (10%)	Excellent rate-setting record; no material political, practical, or regulatory limits on rate increases	Strong rate-setting record; little political, practical, or regulatory limits on rate increases	Average rate-setting record; some political, practical, or regulatory limits on rate increases	Adequate rate-setting record; political, practical, or regulatory impediments place material limits on rate increases	Below average rate-setting record; political, practical, or regulatory impediments place substantial limits on rate increases	Record of insufficiently adjusting rates; political, practical, or regulatory obstacles prevent implementation of necessary rate increases
Regulatory compliance and capital planning (10%)	Fully compliant OR proactively addressing compliance issues; Maintains sophisticated and manageable Capital Improvement Plan that addresses more than a 10-year period	Actively addressing minor compliance issues; Maintains comprehensive and manageable 10-year Capital Improvement Plan	Moderate violations with adopted plan to address issues; Maintains manageable 5-year Capital Improvement Plan	Significant compliance violations with limited solutions adopted; Maintains single year Capital Improvement Plan	Not fully addressing compliance issues; Limited or weak capital planning	Not addressing compliance issues; No capital planning

Why it matters

If the legal provisions establish the minimum level of financial margin at which a utility must be run, the utility's management determines the actual level at which it is run.

Utility management refers to the dynamics of setting rates, planning for capital spending, budgeting for annual expenditures, and complying with environmental regulations. All of these factors interplay with one another to determine the credit strength of a utility system.

The scorecard captures two crucial aspects of management: rate-setting and capital planning. These two aspects encompass most of what is important in running a utility: keeping the system in good working order, and paying for it.

Subfactor 3a: Rate management (10%)

User rates are the primary, and sometimes only, mechanism utilities employ to pay for their operations.

Ideally, rates increase marginally and steadily, rather than choppily. It is common for utilities to split their rates into a "base" charge (flat rate charged to all users) plus a "volumetric" charge (per unit costs based on flow/usage). Utilities funded to a greater extent by the volumetric charge face greater risks, since volume can be economically sensitive or decline because of a shift in consumption patterns.

Management's track record at setting rates appropriately and increasing them when necessary drives this score. We tend to give higher scores to utilities that set rate structures under which increases are automatic, and do not require annual approval for implementation.

Embedded into this factor is the length of time required to implement a rate increase. Many public utilities enjoy the authority to set their own rates, and can enact a rate increase in short order by majority vote of the governing board. Some utilities must give the public a few weeks or months notice before increasing rates, or choose to do so by policy or practice. Some utilities require state approval to increase rates. Utilities that need state approval often have to file a rate case subject to public objection, and in some cases the state takes a long time to approve them or denies the full rate increase.

The longer it takes a utility to implement a rate increase, the less flexibility it has to quickly generate new revenues when faced with cash flow shortfalls.

Subfactor 3b: Regulatory compliance and capital planning (10%)

The public utility sector is heavily regulated. Most public utilities are regulated by federal as well as state agencies.

The EPA enforces the Safe Drinking Water Act for water distribution utilities, the Clean Water Act for sanitary sewer and stormwater utilities, the Resource Conservation and Recovery Act for solid waste disposal systems, and the Clean Air Act for electric utilities. These statutes, and the methods employed to enforce them, are continually evolving, often intensifying over time. Additionally, many states have passed their own environmental regulations and are active enforcers.

This scorecard factor assesses utilities' compliance with relevant regulations and their plans for the capital expenditures required to comply in the future.

In addition to achieving environmental compliance, proper capital planning ensures the continued delivery of the product or service and the ongoing generation of revenues.

During our reviews, we look for indications of potential compliance gaps, such as environmental litigation, a delay in renewing a permit, or a consent decree with a state or federal enforcement body.

Below-the-line adjustments

Unusually strong or weak capital planning: Continued violations of environmental laws and the associated litigation can impose extraordinary costs on utilities. We may notch the score down if these costs threaten to overwhelm a system's resources, in the form of a large consent decree, lawsuit, or other costs. Alternately, we may notch the score up if a utility's capital planning is particularly sophisticated or forward-looking. More sophisticated and forward-looking capital management is more important for systems facing resource vulnerability or extreme weather volatility.

Factor 4: Legal provisions (10%)

EXHIBIT 5						
Legal Provisions (10%)	Aaa	Aa	A	Baa	Ba	B and Below
Rate Covenant (5%)	> 1.30x	1.30x ≥ n > 1.20x	1.20x ≥ n > 1.10x	1.10x ≥ n > 1.00x		≤ 1.00x
Debt Service Reserve Requirement (5%)	DSRF funded at MADS	DSRF funded at lesser of standard 3-prong test	DSRF funded at less than 3-prong test OR springing DSRF	NO explicit DSRF; OR funded with speculative grade surety		

Why it matters

The legal provisions of a public utility revenue bond form the backbone of its security.

When a municipality assigns its General Obligation pledge to a bond, it has promised to do whatever it has to do to cover debt service, in most cases from any revenues or resources at its disposal.

A utility revenue bond enjoys no such open-ended pledge, making the legal edifice of the bond critical to bondholder security. Most commonly, the legal security for municipal utility revenue bonds is a lien on the net revenues of the system. Occasionally, bondholders enjoy a lien on the gross revenues of a system. We ordinarily do not consider a gross revenue pledge as materially stronger than a net revenue pledge, because systems need to pay operating and maintenance costs in order to remain functional.

The linchpin of a bond's legal structure is its covenants: the legal compulsions the municipal utility agrees to when issuing the bonds.

Utilities abide by many different types of covenants. We consider three to be the most important: the rate covenant, the additional bonds test, and the debt service reserve fund. Also crucial in the analysis of a revenue bond's legal structure is whether the flow of funds is open-loop (accessible by another government entity) or closed.

Strong covenants bind the utility to utilize its assets to benefit bondholders by operating with a comfortable financial margin, not taking on too much debt, and maintaining adequate cash available to pay debt service. Weak or nonexistent covenants allow the utility to operate on a thin margin or even at a net loss, incur a lot of leverage, transfer its money to other government entities, or maintain inadequate cash, in ways that are detrimental to bondholders.

Covenants specify the minimum factors management must legally abide by. Utilities frequently exceed the minimum. Many of our ratings represent the expectation of performance at levels that exceed the covenants.

Subfactor 4a: Rate covenant (5%)

Input: Covenant governing net revenues (operating revenues minus operating expenditures net of depreciation) divided by annual debt service, expressed as a multiple

The rate covenant is a legal pledge to set rates such that net revenues will be sufficient to cover debt service at a prescribed level. For example, a covenant may bind a utility to ensure that net revenues cover debt service by 1.2 times. If net revenues fall short of this covenant in one year, the utility must raise rates to achieve a compliant coverage level the following year.

The rate covenant takes many forms. Some utilities pledge for net revenues to cover current year annual debt service by a given level. Others pledge to cover average annual debt service throughout the life of the bonds at that level. A strong coverage requirement would be for net revenues to cover maximum annual debt service (MADS) by a certain level.

Some rate covenant formats are materially weaker than this. Some utilities allow a “rolling” calculation, which includes outstanding cash from prior years’ surpluses as part of the resources available to cover debt service. Many rate covenants allow connection fees to be included in available operating revenues.

The above-the-line coverage factor assumes the covenant is an annual debt service coverage calculation. We can adjust for any departures from this format below the line, upward or downward.

Subfactor 4b: Debt service reserve requirement (5%)

Input: Debt service reserve requirement

Many issuers agree to hold a specified amount of cash or other resources in a debt service reserve fund (DSRF), which the trustee can tap to pay debt service in the event that net revenues are inadequate. The DSRF covenant ordinarily requires the utility to replenish any draws from the DSRF.

The DSRF protects bondholders by assuring the payment of debt service even if net revenues fall short in one year.

DSRF funds can be funded with cash, or with surety policies from an insurer. We generally consider cash to be superior to a surety, although this is unlikely to materially affect the rating as long as the surety provider is rated investment grade.

One commonly used DSRF requirement is known as the “three-pronged test.” Under tax law, the Internal Revenue Service limits the earning of interest on proceeds of a tax-exempt bond unless the invested proceeds comply with the three-pronged test. Under that test, the DSRF must be the lesser of 10% of principal, MADS, or 1.25 times average annual debt service. A DSRF set at the three-pronged test is usually weaker than one funded at MADS.

Recent years have seen a trend of revenue bonds issued without a DSRF. This has resulted in a number of utilities with some bonds secured by a DSRF and other parity bonds secured by the same lien but no DSRF. We have rarely distinguished ratings between these parity bonds. The DSRF is a last-resort security measure, and most utilities comply with their coverage covenants and never have to tap their DSRF. We are most likely to distinguish between DSRF-secured bonds and bonds with no DSRF if the system holds narrow liquidity. A system operating with abundant liquidity can use its operating cash to meet debt service shortfalls, effectively executing a similar function to the DSRF. The combination of narrow liquidity and no DSRF exposes bondholders to greater risks of interrupted debt service payments, and is therefore more likely to be reflected in ratings.

For a utility whose debt is mostly, but not all, secured by a DSRF, we will still enter the DSRF requirement into the scorecard. For a utility whose debt is mostly not secured by a DSRF, we will adjust the DSRF entry downward⁸.

⁸ For example, if 1/3 of a utility's debt is secured by a DSRF funded at MADs and 2/3 is not secured by a DSRF at all, we may enter the DSRF requirement as a Baa.

Below-the-line adjustments

Coverage covenant other than annual debt service: Our input for the coverage covenant assumes the coverage refers to net revenue coverage of annual debt service. A "rolling" coverage covenant that includes outstanding cash, or some other modification that weakens the meaning of the covenant, may prompt us to notch the score down. Conversely, a MADS coverage covenant may prompt us to notch the score up.

Structural enhancements/complexities: The scorecard is designed to capture covenants as they are most commonly constituted, but cannot account for the myriad structures and complexities that arise in bond transactions throughout the sector. Enhancements such as a lock-box structure for debt service may lead us to notch the score up. Other shortcomings, such as a weak additional bonds test or the inclusion of cash in a coverage covenant, may lead us to notch the score down. Any characteristic of the legal provisions of a bond transaction may lead us to conclude that the scorecard does not adequately capture its risk profile.

Treatment of Different Liens on a US Municipal Utility's Net Revenues

It is common for utilities to issue debt secured by different liens on their net revenues. Senior bonds are secured by a first lien on net revenues, and subordinate bonds or loans secured by a subordinate, or junior, lien. Sometimes, utilities will issue debt secured by a third lien or lower.

Our practice is to evaluate the likelihood of default and the expected recovery in the event of default for each lien independently.

This will most commonly result in a rating distinction of one notch for each lien of subordination. In other words, if a municipal utility's senior lien is rated Aa3, its subordinate lien will most likely be rated A1 and the third lien will most likely be rated A2.

The reason for the typical one-notch-per-lien distinction is that subordinate liens are marginally more likely to default than senior liens, and subordinate liens' expected recovery in the event of default would be lower. Senior liens are typically afforded stronger legal protections under utilities' indentures, senior-lien debt service is usually paid earlier in the flow of funds, and the first lien would likely enjoy a better claim in bankruptcy.

For most investment grade municipal utilities, the probability of default for any lien is small, and so the notching distinction is driven primarily by a greater expected loss severity in the unlikely event of a default. This is comparable to our approach for ratings distinctions for different debt classes of investment grade corporations, where ratings distinctions are driven by differences in expected loss severities. In contrast to corporates, however, there often is not an explicit cross-default of senior municipal debt in the event of a subordinate payment default.

In some instances, we may conclude that an investment grade municipal utility's subordinate lien has a default probability and expected loss severity that is nearly as low or just as low as the senior lien (in which case we may not make a ratings distinction), or a default probability and expected loss severity that is materially higher than the senior lien (in which case we may make a ratings distinction of more than one notch).

Such a conclusion would be based on the municipal utility's management of its system with respect to its liens, and the characteristics of the legal framework governing the liens: rate covenants, additional debt provisions, and cross-default and acceleration provisions in a senior lien's variable rate debt resulting from a default on the subordinate lien, for example. If a utility has only a very small amount of senior lien debt, we may choose not to distinguish between liens.

The distinctions among a municipal utility's liens become starker when it faces a material likelihood of default or bankruptcy. For these situations, the different characteristics of the liens are likely to drive greater disparities in default probabilities and expected recoveries for disparate liens. Thus, we are more likely to employ ratings distinctions other than one notch for speculative grade municipal utilities' different liens as the Loss Given Default approach drives more of the analysis.

In nearly all instances, the ratings on the different liens of the same utility will remain closely related. The reason for this is that municipal utilities are actively managed enterprises that continually need to generate net revenues sufficient not only to cover debt service but also to fund capital needs. Even if senior lien coverage is strong, a utility that is unable to pay its junior lien debt service is not generating excess funds for capital investment and does not have capacity for capital borrowing. Thus, while subordinate liens face greater default probability and higher loss expectations based on their first-loss positions, an increased likelihood of default on a subordinate lien implies an increased likelihood of insolvency for the utility as a whole.

For this reason, we enter the debt-oriented inputs into the scorecard on a consolidated basis. For the debt to revenues factor, we enter total debt (senior and junior). For the debt service coverage factor, we enter total debt service coverage. It is the municipal utility's ability to cover all of its debt service with net revenues that determines its viability as a going concern. Even for a senior lien with a large coverage factor by net revenues, a narrow coverage of all debt service implies pressure to maintain healthy operations and generate funds sufficient for capital reinvestment.

⁹ Our cross-sector methodology for notching corporate instruments can be accessed using the link in the Related Research section of this report.

Appendix: Municipal Utility Revenue Bond Scorecard

EXHIBIT 6

		Aaa	Aa	A	Baa	Ba	B and Below
Numerical score		0.5 to 1.5	1.5 to 2.5	2.5 to 3.5	3.5 to 4.5	4.5 to 5.5	5.5 to 6.5
System Characteristics (30%)							
Asset Condition (10%)	Net Fixed Assets/Annual Depreciation :	> 75 years	75 years ≥ n > 25 years	25 years ≥ n > 12 years	12 years ≥ n > 9 years	9 Years ≥ n > 6 Years	≤ 6 Years
Service Area Wealth (12.5%)		> 150% of US median	150% ≥ US median > 90%	90% ≥ US median > 75%	75% ≥ US median > 50%	50% ≥ US median > 40%	≤ 40% of US median
System Size (7.5%)	Water and/or Sewer/ Solid Waste:	O&M > \$65M	\$65M ≥ O&M > \$30M	\$30M ≥ O&M > \$10M	\$10M ≥ O&M > \$3M	\$3M ≥ O&M > \$1M	O&M ≤ \$1M
	Stormwater:	O&M > \$30M	\$30M ≥ O&M > \$15M	\$15M ≥ O&M > \$8M	\$8M ≥ O&M > \$2M	\$2M ≥ O&M > \$750K	O&M ≤ \$750K
	Gas or Electric:	O&M > \$100M	\$100M ≥ O&M > \$50M	\$50M ≥ O&M > \$20M	\$20M ≥ O&M > \$8M	\$8M ≥ O&M > \$3M	O&M ≤ \$3M
Financial Strength (40%)							
Annual Debt Service Coverage (15%)		> 2.00x	2.00x ≥ n > 1.70x	1.70x ≥ n > 1.25x	1.25x ≥ n > 1.00x	1.00x ≥ n > 0.70x	≤ 0.70x
Days Cash on Hand (15%)		> 250 Days	250 Days ≥ n > 150 Days	150 Days ≥ n > 35 Days	35 Days ≥ n > 15 Days	15 Days ≥ n > 7 Days	≤ 7 Days
Debt to Operating Revenues (10%)		< 2.00x	2.00x < n ≤ 4.00x	4.00x < n ≤ 7.00x	7.00x < n ≤ 8.00x	8.00x < n ≤ 9.00x	≥ 9.00x
Management (20%)							
Rate Management (10%)		Excellent rate-setting record; no material political, practical, or regulatory limits on rate increases	Strong rate-setting record; little political, practical, or regulatory limits on rate increases	Average rate-setting record; some political, practical, or regulatory limits on rate increases	Adequate rate-setting record; political, practical, or regulatory impediments place material limits on rate increases	Below average rate-setting record; political, practical, or regulatory impediments place substantial limits on rate increases	Record of insufficiently adjusting rates; political, practical, or regulatory obstacles prevent implementation of necessary rate increases
Regulatory Compliance and Capital Planning (10%)		Fully compliant OR proactively addressing compliance issues; Maintains sophisticated and manageable Capital Improvement Plan that addresses more than a 10-year period	Actively addressing minor compliance issues; Maintains comprehensive and manageable 10-year Capital Improvement Plan	Moderate violations with adopted plan to address issues; Maintains manageable 5-year Capital Improvement Plan	Significant compliance violations with limited solutions adopted; Maintains single year Capital Improvement Plan	Not fully addressing compliance issues; Limited or weak capital planning	Not addressing compliance issues; No capital planning
Legal Provisions (10%)							
Rate Covenant (5%)		> 1.30x	1.30x ≥ n > 1.20x	1.20x ≥ n > 1.10x	1.10x ≥ n > 1.00x		≤ 1.00x ¹⁰
Debt Service Reserve Requirement (5%)		DSRF funded at MADS	DSRF funded at lesser of standard 3-prong test	DSRF funded at less than 3-prong test OR springing DSRF	NO explicit DSRF; OR funded with speculative grade surety ¹¹		

¹⁰ Scores as a Ba.

¹¹ Scores as a Baa.

Adjustments/Notching Factors

Factor 1: System Characteristics

Additional service area economic strength or diversity

Significant customer concentration

Revenue-per-Customer greatly over/under regional average

Exposure to weather volatility or extreme conditions

Resource vulnerability (1/3 or greater)

Sizable or insufficient capacity margin

Weak depreciation/reinvestment practices relative to industry norms

Other analyst adjustment to System Characteristics (Specify)

Factor 2: Financial Strength

Debt Service Coverage (Annual or MADS) below key thresholds: Additional Bonds Test and 1.00x coverage

Constrained liquidity position due to oversized transfers

Oversized capital needs

Oversized ANPL relative to debt or significant ARC under-payment

Significant exposure to puttable debt and/or swaps or other unusual debt structure

Other analyst adjustment to Financial Strength factor (Specify)

Factor 3: Legal Provisions

Structural Enhancements/Complexities

Other analyst adjustment to Legal Provisions factor (Specify)

Factor 4: Management

Unusually strong or weak operational or capital planning

Other analyst adjustment to Management factor (Specify)

Other

Credit Event/Trend not yet reflected in existing data set

Indicated Rating	Overall Weighted Score
Aaa	0.5 to 1.5
Aa1	1.5 to 1.83
Aa2	1.83 to 2.17
Aa3	2.17 to 2.5
A1	2.5 to 2.83
A2	2.83 to 3.17
A3	3.17 to 3.5
Baa1	3.5 to 3.83
Baa2	3.83 to 4.17
Baa3	4.17 to 4.5
Ba1	4.5 to 4.83
Ba2	4.83 to 5.17
Ba3	5.17 to 5.5
B1	5.5 to 5.83
B2	5.83 to 6.17
B3	6.17 to 6.5

Moody's Related Research

The credit ratings assigned in this sector are primarily determined by this credit rating methodology. Certain broad methodological considerations (described in one or more credit rating methodologies) may also be relevant to the determination of credit ratings of issuers and instruments in this sector. Potentially related sector and cross-sector credit rating methodologies can be found [here](#).

For data summarizing the historical robustness and predictive power of credit ratings assigned using this credit rating methodology, see [link](#).

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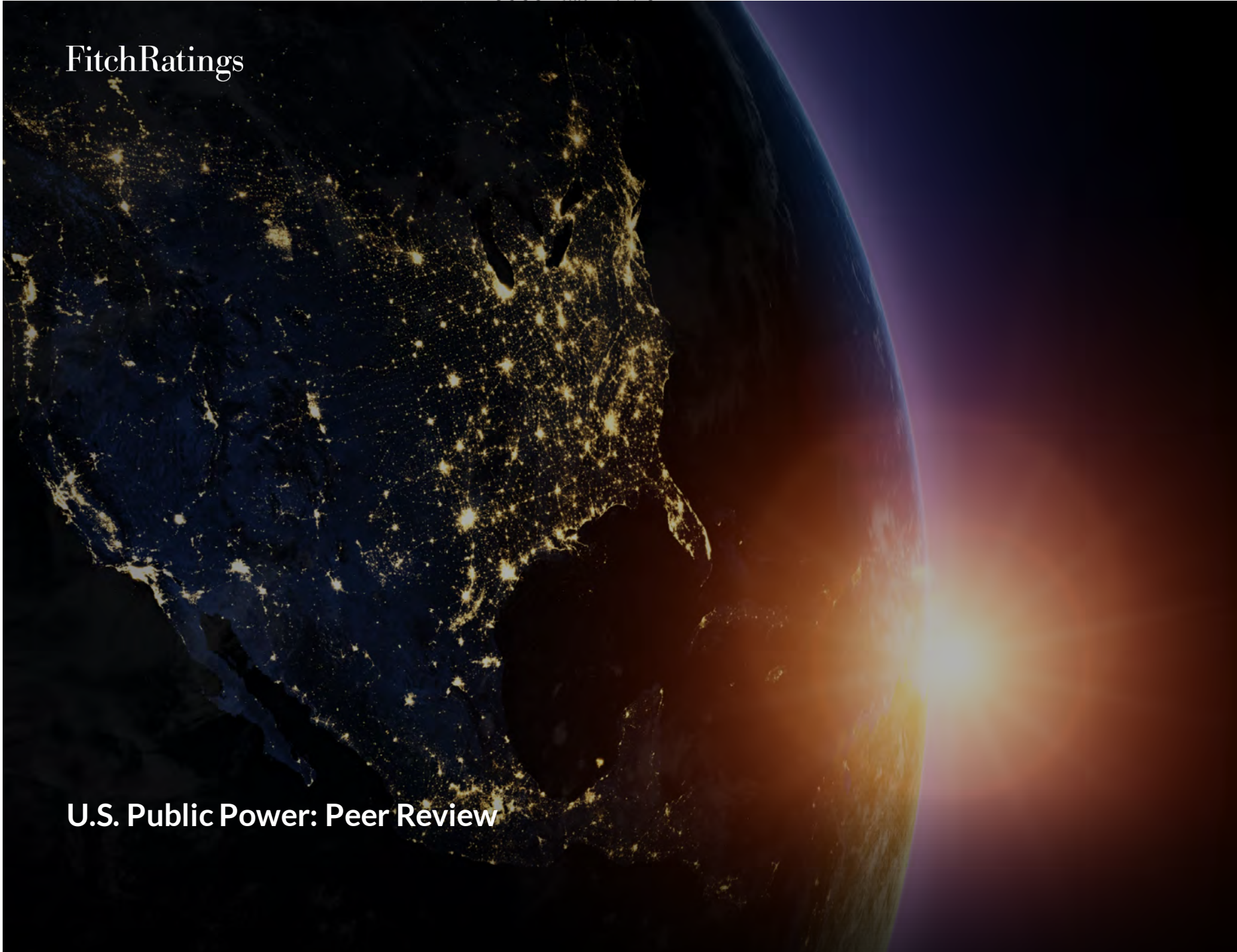
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FitchRatings

U.S. Public Power: Peer Review



U.S. Public Power: Peer Review

Overview

Fitch Ratings presents the 2020 edition of its annual *U.S. Public Power: Peer Review*. This report compares the recent financial performance of wholesale and retail public power systems, as well as rural electric cooperatives. The ratios highlighted in this report are some of the financial calculations used in comparing utility systems in Fitch's committee process, and can assist market participants in making their own comparisons. Financial metrics represent only one key component among others in Fitch's utility credit analysis. To review Fitch's full public power criteria, please see [U.S. Public Power Rating Criteria](#).

The *U.S. Public Power: Peer Review* is a point-in-time assessment of Fitch-rated public power utilities. The ratios for each issuer are calculated using audited information. While more than half the audits used in this study are dated Dec. 31, 2019, different audit dates may skew the ratio distribution.

Financial ratios and metrics detailed in the report may occasionally differ from those reported in new issue and rating reports. This can be a result of adjustments made by Fitch during the rating review process to reflect additional information received from the issuer and circumstances unique to the credit. In each case, Fitch seeks to highlight these adjustments for the benefit of the reader in the reports and press releases it publishes during the rating process.

2019 Performance Highlights

- Coverage of full obligations improved for wholesale and retail systems across all rating categories, sustaining an upward trend.
- The capex-to-depreciation ratios for wholesale systems remained very low, with the median falling below 100% for the fourth year in a row. The median ratios for retail systems and the portfolio as a whole rose modestly, but have remained relatively unchanged since 2012.
- Cash on hand medians for retail and wholesale systems improved and are at the highest levels observed in a decade. This trend and the lower capital investment rates likely reflect the continuance of slower demand growth, abundant market capacity and the avoidance of generation-related capex.
- Leverage metrics across the entire portfolio of rated credits improved, continuing a trend of deleveraging that began over a decade ago.

FACT – 2020

The *U.S. Public Power: Peer Review* is accompanied by the release of the [Public Power - Fitch Analytical Comparative Tool \(FACT\) - 2020](#). The interactive FACT provides enhanced trend analysis and peer comparison tables to improve the peer review's use as a tool for investors and other market participants. In addition to its historical capabilities of graphically plotting financial ratios and metrics, as well as operating data for prior fiscal years (2015–2019) and the current fiscal year for each of the public power and cooperative issuers included in the peer review, this year's edition will also allow for peer comparisons based on Fitch's key rating driver assessments.

The FACT also features dynamic charting applications and peer analysis that allow users to compare trends in operational and financial data for up to four systems and against medians calculated on a notch-specific rating basis, within the same rating category (i.e. AA, A, BBB), against the entire portfolio of Fitch-rated issuers or against an entirely customized peer group.

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What's New?

As promised, this year's *U.S. Public Power: Peer Review* and FACT incorporate and reflect key rating driver assessments assigned pursuant to Fitch's new criteria for rating U.S. public power utilities. The revised criteria was originally published on April 3, 2019 and updated on March 30, 2020. In this report, we included the current key rating driver assessments for each issuer in the *Public Power Operating Profiles*, and also included the assessments in our updated FACT. In addition, we continued to align the reported data with the analytical metrics featured in the our criteria, including calculations for the net adjusted debt-to-adjusted funds available for debt service (FADS) ratio, as well as a revised calculation of debt service coverage, which treats all transfers and distributions as operating expenses.

Utility Systems Included in Report

The majority of utility systems rated by Fitch's Public Power group fall into three categories: wholesale systems, retail systems, and generation and transmission (G&T) cooperative systems. The following is a brief description of each of the sectors.

Retail Systems

Retail utility systems derive the majority of their revenues from sales to end-user customers. Some retail systems, typically larger entities, own and operate generating facilities to meet system power demands, while others receive contractual power supply from wholesale suppliers. Many systems meet power supply needs through a combination of owned generation and purchased power.

Wholesale Systems

Wholesale public power systems represent utilities whose revenues are primarily derived from sales to municipally owned retail power systems, and are typically organized as joint action agencies (JAAs). The number of members in JAAs can vary from three (Northern Illinois Municipal Power Agency) to more than 100 (American Municipal Power). JAAs may be organized to own one generating unit, a diverse portfolio of resources or contract for power. Wholesale providers not organized as JAAs, including state or federally owned suppliers, are also included in this category.

Rural Electric Cooperatives

G&T Cooperatives

G&T cooperatives typically provide wholesale power supply and transmission services to their member distribution cooperatives. G&T revenues are primarily derived from sales and services provided to members, but may also include payments from third-party market participants. G&T cooperatives are generally organized as not-for-profit entities that operate for the benefit of their owner members.

Metrics for G&T cooperatives are included in the calculation of medians for wholesale systems, and are also presented separately in this report.

Distribution Cooperatives

Distribution cooperatives sell power to their owner members, or end-user customers, and are included in the retail category.

Commentary

Medians Are Not Targets

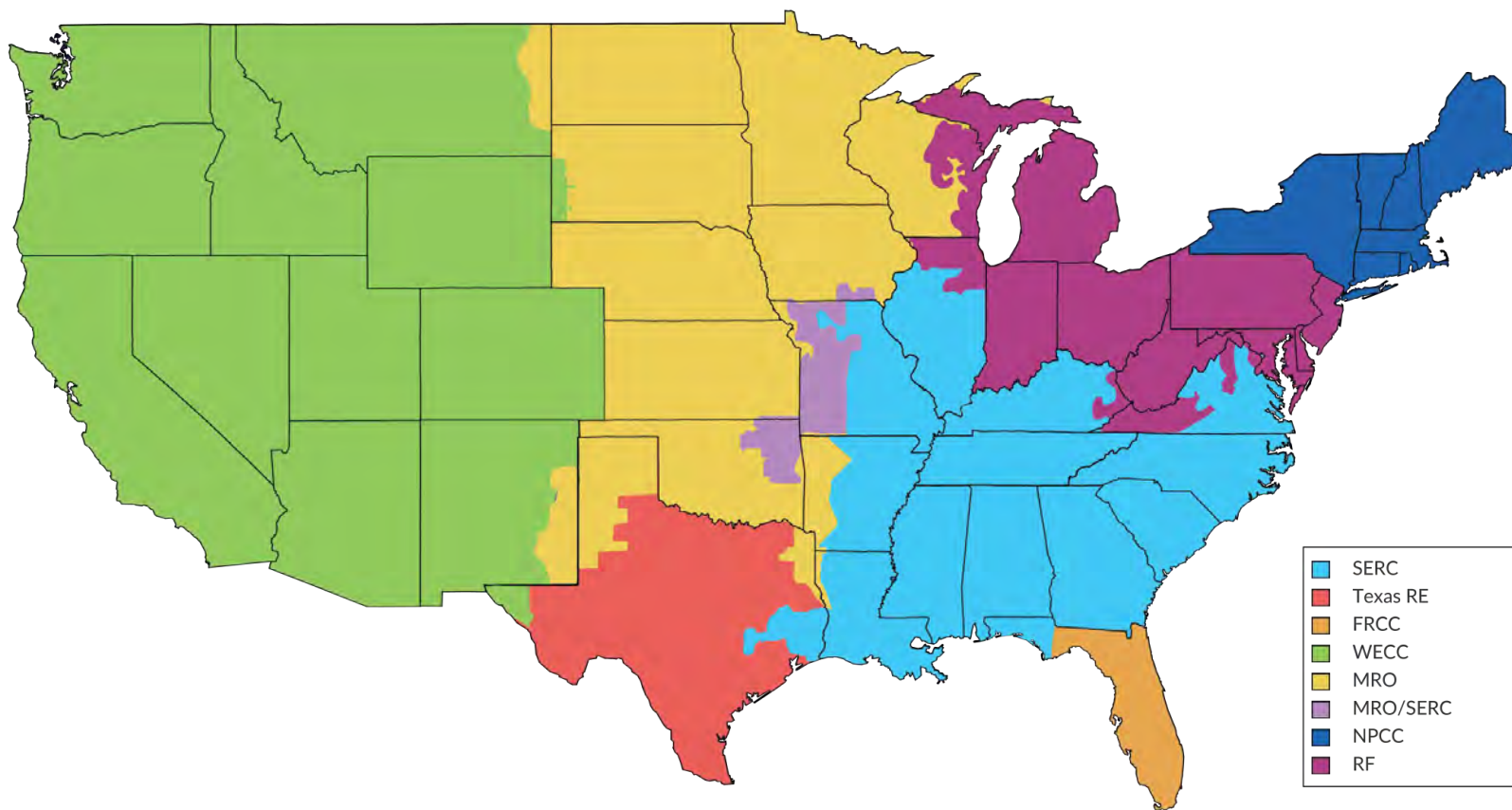
While the peer review includes median calculations for financial ratios by rating category, these should not be construed as targets for specific ratios or ratings. The medians reflect a single point in time, may not reflect relevant adjustments, and in many instances, are based on a small sampling of public power issuers.

Comments Welcome

As always, Fitch welcomes comments, ideas and suggestions from users to improve the value of the *U.S. Public Power: Peer Review*.

NERC Regions

NERC Regions



NERC - North American Electric Reliability Corporation. SERC - Southeastern Electric Reliability Corporation. Texas RE - Texas Reliability Entity. FRCC - Florida Reliability Coordinating Council. WECC - Western Electricity Coordinating Council. MRO - Midwest Reliability Organization. NPCC - Northeast Power Coordinating Council. RF - Reliability First Corporation.
Note: NERC regions are shown within U.S. geographical boundaries only. As of mid-2019, FRCC issuers are now classified under SERC.
Source: NERC, Fitch Ratings.

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Public Power Operating Profiles

Obligor	Rating	Outlook/ Watch	Revenue Defensibility Assessment	Operating Risk Assessment	Financial Profile Assessment	System Type	Self- Regulated?	Total Debt, 2019 (\$'000)	Total Adjusted Debt, 2019 (\$'000)	Wholesale Customers	Retail Electric Customers
Electric Reliability Council of Texas (ERCOT)											
Austin Electric, TX	AA	Stable	aa	a	aa	Retail	Yes	2,016,248	2,575,201	—	496,258
Brazos Electric Power Cooperative, TX	A+	Positive	aa	a	a	G&T Coop	Yes	1,993,639	3,110,513	17	—
Brownsville Public Utilities Board, TX	A+	Stable	a	a	a	Retail	Yes	332,805	347,272	—	50,209
Bryan Utilities City Electric System, TX	AA-	Positive	aa	aa	aa	Retail	Yes	256,537	441,076	—	38,758
Bryan Utilities Rural Electric System, TX	AA-	Positive	aa	aa	aa	Retail	Yes	38,726	111,038	—	22,048
City of Denton – Combined Utility System, TX	A+	Stable	aa	a	a	Retail	Yes	763,507	1,092,041	—	54,494
CoServ Electric, TX	AA-	Stable	aa	aa	aa	Retail	Yes	602,300	1,311,327	—	249,175
Floresville Electric Light & Power System, TX	AA-	Stable	aa	a	aa	Retail	Yes	39,261	98,746	—	16,083
Garland Electric, TX	AA	Stable	aa	aa	aa	Retail	Yes	562,197	861,219	—	71,647
Guadalupe Valley Electric Cooperative Inc., TX	AA-	Stable	a	aa	aa	Retail	Yes	242,063	601,953	—	84,931
Lower Colorado River Authority – Consolidated, TX	AA-	Stable	aa	a	aa	Wholesale	Yes	3,925,600	4,316,320	33	—
New Braunfels Utilities, TX	AA	Negative	aa	aa	aa	Retail	Yes	176,218	346,750	—	43,606
Pedernales Electric Cooperative Inc., TX	AA-	Stable	aa	aa	aa	Retail	Yes	793,219	1,600,478	—	329,702
Sam Rayburn Municipal Power Agency, TX	BBB+	Stable	bbb	a	aa	Wholesale	Yes	43,618	81,165	3	—
San Antonio City Public Service (CPS Energy), TX	AA+	Stable	aa	aa	aa	Retail	Yes	5,938,000	6,592,821	—	832,522
San Miguel Electric Cooperative, TX	A+	Stable	a	a	bbb	G&T Coop	Yes	272,873	272,873	1	—
Seguin Utility, TX	A+	Stable	a	aa	a	Retail	Yes	57,512	98,109	—	8,541
South Texas Electric Cooperative Inc., TX	A+	Stable	aa	a	a	G&T Coop	Yes	980,996	1,703,966	8	—
Florida Reliability Coordinating Council (FRCC)											
Florida Municipal Power Agency – All-Requirements Project, FL	AA-	Stable	aa	a	aa	Wholesale	Yes	1,057,097	1,124,379	13	—
Fort Pierce Utilities Authority, FL	A+	Stable	bbb	a	a	Retail	Yes	63,795	164,413	—	28,527
Gainesville Regional Utilities, FL	A+	Stable	aa	a	a	Retail	Yes	1,789,681	1,789,681	—	98,161
Jacksonville Beach Combined Utility, FL	AA	Stable	aa	a	aa	Retail	Yes	6,372	139,007	—	34,900
JEA (FL) - Electric System and Bulk Power Supply System, FL	AA	Stable	aa	aa	aa	Retail	Yes	1,976,035	2,364,211	—	475,786
Keys Energy Services, FL	A+	Stable	a	a	a	Retail	Yes	116,640	228,403	—	30,580
Kissimmee Utility Authority, FL	AA	Stable	a	a	aa	Retail	Yes	43,200	325,057	—	73,968
Lakeland Energy System, FL	AA	Stable	a	aa	aa	Retail	Yes	412,008	412,008	—	131,793
Leesburg Electric System, FL	A+	Stable	a	a	a	Retail	Yes	35,482	128,123	—	26,440
New Smyrna Beach Utilities Commission, FL	AA	Stable	aa	a	aa	Retail	Yes	22,745	68,663	—	28,921
Orlando Utilities Commission, FL	AA	Stable	aa	aa	aa	Retail	Yes	1,542,386	1,666,094	—	248,595

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Public Power Operating Profiles

Obligor	Rating	Outlook/ Watch	Revenue Defensibility Assessment	Operating Risk Assessment	Financial Profile Assessment	System Type	Self- Regulated?	Total Debt, 2019 (\$000)	Total Adjusted Debt, 2019 (\$000)	Wholesale Customers	Retail Electric Customers
Reedy Creek Improvement District – Utility, FL	A	Stable	a	aa	aa	Retail	Yes	172,932	264,789	–	1,537
Tallahassee Electric, FL	AA	Stable	aa	aa	aa	Retail	Yes	625,119	640,726	–	91,125
Winter Park Electric Services, FL	A+	Stable	aa	a	a	Retail	Yes	57,670	111,752	–	15,551
Midwest Reliability Organization (MRO)											
Alexandria Light and Power, MN	A+	Positive	a	aa	aa	Retail	Yes	8,328	48,467	–	10,144
Basin Electric Power Cooperative, ND	A	Stable	a	aa	a	G&T Coop	No (FERC)	5,092,890	6,184,069	141	–
Big Rivers Electric Corp., KY	BBB-	Stable	bbb	a	bbb	G&T Coop	No	733,942	824,885	3	–
Central Iowa Power Cooperative, IA	A	Stable	a	a	a	G&T Coop	Yes	362,302	462,282	13	–
Connexus Energy, MN	A-	Stable	aa	a	a	Retail	Yes	176,292	581,356	–	136,347
East Kentucky Power Cooperative, KY	BBB+	Stable	a	a	bbb	G&T Coop	No	2,455,305	2,879,224	16	–
Great River Energy, MN	A-	Stable	a	a	a	G&T Coop	Yes	2,562,679	2,954,136	28	–
Illinois Municipal Electric Agency, IL	A+	Stable	aa	a	a	Wholesale	Yes	991,692	1,174,471	32	–
Minnesota Municipal Power Agency, MN	A+	Positive	aa	a	aa	Wholesale	Yes	279,154	356,291	12	–
Municipal Energy Agency of Nebraska, NE	A+	Stable	aa	a	a	Wholesale	Yes	166,555	341,611	69	–
Northern Illinois Municipal Power Agency, IL	A-	Stable	a	a	bbb	Wholesale	Yes	462,665	463,659	3	–
Rochester Public Utilities, MN	AA-	Stable	aa	a	aa	Retail	Yes	190,001	405,333	–	56,382
Southern Illinois Power Cooperative, IL	BBB	Stable	a	a	bbb	G&T Coop	Yes	543,054	564,383	7	–
Southern Minnesota Municipal Power Agency, MN	AA-	Stable	aa	aa	a	Wholesale	Yes	616,525	744,843	18	–
Western Minnesota Municipal Power Agency, MN	AA-	Stable	aa	a	aa	Wholesale	Yes	660,936	863,534	61	–
WPPI Energy (Wisconsin Public Power Inc.), WI	A+	Stable	a	a	a	Wholesale	Yes	362,222	1,006,607	51	–
Northeast Power Coordinating Council (NPCC)											
Connecticut Municipal Electric Energy Cooperative	AA-	Stable	aa	a	aa	Wholesale	Yes	96,577	294,260	6	–
Long Island Power Authority, NY	A	Stable	aa	bbb	a	Retail	Yes	10,833,557	13,034,945	–	1,137,371
New York Power Authority, NY	AA	Stable	a	a	aa	Wholesale	Yes	2,311,000	3,625,400	–	–
Reliability First Corporation (RFC)											
Buckeye Power Inc., OH	A	Positive	a	a	a	G&T Coop	Yes	1,197,114	1,385,276	25	–
Delaware Municipal Electric Corporation	A	Stable	a	a	a	Wholesale	Yes	69,313	305,354	7	–
Dover Electric Revenue, DE	AA	Stable	aa	a	aa	Retail	Yes	16,855	125,675	–	24,481
Indiana Municipal Power Agency, IN	A+	Stable	aa	a	a	Wholesale	Yes	1,463,121	1,821,962	59	–
Marquette Board of Light & Power, MI	AA-	Stable	a	a	aa	Retail	Yes	72,540	86,438	–	17,099
Old Dominion Electric Cooperative, VA	A	Positive	aa	a	a	G&T Coop	No (FERC)	1,225,859	2,023,177	11	–

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Public Power Operating Profiles

Obligor	Rating	Outlook/ Watch	Revenue Defensibility Assessment	Operating Risk Assessment	Financial Profile Assessment	System Type	Self- Regulated?	Total Debt, 2019 (\$000)	Total Adjusted Debt, 2019 (\$000)	Wholesale Customers	Retail Electric Customers
Southern Electric Reliability Council (SERC)											
Alabama Municipal Electric Authority, AL	AA-	Stable	aa	a	aa	Wholesale	Yes	28,681	451,024	11	–
Arkansas Electric Cooperative Corporation, AR	AA-	Stable	a	aa	aa	G&T Coop	No	1,038,133	1,488,980	17	–
Associated Electric Cooperative Inc., MO	AA-	Stable	a	aa	aa	G&T Coop	Yes	1,387,879	1,776,984	51	–
Bristol Utilities Authority, VA	A	Stable	a	a	a	Retail	Yes	1,453	90,078	–	16,329
Brunswick Electric Membership Corporation, NC	A+	Stable	a	a	a	Retail	Yes	214,013	477,902	–	95,216
Chattanooga Electric Power Board – Electric System, TN	AA+	Stable	aa	aa	aa	Retail	Yes	272,436	1,334,081	–	185,812
City of Greenville, NC	AA-	Stable	a	aa	aa	Retail	Yes	171,378	482,217	–	68,894
Cobb Electric Membership Corporation, GA	A+	Stable	a	a	a	Retail	Yes	435,118	1,131,696	–	210,960
Concord Utility, NC	AA	Positive	aa	a	aa	Retail	Yes	50,174	154,115	–	31,604
Cooperative Energy, MS	A	Stable	aa	a	a	G&T Coop	Yes	1,093,171	1,864,406	11	–
Fayetteville Public Works Commission, NC	AA	Stable	a	aa	aa	Retail	Yes	341,553	733,369	–	82,937
Greer Commission of Public Works, SC	AA-	Stable	aa	a	aa	Retail	Yes	60,603	150,190	–	20,105
Kentucky Municipal Energy Agency, KY	A	Stable	a	a	a	Wholesale	Yes	9,033	26,588	8	–
Nashville Electric Service, TN	AA+	Stable	aa	a	aa	Retail	Yes	598,789	2,877,128	–	408,258
North Carolina Eastern Municipal Power Agency, NC	A	Stable	a	a	a	Wholesale	Yes	268,195	1,343,829	32	–
North Carolina Electric Membership Corporation, NC	A	Positive	a	a	a	G&T Coop	Yes	1,291,850	3,247,994	25	–
North Carolina Municipal Power Agency No. 1, NC	A	Stable	a	a	aa	Wholesale	Yes	884,067	1,068,872	19	–
Oglethorpe Power Corporation, GA	BBB+	Negative	aa	a	bbb	G&T Coop	Yes	9,470,912	9,635,446	38	–
Paducah Power Systems, KY	BBB	Positive	bbb	a	bbb	Retail	Yes	144,955	266,793	–	22,585
Piedmont Municipal Power Agency, SC	A-	Stable	bbb	a	a	Wholesale	Yes	751,082	866,320	10	–
PowerSouth Energy Cooperative and Subsidiaries, AL	BBB+	Negative	a	a	bbb	G&T Coop	Yes	1,168,319	1,444,872	20	–
Sikeston Board of Municipal Utilities, MO	BBB+	Stable	bbb	a	aa	Retail	Yes	59,704	74,357	4	8,681
South Carolina Public Service Authority (Santee Cooper), SC	A-	Negative	aa	a	bbb	Wholesale	Yes	7,223,032	7,685,390	4	189,204
Tennessee Valley Authority, TN	AAA	Stable	aa	a	aa	Wholesale	Yes	22,460,000	24,876,800	154	–
Southwest Power Pool (SPP)											
Coffeyville, KS	BBB+	Stable	bbb	a	bbb	Retail	Yes	63,385	153,105	–	6,022
Fort Collins, CO	AA-	Stable	a	aa	aa	Retail	Yes	142,775	370,283	–	74,585
Golden Spread Electric Cooperative, TX	AA-	Stable	aa	aa	aa	G&T Coop	No (FERC)	567,635	753,637	16	–
Grand River Dam Authority, OK	A+	Stable	a	aa	aa	Wholesale	Yes	1,038,801	1,194,475	22	82
Heartland Consumers Power District, SD	A-	Stable	a	a	a	Wholesale	Yes	40,492	112,892	27	–
Kansas City Board of Public Utilities, KS	A	Stable	a	a	a	Retail	Yes	709,172	847,955	–	65,955

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Public Power Operating Profiles

Obligor	Rating	Outlook/ Watch	Revenue Defensibility Assessment	Operating Risk Assessment	Financial Profile Assessment	System Type	Self- Regulated?	Total Debt, 2019 (\$000)	Total Adjusted Debt, 2019 (\$000)	Wholesale Customers	Retail Electric Customers
Kansas Power Pool, KS	A-	Stable	a	a	a	Wholesale	Yes	43,124	124,471	23	—
Lincoln Electric System, NE	AA	Stable	aa	aa	aa	Retail	Yes	767,545	942,812	8	141,650
Lubbock Power & Light, TX	A+	Stable	aa	aa	aa	Retail	Yes	197,821	508,067	—	107,240
Nebraska Public Power District, NE	A+	Stable	bbb	aa	a	Wholesale	Yes	1,644,700	2,016,534	78	91,663
Oklahoma Municipal Power Agency, OK	A	Stable	aa	a	a	Wholesale	Yes	622,847	705,152	42	—
Springfield Public Utility, MO	AA	Stable	a	aa	aa	Retail	Yes	565,168	789,431	—	116,017
Stillwater Utilities Authority, OK	AA-	Stable	a	a	aa	Retail	Yes	102,538	165,621	—	20,961
Western Farmers Electric Cooperative, OK	A-	Stable	aa	a	a	G&T Coop	Yes	813,421	1,759,220	22	—
Western Electric Coordinating Council (WECC)											
Alameda Municipal Power, CA	AA-	Positive	aa	bbb	aa	Retail	Yes	22,795	93,803	—	35,396
Anaheim Electric Utilities, CA	AA-	Stable	aa	a	aa	Retail	Yes	717,195	1,426,491	—	120,403
Arizona Electric Power Cooperative, Inc., AZ	A	Stable	a	a	a	G&T Coop	No	207,317	297,804	6	—
Arkansas River Power Authority, CO	BBB-	Stable	a	a	bbb	Wholesale	Yes	141,818	183,003	6	—
Benton County Public Utility District No. 1, WA	AA-	Stable	a	aa	aa	Retail	Yes	53,038	304,372	—	54,581
Bonneville Power Administration, WA	AA-	Negative	aa	aa	aa	Wholesale	Yes	15,052,400	15,768,320	142	—
Bountiful Light and Power, UT	AA-	Stable	aa	aa	aa	Retail	Yes	10,055	39,507	—	16,600
Chelan County Public Utility District No. 1, WA	AA+	Stable	a	aa	aa	Retail	Yes	476,342	595,029	88	52,234
Clark County Public Utility District No. 1, WA	AA-	Stable	aa	aa	aa	Retail	Yes	463,171	844,202	—	211,704
Colorado Springs Utilities, CO	AA	Stable	aa	aa	aa	Retail	Yes	2,284,120	2,284,120	—	236,519
Cowlitz County Public Utility District No. 1, WA	A	Stable	bbb	aa	a	Retail	Yes	175,991	650,825	—	49,648
Eugene Water and Electric Board - Power System, OR	AA-	Stable	a	aa	aa	Retail	Yes	198,672	568,085	—	94,000
Glendale Electric, CA	A+	Stable	aa	a	a	Retail	Yes	160,424	348,184	—	89,564
Grant County Public Utility District No. 2, WA	AA	Stable	a	aa	aa	Retail	Yes	1,301,649	1,301,649	—	52,212
Grays Harbor County Public Utility District No. 1, WA	A	Stable	a	aa	a	Retail	Yes	134,249	314,244	—	42,690
Heber Light & Power Company, UT	AA-	Stable	aa	a	aa	Retail	Yes	25,212	47,314	—	12,826
Klickitat County Public Utility District No. 1, WA	A-	Stable	bbb	aa	a	Retail	Yes	164,397	196,245	—	13,394
Los Angeles Department of Water & Power - Power System, CA	AA-	Stable	aa	bbb	aa	Retail	Yes	10,370,078	13,403,997	—	1,529,000
Modesto Irrigation District, CA	AA-	Stable	a	a	aa	Retail	Yes	655,285	1,033,551	—	129,642
Overton Power District No. 5, NV	A	Stable	a	aa	aa	Retail	Yes	37,423	86,437	—	16,161
Pasadena Water & Power, CA	AA	Stable	aa	bbb	aa	Retail	Yes	247,315	472,001	—	67,025
Pend Oreille County Public Utility District No. 1, WA	A-	Stable	bbb	aa	a	Retail	Yes	168,152	203,894	—	9,238

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Public Power Operating Profiles

Obligor	Rating	Outlook/ Watch	Revenue Defensibility Assessment	Operating Risk Assessment	Financial Profile Assessment	System Type	Self- Regulated?	Total Debt, 2019 (\$000)	Total Adjusted Debt, 2019 (\$000)	Wholesale Customers	Retail Electric Customers
Platte River Power Authority, CO	AA	Stable	a	aa	aa	Wholesale	Yes	191,747	284,005	—	165,365
Provo City Power, UT	AA-	Stable	aa	aa	aa	Retail	Yes	17,169	130,249	—	37,352
Redding Electric Utility, CA	AA-	Stable	a	a	aa	Retail	Yes	139,926	226,702	—	44,264
Riverside Electric Utility, CA	AA-	Stable	aa	bbb	aa	Retail	Yes	628,613	945,802	—	110,480
Roseville Electric, CA	AA	Stable	aa	a	aa	Retail	Yes	210,257	312,230	—	60,752
Sacramento Municipal Utility District, CA	AA	Stable	aa	a	aa	Retail	Yes	2,357,200	3,085,758	—	640,712
San Francisco (City and County) Public Utilities Commission, CA	AA-	Stable	a	a	aa	Retail	Yes	117,482	141,950	—	3,747
Silicon Valley Power, CA	AA-	Stable	a	a	aa	Retail	Yes	185,309	831,428	—	56,491
Snohomish County Public Utility District No. 1, WA	AA-	Stable	a	aa	aa	Retail	Yes	447,010	1,199,312	—	354,953
Sulphur Springs Valley Electric Cooperative, AZ	A-	Positive	a	a	a	Retail	No	142,828	286,024	—	59,132
Tacoma Power, WA	AA-	Stable	a	aa	aa	Retail	Yes	479,790	866,403	—	182,234
Tri-State Generation & Transmission Association Inc., CO	A	Negative	aa	a	a	G&T Coop	No (FERC)	3,397,229	4,186,639	43	—
Turlock Irrigation District, CA	AA-	Stable	a	aa	aa	Retail	Yes	1,110,522	1,231,811	—	103,266
Utah Municipal Power Agency, UT	AA-	Stable	aa	a	aa	Wholesale	Yes	119,110	212,446	6	—
Other/Islands											
Chugach Electric Association Inc., AK	A	RWN	a	bbb	a	Retail	No	529,662	583,976	1	69,320
Guam Power Authority	BBB	Positive	a	bb	bbb	Retail	No	611,832	626,553	—	51,977

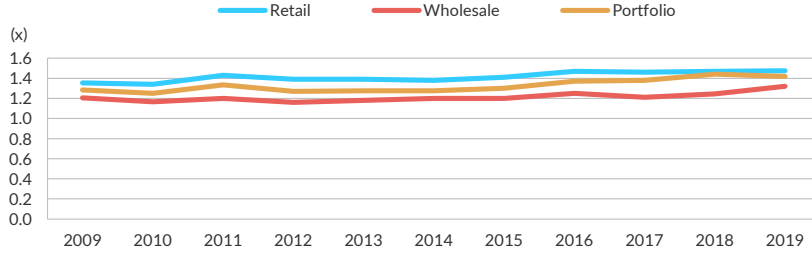
G&T – Generation and transmission. FERC – Federal Energy Regulatory Commission. Note: 2018 audit used for Coffeyville, KS; Cowitz County Public Utility District No. 1, WA; Fort Collins, CO; Grays Harbor County Public Utility District No. 1, WA ; Pend Oreille County Public Utility District No. 1, WA. 2020 audit used for San Antonio City Public Service (CPS Energy), TX.
Source: Fitch Ratings.

Portfolio Trends

Below, the trends of medians for all retail electric systems, wholesale electric systems and the entire electric portfolio are displayed for eight of the financial metrics used in Fitch's analysis.

Coverage of Full Obligations

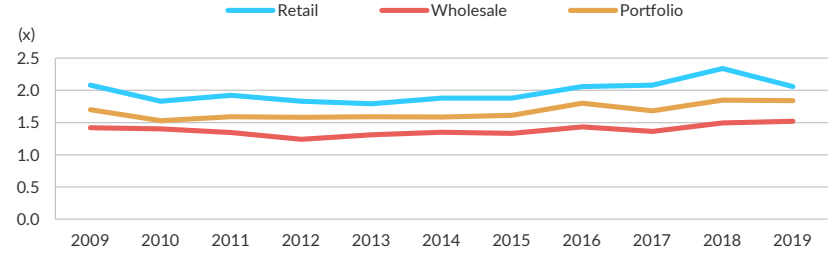
(Indicates the margin available to meet current debt service and other fixed obligations.)



Source: Fitch Ratings.

Debt Service Coverage

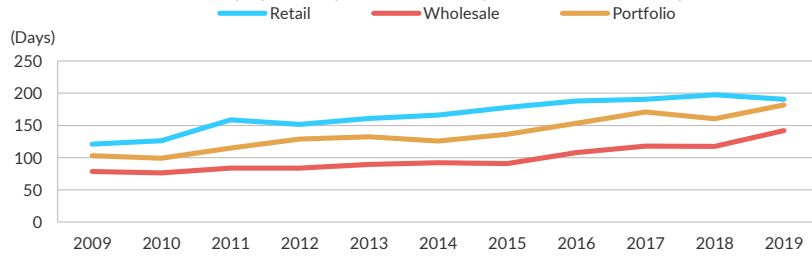
(Indicates the margin available to meet current debt service requirements.)



Source: Fitch Ratings.

Days Cash on Hand

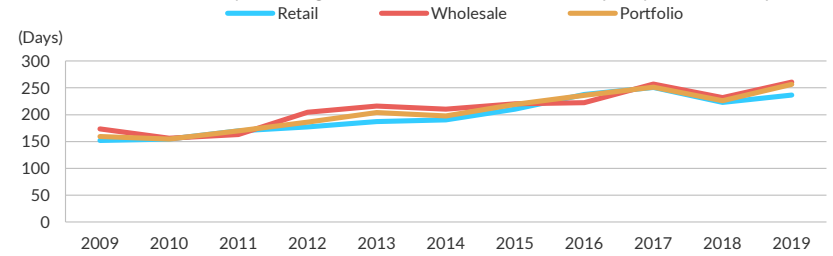
(Indicates financial flexibility, specifically cash and cash equivalents, relative to expenses.)



Source: Fitch Ratings.

Liquidity Cushion

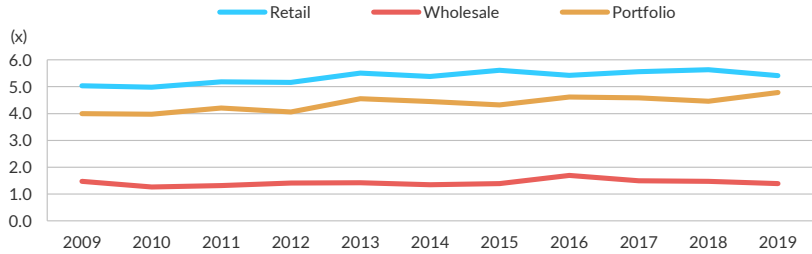
(Indicates financial flexibility, including all available sources of cash and liquidity, relative to expenses.)



Source: Fitch Ratings.

General Fund Transfers/Operating Revenues

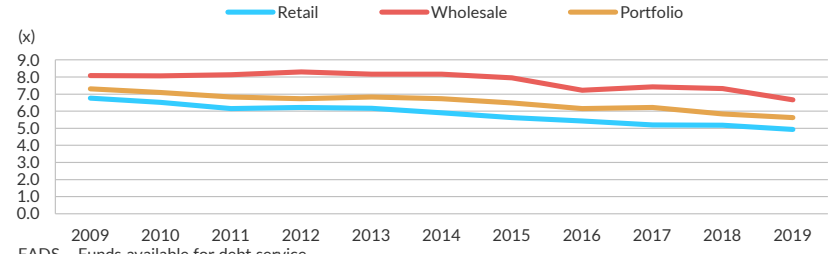
(Indicates the degree to which a utility supports city or county general fund operations.)



Source: Fitch Ratings.

Net Adjusted Debt/Adjusted FADS (Excluding Pensions)

(Indicates the size of debt compared with the margin available for debt service.)

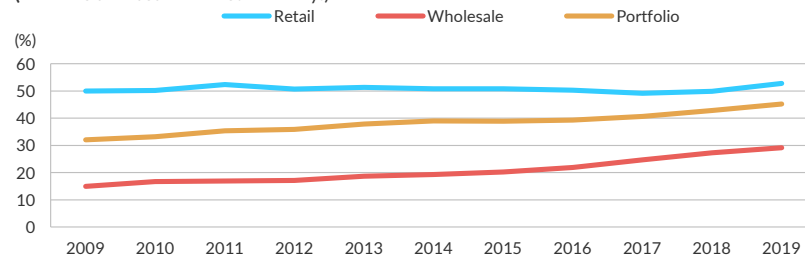


Source: Fitch Ratings.

FADS – Funds available for debt service.

Equity/Capitalization

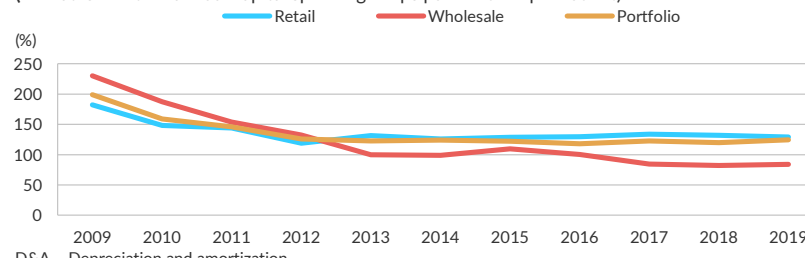
(Provides a measure of cost recovery.)



Source: Fitch Ratings.

Capex/D&A

(Indicates whether annual capital spending keeps pace with depreciation.)



D&A - Depreciation and amortization.

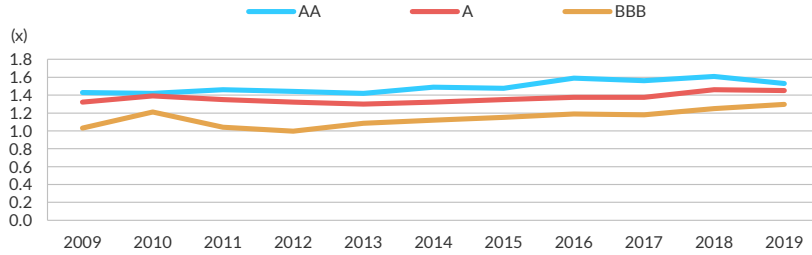
Source: Fitch Ratings.

Retail Electric Trends

Below, the trends of 'AA' and 'A' medians for retail electric systems are displayed for nine of the financial metrics used in Fitch's analysis. Also included are the trends of 'BBB/BB' medians for retail electric systems. However, the sample size is small.

Coverage of Full Obligations

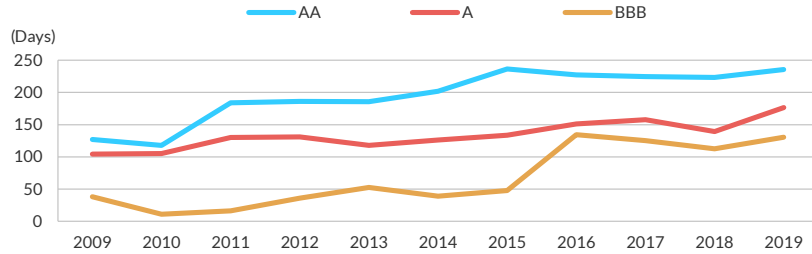
(Indicates the margin available to meet current debt service and other fixed obligations.)



Source: Fitch Ratings.

Days Cash on Hand

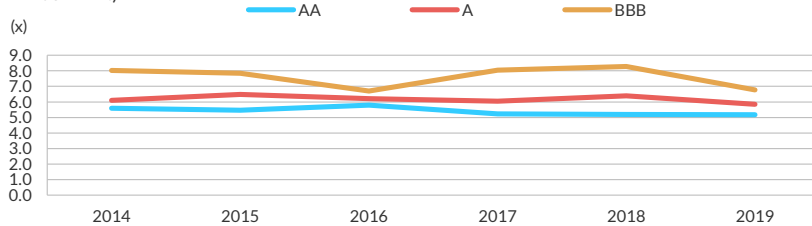
(Indicates financial flexibility, specifically cash and cash equivalents, relative to expenses.)



Source: Fitch Ratings.

Net Adjusted Debt/Adjusted FADS

(Indicates the size of net debt and other fixed obligations compared with the margin available for debt service.)

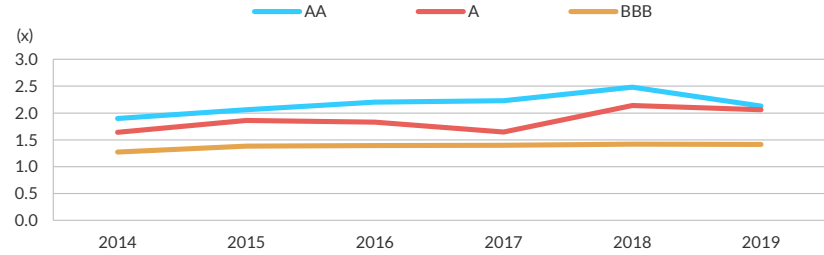


FADS - Funds available for debt service.

Source: Fitch Ratings.

Debt Service Coverage

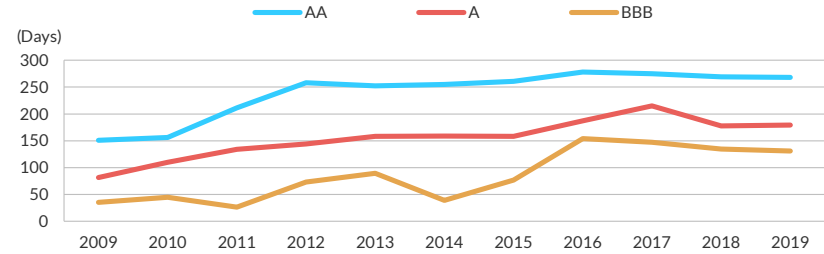
(Indicates the margin available to meet current debt service requirements.)



Source: Fitch Ratings.

Liquidity Cushion

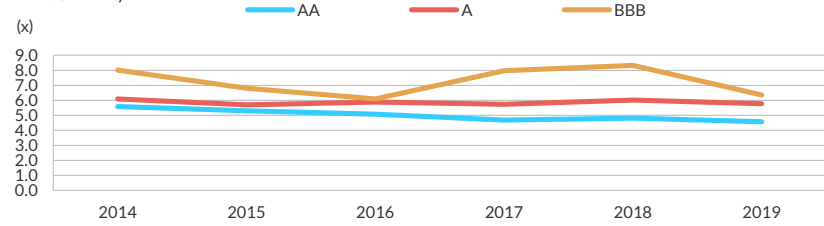
(Indicates financial flexibility, including all available sources of cash and liquidity, relative to expenses.)



Source: Fitch Ratings.

Net Adjusted Debt/Adjusted FADS (Excluding Pensions)

(Indicates the size of net debt and other fixed obligations compared with the margin available for debt service.)

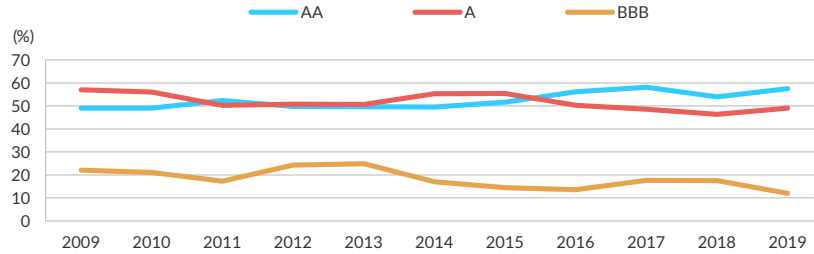


FADS - Funds available for debt service.

Source: Fitch Ratings.

Equity/Capitalization

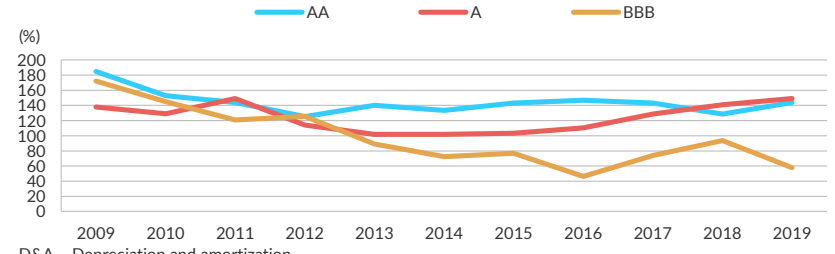
(Provides a measure of cost recovery.)



Source: Fitch Ratings.

Capex/D&A

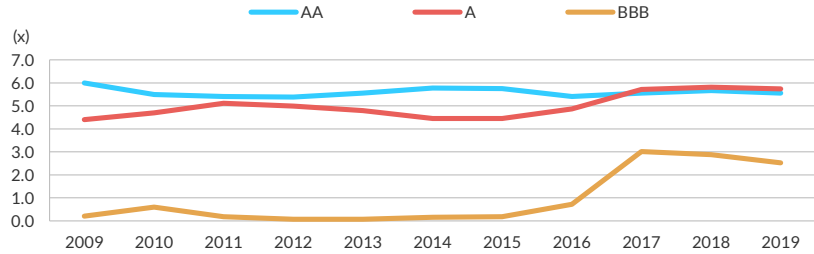
(Indicates whether annual capital spending keeps pace with depreciation.)



D&A - Depreciation and amortization.
 Source: Fitch Ratings.

General Fund Transfers/Operating Revenues

(Indicates the degree to which a utility supports city or county general fund operations.)



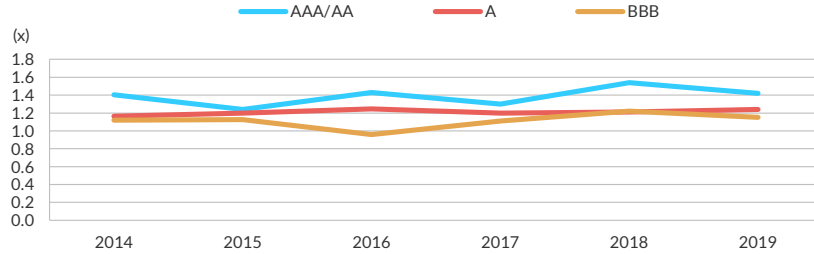
Source: Fitch Ratings.

Wholesale Electric Trends

Below, the trends of 'AA' and 'A' medians for wholesale electric systems are displayed for eight of the financial metrics used in Fitch's analysis. Also included are the trends of 'BBB/BB' medians for wholesale electric systems. However, the sample size is small.

Coverage of Full Obligations

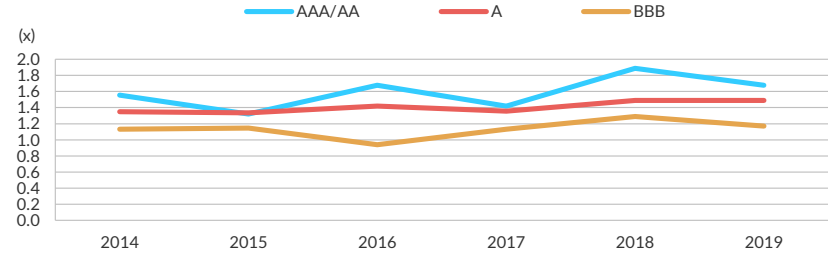
(Indicates the margin available to meet current debt service and other fixed obligations.)



Source: Fitch Ratings.

Debt Service Coverage

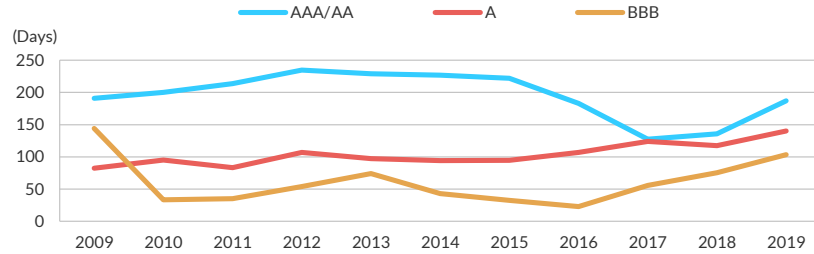
(Indicates the margin available to meet current debt service requirements.)



Source: Fitch Ratings.

Days Cash on Hand

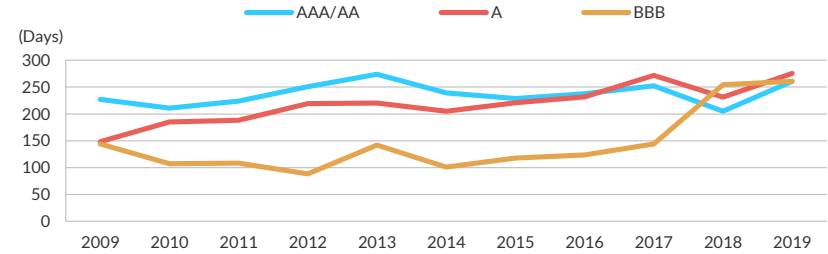
(Indicates financial flexibility, specifically cash and cash equivalents, relative to expenses.)



Source: Fitch Ratings.

Liquidity Cushion

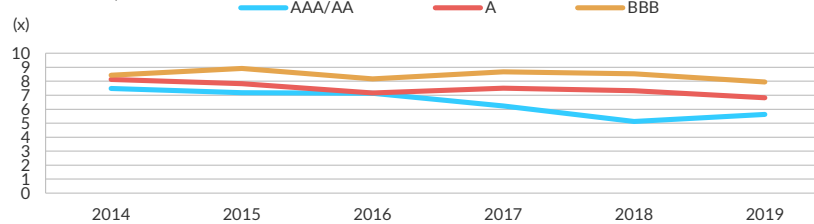
(Indicates financial flexibility, including all available sources of cash and liquidity, relative to expenses.)



Source: Fitch Ratings.

Net Adjusted Debt/Adjusted FADS

(Indicates the size of net debt and other fixed obligations compared with the margin available for debt service.)

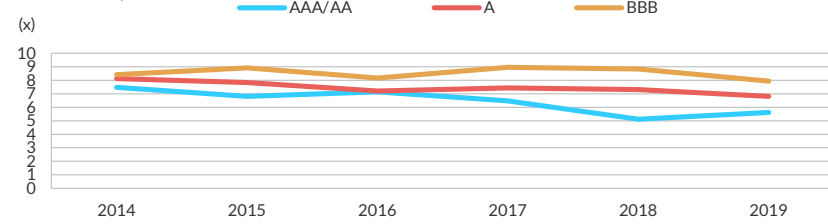


FADS - Funds available for debt service.

Source: Fitch Ratings.

Net Adjusted Debt/Adjusted FADS (Excluding Pensions)

(Indicates the size of net debt and other fixed obligations compared with the margin available for debt service.)

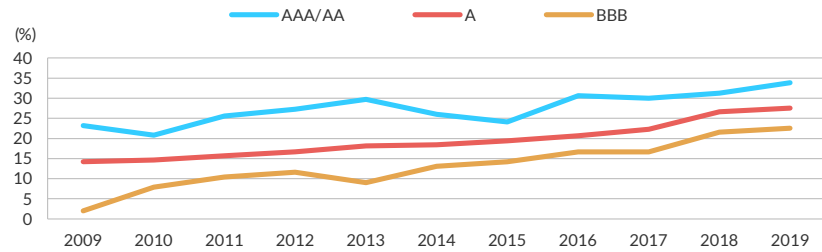


FADS - Funds available for debt service.

Source: Fitch Ratings.

Equity/Capitalization

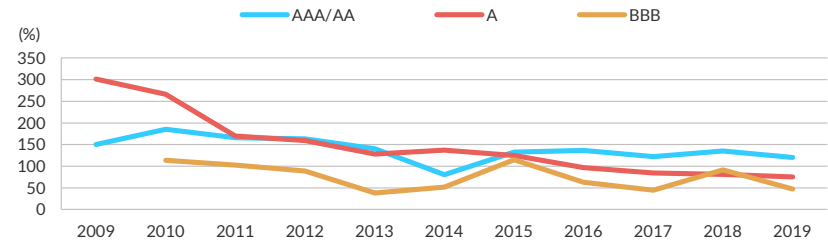
(Provides a measure of historical cost recovery.)



Source: Fitch Ratings.

Capex/D&A

(Indicates whether annual capital spending keeps pace with depreciation.)



D&A - Depreciation and amortization.

Source: Fitch Ratings.

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Retail Systems

Obligor	Rating	Outlook/ Watch	Region	Total Operating Revenue (\$000)	Coverage of Full Obligations (x)	Debt Service Coverage (x)	Net Adjusted Debt/Adjusted FADS (x)	Equity/ Capitalization (%)	Days Cash on Hand	Liquidity Cushion (Days)	Transfers/ Operating Revenue (%)	Capex/ D&A (%)
AA+ Rated Senior Debt												
Chattanooga Electric Power Board – Electric System, TN	AA+	Stable	SERC	589,694	1.26	2.85	6.4	53.2	60	96	3.35	129.0
Chelan County Public Utility District No. 1, WA	AA+	Stable	WECC	385,186	2.98	3.57	1.4	70.0	680	680	2.53	196.0
Nashville Electric Service, TN	AA+	Stable	SERC	1,342,217	1.32	2.78	5.6	50.5	139	147	2.39	194.0
San Antonio City Public Service (CPS Energy), TX	AA+	Stable	ERCOT	2,569,178	1.96	2.16	7.0	38.4	117	117	13.82	154.0
AA+ Rated Median				965,956	1.64	2.82	6.0	51.8	128	132	2.94	174.0
AA Rated Senior Debt												
Austin Electric, TX	AA	Stable	ERCOT	1,447,300	1.67	2.16	6.8	48.6	218	218	8.19	345.0
Colorado Springs Utilities, CO	AA	Stable	WECC	893,026	2.13	2.13	5.9	47.1	185	232	4.11	95.0
Concord Utility, NC	AA	Positive	SERC	130,992	2.84	5.79	(0.2)	88.3	691	691	0.49	40.0
Dover Electric Revenue, DE	AA	Stable	RFC	83,709	2.11	11.68	1.7	87.7	498	498	13.46	37.0
Fayetteville Public Works Commission, NC	AA	Stable	SERC	338,181	1.61	2.66	4.4	74.3	188	188	4.74	253.0
Garland Electric, TX	AA	Stable	ERCOT	301,684	1.50	1.85	4.7	41.6	446	446	8.48	241.0
Grant County Public Utility District No. 2, WA	AA	Stable	WECC	321,174	2.35	2.35	6.0	48.9	327	327	5.57	147.0
Jacksonville Beach Combined Utility, FL	AA	Stable	FRCC	94,463	1.68	4.22	1.5	97.2	470	470	4.16	153.0
JEA (FL) - Electric System and Bulk Power Supply System, FL	AA	Stable	FRCC	1,298,085	1.48	1.57	4.4	37.4	163	384	7.16	126.0
Kissimmee Utility Authority, FL	AA	Stable	FRCC	189,818	1.26	1.73	3.6	87.3	236	236	9.44	357.0
Lakeland Energy System, FL	AA	Stable	FRCC	319,144	2.21	2.21	4.5	46.2	92	92	12.23	125.0
Lincoln Electric System, NE	AA	Stable	SPP	317,210	1.75	2.06	5.7	34.1	294	549	6.54	116.0
New Braunfels Utilities, TX	AA	Negative	ERCOT	146,125	1.30	1.88	6.9	70.6	134	134	5.56	365.0
New Smyrna Beach Utilities Commission, FL	AA	Stable	FRCC	60,709	1.20	1.39	3.4	89.9	115	115	6.24	171.0
Orlando Utilities Commission, FL	AA	Stable	FRCC	897,280	1.59	1.66	5.2	48.4	340	340	13.22	112.0
Pasadena Water & Power, CA	AA	Stable	WECC	218,055	1.76	2.67	2.6	70.2	703	703	8.08	81.0
Roseville Electric, CA	AA	Stable	WECC	171,973	2.56	3.94	2.6	65.3	620	620	4.19	79.0
Sacramento Municipal Utility District, CA	AA	Stable	WECC	1,559,224	1.97	2.39	4.6	43.4	205	205	–	148.0
Springfield Public Utility, MO	AA	Stable	SPP	457,748	2.00	2.51	3.5	68.0	288	288	3.31	111.0
Tallahassee Electric, FL	AA	Stable	FRCC	311,596	1.23	1.24	6.7	44.3	413	413	17.44	67.0
AA Rated Median				314,403	1.72	2.19	4.6	57.1	291	333	6.54	125.5
AA- Rated Senior Debt												
Alameda Municipal Power, CA	AA-	Positive	WECC	67,078	1.46	3.02	2.0	75.3	547	547	7.89	61.0
Anaheim Electric Utilities, CA	AA-	Stable	WECC	459,182	1.24	1.65	6.9	35.3	191	278	5.01	241.0
Benton County Public Utility District No. 1, WA	AA-	Stable	WECC	162,497	1.16	1.92	6.3	71.9	103	127	8.75	186.0
Bountiful Light and Power, UT	AA-	Stable	WECC	27,376	1.65	3.58	2.1	86.6	419	419	8.94	77.0
Bryan Utilities City Electric System, TX	AA-	Positive	ERCOT	204,747	1.42	1.67	4.1	48.4	237	237	6.52	151.0
Bryan Utilities Rural Electric System, TX	AA-	Positive	ERCOT	47,540	2.07	6.46	4.0	64.1	184	184	–	401.0

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Retail Systems

Obligor	Rating	Outlook/ Watch	Region	Total Operating Revenue (\$'000)	Coverage of Full Obligations (x)	Debt Service Coverage (x)	Net Adjusted Debt/Adjusted FADS (x)	Equity/ Capitalization (%)	Days Cash on Hand	Liquidity Cushion (Days)	Transfers/ Operating Revenue (%)	Capex/ D&A (%)
City of Greenville, NC	AA-	Stable	SERC	260,081	1.54	3.03	4.5	69.7	225	225	2.58	116.0
Clark County Public Utility District No. 1, WA	AA-	Stable	WECC	479,473	1.30	1.53	4.1	52.3	260	281	5.18	123.0
CoServ Electric, TX	AA-	Stable	ERCOT	535,878	1.36	2.03	6.7	50.7	58	182	1.29	193.0
Eugene Water and Electric Board - Power System, OR	AA-	Stable	WECC	263,339	1.20	1.75	6.4	65.6	133	133	-	182.0
Floresville Electric Light & Power System, TX	AA-	Stable	ERCOT	38,198	1.29	1.86	6.2	54.5	261	261	3.13	203.0
Fort Collins, CO	AA-	Stable	SPP	133,263	1.05	1.39	10.0	59.1	59	59	5.77	120.0
Greer Commission of Public Works, SC	AA-	Stable	SERC	92,732	1.74	2.95	4.2	76.6	175	175	1.08	153.0
Guadalupe Valley Electric Cooperative Inc., TX	AA-	Stable	ERCOT	246,177	1.62	3.14	5.5	57.6	71	314	0.18	205.0
Heber Light & Power Company, UT	AA-	Stable	WECC	19,449	1.68	3.77	6.5	59.2	173	173	1.54	197.0
Los Angeles Department of Water & Power - Power System, CA	AA-	Stable	WECC	4,070,930	1.60	1.99	8.2	35.1	222	287	5.71	161.0
Marquette Board of Light & Power, MI	AA-	Stable	RFC	48,427	3.98	5.20	2.6	46.0	491	491	5.37	94.0
Modesto Irrigation District, CA	AA-	Stable	WECC	425,802	1.40	1.67	5.2	37.6	227	227	-	144.0
Pedernales Electric Cooperative Inc., TX	AA-	Stable	ERCOT	617,917	1.38	1.85	6.2	48.1	1	134	(0.02)	269.0
Provo City Power, UT	AA-	Stable	WECC	76,317	1.14	2.55	5.3	83.6	193	193	14.57	111.0
Redding Electric Utility, CA	AA-	Stable	WECC	155,312	1.57	2.00	5.3	48.6	286	286	4.19	88.0
Riverside Electric Utility, CA	AA-	Stable	WECC	362,659	1.10	1.19	7.8	44.8	373	417	11.00	125.0
Rochester Public Utilities, MN	AA-	Stable	MRO	164,893	1.53	2.53	5.1	48.9	263	263	5.28	129.0
San Francisco (City and County) Public Utilities Commission, CA	AA-	Stable	WECC	143,561	4.75	6.52	0.2	79.1	637	637	0.02	526.0
Silicon Valley Power, CA	AA-	Stable	WECC	434,655	1.51	3.71	3.6	80.6	349	349	4.94	100.0
Snohomish County Public Utility District No. 1, WA	AA-	Stable	WECC	685,662	1.37	1.93	5.2	77.4	160	160	5.76	167.0
Stillwater Utilities Authority, OK	AA-	Stable	SPP	87,321	1.43	1.84	3.3	67.5	573	573	24.55	112.0
Tacoma Power, WA	AA-	Stable	WECC	461,366	0.94	0.86	9.7	63.4	161	229	12.16	85.0
Turlock Irrigation District, CA	AA-	Stable	WECC	342,967	1.46	1.54	5.3	27.2	546	546	-	65.0
AA- Rated Median				204,747	1.43	1.99	5.3	59.1	225	261	5.28	144.0
A+ Rated Senior Debt												
Alexandria Light and Power, MN	A+	Positive	MRO	26,038	1.68	7.31	4.4	78.3	182	182	3.79	226.0
Brownsville Public Utilities Board, TX	A+	Stable	ERCOT	227,813	1.79	1.84	5.0	58.5	177	177	5.21	54.0
Brunswick Electric Membership Corporation, NC	A+	Stable	SERC	182,101	1.09	1.26	8.0	44.1	51	102	-	288.0
City of Denton -- Combined Utility System, TX	A+	Stable	ERCOT	311,421	1.17	1.28	8.0	49.0	305	305	7.71	164.0
Cobb Electric Membership Corporation, GA	A+	Stable	SERC	775,564	1.45	2.36	6.1	48.3	6	84	0.55	162.0
Fort Pierce Utilities Authority, FL	A+	Stable	FRCC	101,395	1.50	2.30	4.6	74.9	138	138	6.04	99.0
Gainesville Regional Utilities, FL	A+	Stable	FRCC	416,693	1.67	1.67	11.2	19.1	176	176	9.19	125.0
Glendale Electric, CA	A+	Stable	WECC	217,692	1.65	2.90	2.7	67.7	549	549	8.74	21.0
Keys Energy Services, FL	A+	Stable	FRCC	97,888	1.47	2.06	5.7	35.6	147	147	2.81	109.0
Leesburg Electric System, FL	A+	Stable	FRCC	62,183	1.41	3.12	5.2	72.4	179	179	8.69	163.0

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Retail Systems

Obligor	Rating	Outlook/ Watch	Region	Total Operating Revenue (\$000)	Coverage of Full Obligations (x)	Debt Service Coverage (x)	Net Adjusted Debt/Adjusted FADS (x)	Equity/ Capitalization (%)	Days Cash on Hand	Liquidity Cushion (Days)	Transfers/ Operating Revenue (%)	Capex/ D&A (%)
Lubbock Power & Light, TX	A+	Stable	SPP	211,189	1.22	1.55	5.2	51.7	257	257	6.47	426.0
Seguin Utility, TX	A+	Stable	ERCOT	53,460	1.55	2.26	5.1	60.0	266	266	0.31	237.0
Winter Park Electric Services, FL	A+	Stable	FRCC	48,834	1.45	2.00	6.2	41.4	—	84	5.74	191.0
A+ Rated Median				182,101	1.47	2.06	5.2	51.7	178	177	5.89	163.0
A Rated Senior Debt												
Bristol Utilities Authority, VA	A	Stable	SERC	58,781	1.45	4.49	3.0	98.7	245	245	—	113.0
Chugach Electric Association Inc., AK	A	RWN	Other	212,517	1.33	1.38	8.0	26.9	18	454	—	86.0
Cowlitz County Public Utility District No. 1, WA	A	Stable	WECC	273,945	1.26	2.05	5.1	59.7	216	216	5.82	75.0
Grays Harbor County Public Utility District No. 1, WA	A	Stable	WECC	142,061	1.47	2.51	6.5	36.8	60	91	6.97	116.0
Kansas City Board of Public Utilities, KS	A	Stable	SPP	337,166	1.29	1.37	8.5	39.8	91	91	10.12	157.0
Long Island Power Authority, NY	A	Stable	NPCC	3,516,355	1.21	1.27	8.9	4.6	189	307	9.57	149.0
Overton Power District No. 5, NV	A	Stable	WECC	40,347	1.81	2.98	4.1	62.3	253	318	—	195.0
Reedy Creek Improvement District – Utility, FL	A	Stable	FRCC	171,636	1.79	2.19	3.0	59.5	90	90	1.61	173.0
A Rated Median				192,076	1.39	2.12	5.8	49.7	140	230	6.97	132.5
A- Rated Senior Debt												
Connexus Energy, MN	A-	Stable	MRO	239,513	1.15	2.07	8.5	53.6	—	90	5.41	134.0
Klickitat County Public Utility District No. 1, WA	A-	Stable	WECC	53,975	0.99	0.99	8.8	39.4	189	289	4.45	79.0
Pend Oreille County Public Utility District No. 1, WA	A-	Stable	WECC	55,553	1.38	1.50	6.6	46.3	344	344	5.16	241.0
Sulphur Springs Valley Electric Cooperative, AZ	A-	Positive	WECC	112,852	1.60	2.50	5.8	49.0	38	121	(0.03)	104.0
A- Rated Median				84,202	1.27	1.79	7.5	47.6	189	205	4.81	119.0
BBB+/BBB/BBB- Rated Senior Debt												
Coffeyville, KS	BBB+	Stable	SPP	58,486	1.09	1.27	8.0	—	123	123	4.95	—
Sikeston Board of Municipal Utilities, MO	BBB+	Stable	SERC	83,791	1.50	1.56	0.8	52.8	178	178	1.05	36.0
Guam Power Authority	BBB	Positive	Other	402,537	1.83	1.83	5.6	(0.5)	138	138	—	88.0
Paducah Power Systems, KY	BBB	Positive	SERC	79,689	1.09	1.21	8.2	12.0	82	110	2.53	58.0
BBB+/BBB/BBB- Rated Median				81,740	1.30	1.42	6.8	12.0	131	131	2.53	58.0

FADS - Funds available for debt service. D&A - Depreciation and amortization. SERC - Southeastern Electric Reliability Corporation. WECC - Western Electricity Coordinating Council. ERCOT - Electric Reliability Council of Texas. RFC - Reliability First Corporation. FRCC - Florida Reliability Coordinating Council. SPP - Southwest Power Pool. MRO - Midwest Reliability Organization. RWN - Rating Watch Negative. NPCC - Northeast Power Coordinating Council. Note: 2018 audit used for Coffeyville, KS; Cowlitz County Public Utility District No. 1, WA; Fort Collins, CO; Grays Harbor County Public Utility District No. 1, WA; Pend Oreille County Public Utility District No. 1, WA. 2020 audit used for San Antonio City Public Service (CPS Energy), TX. Source: Fitch Ratings.

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All Wholesale Systems (Includes Wholesale and G&T Cooperatives)

Obligor	Rating	Outlook/ Watch	Region	Total Operating Revenue (\$000)	Coverage of Full Obligations (x)	Debt Service Coverage (x)	Net Adjusted Debt/ Adjusted FADS (x)	Equity/ Capitalization (%)	Days Cash on Hand	Liquidity Cushion (Days)	Capex/D&A (%)
AAA Rated Senior Debt											
Tennessee Valley Authority, TN	AAA	Stable	SERC	11,318,000	2.06	2.20	5.0	34.1	18	175	92.0
AA Rated Senior Debt											
New York Power Authority, NY	AA	Stable	NPCC	2,370,000	1.41	1.68	5.1	67.3	143	145	166.0
Platte River Power Authority, CO	AA	Stable	WECC	229,185	2.33	3.16	2.1	75.6	340	340	271.0
AA Rated Median				1,299,593	1.87	2.42	3.6	71.5	242	242	218.5
AA- Rated Senior Debt											
Alabama Municipal Electric Authority, AL	AA-	Stable	SERC	206,554	1.16	4.17	5.7	52.3	139	139	33.0
Arkansas Electric Cooperative Corporation, AR	AA-	Stable	SERC	790,706	1.40	1.72	7.6	36.8	86	261	129.0
Associated Electric Cooperative Inc., MO	AA-	Stable	SERC	1,247,298	1.47	1.61	5.4	33.4	46	255	79.0
Bonneville Power Administration, WA	AA-	Negative	WECC	3,655,900	0.83	0.82	11.4	22.3	116	228	120.0
Connecticut Municipal Electric Energy Cooperative	AA-	Stable	NPCC	116,342	1.00	0.99	6.3	20.7	232	411	31.0
Florida Municipal Power Agency – All-Requirements Project, FL	AA-	Stable	FRCC	463,776	0.94	0.94	7.8	0.0	112	208	33.0
Golden Spread Electric Cooperative, TX	AA-	Stable	SPP	400,591	1.70	2.02	4.5	44.7	231	509	26.0
Lower Colorado River Authority – Consolidated, TX	AA-	Stable	ERCOT	1,100,400	1.54	1.63	7.2	29.4	275	275	318.0
Southern Minnesota Municipal Power Agency, MN	AA-	Stable	MRO	251,646	1.03	1.04	4.9	19.4	280	374	89.0
Utah Municipal Power Agency, UT	AA-	Stable	WECC	83,056	1.46	2.11	5.6	0.0	187	187	143.0
Western Minnesota Municipal Power Agency, MN	AA-	Stable	MRO	248,511	1.42	1.65	5.8	33.6	453	453	328.0
AA- Rated Median				400,591	1.40	1.63	5.8	29.4	187	261	89.0
A+ Rated Senior Debt											
Brazos Electric Power Cooperative, TX	A+	Positive	ERCOT	1,040,222	1.15	1.25	7.4	30.4	64	293	103.0
Grand River Dam Authority, OK	A+	Stable	SPP	424,981	1.91	2.16	4.2	39.4	450	450	150.0
Illinois Municipal Electric Agency, IL	A+	Stable	MRO	313,796	1.22	1.27	6.8	20.4	140	205	60.0
Indiana Municipal Power Agency, IN	A+	Stable	RFC	459,706	1.45	1.68	7.6	21.2	268	345	167.0
Minnesota Municipal Power Agency, MN	A+	Positive	MRO	140,973	1.61	1.86	4.6	33.5	305	380	10.0
Municipal Energy Agency of Nebraska, NE	A+	Stable	MRO	122,869	1.14	1.37	6.9	24.6	166	235	97.0
Nebraska Public Power District, NE	A+	Stable	SPP	1,074,475	1.91	2.18	3.1	50.2	349	405	79.0
South Texas Electric Cooperative Inc., TX	A+	Stable	ERCOT	518,638	1.23	1.49	7.8	27.2	45	291	139.0
WPPI Energy (Wisconsin Public Power Inc), WI	A+	Stable	MRO	429,530	1.06	1.20	6.6	45.6	138	174	32.0
A+ Rated Median				429,530	1.23	1.49	6.8	30.4	166	293	97.0
A Rated Senior Debt											
Arizona Electric Power Cooperative, Inc., AZ	A	Stable	WECC	178,690	1.22	1.32	6.5	45.6	48	217	72.0
Basin Electric Power Cooperative, ND	A	Stable	MRO	2,253,532	1.51	1.72	8.1	22.6	79	259	33.0
Buckeye Power Inc., OH	A	Positive	RFC	681,456	1.35	1.42	6.5	29.8	29	201	37.0
Central Iowa Power Cooperative, IA	A	Stable	MRO	188,284	1.64	1.86	4.6	38.7	274	506	133.0

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All Wholesale Systems (Includes Wholesale and G&T Cooperatives)

Obligor	Rating	Outlook/ Watch	Region	Total Operating Revenue (\$000)	Coverage of Full Obligations (x)	Debt Service Coverage (x)	Net Adjusted Debt/ Adjusted FADS (x)	Equity/ Capitalization (%)	Days Cash on Hand	Liquidity Cushion (Days)	Capex/D&A (%)
Cooperative Energy, MS	A	Stable	SERC	759,289	1.38	1.83	6.4	28.0	142	418	147.0
Delaware Municipal Electric Corporation	A	Stable	RFC	137,476	1.14	2.03	6.9	39.8	87	118	37.0
Kentucky Municipal Energy Agency, KY	A	Stable	SERC	15,489	2.10	29.09	3.9	19.6	220	350	1319.0
North Carolina Eastern Municipal Power Agency, NC	A	Stable	SERC	555,882	0.93	0.73	7.0	29.1	75	75	177.0
North Carolina Electric Membership Corporation, NC	A	Positive	SERC	1,187,850	1.24	1.77	6.7	16.7	117	282	84.0
North Carolina Municipal Power Agency No. 1, NC	A	Stable	SERC	491,880	1.86	2.01	1.8	23.5	593	593	75.0
Oklahoma Municipal Power Agency, OK	A	Stable	SPP	182,766	1.10	1.12	8.2	6.2	161	212	31.0
Old Dominion Electric Cooperative, VA	A	Positive	RFC	932,682	1.32	1.64	7.6	26.7	3	207	42.0
Tri-State Generation & Transmission Association Inc., CO	A	Negative	WECC	1,385,472	1.19	1.26	9.6	25.2	37	174	135.0
A Rated Median				555,882	1.32	1.72	6.7	26.7	87	217	75.0
A- Rated Senior Debt											
Great River Energy, MN	A-	Stable	MRO	1,254,609	1.11	1.13	6.3	25.0	98	276	55.0
Heartland Consumers Power District, SD	A-	Stable	SPP	44,154	1.08	1.26	6.4	39.9	208	300	1.0
Kansas Power Pool, KS	A-	Stable	SPP	58,326	1.24	1.77	5.6	31.2	176	219	59.0
Northern Illinois Municipal Power Agency, IL	A-	Stable	MRO	59,897	1.06	1.06	10.8	2.8	207	369	14.0
Piedmont Municipal Power Agency, SC	A-	Stable	SERC	205,458	1.32	1.39	6.1	17.5	369	369	56.0
South Carolina Public Service Authority (Santee Cooper), SC	A-	Negative	SERC	1,722,676	1.45	1.52	10.6	22.2	160	332	128.0
Western Farmers Electric Cooperative, OK	A-	Stable	SPP	691,758	1.15	1.37	7.6	31.8	8	175	138.0
A- Rated Median				205,458	1.15	1.37	6.4	25.0	176	300	56.0
BBB+/BBB/BBB- Rated Senior Debt											
East Kentucky Power Cooperative, KY	BBB+	Stable	MRO	860,123	1.32	1.40	8.1	22.6	103	354	165.0
Oglethorpe Power Corporation, GA	BBB+	Negative	SERC	1,430,292	0.96	0.96	12.7	9.7	209	658	293.0
PowerSouth Energy Cooperative and Subsidiaries, AL	BBB+	Negative	SERC	602,255	1.40	1.52	6.9	23.7	31	208	130.0
Sam Rayburn Municipal Power Agency, TX	BBB+	Stable	ERCOT	36,662	1.03	1.04	2.1	39.5	193	193	8.0
Southern Illinois Power Cooperative, IL	BBB	Stable	MRO	189,956	1.15	1.16	8.0	18.3	70	261	34.0
Arkansas River Power Authority, CO	BBB-	Stable	WECC	31,204	1.11	1.17	10.1	(364.0)	325	355	8.0
Big Rivers Electric Corp., KY	BBB-	Stable	MRO	378,727	1.55	1.66	7.5	41.6	52	211	47.0
BBB/BBB/BBB- Rated Median				378,727	1.15	1.17	8.0	22.6	103	261	47.0

Source: Fitch Ratings.

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Wholesale Systems (Excludes G&T Cooperatives)

Obligor	Rating	Outlook/ Watch	Region	Total Operating Revenue (\$000)	Coverage of Full Obligations (x)	Debt Service Coverage (x)	Net Adjusted Debt/ Adjusted FADS (x)	Equity/ Capitalization (%)	Days Cash on Hand	Liquidity Cushion (Days)	Capex/D&A (%)
AAA Rated Senior Debt											
Tennessee Valley Authority, TN	AAA	Stable	SERC	11,318,000	2.06	2.20	5.0	34.1	18	175	92.0
AA Rated Senior Debt											
New York Power Authority, NY	AA	Stable	NPCC	2,370,000	1.41	1.68	5.1	67.3	143	145	166.0
Platte River Power Authority, CO	AA	Stable	WECC	229,185	2.33	3.16	2.1	75.6	340	340	271.0
AA Rated Median				1,299,593	1.87	2.42	3.6	71.5	242	242	218.5
AA- Rated Senior Debt											
Alabama Municipal Electric Authority, AL	AA-	Stable	SERC	206,554	1.16	4.17	5.7	52.3	139	139	33.0
Bonneville Power Administration, WA	AA-	Negative	WECC	3,655,900	0.83	0.82	11.4	22.3	116	228	120.0
Connecticut Municipal Electric Energy Cooperative	AA-	Stable	NPCC	116,342	1.00	0.99	6.3	20.7	232	411	31.0
Florida Municipal Power Agency – All-Requirements Project, FL	AA-	Stable	FRCC	463,776	0.94	0.94	7.8	0.0	112	208	33.0
Lower Colorado River Authority – Consolidated, TX	AA-	Stable	ERCOT	1,100,400	1.54	1.63	7.2	29.4	275	275	318.0
Southern Minnesota Municipal Power Agency, MN	AA-	Stable	MRO	251,646	1.03	1.04	4.9	19.4	280	374	89.0
Utah Municipal Power Agency, UT	AA-	Stable	WECC	83,056	1.46	2.11	5.6	0.0	187	187	143.0
Western Minnesota Municipal Power Agency, MN	AA-	Stable	MRO	248,511	1.42	1.65	5.8	33.6	453	453	328.0
AA- Rated Median				250,079	1.10	1.34	6.0	21.5	210	251	104.5
A+ Rated Senior Debt											
Grand River Dam Authority, OK	A+	Stable	SPP	424,981	1.91	2.16	4.2	39.4	450	450	150.0
Illinois Municipal Electric Agency, IL	A+	Stable	MRO	313,796	1.22	1.27	6.8	20.4	140	205	60.0
Indiana Municipal Power Agency, IN	A+	Stable	RFC	459,706	1.45	1.68	7.6	21.2	268	345	167.0
Minnesota Municipal Power Agency, MN	A+	Positive	MRO	140,973	1.61	1.86	4.6	33.5	305	380	10.0
Municipal Energy Agency of Nebraska, NE	A+	Stable	MRO	122,869	1.14	1.37	6.9	24.6	166	235	97.0
Nebraska Public Power District, NE	A+	Stable	SPP	1,074,475	1.91	2.18	3.1	50.2	349	405	79.0
WPPI Energy (Wisconsin Public Power Inc.), WI	A+	Stable	MRO	429,530	1.06	1.20	6.6	45.6	138	174	32.0
A+ Rated Median				424,981	1.45	1.68	6.6	33.5	268	345	79.0
A Rated Senior Debt											
Delaware Municipal Electric Corporation	A	Stable	RFC	137,476	1.14	2.03	6.9	39.8	87	118	37.0
Kentucky Municipal Energy Agency, KY	A	Stable	SERC	15,489	2.10	29.09	3.9	19.6	220	350	1319.0
North Carolina Eastern Municipal Power Agency, NC	A	Stable	SERC	555,882	0.93	0.73	7.0	29.1	75	75	177.0
North Carolina Municipal Power Agency No. 1, NC	A	Stable	SERC	491,880	1.86	2.01	1.8	23.5	593	593	75.0
Oklahoma Municipal Power Agency, OK	A	Stable	SPP	182,766	1.10	1.12	8.2	6.2	161	212	31.0
A Rated Median				182,766	1.14	2.01	6.9	23.5	161	212	75.0
A- Rated Senior Debt											
Heartland Consumers Power District, SD	A-	Stable	SPP	44,154	1.08	1.26	6.4	39.9	208	300	1.0
Kansas Power Pool, KS	A-	Stable	SPP	58,326	1.24	1.77	5.6	31.2	176	219	59.0

Wholesale Systems (Excludes G&T Cooperatives)

Obligor	Rating	Outlook/ Watch	Region	Total Operating Revenue (\$000)	Coverage of Full Obligations (x)	Debt Service Coverage (x)	Net Adjusted Debt/ Adjusted FADS (x)	Equity/ Capitalization (%)	Days Cash on Hand	Liquidity Cushion (Days)	Capex/D&A (%)
Northern Illinois Municipal Power Agency, IL	A-	Stable	MRO	59,897	1.06	1.06	10.8	2.8	207	369	14.0
Piedmont Municipal Power Agency, SC	A-	Stable	SERC	205,458	1.32	1.39	6.1	17.5	369	369	56.0
South Carolina Public Service Authority (Santee Cooper), SC	A-	Negative	SERC	1,722,676	1.45	1.52	10.6	22.2	160	332	128.0
A- Rated Median				59,897	1.24	1.39	6.4	22.2	207	332	56.0
BBB+/BBB/BBB- Rated Senior Debt											
Sam Rayburn Municipal Power Agency, TX	BBB+	Stable	ERCOT	36,662	1.03	1.04	2.1	39.5	193	193	8.0
Arkansas River Power Authority, CO	BBB-	Stable	WECC	31,204	1.11	1.17	10.1	(364.0)	325	355	8.0
BBB+/BBB/BBB- Rated Median				33,933	1.07	1.11	6.1	(162.2)	259	274	8.0

G&T – Generation and transmission. FADS – Funds available for debt service. D&A – Depreciation and amortization. SERC – Southeastern Electric Reliability Corporation. NPCC – Northeast Power Coordinating Council. WECC – Western Electricity Coordinating Council. FRCC – Florida Reliability Coordinating Council. ERCOT – Electric Reliability Council of Texas. MRO – Midwest Reliability Organization. SPP – Southwest Power Pool. RFC – Reliability First Corporation.
Source: Fitch Ratings.

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G&T Cooperative Systems

Obligor	Rating	Outlook/ Watch	Region	Total Operating Revenue (\$000)	Coverage of Full Obligations (x)	Debt Service Coverage (x)	Net Adjusted Debt/ Adjusted FADS (x)	Equity/ Capitalization (%)	Days Cash on Hand	Liquidity Cushion (Days)	Capex/D&A (%)
AA- Rated Senior Debt											
Arkansas Electric Cooperative Corporation, AR	AA-	Stable	SERC	790,706	1.40	1.72	7.6	36.8	86	261	129.0
Associated Electric Cooperative Inc., MO	AA-	Stable	SERC	1,247,298	1.47	1.61	5.4	33.4	46	255	79.0
Golden Spread Electric Cooperative, TX	AA-	Stable	SPP	400,591	1.70	2.02	4.5	44.7	231	509	26.0
AA- Rated Median				790,706	1.47	1.72	5.4	36.8	86	261	79.0
A+ Rated Senior Debt											
Brazos Electric Power Cooperative, TX	A+	Positive	ERCOT	1,040,222	1.15	1.25	7.4	30.4	64	293	103.0
South Texas Electric Cooperative Inc., TX	A+	Stable	ERCOT	518,638	1.23	1.49	7.8	27.2	45	291	139.0
A+ Rated Median				779,430	1.19	1.37	7.6	28.8	54	292	121.0
A Rated Senior Debt											
Arizona Electric Power Cooperative, Inc., AZ	A	Stable	WECC	178,690	1.22	1.32	6.5	45.6	48	217	72.0
Basin Electric Power Cooperative, ND	A	Stable	MRO	2,253,532	1.51	1.72	8.1	22.6	79	259	33.0
Buckeye Power Inc., OH	A	Positive	RFC	681,456	1.35	1.42	6.5	29.8	29	201	37.0
Central Iowa Power Cooperative, IA	A	Stable	MRO	188,284	1.64	1.86	4.6	38.7	274	506	133.0
Cooperative Energy, MS	A	Stable	SERC	759,289	1.38	1.83	6.4	28.0	142	418	147.0
North Carolina Electric Membership Corporation, NC	A	Positive	SERC	1,187,850	1.24	1.77	6.7	16.7	117	282	84.0
Old Dominion Electric Cooperative, VA	A	Positive	RFC	932,682	1.32	1.64	7.6	26.7	3	207	42.0
Tri-State Generation & Transmission Association Inc., CO	A	Negative	WECC	1,385,472	1.19	1.26	9.6	25.2	37	174	135.0
A Rated Median				845,986	1.34	1.68	6.6	27.4	64	238	78.0
A- Rated Senior Debt											
Great River Energy, MN	A-	Stable	MRO	1,254,609	1.11	1.13	6.3	25.0	98	276	55.0
Western Farmers Electric Cooperative, OK	A-	Stable	SPP	691,758	1.15	1.37	7.6	31.8	8	175	138.0
A- Rated Median				973,184	1.13	1.25	7.0	28.4	53	225	96.5
BBB+/BBB/BBB- Rated Senior Debt											
East Kentucky Power Cooperative, KY	BBB+	Stable	MRO	860,123	1.32	1.40	8.1	22.6	103	354	165.0
Oglethorpe Power Corporation, GA	BBB+	Negative	SERC	1,430,292	0.96	0.96	12.7	9.7	209	658	293.0
PowerSouth Energy Cooperative and Subsidiaries, AL	BBB+	Negative	SERC	602,255	1.40	1.52	6.9	23.7	31	208	130.0
Southern Illinois Power Cooperative, IL	BBB	Stable	MRO	189,956	1.15	1.16	8.0	18.3	70	261	34.0
Big Rivers Electric Corp., KY	BBB-	Stable	MRO	378,727	1.55	1.66	7.5	41.6	52	211	47.0
BBB+/BBB/BBB- Rated Median				602,255	1.32	1.40	8.0	22.6	70	261	130.0

Source: Fitch Ratings.

Financial Summary Glossary of Terms

Adjusted FADS

FADS plus fixed charges minus transfers plus pension expense.

Capitalization

Total debt plus total equity.

Capitalized Fixed Charges

Fixed charges times multiple for capitalization (currently eight).

Earnings before Interest, Depreciation and Amortization (EBITDA)

Operating revenue less cash operating expenses.

Fixed Charges

Fixed charges include 30% of purchased power expenses, plus operating leases.

Fixed Purchased Power Charges

Fixed purchased power charges include 30% of purchased power expenses.

Full Obligations

Total Annual Debt Service plus Fixed Purchased Power Charges.

Fund Available for Debt Service (FADS)

EBITDA plus interest income. FADS may further reflect adjustments for subsidies, noncash expenses, nonrecurring items and non-operating expenses paid ahead of debt service as appropriate. FADS does not include any benefit from the use of (or deposit to) the rate-stabilization funds, non-operating connection fees or capital contributions.

Funds Restricted for Debt Service

Includes amounts deposited in debt service and debt service reserve funds, as well as the cushion of credit program administered by the Rural Utilities Service.

Net Adjusted Debt

Total debt plus capitalized fixed charges plus pension obligations, minus unrestricted funds and funds restricted for debt service.

Pension Expense

Amount recognized in an employer's financial statements as the cost of a pension plan for a period on an accrual basis.

Pension Obligations

The accrued unfunded portion of an entity's pension obligation. Amounts included are adjusted using methodologies outlined in Fitch's U.S. Public Finance Tax-Supported Rating Criteria and U.S. Public Power Rating Criteria.

Total Annual Debt Service

Cash interest paid plus scheduled long-term principal payments (i.e. prior year's current portion of long-term debt). Voluntary prepayments and principal amounts repaid as a part of a refinancing are not included. However, where a borrower incorporates balloon indebtedness, long-term bank facilities, remarketed debt or bullet maturities, Fitch may adjust scheduled debt service to eliminate amounts successfully refinanced, remarketed or renewed, or to include payments on debt obligations reported as operating expenses. Cash interest paid may also be adjusted if payment dates distort cash payments vis-à-vis annualized interest expense, while capitalized interest may be excluded for systems undertaking large construction programs.

Total Debt

All long- and short-term debt obligations, including capital leases, outstanding CP, notes payable and current maturities. Certain nonrecourse obligations and separately secured obligations may be excluded.

Total Equity

Net assets (retained earnings plus contributed capital plus patronage capital).

Transfers

Transfers include payments to the general fund, payments in lieu of taxes (PILOT), free services provided and other taxes, dividends and distributions paid, as applicable.

Unrestricted Cash

Cash and investments available for short-term liquidity needs, with no limitations on use. Funds restricted solely by board or management policy and/or available for general system purposes, including debt service, may also be included. Funds explicitly limited for construction or other capital investment are not considered unrestricted.

Ratio Definitions

Ratio	Calculation	Significance
Liquidity		
Coverage of Full Obligations (x)	$(FADS + \text{Fixed Purchased Power Charges} - \text{Transfers}) / (\text{Total Annual Debt Service} + \text{Fixed Purchased Power Charges})$	Indicates the margin available to meet current debt service requirements and other fixed obligations.
Debt Service Coverage (x)	$(FADS - \text{Transfers}) / \text{Total Annual Debt Service}$	Indicates the margin available to meet current debt service requirements.
Unrestricted Cash (Days)	$\text{Unrestricted Cash} / (\text{Operating Expenses} - \text{Depreciation} - \text{Amortization}) * 365$	Indicates financial flexibility, specifically cash and short-term investments, relative to expenses.
Liquidity Cushion (Days)	$(\text{Unrestricted Cash} + \text{Available Borrowing Capacity}) / (\text{Operating Expenses} - \text{Depreciation} - \text{Amortization}) * 365$	Indicates financial flexibility, including all available sources of cash, short-term investments and liquidity, relative to expenses.
Leverage		
Net Adjusted Debt to Adjusted FADS (x)	$\text{Net Adjusted Debt} / (\text{FADS} + \text{Fixed Charges} - \text{Transfers})$	Indicates the size of net debt and off-balance-sheet obligations to the margin available to meet all debt service, fixed obligations, and transfers and distributions to owners.
Net Adjusted Debt to Adjusted FADS (x; Excluding Pensions)	$(\text{Net Adjusted Debt} - \text{Pension Obligations}) / (\text{FADS} + \text{Fixed Charges} - \text{Transfers} - \text{Pension Expense})$	Indicates the size of net debt and off-balance-sheet obligations excluding pension obligations to the margin available to meet all debt service, fixed obligations (excluding pension expense), and transfers and distributions to owners. This ratio is used in Fitch's charted Portfolio Trends simply for long-term trend analysis. Long-term data including pension obligations is unavailable.
Equity to Capitalization (%)	Total Equity/Capitalization	Provides a measure of cost recovery, leverage and debt capacity.
Other		
Capex to Depreciation and Amortization (%)	$\text{Capex} / (\text{Depreciation} + \text{Amortization})$	Indicates the relationship between capital spending and the depreciation of existing assets.
Transfers to Operating Revenues (%)	Transfers/Operating Revenues	Indicates the degree to which a utility provides financial support to host city, county, members or owners.

FADS – Funds available for debt service.
Source: Fitch Ratings.

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U.S. Public Power Rating Criteria

Sector Criteria

Scope

This criteria report details Fitch Ratings' methodology for assigning Issuer Default Ratings, (IDRs), Standalone Credit Profiles (SCPs) and issue- and obligation-specific ratings to U.S. public power utilities, including electric systems that are municipally or federally owned, and electric cooperatives. This rating methodology also applies to certain municipally owned combined utility systems where electric revenue accounts for the largest share of total revenue and Canadian government-owned power systems. The criteria apply to both new and surveillance ratings.

Municipally owned gas systems, thermal energy systems and community choice aggregators will be rated using Fitch's [Public Sector, Revenue-Supported Entities Rating Criteria](#), but aspects of the analysis may be informed by these criteria.

Key Rating Drivers

Fitch explicitly does not weight the assessments of individual key rating drivers in coming to an overall rating conclusion. There is no standard formula to link the following inputs into an exact rating; the individual assessments inform but do not dictate the final rating outcome. The relationship between individual and aggregate qualitative and quantitative factors varies between entities in the sector, as well as over time.

Revenue Defensibility: This entails an assessment of a public power utility's exposure to demand volatility and the flexibility within its rate-setting framework to recover costs of service and maintain operating profitability.

Operating Risk: This entails an assessment of a public utility system's operating cost burden and operating cost flexibility, as well as its current capital spending and future capital requirements.

Financial Profile: Metrics are used to evaluate the issuer's liquidity profile and leverage in the context of the issuer's overall risk profile. These metrics are evaluated on both a historical and forward-looking basis, which considers an individual utility's overall financial flexibility to withstand a stress scenario through a five-year horizon.

Asymmetric Additive Risk Factors: Risk factors such as debt structure, management and governance, and legal and regulatory risks are also considered when assigning a rating. These risk factors are not scaled, and only weaker-than-standard characteristics affect the final rating.

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This report replaces criteria titled [U.S. Public Power Rating Criteria](#), published April 3, 2019.

Related Criteria

[Public Sector, Revenue-Supported Entities Rating Criteria \(March 2020\)](#)

[U.S. Public Finance Tax-Supported Rating Criteria \(March 2020\)](#)

[U.S. Public Finance State Revolving Fund and Municipal Finance Pool Program Rating Criteria \(September 2019\)](#)

Related Research

[FAST Public Power - Fitch Analytical Stress Test Model](#)

[FAST Public Power - Fitch Analytical Stress Test \(Description and Model Foundation Update\) \(April 2019\)](#)

General Credit Quality Reflected in IDR or SCP

Fitch will assign an IDR to public power enterprises that are determined to be separate municipal entities for purposes of filing bankruptcy under Chapter 9 of the U.S. Bankruptcy Code, as well as an issue-specific rating for each Fitch-rated security. Enterprises that are related to municipalities will instead be assigned an SCP. Assigning IDRs and SCPs aligns default risk ratings in this sector to those assigned by other groups across Fitch's global rating platform. Conduit issuers, including issuers that benefit from balanced, pass-through contractual frameworks, will not be assigned IDRs or SCPs.

For more information on IDRs, SCPs and rating distinctions between specific securities, see Fitch's master criteria *Public Sector, Revenue-Supported Entities Rating Criteria* and *U.S. Public Finance Tax-Supported Rating Criteria*.

Sector Risk Profile

Monopoly Providers

The starting point for analysis of U.S. public power systems is recognition that the sector's business model and fundamental credit strengths reduce volatility of financial performance and mitigate the effects of macro events on the underlying system. These strengths include stable demand driven by the essentiality of electric service, mandates to serve well-defined areas with monopolistic characteristics, strong contractual frameworks and considerable pricing flexibility provided through the sector's largely autonomous rate-setting authority.

Public power systems typically provide electric service to end users within well-defined service areas. Whereas some utility systems may be subject to regulatory-imposed competitive pressures with respect to the supply of electricity, most public power systems operate exempt from such provisions. Electric distribution and transmission services, in nearly all cases, are provided throughout well-defined service areas free from competitive pressure, further enhancing revenue stability.

Rate-Setting Autonomy

The overwhelming majority of Fitch's rated public power systems also possess the ability to autonomously determine their rates for service, free from the oversight of state and federal utility regulatory commissions. With such powerful pricing flexibility at hand, the governing board's actual use of its rate-making authority strongly influences revenue, profitability, operating liquidity and overall credit quality.

Although exempt from rate regulation in most jurisdictions, public power utilities remain subject to a myriad of state and federal regulations related to asset and resource planning, fuel handling and procurement, and environmental emissions standards. Changes in market dynamics, regulatory initiatives, political influence or the competitive framework, whether implemented or expected, can affect both revenue defensibility and operating risk throughout the sector as a whole, and may introduce positive or negative rating pressure for specific credits.

Not-for-Profit Business Model

Public power systems are unique from their investor-owned counterparts. In nearly all cases, public power systems operate on a not-for-profit basis and with the fundamental mission of providing safe, reliable and affordable electric service. Excess cash flow is typically retained and used to build financial cushion, fund capital investment or reduce borrowings. Although a portion of net revenues may be returned to host municipalities and member/owners through transfers or distributions, such transfers are typically restricted to varying degrees by state law or municipal charter. Efforts within the sector to diversify into operations with higher business risk or compete in competitive markets are rare and generally limited by enabling legislation, legal statute or regulatory authorities.

Given the balance of these fundamentals, ratings in this sector, in most cases, range from 'AA+' to 'A-' (with a current median rating of 'A+'), denoting high credit quality. However, individual issuers can be assigned lower, even speculative-grade ('BB' and below), ratings due to specific credit features or issues. This sector risk profile range does not establish a rating floor or

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ceiling, and does not simply replicate the range of existing ratings in the sector. Rather, the range emerges from the core features common to U.S. public power systems.

Functional Responsibilities Establish Foundation

Although the public power sector enjoys a strong overall risk profile, Fitch believes the assessment of issuer-specific risks and credit quality begins with a solid understanding of the issuer's functional responsibilities. The public power sector is highly segmented. While some issuers are engaged in all aspects of the supply, transmission and distribution of electricity, others may have functional responsibilities that are limited to individual roles. For example, some issuers may be solely responsible for the distribution of electricity to end users, purchasing their power supply from a third party, while others may only be responsible for generating or procuring wholesale power supply for delivery by other systems. Fitch considers both the statutory and contractual obligations of each issuer, as well as the degree to which risks are shared or mitigated, to establish the framework under which rating factors are assessed.

Retail Systems

Retail electric systems primarily distribute electricity to residential, commercial and industrial (including irrigation customers) end users. While some municipal electric systems are independent entities, most are owned by the municipalities they serve and operate as closely integrated enterprise funds of the local government. Moreover, municipal electric systems may be operated as part of a combined utility system that provides other services, including retail natural gas, water and wastewater. Electric distribution cooperatives are similarly owned and governed by the end users they serve, but rarely provide other utility services.

When evaluating retail electric systems, Fitch considers how the system's energy requirements are met. Some retail systems are vertically integrated and manage their own supply needs through the ownership and operation of generating facilities and/or the execution of individual power purchase contracts. Others receive all-requirements contractual power supply from wholesale power systems. Fitch considers the risks, benefits and financial obligations of both approaches in its analysis.

Wholesale Suppliers

Fitch's evaluation of wholesale power suppliers is rooted in its analysis of the contractual responsibilities and obligations of the supplier and its purchasers. Most wholesale suppliers are organized by municipally owned retail power systems as joint action agencies or joint power authorities (together JAAs), or by cooperatively-owned systems as generation and transmission cooperatives (G&Ts) to provide all or a portion of their members' power requirements pursuant to long-term contracts. Fitch considers the terms, tenor and conditionality of the contractual obligations (i.e. take-or-pay, take-and-pay) to understand the risks borne by each party and to determine the context for assessing the rating factors.

Fitch also considers the counterparty risks associated with the contract structure in its evaluation, factoring the operational interdependency and governance relationship between the wholesale supplier and its purchasers, in addition to purchaser credit quality. In some contractual frameworks where revenues and costs are largely balanced via pass-through to purchasers — particularly single-asset JAA projects — purchaser credit quality may be more of a consideration in the final rating than the issuer's financial profile (see *Appendix B*).

Three Key Rating Drivers

Fitch's three key rating drivers are revenue defensibility, operating risk and financial profile.

For retail public power systems, the three key rating drivers are assessed using the following guidance, which outlines general expectations for a given rating category. Guidance related to wholesale suppliers, including JAAs, G&Ts and other government-owned systems, is provided in *Appendix B*.

The subfactors in each case highlight the components most critical to making the assessment. All assessments are grounded in borrower-specific historical data and qualitative analysis to support a forward-looking view on the expectation for future performance, rather than at a single point in time. Key rating driver and subfactor assessments may therefore reflect the

consideration of metrics based on historical averages, estimates and trends. Moreover, assessments may on occasion differ from what the metrics imply based on the analyst's knowledge of other facts and circumstances.

Key Rating Factors – Retail Public Power Systems

Revenue Defensibility	aa	a	bbb	bb
Revenue Source Characteristics	Nearly all revenue is derived from services or business lines exhibiting monopoly characteristics. Reliance on revenue from competitive sources is insignificant.	A significant portion of total revenue is derived from services or business lines exhibiting monopoly characteristics. Reliance on revenue from competitive sources is manageable.	A majority of total revenue is derived from services or business lines exhibiting monopoly characteristics. Reliance on revenue from competitive sources is meaningful.	Less than 50% of total revenue is derived from services or business lines exhibiting monopoly characteristics. Reliance on revenue from competitive sources is significant.
Service Area Characteristics	Very favorable demographic trends generally characterized by strong customer growth, above-average income levels and low unemployment rates.	Favorable demographic trends generally characterized by average customer growth, with average income levels and average unemployment rates.	Stable demographic trends generally characterized by little or no customer growth, and below-average income or above-average unemployment rates.	Weak demographic trends generally characterized by a declining customer base, well below-average wealth levels or high unemployment.
Rate Flexibility	Independent legal ability to increase service rates without external approval.	Legal ability to increase service rates is subject to approval of external authorities. History and expectation of operating and capital costs being recovered on a timely basis is strong.	Legal ability to increase service rates is subject to approval of external authorities. History and expectation that operating and capital costs may not be recovered on a full or timely basis.	Legal ability to increase service rates is subject to approval of external authorities. History and expectation that operating and capital cost recovery will be neither full nor timely.
	Average retail rates are solidly below the state average.	Average retail rates reasonably approximate the state average.	Average retail rates are solidly above the state average.	Average retail rates are well above the state average.
	Electric cost affordability is very high.	Electric cost affordability is high.	Electric cost affordability is midrange.	Electric cost affordability is low.
Asymmetric Rating Factor Considerations	The analysis of an issuer's revenue defensibility also considers the effect of customer concentration, customer mix, industry concentration, wholesale contract structure and counterparty risk on the utility's revenue defensibility.			
Operating Risk				
Operating Cost Burden	Very low operating cost burden.	Low operating cost burden.	Midrange operating cost burden.	High operating cost burden.
Operating Cost Flexibility (Asymmetric Risk Factor)	The analysis of an issuer's operating cost flexibility is an asymmetric risk factor, where weaker elements can constrain the overall assessment of operating risk. Fitch will consider available reserve margin, regional energy markets, fuel concentration, asset concentration, environmental standards, regulatory restrictions and contract structure.			
Capital Planning and Management	Moderate lifecycle investment needs supported by adequate historical and manageable planned capital investment.	Elevated lifecycle investment needs and supported by adequate historical and manageable planned capital investment.	High lifecycle investment needs that are adequately addressed by planned capital investment.	High lifecycle investment needs inadequately addressed by planned capital investment.
Other Asymmetric Rating Factor Consideration	Resource management, project completion risk and counterparty risks can also constrain the assessment.			
Financial Profile				
Leverage Profile	Very Strong: Refer to the <i>Rating Positioning</i> table on page 17.	Strong: Refer to the <i>Rating Positioning</i> table on page 17.	Midrange: Refer to the <i>Rating Positioning</i> table on page 17.	Weak: Refer to the <i>Rating Positioning</i> table on page 17.
Liquidity Profile	Liquidity profile is based on coverage of full obligations and liquidity cushion. A weaker liquidity profile can constrain the financial profile assessment.			
Asymmetric Additive Risk Factors				
Risk Considerations	Debt structure, management and governance, legal and regulatory, and country risks may constrain the final rating.			

Fitch explicitly does not assign standard weightings to the assessments of individual factors in determining the three key rating driver assessments or coming to an overall rating conclusion. As a general guideline, where a material factor is significantly weaker or stronger than others, this factor tends to attract a greater emphasis in the overall analysis.

The correspondence of business profile, financial profile and rating is presented in the *Rating Positioning* table on page 17. The ratings are not formulaic or model driven, but require qualitative judgment to place metrics in an overall context for each issuer. Fitch has not incorporated a 'aaa' key rating factor assessment table in this criteria, as public power issuers are generally exposed to operating risks and practical limitations on rate-setting that are rarely offset by their strong, monopolistic market position and rate-setting autonomy.

Revenue Defensibility

Fitch considers both demand and pricing characteristics in its assessment of revenue defensibility.

Public power systems have broadly stable demand characteristics, but exhibit some volatility across the typical economic and business cycle. Base demand for electric service is somewhat insensitive to external factors given the essentiality of service and absence of a competitive marketplace in most territories. However, demand fluctuation on the margin is sensitive to changes in regional economics and demographics, as well as weather conditions and disruptive technologies.

In its assessment of revenue defensibility, Fitch analyzes the historical patterns of electric demand through economic and investment cycles, as well as growth trends over time, taking into account the utility's revenue mix, retail customer characteristics, contractual framework, the economic dynamics of the utility's service area and its capability to preserve revenue generation through rate increases. While weather is among the most significant factors driving variability in demand for electricity, particularly for residential users, normal fluctuations in temperature and seasonality are considered in the context of an issuer's normal business cycle in Fitch's scenario analysis, and are unlikely to affect Fitch's assessment of revenue defensibility.

Revenue Source Characteristics

Revenue Source Characteristics

Metrics to Support Assessment

- Fitch assesses operating revenue risk through an analysis of a utility's business lines and the related revenue relied on to support both operations and debt service. Retail utility systems that derive more than 95% of operating revenue from services or business lines exhibiting monopolistic characteristics have revenue source characteristics consistent with an 'aa' factor assessment; between 80% and 95%, 'a'; between 50% and 79%, 'bbb'; and less than 50%, 'bb'.
- Fitch may also consider in its assessment, if available, each business line's contribution to operating income and funds available for debts service using the thresholds outlined above.

A utility's operating revenue mix measures the percentage of operating revenue attributable to each of the services it provides and its individual business lines. Retail electric systems typically exhibit strong revenue source characteristics, as the majority of their revenue is derived from monopolistic services – providing electric to end users within single certified areas that are not subject to competitive pressures. Fitch views revenue derived from monopolistic business lines to be more durable, secure and supportive of revenue defensibility than revenue generated by competitive activities.

Combined utility systems also derive revenues from the supply, transmission and delivery of other essential utility services, including water, wastewater and natural gas, which are similarly monopolistic. Wholesale activity designed solely to hedge price or supply a utility's retail load, and wholesale sales provided pursuant to long-term contracts (minimum tenor of two years) with retail systems exhibiting monopolistic characteristics will also be deemed to exhibit monopolistic characteristics.

Utility systems may also derive operating revenue from non-utility services or less traditional business lines subject to competitive pressures on both demand and price. These services may include telecommunications service, competitive energy supply and uncontracted or short-term (less than two-years) off-system energy sales.

Revenue defensibility risk to a utility can be affected by the degree to which the system relies on revenues and income from competitive business lines to meet its covenanted revenue requirements and debt service obligations. For example, utility systems with excess low-cost hydroelectric capacity may sell significant amounts of energy into the wholesale market. However, if prevailing retail rate-setting plans exclude anticipated margins for uncontracted off-system sales, revenue defensibility risk may be mitigated.

In cases where a retail public power system derives more than 20% of its revenue from contracted off-system electric sales, Fitch will also consider in its analysis the tenor, counterparty and terms of relevant contracts to assess the degree to which replacement funds – either from replacement contracts or retail rate increases – may be necessary to meet scheduled debt payments. Contracts with weak counterparties, tenors of less than two years and termination provisions may subject a utility to contract renewal risk or merchant risk, and lower revenue defensibility.

Service Area Characteristics

Service Area Characteristics

Metrics to Support Assessment

- Strong economic, customer and demographic trends support strong revenue defensibility. Fitch analyzes customer growth rates, and service area unemployment rates and income levels relative to national averages.
 - Systems that experience a five-year average annual growth in customers of more than 1.5% exhibit stronger growth characteristics; 0.0%–1.5%, midrange; and less than 0.0%, weaker.
 - Service areas that report median household income in excess of 125% of the national average exhibit stronger income characteristics; 75%–125%, midrange; and less than 75%, weaker.
 - Service areas that report unemployment rates that are less than 75% of the national average exhibit stronger employment characteristics; 75%–125%, midrange; more than 125%, weaker.
 - Markets that exhibit midrange retail customer growth and midrange demographic trends are considered strong and consistent with factor assessments of at least ‘a’. Markets that exhibit a greater number of stronger characteristics than weaker characteristics are typically assessed ‘aa’. Markets that exhibit one more weaker characteristic than stronger characteristic are typically assessed as ‘bbb’. Markets that exhibit two or more weaker characteristics than stronger characteristics are typically assessed as ‘bb’.
-

A public power system’s demand and pricing characteristics, as well as its overall revenue stability, will be highly influenced by its service area characteristics and demographic trends.

Retail customer growth, elevated income levels, a strong and diverse employer base, and low unemployment levels are all positive credit factors that influence both demand and pricing characteristics. Service areas characterized by strong employment metrics and income levels are likely to benefit from stronger demand driven by customer migration and organic growth.

Moreover, stronger income levels throughout an area are likely to result in more inelastic demand and rate flexibility during periods of economic weakness. Areas experiencing declining customers and employment are likely to experience lower electric demand.

Fitch reviews income and employment indices to help assess not only the prospects for stronger growth and more inelastic demand, but also the capacity of residential users to meet current obligations and absorb future rate increases. While income also provides some indication of an end user’s ability to pay electric bills, Fitch observed that the essential nature of electric service and the remedies available to most public power systems (i.e. shutoffs and liens) make payment delinquencies in the sector extremely low, regardless of income levels and other economic indicators. In cases where a utility service area extends across a broad geographic area and multiple counties, Fitch may base its analysis of the service area characteristics using the city or county in which the most customers are located.

When evaluating wholesale systems, the characteristics of the areas served by the supplier’s member retail systems are reviewed (see *Appendix B* for details).

Rate Flexibility

The final component of the revenue defensibility assessment is a utility's rate flexibility, which considers both the system's independent legal ability to determine rates of service, and its rate competitiveness and affordability of service.

Assessing a utility's independent legal ability to determine rates and increase operating revenue involves consideration of any limits on the system's autonomy in this area, including requirements for approval from local government groups, state regulatory commissions or federal regulatory authorities. Fitch considers a utility system to have independent legal rate-raising ability as long as such action is at the discretion of the utility's governing body – be it a board of directors, local government council or both.

Issuers whose rates for service must be approved by an external regulatory authority are viewed as having less rate flexibility. Although issuers operating within a well-established and historically supportive regulatory regime may exhibit strong financial performance and credit quality, their revenues are nonetheless subject to scrutiny, regulatory lag and the potential for cost disallowance. Fitch will consider historical ratemaking decisions, methodologies and automatic recovery mechanisms in its assessment to determine the likelihood costs will be recovered in a timely manner.

A utility system's ability to independently set rates for service significantly enhances revenue defensibility, allowing the utility to increase revenue as necessary to offset the effects of lower unit sales or meet unanticipated cost increases. However, Fitch believes the relative competitiveness of rates and affordability of utility services, particularly at the retail level, can serve as practical limitations on rate flexibility and a utility's capability to sustain strong financial performance.

Rate competitiveness for retail systems is typically measured by comparing a system's average retail rate to comparable average retail rates for the state in which the system operates. Broader or narrower geographic comparisons, or residential rate comparisons may be reviewed when more informative in certain cases. Fitch measures affordability as the total cost of residential electric service (i.e. average residential kWh consumption multiplied by the average unit rate) divided by median household income throughout the service area. Retail systems that possess the legal ability to determine rates and provide affordable electric service at rates that compare favorably with other systems are viewed as having ample rate flexibility.

Fitch considers both retail rate competitiveness and wholesale rate competitiveness in its assessment of rate flexibility for wholesale systems (see *Appendix B* for details).

Affordability and Rate Competitiveness

Metrics to Support Assessment

- Fitch compares a system's average retail rate with the average retail rate in the state in which the utility operates. Public power systems with rates higher than the state average have lower rate flexibility compared with systems with below-average rates. Utility systems with retail rates less than 90% of the state average have rate flexibility characteristics consistent with an 'aa' factor assessment; 90%-120%, 'a'; 121%-150%, 'bbb'; and greater than 150%, 'bb'.
 - Fitch calculates an affordability ratio to determine the percentage of median household income necessary to cover residential electric charges. Public power systems with a ratio that is less than 2.5% exhibit affordability that is very high; 2.5%-3.5%, high; 3.6%-4.5%, midrange; and above 4.5%, low.
-

Asymmetric Rating Factor Considerations – Revenue Defensibility

In addition to the aforementioned considerations, the assessment of revenue defensibility can be constrained by the following considerations.

Fitch evaluates a utility's vulnerability to sudden drops in demand and the impact on revenue defensibility by assessing the degree to which demand and revenue rely on a particular customer, industry or commercial segment. Customer concentration is assessed by reviewing the revenue contribution from a system's largest retail customers. Systems that derive more

than 10% of total revenue from their largest customer or more than 25% of total revenue from their 10 largest retail customers exhibit meaningful customer concentration. Systems exhibiting customer concentration will be further evaluated to determine whether individual customer risk detracts from revenue stability. For example, revenue stability will be viewed as greater for a system whose dominant customer is a university or medical center, than a system dominated by a manufacturing facility or industrial complex.

Fitch further evaluates an issuer's sales mix (the percentage of its energy sales and revenue attributable to the principal customer segments: residential, commercial and industrial), its 10 largest customers and the service area's largest employers to identify industry or commercial segment concentration and the potential for an unanticipated decline in demand due to a fundamental shift in an industry's competitive profile. Residential revenue below 35% of total retail revenue indicates some degree of commercial and industrial concentration and could compromise an issuer's revenue defensibility (if sales mix is measured by energy sales, residential sales below 25% indicate concentration). Similarly, revenue attributable to a single industry or commercial segment in excess of 20% of total retail revenue indicates concentration.

Operating Risk

The second key rating driver is operating risk, which focuses on operating cost burden, operating cost flexibility, and capital planning and management. A public power system's ability to generate adequate margin while maintaining competitive rates and preserving affordability is largely a function of its ability to effectively manage operating and capital expenses, including commodity costs. Long-term investment in property, plant and equipment is necessary to ensure sectorwide resource adequacy, regulatory compliance, accurate revenue recognition, reliability and efficient operations. While capex may limit financial flexibility in the near term, investment is essential for ensuring strong system performance over the long term.

Operating Cost Burden

Fitch believes public power systems with a high operating cost burden are subject to a higher degree of overall operating risk. The measurement of total operating costs reflects the wide range of individual costs associated with the supply and delivery of electricity. These include fuel and purchased power, labor, administration, maintenance and fixed assets (as measured by depreciation). Fitch also includes transfer payments and other regular distributions in its calculation of operating costs. Overall, Fitch believes the benefits and challenges related to operating decisions, as well as the effect of regional differences, macroeconomic factors and external restrictions on operations, are most commonly captured in operating costs.

For the vast majority of power systems, fuel and purchased power costs represent the largest expense category. Fuel costs are most prevalent for systems that directly own generation, and are inherently variable, driven by commodity prices and production volumes. Sizable purchased power costs are particularly prevalent for retail systems that entered into all-requirements contracts with JAA or G&T suppliers. Contract costs for purchasing utilities will typically encompass all costs borne directly by the supplier, including fuel, purchased resources and capital costs, and will be sensitive to variability in commodity prices and purchase volumes. Utilities that own generation may also purchase power pursuant to bilateral or joint resource contracts. Depending on a utility system's resource mix and supply arrangement, fuel and purchased power can account for 50%-75% of total operating costs.

Depreciation expense is highly reflective of asset ownership and legacy investment decisions. While all retail utility systems own distribution assets, higher levels of depreciation are typically associated with systems that own generating assets. Moreover, depreciation may be an outsized component of operating costs for systems with high-cost, inefficient or nonperforming assets.

Other expenses include labor and administrative costs, and taxes or payments in lieu of taxes (PILOTs). Fitch includes amounts transferred to a host municipality as an operating expense because the importance of these payments to the recipients significantly increases the likelihood payments will be made, even during periods of financial stress. Labor costs, including pension-related costs, are generally a small portion of total operating expenses given

the relatively low labor intensity of electric service, but could become increasingly burdensome for systems with large unfunded pension obligations.

The key metric Fitch uses to measure operating cost burden is the ratio of total operating costs to total kWh energy sales. Specifically, Fitch assesses each utility's ratio against levels it considers to be representative of varying degrees of operating risk.

Operating Cost Burden

Metric to Support Assessment

- Fitch measures a utility's ratio of total electric operating costs to total energy kWh sales to determine operating cost burden. Retail utility systems with an operating cost/kWh that is less than 10 cents/kWh have a very low operating cost burden; between 10 cents/kWh and 15 cents/kWh, low; between 15 cents/kWh and 20 cents/kWh, midrange; and above 20 cents/kWh, high.
-

Operating Cost Flexibility

An issuer's ability to manage operating costs underpins Fitch's assessment of its operating risk. For retail systems that purchase all or the majority of their energy supply, Fitch's analysis may extend to its wholesale suppliers or include consideration of relevant regional organized markets.

Risks related to operating cost flexibility are viewed as asymmetric, meaning reasonable or even strong flexibility would not result in a stronger assessment of operating risk than a utility's operating cost burden and capex requirements would otherwise suggest. Fitch expects systems possessing strong flexibility would use that flexibility to lower operating costs. The evaluation of operating cost flexibility is most likely to constrain the operating risk assessment for those systems that exhibit low operating costs but possess limited ability to preserve or manage costs in the wake of changes in operating conditions.

Fitch evaluates each of the items below to determine the degree to which limitations to operating cost flexibility may constrain the overall operating risk assessment.

Resource Balance

Fitch reviews a system's current power supply portfolio and requests an integrated resource plan (IRP) or data necessary to evaluate the adequacy of current and planned resources to meet energy and demand requirements. Resource sufficiency may be determined through the calculation of a capacity reserve margin, which measures a system's excess resource capacity as a percentage of its peak demand, or through a broader marketplace assessment for systems operating within organized markets.

Systems reporting a reserve margin lower than 10% and/or operating in organized markets exhibiting capacity constraints are more susceptible to shortfalls in available capacity, whether as a result of unplanned outages or higher than anticipated peak demand. Capacity shortages could result in significantly higher operating costs and lower operating cost flexibility. Utilities with low reserve margins or operating in constrained markets could also face sizable capacity-related investment (see *Capital Planning and Management* section).

Alternatively, systems may report lower unit operating costs as a result of energy sales from excess capacity. In these cases, Fitch will evaluate the likelihood of continued sales in its assessment of operating cost flexibility. If future sales are unlikely or highly questionable, operating flexibility is limited.

Resource Diversity

Fitch measures resource diversity in terms of capacity fuel mix and asset concentration. A utility's capacity fuel mix is the proportionate mix of capacity available to a system by fuel type (i.e. coal, natural gas, nuclear, etc.). Fitch believes a utility with a well-diversified resource portfolio has a greater ability to manage operating costs and related risks.

Utility systems that rely on any individual fuel for more than 80% of their available capacity would be considered to have a weak capacity fuel mix, and could face greater challenges in managing operating costs. Access to a more diversified fuel mix allows utility systems to

moderate the effect of increasing fuel costs or other circumstances that could curtail availability or production, including applicable environmental standards or regulatory restrictions.

Similarly, systems that rely on any individual generating unit for more than 66% of their available capacity exhibit a high degree of asset concentration. Although a strong operating history could mitigate some operating risk, an extended outage or other circumstances that could curtail availability or production could significantly compromise a utility's operating cost flexibility.

Systems relying on third-party bilateral contracts that mature within two years or are subject to significant counterparty risk for more than 66% of their power supply may exhibit limited cost flexibility if regional capacity constraints and prevailing market conditions indicate renewed contracts will be costly or otherwise subject to unfavorable terms.

Capital Planning and Management

Fitch believes generating, transmitting and distributing electricity safely and reliably requires significant and consistent capital investment. Ensuring the adequacy of resources to meet current and projected demand and the ability to deliver energy reliably are fundamental planning requirements of public power utility systems, and central to their missions. Expenditures necessary to add new generating resources or comply with environmental regulations often entail sizable and costly multiyear projects that can result in periodic spikes in expenditure. In contrast, the need for systematic asset management and continual system investment, particularly to replace depreciating infrastructure, is necessary to maintain operating efficiency and preserve reliability.

Fitch assesses capital planning and management for U.S. public power systems through a review of the utility's historical spending practices and age of plant, as well as its capital investment plan (CIP) and projected spending requirements. Where appropriate, Fitch may also review the CIP and projected spending of a retail system's wholesale supplier.

Fitch assesses capital investment by examining average age of plant in the context of historical and projected capital spending. Power systems that maintain an average age of plant less than 20 years and have adopted capital spending plans broadly in line with annual depreciation expense — greater than 80% — are considered to have lifecycle capital needs and spending plans that support a strong operating risk assessment.

Systems that maintain an average age of plant exceeding 20 years may be susceptible to the effects of historical underinvestment in operating assets, which can include elevated levels of routine maintenance, weak availability metrics, higher rates of fuel consumption and poor reliability. However, capital planning and management can be highly cyclical. Therefore, CIPs aimed at addressing system deficiencies and increasing investment, as evidenced by capital spending well in excess of annual depreciation, support a midrange assessment, despite the age of plant. Conversely, older systems that continue to underinvest, as evidenced by historical and projected capital spending that is less than annual depreciation, are deemed to have high capital planning and management needs, and weak practices that are additive to operating risk.

Fitch's capital planning and management assessment also includes analysis of how planned projects fit with the utility's IRP and its long-term strategies, and the potential implications for operating risk. For utilities contemplating major construction projects, plans exhibiting weak planning mechanisms or involving complex or new technology judged to be at higher risk for cost escalation could also increase operating risk. The project team's qualifications and experience are also considerations. Guaranteed maximum price contracts, owners' and builders' contingencies, liquidated damages and capitalized interest funding are standard features utilized in most large utility construction projects, and serve to reduce the inherent construction and development risk in any large capital project. Where the completion risk is considered material, it may constrain the overall operating risk assessment and will be considered in the scenario analysis described in the *Financial Profile* section.

If not included in the CIP, Fitch requests a multiyear capital budget — typically five years — to assess the effect planned or proposed capital investments will have on the financial profile of the utility system. The manner of intended funding, and the near- and longer term effect on

leverage, are particularly taken into account. A project's expected funding sources can affect the credit rating outcome, depending on the degree of debt funding, versus cash on hand and cash from operations. Fitch reviews the timing, availability and assumptions regarding planned debt issuance and the effect on the borrower's balance sheet and cash flow. See the *Financial Profile* section.

Capital Planning and Management

Metrics to Support Assessment

- Fitch calculates average age of plant as accumulated depreciation divided by annual depreciation expense, and assesses capital spending as a percentage of depreciation expense. In cases where accumulated depreciation is not available, Fitch will calculate age of plant as follows: $35 - (\text{net property, plant and equipment} / \text{annual depreciation expense})$.
 - High average age of plant (greater than 20 years) indicates high lifecycle investment needs; average age of plant of 15–20 years indicates elevated investment needs; and average age of plant less than 15 years indicates moderate investment needs. High average age of plant combined with prolonged lower capital spending as a percentage of depreciation expense (lower than 80%) indicates underinvestment in system assets, and capital planning and management practices that are additive to operating risk.
-

Asymmetric Rating Factor Considerations – Operating Risk

In addition to the aforementioned considerations, the assessment of operating risk can be constrained by the following considerations.

Resource Management

Supply or resource-management risk is considered low for most public power systems given the interconnectivity of the U.S. electric grid and the proliferation of organized electric markets, which significantly reduce the risk of energy supply shortages. Shortfalls in resource capacity, energy or fuel supplies are expected to be met through market purchases or the use of alternative resources. The emphasis of our operating risk assessment is therefore on cost. However, geographic, infrastructure or electrical isolation may introduce vulnerability to supply shortages, which could constrain an issuer's operating risk assessment.

Technological Risk

The development of new technologies throughout the utility sector, and their potential for disruption, is considered in the assessment of operating risk if it is not otherwise reflected in operating cost burden. As issuers confront the possibility that resources could be idled or stranded as a result of disruptive technologies, including distributed generation and battery storage, operating cost burden is expected to increase. However, if the full impact of disruption on operating cost and other financial metrics is most acute outside the scenario-analysis period, additional consideration may be warranted.

Financial Profile

The third key rating driver is a utility's financial profile. Having evaluated a public power system's revenue defensibility and operating risk, Fitch considers the entity's financial flexibility through a range of scenarios intended to assess its relative capacity to repay debt and other liabilities. This analysis will connect the public power system's overall risk profile, through its revenue defensibility and operating risk assessment, with its leverage and liquidity profile, assessed on a forward-looking and through-the-cycle basis rather than a single point in time. The evolution of the financial profile, its low point and its average through-the-cycle performance are considered. The assessment considers direct debt liabilities, pension liabilities and capitalized obligations, as described below.

Leverage Profile

Fitch will develop cash flow scenarios to frame the financial profile assessment. These scenarios will include a base case and a stress case, and in certain instances, additional sensitivities described more fully below. Revenue and operating cost assumptions, together with planned capex and additional debt capital or liability growth, are developed for the scenarios based on Fitch's review of an issuer's historical performance and expectations for future performance.

Scenarios may be revised as appropriate to reflect changes in assumptions, as well as updated spending and debt plans. Fitch's expectations reflected in the scenario will be further shaped by revenue and operating risk key rating factor assessments. Peer analysis will be used wherever appropriate and if ratings for a relevant group of peers with similar operating and revenue defensibility profiles can be compiled. For conduit issuers, including issuers that benefit from contractual frameworks in which revenues and costs are largely balanced and passed through to other obligors, leverage profile may be less of a consideration in the rating, and scenario analysis may be unnecessary.

Base Case Informs Scenario Analysis for Stress Case

Fitch will evaluate a base case cash flow scenario that serves as Fitch's expected case in the current operating environment. The base case serves as a starting point for further scenario and sensitivity analysis. The stress case will consist of a through-the-cycle scenario that incorporates a combination of revenue, cost or financial risk stresses as described below. These stresses are formed by reference to historical trends specific to the issuer and Fitch's expectations for the future. The stress case scenario analysis will reveal levels and shifts in key operating, leverage and liquidity metrics contrasted with the base case to determine if they are consistent with a stable rating through that stress.

Leverage Profile Key Focus of Stress Case Scenario

The stress case scenario highlights expected future financial leverage of the issuer, considering both through-the-cycle elements and forward-looking expectations. The measure of financial leverage considers the level of net debt as it relates to the generation of cash flow. The relative strength of balance sheet and available resources to absorb changes in working capital is considered in the context of the ability to adjust revenue to recover expenses and manage operating risks when forming a rating view.

Net Adjusted Debt to Adjusted FADS

Net Adjusted Debt to Adjusted FADS Ratio

Total Debt + Capitalized Fixed Charges + Pension Obligation – Unrestricted Cash – Funds Restricted for Debt Service/FADS + Fixed Charges – Transfers/Distributions + Pension Expense

Total Debt: All long- and short-term debt obligations, including capitalized leases, outstanding CP, notes payable and current maturities. Certain nonrecourse obligations and separately secured obligations may be excluded.

Capitalized Fixed Charges: Fixed charges * 8.

Pension Obligation: See *Rationale for Pension Treatment in Leverage Metrics* on page 13.

Unrestricted Cash: Cash and investments available for short-term liquidity needs with no limitations on use. Funds restricted solely by board or management policy and/or available for general system purposes, including debt service, may also be included. Funds explicitly limited for construction or other capital investment are not considered unrestricted.

Funds Restricted for Debt Service: Includes amounts deposited in debt service and debt service reserve funds, as well as the cushion of credit program administered by the Rural Utilities Service.

FADS: EBITDA plus interest income. FADS may further reflect adjustments for subsidies, noncash expenses, non-operating income, grants, nonrecurring items and non-operating expenses paid ahead of debt service as appropriate.

Fixed Charges: (Purchased power expenses * 30%) + operating lease payments.

Transfers/Distributions: See *Rationale for Transfer Treatment in Leverage Metrics* on page 13.

Pension Expense: Amount recognized in an employer's financial statements as the cost of a pension plan for a period on an accrual basis.

FADS – Funds available for debt service. Note: Capitalized fixed charges may exclude capitalized operating leases if liabilities are already included in total debt pursuant to accounting standards.

Future financial leverage in the stress case scenario is reflected in the net adjusted debt-to-adjusted funds available for debt service (FADS) ratio, which measures a system's debt and other fixed obligations (net of certain balance sheet resources) relative to its annual operating funds available to service those obligations.

The resulting value is expressed as a multiple and may be positive or negative (where an issuer holds more cash and investments than the amount of its outstanding debt or reports operating losses). High values, or negative values as a result of operating losses, imply lower flexibility in

meeting and managing debt and long-term liability obligations, as well as a lower capacity for additional debt absent rate increases and improved operating cash flow (see *Rating Positioning* table on page 17).

Rationale for Capitalization of Fixed Charges

Fitch views fixed obligations related to purchased power supply as a debt-equivalent form of funding for operational assets and adjusts its leverage ratios to include the debt-like features of these agreements. As power supply agreements are a substitute for long-term on-balance-sheet funding, Fitch will capitalize 30% of a system's purchase power expenses using an 8.0x multiple to create a debt-equivalent figure. This figure represents the estimated funding level for a hypothetical purchase of the power supply assets and is included in Fitch's core leverage metrics.

A multiple of 8.0x reflects assets with an average remaining economic life of 15 years, consistent with the long-dated infrastructure assets owned by power suppliers, in a 6% interest rate environment. This adjustment enables a broad comparison between rated entities that incur debt to finance power supply assets and those that contract for resources. In cases where an issuer's actual fixed charges and related off-balance-sheet debt are available, or prevailing agreements include no fixed charges, appropriate adjustments may be used in Fitch's analysis.

Certain operating leases that are long term in nature are also viewed as a debt-equivalent form of funding. New accounting standards will establish principles reporting the assets and liabilities that arise from certain leases. For entities that adopted these standards, Fitch will include the reported liabilities in its calculation of long-term debt and make further adjustments to income statement metrics for operating lease payments, if appropriate. Where these accounting standards have not been adopted, operating leases that function more like capital leases or debt will be capitalized in a manner similar to purchase power expenses and included in adjusted debt metrics.

Rationale for Pension Treatment in Leverage Metrics

Issuers with defined-benefit (DB) pensions carry a financial obligation that is long term in nature, and uncertain in timing and amounts to be paid. Fitch views unfunded pension liabilities, which broadly represent the accrued liabilities in excess of the invested assets available to meet the obligation, as a debt-equivalent obligation that may be included in the calculation of Fitch's core leverage metrics and its assessment of an issuer's financial profile. Fitch's determination of each issuer's exposure to and level of pension obligations is dependent upon a number of variables, including accounting standards, applicable regulations and funding practices. The methodologies and parameters used in Fitch's analysis are outlined in *Appendix D – Pension Treatment in Leverage Metrics*.

Other Post-Employment Benefits

In most cases, Fitch does not consider the credit impact of other post-employment benefits (OPEB) in assessing the long-term liabilities of public power systems. For most governmental entities providing OPEB, the level of benefits has proven much easier to change than pensions, and legal protections appear limited in most cases. In cases where OPEB is exceptionally large and not subject to modification, Fitch may incorporate OPEB as an asymmetric risk factor.

Rationale for Transfer Treatment in Leverage Metrics

Fitch subtracts amounts regularly transferred, distributed or paid to owners or a host municipality as an operating expense in its calculation of adjusted FADS in its leverage assessment. These transfer payments and distributions may be reported as non-operating expenses or explicitly subordinate to debt service payments. However, Fitch believes the importance of these payments to the recipients significantly increases the likelihood payments will be made, even during periods of financial stress, and particularly during periods of financial stress affecting the host municipality. Moreover, given the practical timing of remittance, payments are often made prior to debt service. Amounts regularly paid to the utility by the host municipality or affiliated enterprise funds may be netted against operating expenses. Intermittent payments made by utilities, including periodic dividends and the repatriation of capital, are generally excluded from operating expenses given their discretionary nature.

Establishing the Base Case

The development of a base case begins with Fitch's evaluation of an issuer's recent historical performance based on a review of its audited financial statements and any unaudited financial information – typically interim statements – covering a period of at least three years. The most recent unaudited financials will usually inform year one of the base case scenario. If Fitch is provided with three quarters of YTD information, it may add those results as a final year preceding the base case scenario.

The base case reflects Fitch's expectation of both historical financial results and management's projected performance. Fitch will consider the level of consistency in the recent financial and operating performance of the issuer, its management team and its market as one indicator of future performance. Fitch will generally start the base case analysis using revenue and expense assumptions, reflecting variability in unit sales derived from long-term historical performance, corresponding changes in fuel and purchased power, and inflation. However, there may be analytical reasons to diverge from these assumptions (e.g. nonrecurring events or changes in historical usage patterns). Fitch will evaluate each issuer, and develop and communicate expectations.

Although Fitch will review an issuer's annual operating budget or longer term forecast when presented, the Fitch base case ultimately reflects Fitch's criteria and expectations, including Fitch's macroeconomic assumptions. Fitch will consider the reasonableness of the assumptions that drive projected results if the issuer's forecast suggests future performance is expected to track differently from historical results due to a significant capital project, a new acquisition, new service offerings, changes in rate design or incorporated stress. Forecasts that rely on aggressive volume growth, noncore revenue, market share capture, market price assumptions, rate increases or cost reductions will be viewed with analytical caution in the rating process. Conversely, Fitch's base case may rely more on historical trends where issuer forecasts reflect stresses or conservative assumptions applied for planning or rate-setting purposes.

Stress Case Reflected in Forward-Looking Scenarios

The stress case analysis considers potential performance under a common set of assumptions, thereby illustrating how cycles affect individual issuers differently. The stress case ultimately reflects a stress through which the rating is expected to remain stable.

The Fitch Analytical Stress Test (FAST) is used to formulate the base case and a stress case. The model, in essence, highlights how an issuer's financial profile can change through an economic/market cycle. While FAST supports Fitch's through-the-cycle analysis, it is not a forecasting model. FAST should be considered a scenario model to be used in the rating process to better differentiate between credits.

Fitch's overarching philosophy is that ratings should not change due to normal cyclical variations. Economic downturns are inevitable, and variations in financial performance in many cases can be observed. Fitch believes ratings should account for this. However, broad shifts different from the ebb and flow of a normal economic cycle may also occur. Scenario analysis helps make the distinction between the two and helps communicate both rating sensitivities and what is already anticipated in the current rating. See *Appendix A* for additional detail on the model.

The typical stress assumed in the stress case scenario for IDRs of 'BB' and above will generally reflect revenue and cost stresses commensurate with those a public power system would encounter following a sudden drop in demand based on the system's specific characteristics and risk attributes. The purpose of the scenario analysis is to establish benchmark measures of liquidity and leverage that are incorporated in the rating through the cycle. The stress case will reflect a demand stress using the assumptions outlined in *Appendix A*. In cases where issuers complete their own stress scenarios based on assumptions other than a demand stress (e.g. hydroelectric-dominant systems often complete multiple water condition scenarios that have the potential to enact a greater range of outcomes on leverage than a demand stress), Fitch may consider those outcomes in addition to the FAST.

The effect of the decline in demand and revenue on leverage will be reflected in the scenario, as will Fitch's expectations of the issuer's response. The FAST model applied to the utility systems and discussed further below will be the source for evaluating the change of leverage

and prospects for higher revenue collection through rate increases, or automatically through rate designs that collect a higher percentage of revenue through fixed service charges or a fixed revenue requirement.

Assigning IDRs – ‘B’ Category and Below

Fitch will use the base case as a stress case for issuers with base case financial profiles indicating little capacity to navigate adverse economic conditions and ratings in the ‘B’ category or lower. Metrics are not useful for scaling ratings from ‘B’ to ‘C’, given the limited number of defaults in this sector. A qualitative assessment will be made of default risk and the extent of any remaining margin of safety indicated by the issuer’s overall operating and financial risk profile. In this respect, the rating definitions associated with rating categories from ‘B’ to ‘C’ provide guidance.

Liquidity Profile

In addition to the leverage metric analysis described above, Fitch also performs a liquidity assessment. The liquidity profile assessment evaluates the liquidity resources available to an issuer that drive its capacity to cover expected or unexpected operating expenses, including timing delays in cost recovery. The first resource available to most issuers is periodic excess margin above operating costs that acts as a cushion to changing circumstance. A second source is unrestricted cash and investments in reserve, and a third is committed liquidity lines from investment-grade-rated financial institutions.

A weak liquidity profile relative to operations can constrain the overall assessment of the issuer’s financial profile. Two key metrics used by Fitch to measure liquidity are coverage of full obligations (COFO) and liquidity cushion.

Coverage of Full Obligations

COFO is a measure of operational strength relative to a utility system’s debt and fixed obligations that come due in any annual period. Fitch calculates COFO as follows:

Coverage of Full Obligations Ratio

$$\text{FADS} + \text{Fixed PP Charges} - \text{Transfers/Distributions} / \text{Total Annual Debt Service} + \text{Fixed PP Charges}$$

Fixed PP Charges: Purchased power expenses * 30%.

Total Annual Debt Service: Cash interest paid + scheduled long-term principal payments (i.e. prior year’s current portion of long-term debt). Voluntary prepayments and principal amounts repaid as a part of a refinancing are not included. However, where a borrower incorporates balloon indebtedness, long-term bank facilities, remarketed debt or bullet maturities, Fitch may adjust scheduled debt service to eliminate amounts successfully refinanced, remarketed or renewed, or to include payments on debt obligations reported as operating expenses. Cash interest paid may also be adjusted if payment dates distort cash payments vis-à-vis annualized interest expense, while capitalized interest may be excluded for systems undertaking large construction programs.

FADS – Funds available for debt service. PP – Purchased power.

While Fitch calculates a traditional debt service coverage ratio for all public power issuers, the calculation of COFO facilitates comparability among issuers as it also considers the effect of capitalized fixed charges, and transfers and distributions, on an issuer’s liquidity profile. A comparison of coverage calculations is provided in the *Coverage Ratio Calculations – Example* table below to illustrate the effect on coverage of a system’s obligations when fixed purchased power charges are capitalized and transfers and distributions are accounted for.

Coverage Ratio Calculations – Example

(\$)	Debt Service Coverage Ratio Calculation	Coverage of Full Obligations Calculation
Revenue	1,000	1,000
Purchased Power Expense	(500)	(500)
Other Operating Expenses (Excl. Depreciation)	(300)	(300)
EBITDA	200	200
Interest Income	10	10

Coverage Ratio Calculations – Example

Funds Available for Debt Service (FADS)	210	210
Fixed Charges (Adjusted for Purchased Power)	–	150
Transfer Payment	–	(50)
Adjusted FADS	–	310
<hr/>		
Cash Interest Paid	25	25
Scheduled Principal Payments	25	25
Debt Service	50	50
Fixed Charges	–	150
Adjusted Debt Service	–	200
<hr/>		
Debt Service Coverage (x)	4.2	–
Coverage of Full Obligations (x)	–	1.6

COFO is used to assess an entity’s liquidity profile as follows:

Coverage of Full Obligations (COFO)

Metrics to Support Assessment

- COFO less than 1.0x is “weak” and risk additive.
- COFO below 1.0x may not be considered risk additive if a borrower maintains unrestricted cash on hand over 120 days.

Cash Days on Hand: Unrestricted Cash/(Operating Expenses – Depreciation – Amortization) * 365

Liquidity Cushion

Liquidity cushion measures a utility system’s unrestricted cash and investments, and available lines of credit against average daily cash operating expenses. In addition to assessing a utility’s full liquidity cushion, Fitch also assesses unrestricted cash against average daily cash operating expenses. All of the ratios measure the number of days the issuer could continue to pay its average daily cash operating expenses using the relevant source or sources of liquidity.

Liquidity Cushion Ratio

Unrestricted Cash + Available Borrowing Capacity/Average Daily Cash Operating Expenses

Available borrowing capacity under committed lines of credit is included in the liquidity cushion ratio if provided by investment-grade financial institutions, or lower rated institutions if the rating is equivalent to the issuer rating. Where necessary information is not available, liquidity will be assessed without explicit credit for borrowing capacity. Similarly, borrowing capacity includes available issuance capacity under CP programs where the allowable use of proceeds includes payment of scheduled debt service or is unrestricted. Programs rated ‘F3’ by Fitch will not be included when calculating borrowing capacity. Programs where the use of proceeds is limited to capital investment may also be excluded when calculating borrowing capacity.

Liquidity Cushion

Metric to Support Assessment

- A liquidity cushion above 90 days is neutral to ratings, as long unrestricted cash is above 30 days. A liquidity cushion below 90 days or unrestricted cash below 30 days are considered “weak” and risk additive.

The liquidity cushion assessment for utility systems organized as enterprise funds may include a separate review of the host municipality when governmentwide cash balances are consolidated and held within the general fund. Fitch’s review will include an evaluation of the sufficiency of cash on hand, and the system’s access and availability to funds. Governmentwide cash on hand is considered neutral; below 60 days is considered “weak” and is risk additive.

Rating Guidance: Applying Analytical Judgment to Align Key Risk Factors and Ratings

The results of the stress case scenario are used to assess the impact of change on key liquidity and leverage metrics. Together, these create a financial profile on a forward-looking and through-the-cycle basis aligned with the assessment of key rating factors to obtain an indicative rating level. The *Rating Positioning* table below provides guidance to the analytical outcome, aligning the assessment of the issuer’s overall risk profile – through revenue defensibility and operating risk assessments – with its leverage and liquidity profile.

The evaluation and importance of key rating drivers are specific to the individual credit being considered. However, while both revenue defensibility and operating risk are important in evaluating an issuer’s financial profile, in some cases revenue defensibility can have a greater influence in the determination of an issuer’s financial profile, as illustrated below. For example, issuer’s with a revenue defensibility assessment of ‘aa’ and operating risk assessment of ‘bbb’ can operate at a higher degree of financial leverage than issuers with a revenue defensibility assessment of ‘bbb’ and operating risk assessment of ‘aa’ and achieve the same financial profile assessment.

The *Rating Positioning* table is the starting point in assessing the final rating. For example, ratings may be higher or lower than suggested by the table based on an analytical judgment made concerning whether there are factors present that suggest a higher or lower risk of a shift in capacity for meeting financial obligations than would be suggested by the rating derived from the table. Considerations supporting a higher rating could include an issuer’s capex profile and its position within the capital life cycle; rate designs that collect a higher percentage of revenue through fixed service charges; recovery mechanisms that significantly buffer the effect of demand variability; and greater revenue contribution from business lines that support higher leverage, including transmission, water and wastewater service. Considerations supporting a lower rating include evidence of contract debt that exceeds amounts calculated pursuant to Fitch’s analytical approach.

Rating Positioning

Revenue Defensibility Assessment	Operating Risk Assessment	Financial) Profile Assessment Leverage (Net Adjusted Debt/Adjusted FADS) (x)			
		aa	a	bbb	bb
aa	aa	< 10	10-12	12-15	> 15
aa	a	< 8	8-10	10-15	> 15
a	aa	< 8	8-10	10-15	> 15
aa	bbb	< 7	7-9	9-13	> 13
a	a/bbb	< 6	6-8	8-12	> 12
aa	bb	< 5	5-7	7-11	> 11
bbb	aa/a	< 4	4-6	6-10	> 10
a	bb	< 4	4-6	6-10	> 10
bbb	bbb	< 0	0-4	4-6	> 6
bbb	bb	< 0	0-2	2-4	> 4
bb	a/aa	–	< 1	1-3	> 3
bb	bbb	–	< 0	0-2	> 2
bb	bb	–	< (3)	(3)-0	> 0
Suggested Analytical Outcome		AA	A	BBB	BB

FADS – Funds available for debt service.

‘AAA’ has not been incorporated in the rating positioning table in this criteria, as public power issuers are generally exposed to operating risks and practical limitations on rate setting that are rarely offset by their strong, monopolistic market position and rate-setting autonomy. An ‘AAA’ assessment is possible, but highly unlikely absent strong government support in the form of guarantees from an equivalently rated entity.

The *Rating Positioning* table is constructed assuming all asymmetric risk-additive features are neutral and the issuer does not have a weak liquidity profile. Ratings may be notched lower from the guidance if negative asymmetric factors are present or the issuer has a weak liquidity profile. The degree of notching is qualitatively assessed and reflects a judgment on the relative additional risks to financial capacity that may result. Multiple asymmetric risk factors are likely to attract multiple notches. A single factor may not result in any notching if its effect on financial capacity is considered limited, or is already reflected in a rating sensitivity or a Negative Outlook.

Other Considerations

Counterparty Focus

Leverage profile may be less of a consideration in a rating where the entity benefits from a contractual framework in which revenues and costs are largely balanced through pass through to one or more counterparties. In such cases, protections afforded in the contractual framework to mitigate the loss of one or more counterparties will be more relevant to the final rating outcome. Where an entity is exposed to a single counterparty or the loss of the weakest among a group of counterparties, the rating will generally be no higher than the rating of the weakest counterparty unless there are mitigating structural features that allow absorption of that loss without materially altering an entity's financial profile.

Volatility in Financial Profile

Higher than normal volatility in the leverage profile of an entity historically or in a through-the-cycle scenario may suggest a rating different than that indicated by the *Rating Positioning* table.

No Funded Debt

For entities with financial obligations, but no funded debt, leverage profile may be less of a consideration in a rating. In these cases, an entity's revenue defensibility or operating risk assessment may be more relevant in determining the final rating outcome.

Asymmetric Additive Risk Considerations

The final rating assigned will also consider certain additional risk factors that may affect the rating conclusion. These additional risk factors work asymmetrically, where only below-standard features are factored into the final rating levels, while more credit-positive features are expected to be the rule.

When multiple risk-additive features exist, the IDR will be lower than the indicative rating, possibly by multiple notches, based on the severity of the risks. For example, an issuer with a midrange revenue defensibility assessment, and operating risk assessment and net leverage consistent with an indicative rating of 'A' might only achieve an IDR of 'BBB+' if its debt structure was assessed to be weak, reflecting a material exposure to refinance risk or swap risk. It might only achieve an IDR of 'BBB' if debt structure, and management and governance practices were assessed as weak. The final rating will reflect a qualitative assessment of the extent and impact of the asymmetric risk factors. The asymmetric considerations are discussed fully in Fitch's [Public Sector, Revenue-Supported Entities Rating Criteria](#).

Debt Structure and Contingent Liquidity Exposures

U.S. public power system debt structure is typically strong, characterized by long-dated (20–40 years) amortizing debt issues with fixed or declining annual debt service requirements. While some systems utilize bullet structures, variable-rate demand bonds (both hedged and unhedged), direct placement and renewable bank financing, the par value of these financing vehicles is usually manageable or below the level of cash on hand, thereby eliminating significant interest rate and refinancing risk. Thus, the debt structure attribute for many utility systems is neutral. However, there may be issuers whose debt structures have features that add risk, such as non-amortizing bullet maturities or mandatory put bonds. These will be considered when assessing adjustments to the rating suggested by the *Rating Positioning* table on page 17.

While most variable-rate demand bonds and CP issuance are supported by external dedicated liquidity facilities provided by financial institutions, borrowers sometimes choose to support

these obligations using their own internal liquidity, including unrestricted cash and investments, and general lines of credit. In such instances, Fitch's analysis considers the stability and availability of funds sufficient to meet potential purchase requirements, as well as the policies and procedures that would be followed if a failed remarketing occurs (see [Public Sector, Revenue-Supported Entities Rating Criteria](#)). Moreover, Fitch will evaluate the potential change in leverage that could result from utilization of cash resources in the financial profile assessment.

A weak debt structure will constrain the overall assessment of the issuer's financial profile. Absent unrestricted cash resources sufficient to address structural shortcomings, Fitch considers the following debt characteristics and terms consistent with a "weak" assessment:

- Material exposure to refinance risk (use of bullet maturities; debt not fully amortized at maturity), which distorts near-term financial metrics and increases the uncertainty of both market access and the cost of debt at a future date.
- Highly sculpted and substantial use of deferred amortization instruments that materially distort near-term financial metrics.
- Material exposure to unhedged floating-rate interest. Fitch considers whether the unhedged portion of exposure, if any, would have a material impact to the issuer's financial profile under stressed interest rate assumptions.
- Material exposure to contingent liabilities, including swap and derivative contracts that include collateral posting requirements, and termination events that require a payment of the current market-to-market value of the swap contract.

For more information on Fitch's global approach to analyzing debt structures, see Fitch's master criteria [Public Sector, Revenue-Supported Entities Rating Criteria](#).

Management and Governance

The quality of governance and management is an important consideration when assessing the potential performance of an issuer over the life of its debt. However, Fitch considers this attribute to be asymmetric, where weak governance and management may cause the rating to be lower, all else being equal. In contrast, the presence of strong governance and management — as evidenced by comprehensive strategic planning and adherence to financial policies, particularly rate setting — will be considered when evaluating the impact of stress scenarios and the ability of an issuer to manage through those stresses.

Weaker characteristics of management and governance that will constrain the rating, when analyzing the ability to execute on organization initiatives and plans, as well as the capacity to manage through the business cycle include:

- Lack of experience.
- Significant political pressure in the underlying municipality or in the members' service areas that can delay or prevent rate increases and impair its financial profile.
- Political considerations that impose a disproportionate influence or a limitation on utility operations and decision making.
- Repeated failure to adopt budgets in a timely manner due to absence of consensus in governing body or resistance of key stakeholders.
- Failure to maintain open communications between the issuer and any relevant governing body, which may reveal itself in unexpected operating changes.
- Weak or lack of forecasts and resource-management plans.
- Limited or lack of policies and procedures.
- Official allegations of substantial corruption, or breach of financial reporting law or regulation.

Legal and Regulatory

Forming an opinion of the quality of the legal or contractual framework upon which many assumptions rest is a prerequisite to the credit analysis. For instance, the framework may be purely contractual or rely on statute or codified law, or a particular statutory instrument, or the powers of a constitutional or statutory authority. Fitch forms a view on the clarity of the legislation and/or regulation, the scope of regulatory discretion, and any effect this may have on facility performance or dispute resolution. The financing documentation — and if appropriate, any legislation it may depend on — or detailed summary documents, such as offering materials, are reviewed for key commercial elements and contract clarity, especially regarding allocation or transfer of risk.

The public power sector is exposed to a wide range of state and federal regulation. A utility's effective participation in the regulatory and legislative processes, and its response to regulatory developments are therefore considered in Fitch's analysis. Fitch combines a review of the current and expected regulatory climate with an assessment of the organization's ability to maintain stable operations in the face of regulatory change. Fitch may review responses to prior regulatory mandates, identifying financial and operational effects. Fitch also examines the potential for future regulatory initiatives and assesses whether the organization, through its systems, practices and resources, will have the ability to manage potential downside risk.

Weaker characteristics of legal and regulatory framework include:

- Contractual, regulatory or statutory framework dependent on untested or temporary legislation or regulation.
- Weak or no legal opinions; contracts not available for inspection.
- Proposed legislation or initiatives that would curtail existing rate-setting authority.
- Less effective participation in regulatory process with negative regulatory outcomes.

Information Quality

The quality of information received by Fitch, both quantitative and qualitative, can be a constraining factor for ratings. Information quality may constrain the rating category to a maximum level or, in extreme cases, preclude the assignment of a rating. Information quality for the initial rating and for surveillance purposes is considered when a rating is first assigned. Fitch must be confident adequate ongoing data will be available to monitor and maintain a rating once assigned. Information quality encompasses such factors as timeliness and frequency, reliability, level of detail and scope.

The information provided to Fitch may contain reports, forecasts or opinions provided to the issuer or their agents by various experts. Where these reports contain matters of fact, Fitch will consider the source and reliability. Where the information is a forecast or opinion, Fitch expects these to be based on well-reasoned analysis supported by the facts.

The status of the expert and the materiality of their forecast or opinion will also be considered in determining what weight may be given their forecasts or opinions. Factors such as experience in the jurisdiction, location or terrain; experience with the technology or transaction type; and formal qualification or licensing are often relevant. When forming its rating opinion, Fitch may place less weight on expert reports that lack clarity or contain extensive caveats, or were conducted under less relevant circumstances. Such features may lead to adjustments in Fitch's financial or operational analysis. We expect experts to conduct their reports to professional standards. If possible, reports are compared with similar reports to highlight unusual or optimistic features.

The degree to which Fitch uses expert information will depend partly upon the above issues and on the relevance of the information to the identified key risks. Where available, if expert information does not address a material issue, but might be expected to, Fitch may request further information or make an appropriate assumption. Fitch may choose not to provide a rating if it determines the reports are not sufficiently supported, complete or reliable.

Fitch considers this attribute to be negative when information is substantially based on assumptions, extrapolated or subject to material caveats; or if the data is often subject to delay, has a history of revisions or errors, or is limited in scope.

Data Sources

The key rating assumptions for the criteria are informed by Fitch's analysis of information provided by obligors, financial advisors, legal advisors, third-party engineers, consultants, underwriters and/or available through publicly sources. Information includes, but is not limited to, audited and interim financial statements, regulatory filings, operational data and service area demographic information. In certain cases where data specific to particular factors in these criteria are unavailable, Fitch may use other data sources to extrapolate information or may assign a particular credit factor an assessment level Fitch feels is appropriate.

Fitch typically uses both consolidated audited financial statements and segment financial information in its credit analysis. However, there are instances where Fitch is asked to rate a newly formed entity or segment that cannot provide historical audited financial results. In those cases, Fitch may base its analysis on historical pro forma financial statements provided by the entity. Fitch will evaluate the legal, financial, operational and managerial linkage between obligors and affiliated segments. The credit analysis and rating rationale will be based on fully consolidated statements where Fitch deems the dependence or interreliance among segments to be significant.

Rating Assumption Sensitivity

Revenue Defensibility: Ratings are sensitive to changes in attributes of revenue defensibility that affect overall assessment. Changes in volatility of demand, rate flexibility or counterparty quality can change the final assessment.

Operating Risk: Ratings are sensitive to changes in operating risk attributes, reflecting shifts in operating costs, operating cost flexibility and capital needs.

Financial Profile: Ratings are sensitive to changes in leverage profile or liquidity profile that result in a different rating positioning in the analytical guidance table.

Variations from Criteria

Fitch's criteria are designed to be used in conjunction with experienced analytical judgment exercised through a committee process. The combination of transparent criteria, analytical judgment applied on a transaction-by-transaction or issuer-by-issuer basis, and full disclosure via rating commentary strengthens Fitch's rating process while assisting market participants in understanding the analysis behind our ratings.

A rating committee may adjust the application of these criteria to reflect the risks of a specific transaction or entity. Such adjustments are called variations. All variations will be disclosed in the respective rating action commentaries, including their impact on the rating where appropriate.

A variation can be approved by a rating committee where the risk, feature or other factor relevant to the assignment of a rating and the methodology applied to it are both included within the scope of the criteria, but where the analysis described in the criteria requires modification to address factors specific to the particular transaction or entity.

Limitations

Ratings, including Rating Watches and Outlooks, assigned by Fitch are subject to the limitations specified in Fitch's Ratings Definitions and are available at www.fitchratings.com/site/definitions.

Disclosure

Fitch expects to disclose, as part of its rating action commentaries or new issue reports, base case and stress case assumptions, and the rationale for adjustments to either the base case or stress case assumptions. Fitch will also disclose each entity's functional responsibilities if they serve as the foundation of the assessment, and any direct relationship between the general government's credit quality and related utility securities within the appropriate rating action commentary. In addition, Fitch will disclose any variation to criteria (as mentioned in the *Variations from Criteria* section).

Appendix A – FAST Public Power - Fitch Analytical Stress Test Model

FAST

A public power system's capital spending and rate-setting flexibility have a significant bearing on creditworthiness, given the importance of financial leverage and liquidity to the system's credit rating. Fitch's FAST for U.S. public power systems was developed to provide scenario stress analysis, assess the impact of a stress to demand on operating cash flows and net leverage, and assess an issuer's capacity for corresponding rate action.

Scenario analysis highlights the forward-looking stress case of issuer performance under stress. The scenario analysis is not intended to be a forecast. The analysis is meant to illustrate performance under stress for a specific issuer and place it into context with the performance of other issuers facing the same stress.

Declines in demand can be anticipated to occur as a result of economic cycles and changes in market conditions, as well as typical variations in weather patterns. Fitch believes such changes within reasonably anticipated ranges should be accounted for in the rating.

FAST generates an empirically based, objective demand estimate that allows for uniformity/consistency in terms of the magnitude of the top-down stress. Given the relatively low correlation of the change in demand to the change in broad economic indicators for many issuers, FAST utilizes a multipronged approach that incorporates both a basic econometric approach, when a significant correlation for that issuer is evident, and an alternative methodology.

Methodologies Utilized – Generation of Top-Down Stress

The user stipulates a stress in terms of standard deviations of GDP. This is converted to an actual GDP stress used by both of the approaches described below. For example, a -2 standard deviation event would roughly translate to -1% GDP on the basis of the last 20 years. GDP is used as a key input to provide consistency between the two approaches used and other sectors within Public Finance. While there is an implicit assumption of causality for the resulting demand estimate in the case of the econometric approach, GDP should be viewed purely as a scaling factor in the case of the interpolation approach. These approaches are used to gauge the percentage change in demand for a given scenario assumption, and are described below.

Fitch envisions a stress to GDP for years one through five of the stress case in the range of -1.5 to -2.5, -0.5 to -1.5, +0.5 to +1.5, +0.5 to +1.0 and 0.0 to +0.5 standard deviations, respectively, though these levels are subject to change. The base case scenario assumes the year five stress case stress.

Econometric Approach

This approach utilizes a regression model unique to each issuer, where the change in GDP is the independent variable, and the percentage change in demand (kWh for electricity and thousand cubic feet for gas) is the dependent variable. The optimal GDP lag or lead is determined, with the best-fit model subjected to various tests to assess statistical validity, including utilizing cutoffs for minimum explanatory power, coefficient significance, data normality and other factors, such as serial correlation. If the specific issuer model meets the requisite hurdles, the results (percentage change in demand) for the specified GDP level are utilized in the analysis; otherwise, they are discarded.

Current model parameters (subject to change): minimum correlation = 0.6; min t statistic = 2; skew limit +/- versus 0 = 1.5; excess kurtosis limit +/- versus 0 = 1.5; Durbin Watson limit +/- versus 2 = 1.5. Underlying annual issuer percentage change data is also subject to outlier control relative to the universe using a winsorization procedure, with upper and lower tail truncation set between the 95th and 100th percentile, and the 0 and 5th percentile, respectively.

Fitch acknowledges this methodology will likely never equal the accuracy provided by other techniques, such as a multivariate approach, where multiple independent variables are utilized

and where the model is more customized to a specific issuer. Such an undertaking is beyond the scope of this exercise, where the objective is to gauge only the approximate impact and where having a more customized approach may run counter to the goal of having a uniformly applied stress across the portfolio.

Interpolation Approach

In some ways, the interpolation approach can be thought of as an extreme short-cut version of the econometric approach, where only two key data points are utilized to form a best-fit line and statistical assumptions are relaxed. The two methods can produce similar results, but only when the correlation between GDP and demand is high.

The higher point (x, y) in this particular analysis is defined by the average year experience (average percentage change in GDP, compound annual average percentage change in issuer demand for the specific segment) over the calibration period (period utilized to determine model parameters), while the lower point represents the worst year experience (low-year percentage change in GDP, low-year percentage change in specific issuer segment demand, regardless of whether these occurred the same year or not) over the calibration period. Determining the scenario change in issuer demand is a simple interpolation exercise between these two points using the scenario GDP change as the x coordinate.

However, an important distinction from the econometric approach is that with this approach there is no assumption of causality, with GDP being used only as a scaling factor. As this methodology keys off the average annual and low-year experience, without being tied to specific periods, it picks up on the issuer's own inherent cyclicity, regardless of the cause, be it weather related or any other.

For example, if we assume the stress for a particular year is -2 standard deviations, which corresponds to -1% GDP, and the average annual GDP growth over the calibration period is +2% and the low year was -3%, then the -1% GDP assumption implies the stress for the issuer would be that point 60% down from the average-year demand experience to the low year: $-60\% = [(-1\% - (+2\%)) / (+2\% - (-3\%))]$. If the particular issuer had average annual demand growth of +2.5% and a worst-year experience of -7.5% due to particularly bad weather that year, the interpolation estimate would be: $-3.5\% = +2.5\% + [-0.60 * (+2.5\% - (-7.5\%))]$. Thus, GDP is only being used as a scaling factor here. If there is a significant tie to the broader economy, then the econometric approach will also pick up this effect.

Point Estimate/Range Determination

The range around the point estimate — average of the interpolation and econometric approaches if the latter is available, otherwise just the interpolation approach — is calculated in the same manner as an ordinary confidence interval utilizing the standard error of estimate (SE) from the econometric approach. The objective of the interval is to give a reasonable, but not excessive, degree of latitude to the analysts in a systematic way rather than capturing, for example, the vast majority of the outcomes expected for a given change in GDP. Consequently, the range generated would likely be relatively narrow, typically significantly less than +/- 0.5 SE from the point estimate.

For examples and guidance on the use of the, see the special credit factor: [*FAST Public Power - Fitch Analytical Stress Test \(Description and Model Foundation Update\)*](#).

Limitations

This exercise is a sensitivity analysis designed to produce a meaningful approximation of the impact on demand for the specific scenario chosen. However, underlying data can present challenges. For all issuers, FAST controls for extreme outliers, and analysts perform a qualitative review of the historical data used in the generation of output. Available history, coverage and general quality should be considered when interpreting the output generated by the FAST.

FAST Scenario Analysis Component

The purpose of the scenario analysis is to place FAST's demand stress within the broader context of the issuer's financial profile and assess capacity to maintain financial position through a typical demand cycle.

The starting point for scenario analysis is a base case that follows after the most recent five periods of actual financial reporting to illustrate a business-as-usual baseline. The base case reflects Fitch's expectation of financial performance throughout the scenario period. The stress case is formulated through scenario analysis. The stress case carries forward all base case assumptions with the exception of demand for retail electricity, wholesale electricity and gas (as applicable to the issuer), which are instead modeled using FAST's demand stress outputs. Further, the stress case may be modified to reflect analytical judgment and external information used to adjust the assumptions below and anticipate an issuer's response to the stress to create final assumptions for the scenarios.

For each case, the scenario analysis will calculate basic financial metrics based on the aforementioned assumptions. The metrics include: net adjusted debt to adjusted FADS, COFO, days unrestricted cash and investments on hand, and debt service coverage.

Principal Scenario Assumptions

As described above, the scenario analysis allows analysts to tune some base and stress case assumptions to align with analysts' best judgment of reasonable expectations for issuer behavior and performance in the scenario out years. Absent an explicit analyst input or override, certain benchmark assumptions are applied. Benchmark assumptions are:

- Base case unit sales (retail, wholesale and gas): grown at a baseline assumption output from the FAST demand stress generator, or held constant in real terms if the corresponding revenues are less than 5% of total operating revenue.
- Stress case unit sales (retail, wholesale and gas): grown at a stress assumption output from the FAST demand stress generator or held constant in real terms if the corresponding revenues are less than 5% of total operating revenue.
- Revenue per unit sold (retail, wholesale and gas): constant in nominal terms.
- All other utility operating revenues: constant in real terms.
- Operating lease payments: constant in real terms.
- All other operating expenses: constant in real terms.
- Depreciation: five-year moving average ratio of depreciation to gross property, plant and equipment.
- Amortization: constant in real terms.
- Amortization of deferred revenue: zero.
- Adjustment for pension expense: constant in real terms.
- Proceeds from issuance of debt (unrestricted): 100% of capex plus any amount necessary to keep the unrestricted cash balance from going negative.
- Proceeds from issuance of debt (restricted): zero.
- Principal refunding: zero.
- Principal payments: prior-year total long-term debt amortized based on the 15th year of a 30-year time horizon and using the interest rate implied by the last year of historical data, or 4.5% if an implied rate cannot be calculated.
- Capex: 1.2x depreciation.
- Non-operating transfers out, PILOT and dividends: constant in real terms.
- The residual of other components of change in cash: zero.
- The magnitude of the stress assumption, in terms of standard deviations of GDP, which is a consistent scaling factor across the portfolio, used to produce the demand stress.
- Inflation assumption: 2%.
- Purchased power and fuel expense: grown at the weighted average of the retail and wholesale demand stress.

- Purchased gas: grown by the gas demand stress.
- Interest income: average of prior year's unrestricted funds and current year's unrestricted funds, all of which is multiplied by the interest rate implied in the last year of historical data, or 2.0% if an implied rate cannot be calculated.
- Adjustment for purchased power (cash flow): 30% of purchased power costs.
- Adjustment for operating lease payments: equal to operating lease payments.
- Cash interest paid: average of prior year's total debt and current year's estimated total debt, all of which is multiplied by the interest rate implied in the last year of historical data, or 4.5% if an implied rate cannot be calculated.
- Adjustment for purchased power (balance sheet): 8.0x the cash flow adjustment.
- Adjustment for operating lease payments (balance sheet): 8.0x the cash flow adjustment.

All other stocks are maintained constant in nominal terms and flows are held constant real terms.

Please refer to the special credit factor accompanying the current version of the model for an accounting of all modeling assumptions and calculations.

Limitations

The scenario analysis is a simulation of how an issuer might fare, faced with a demand scenario scaled off of a portfolio-wide consistent stress in terms of standard deviations of GDP. The scenario analysis should not be interpreted as a forecast of actual performance under stress.

Appendix B – Wholesale Public Power Supplier Key Rating Factors

Fitch's three key rating drivers are assessed using the following guidance for wholesale public power suppliers, including JAAs, G&Ts and other government-owned systems. The guidance outlines general expectations for a given rating category, and in some cases, includes operational and financial assessments of both the wholesale supplier and its purchasing utilities.

Key Rating Factors – Wholesale Public Power Suppliers

Revenue Defensibility	aa	a	bbb	bb
Revenue Source Characteristics	Wholesale revenues are derived from unconditional contracts that provide for full cost recovery, and the unlimited reallocation of costs among contracted purchasers.	Wholesale revenues are derived from unconditional contracts that provide for full cost recovery, but include limited reallocation of costs among contracted purchasers.	Wholesale revenues are derived from contracts that may include some degree of conditionality, no reallocation of costs among contracted purchasers or a sole purchaser.	Not applicable.
Rate Flexibility	Independent legal ability to increase service rates without external approval.	Legal ability to increase service rates is subject to approval of external authorities. History and expectation of operating and capital costs being recovered on a timely basis is strong.	Legal ability to increase service rates is subject to approval of external authorities. History and expectation that operating and capital costs may not be recovered on a full or timely basis.	Legal ability to increase service rates is subject to approval of external authorities. History and expectation that operating and capital cost recovery will be neither full nor timely.
Purchaser Credit Quality (PCQ)	Very strong purchaser credit quality.	Strong purchaser credit quality.	Midrange purchaser credit quality.	Weak purchaser credit quality.
Asymmetric Rating Factor Considerations	The analysis of revenue defensibility also considers the term, tenor and conditionality of relevant supply contracts, and any reliance on non-utility revenue.			
Operating Risk				
Operating Cost Burden	Very low operating cost burden.	Low operating cost burden.	Midrange operating cost burden.	High operating cost burden.
Operating Cost Flexibility (Asymmetric Risk Factor)	The analysis of an issuer's operating cost flexibility is an asymmetric risk factor where weaker elements can constrain the overall assessment of operating risk. Fitch will consider available reserve margin, regional energy markets, fuel concentration, asset concentration, environmental standards, regulatory restrictions and contract structure.			
Capex Requirements	Moderate lifecycle investment needs supported by adequate historical and manageable planned capital investment.	Elevated lifecycle investment needs and supported by adequate historical and manageable planned capital investment.	High lifecycle investment needs that are sufficiently addressed by planned capital investment.	High lifecycle investment needs insufficiently addressed by planned capital investment.
Other Asymmetric Rating Factor Considerations	Resource management, project completion risk and counterparty risks can also constrain the assessment.			
Financial Profile				
Leverage Profile	Very Strong: Refer to the <i>Rating Positioning</i> table on page 17.	Strong: Refer to the <i>Rating Positioning</i> table on page 17.	Midrange: Refer to the <i>Rating Positioning</i> table on page 17.	Weak: Refer to the <i>Rating Positioning</i> table on page 17.
Liquidity Profile	Liquidity profile is based on coverage of full obligations and liquidity cushion. A weaker liquidity profile can constrain the financial profile assessment.			
Asymmetric Additive Risk Factors				
Risk Considerations	Debt structure, management and governance, legal and regulatory, and country risks may constrain the final rating.			

Revenue Defensibility

The assessment of revenue defensibility for wholesale public power suppliers includes a review of the applicable contractual framework pursuant to which power and energy is supplied, the related obligations of all parties involved, purchaser credit quality and the supplier's legal ability to determine rates. For wholesale suppliers that also provide limited retail electric service, the assessment may be informed by the revenue defensibility characteristics outlined for retail public power systems

Revenue Source Characteristics

Power Supply Contract Characteristics

Fitch considers the following contracts to be unconditional:

- Take-or-Pay Contracts: Contracts wherein purchasers are obligated to make specified payments to the supplier, whether or not energy is delivered from a specified project or resource. These contracts are most frequently associated with individual power projects, which are designed to provide only a portion of the purchaser's power requirements.
 - Take-and-Pay Contracts: Contracts wherein a purchaser's payment obligation is contingent only upon the delivery of energy. Contract provisions must provide that the supplier may procure energy from any available source, thereby mitigating operational or performance risk. These contracts are most frequently associated with all-requirements contracts, where purchasers are required to purchase all energy and capacity needs from the wholesale supplier.
-

Fitch reviews the contractual framework supporting a wholesale supplier focusing specifically on the terms, tenor and conditionality of the payment obligations to assess the defensibility of revenue. Wholesale public power suppliers generally exhibit strong revenue defensibility, as revenue is typically derived from retail systems pursuant to long-term, unconditional power supply contracts (see *Power Supply Contract Characteristics* table above) that extend through the life of outstanding debt.

Moreover, a common feature of power supply contracts throughout the sector allows wholesale suppliers to recover the obligations of a defaulting purchaser by increasing — or stepping up — the obligations of the remaining nondefaulting purchasers. Fitch factors the ability, timeliness and degree to which a wholesaler can reallocate defaulted obligations among purchasers in its assessment of revenue defensibility.

Wholesale suppliers that rely exclusively on uncontracted sales — or contracted sales subject to meaningful operating risk, termination or are otherwise highly conditional — for the repayment of debt may not be rated using these criteria. These may include suppliers subject to completion risk, fully or partially exposed to merchant price and volume risk, or those supplying energy pursuant to contracts that may be terminated at the purchaser's option. In these cases, Fitch's [Thermal Power Project Rating Criteria](#) or [Renewable Energy Project Rating Criteria](#) may be applied instead.

Rate Flexibility

Fitch's analysis of rate flexibility for wholesale suppliers focuses primarily on the supplier's independent legal ability to determine rates of service. While a supplier's rate competitiveness is evaluated and may be particularly relevant for suppliers facing contract renewals or seeking to expand membership, the influence of the wholesale cost of power on rate competitiveness and affordability is best measured at the retail level. Pressure to moderate or avoid wholesale rate increases is most likely to mount as a result of corresponding retail increases, and is considered a component of Fitch's analysis of purchaser credit quality.

Purchaser Credit Quality

The final component of the revenue defensibility assessment for wholesale suppliers is purchaser credit quality. The overwhelming majority of purchasers are expected to be municipally and cooperatively owned retail systems exhibiting strong operating fundamentals. Purchaser credit quality is therefore expected to be strong or very strong for most wholesale suppliers.

Fitch uses a variety of inputs to evaluate purchaser credit quality, including both private and public ratings, and internal Credit Opinions and credit scores. If Fitch does not maintain a rating, Credit Opinion or credit score on a purchaser, one may be assigned as required.

Fitch's framework for credit scoring retail systems incorporates many of the same factors previously outlined. However, a credit score is subject to different standards than a full rating or Credit Opinion. Credit scores assess a limited range of factors and are point-in-time. Specifically, the credit score considers a system's ability to absorb rate increases, measured by its rate flexibility and service area characteristics as a proxy for revenue defensibility, and net margin and cash cushion as a proxy for financial profile. Operating risk is not considered for credit scoring.

Revenue Source Characteristic – 'aa'

For suppliers with a revenue source characteristic assessment of 'aa', Fitch will use individual purchaser evaluations to calculate a purchaser credit index (PCI), which numerically reflects the weighted average credit quality of the relevant obligors. Fitch will evaluate purchasers that account for at least 40% of the supplier's total wholesale revenue or energy sales when calculating the PCI and determining the purchaser credit quality assessment (PCQ).

Purchaser Credit Index (PCI)

Metric to Support Assessment

- Wholesale systems whose purchasers have a PCI of less than 1.5 are subject to very strong purchaser credit quality consistent with an 'aa' rating factor assessment; between 1.5 and 2.4, strong credit quality or 'a'; between 2.5 and 3.4, midrange credit quality or 'bbb'; and above 3.4, weak or 'bb'.
-

In cases where a supplier has a revenue source characteristic assessment of 'aa' but provides only a small portion of purchaser requirements, the PCQ assessment may be higher than the PCI indicates if a single purchaser exhibiting stronger credit quality could easily assume all contractual payment obligations without affecting its credit quality.

Revenue Source Characteristic – 'a' or 'bbb'

The PCQ factor for wholesale suppliers with a revenue source characteristics assessment of 'a' or 'bbb' – because of a limited ability to reallocate defaulted payments – will generally reflect the credit quality of the weakest obligors, after factoring mitigating structural features available to the issuer that allow for the absorption of loss. These features include applicable step-up provisions, cash reserves or other credit-enhancement provisions. Fitch will only rely on public and private ratings and Credit Opinions in these cases. Credit scores will not be considered.

Where features are insufficient to cover an individual purchaser's obligations in the event of its default, the PCQ factor assessment will be capped by the credit quality of that purchaser. For example, if a supplier's step-up provision is limited to 25% of a purchaser's obligation, that supplier's ability to meet debt service obligations would be highly reliant on payments from any purchaser with an allocated share higher than 20%. Stepping up the required payments from the nondefaulting purchasers responsible for less than 80% of contractual obligations by 25% would not restore contractual obligations to 100%, resulting in a potential shortfall in revenue. If a supplier is highly reliant on more than one purchaser (i.e. each purchaser has an allocated share of more than 20%), the supplier's rating will be capped by the credit quality of the weakest of those purchasers. In each case, if the relevant purchasers are not rated, a notch-specific private rating will be assigned.

Fitch will evaluate the credit quality of a minimum number of purchasers who collectively account for contractual obligations sufficient to meet the supplier's obligations, after factoring mitigating structural features. For example, in the scenario above where purchaser obligations may be increased up to 25%, purchasers responsible for at least 80% of the total contract obligations in aggregate would be evaluated, because implementing the 25% increase on the pool would restore contract obligations to 100%. The PCQ factor would then be assessed at a level commensurate with the weakest purchaser required to reach the 100% threshold after invoking the step-up protection. In evaluating the requisite purchasers, unrated purchasers will be assigned private ratings or Credit Opinions.

Alternatively, for suppliers with 10 or more purchasers, Fitch may initially evaluate aggregate credit quality of the purchaser pool using its Portfolio Stress Model (PSM), developed for assigning credit ratings to state revolving fund programs and municipal loan pools. The PSM produces liability stress hurdles based on the aggregate rating, contract share and term of the purchasers. To capture the risk of large unrated purchasers, Fitch will assign Credit Opinions to all unrated purchasers with shares of more than 5% of the pool's contractual obligations, after factoring available step-up protection.

The rating stress hurdle produced by the PSM is measured against the structural loss-absorption features of the contractual arrangement. The measurement determines whether or not sufficient resources, including contract payments, are available to the wholesaler to meet timely bond debt service payments while sustaining purchaser payment defaults. Please refer to [U.S. Public Finance State Revolving Fund and Municipal Finance Pool Program Rating Criteria](#) for more details.

Using the PSM, Fitch calculates the total expected loss – the liability stress hurdle multiplied by (1 minus the assumed recovery rate) – that can be sustained for each rating category. To be eligible for a certain rating category, the structural features and amount of loss absorption must exceed this expected loss. For example, if the characteristics of a pool of purchasers produce 'AAA' and 'AA' liability stress hurdles of 50.5% and 41.9%, respectively, and an assumed recovery of 60% is applied, then enhancement in excess of 20.2% ($60.0\% * 50.5\%$) and 16.7% ($60.0\% * 41.9\%$) would be necessary to achieve the respective rating category. Similar to the earlier scenario, if an issuer was able to increase contractual obligations by 25% and absorb losses equal to 20% of the contractual obligations, the loss absorption would exceed the 'AA' stress hurdle, but not the 'AAA' stress hurdle.

However, the relationship of the expected loss to the rating hurdles does not guarantee the PCQ factor will receive the corresponding assessment. Fitch also considers the effect of large individual purchasers and the leading role these obligors typically assume in managing these issuers. For example, while the supplier's PCQ assessment is capped at the credit quality of any single purchaser whose share exceeds the issuer's loss protection, the assessment may also ultimately be capped by the credit quality of other rated purchasers.

In these cases, Fitch will begin with the lowest rated purchaser and aggregate the shares of individual purchasers by improving rating category to determine the rating of the purchaser whose share drives the aggregate share above the available protection. The PCQ factor assessment will be capped at the applicable rating. In the above scenario where available support is sufficient to cover losses totaling 20%, and the three weakest rated purchasers – each accounting for a 7% share – were rated 'BBB', 'BBB' and 'A', the PCQ factor assessment would be capped at 'A'. If the shares were 15% (BBB), 10% (BBB) and 5% (A), then the assessment would be capped at 'BBB'.

Alternatively, in cases where the PSM results suggest aggregate purchaser pool credit quality of 'BB' as a result of large number of unrated participants, the PCQ factor assessment may instead reflect the credit quality of the largest individual purchasers. Where purchasers accounting for more than 50% of the contractual obligations have been assigned investment-grade ratings or Credit Opinions, and loss absorption of at least 20% is present, the PCQ assessment will be no lower than 'BBB'.

Revenue Defensibility Asymmetric Risk-Additive Considerations

In addition to the aforementioned considerations, the assessment of revenue defensibility can be affected by the following.

In cases where a portion a wholesale supplier's revenues are derived pursuant to contracts that provide for conditional payments, include termination provisions or do not extend through the maturity of outstanding debt, revenue defensibility is reduced. Fitch will therefore consider in its analysis the tenor, relevant counterparties and terms of relevant contracts to assess the degree to which replacement funds – either from replacement contracts, uncontracted sales or wholesale rate increases – may be necessary to meet scheduled debt payments.

Fitch also examines wholesale system revenue derived from non-utility operations, and the extent to which the system relies on these revenues to meet covenanted revenue

requirements and debt service obligations. Non-utility revenues are subject to higher volatility as a result of competitive pressures on both demand and price, and generally weaken revenue defensibility.

Operating Risk

The relevance of operating risk in Fitch's analysis of wholesale systems will largely be determined by the degree to which resource performance and the cost of power supply influence the credit quality of the purchasers and their ability to support supplier obligations. Operating risk is expected to be a meaningful factor in Fitch's analysis where wholesale suppliers are responsible for meeting the majority of purchaser energy requirements. The assessment of operating risk for wholesale power suppliers focuses on operating cost burden, operating cost flexibility, and capital planning and management. Similar to the evaluation of retail systems that own and manage their own resource portfolio, the ability of a supplier to consistently provide low-cost energy and power enables purchasing retail systems to achieve a strong financial profile, while maintaining competitive rates and preserving affordability.

Fitch will initially assess operating cost burden for wholesale systems and projects by comparing the ratio of total operating costs with total kWh energy sales, which excludes distribution costs borne by purchasers, with levels Fitch considers to be representative of varying degrees of operating risk. When evaluating partial-requirement suppliers and single-asset project suppliers, Fitch may alternatively assess operating cost burden by comparing the relative magnitude of project costs and capacity with the purchasers' total cost of power supply and total capacity requirements, or by assessing the strategic benefit or importance of the resource. A lower ratio indicates a lower operating cost burden.

Operating Cost Burden

Metrics to Support Assessment

- Fitch measures a supplier's ratio of total operating costs to total energy (kWh) sales to determine operating cost burden. Wholesale systems with an operating cost/kWh less than 5 cents/kWh have an operating cost burden that is very low; between 5 cents/kWh and 10 cents/kWh, low; between 10 cents/kWh and 15 cents/kWh, midrange; and above 15 cents/kWh, high.
 - Alternatively, Fitch may evaluate operating cost burden for partial requirement suppliers or single-asset suppliers by reviewing the relative magnitude of the cost and/or capacity as a percentage of the purchasers' total resources and related costs, as well as the strategic benefit or importance of the resource. Projects that account for less than 25% of purchaser cost or capacity, or provide significant strategic importance would be deemed to have a very low/low operating cost burden; projects that account for between 25% and 50% of cost or capacity, or provide no extraordinary strategic importance, midrange; and projects that are strategically burdensome, weak.
-

Fitch assesses operating cost flexibility, and capital planning and management for wholesale systems using the same factors and metrics outlined on pages 9–10. Operating risk and cost flexibility risk are lesser considerations for suppliers that provide only a small portion of purchaser requirements or operate a single asset, and where revenues are derived pursuant to take-or-pay contracts. In these cases, Fitch will evaluate operating characteristics, but purchaser credit quality will be given greater consideration in the determination of the final rating. A strong/very strong operating risk assessment could potentially enhance the rating above or toward the higher end of the PCQ rating factor assessment (i.e. 'A+' with a PCQ of 'A'); whereas weaker operating risk could weigh the rating downward (i.e. 'A-' with a PCQ of 'A'). However, in either case, any influence on the rating would be limited and reflect Fitch's determination of whether the obligations of the weaker purchasers would be assumed upon default given the inherent value of the resources and the incentive of the remaining purchasers to preserve the supplier's credit quality.

Financial Profile

Fitch expects to use the same factors, metrics and scenario analysis outlined on pages 13–21 to evaluate the financial profile of most wholesale suppliers, including those with an unlimited ability to reallocate costs among purchasers to ensure cost recovery and revenue source characteristics assessed as 'aa'.

Focus on Purchaser Credit Quality

For issuers with revenue source characteristic assessments of 'a' and 'bbb' that possess only a limited ability to reallocate costs or provide only a portion of the purchaser's requirements, and benefit from a contractual framework in which revenues and costs are largely balanced and passed through to one or more purchasers, leverage profile may be less of a consideration in a rating. The PCQ rating factor assessment, supplemented by the operating risk assessment, will be more relevant to the final rating outcome in these cases.

Similarly, in unique cases where an issuer possesses a revenue source characteristic assessment of 'aa' and supplies a portfolio of issuers that have been rated by Fitch – considering the full effect of the issuer's operating risk and its share of the issuer's obligations – the PCQ rating factor assessment may be more relevant to the final rating outcome than the issuer's own leverage profile.

Asymmetric Risk Considerations

Fitch considers the same asymmetric additional risk factors in its analysis of wholesale power systems as outlined on pages 22–25.

Appendix C – Purchaser Credit Index Scoring Matrix

Credit scores for purchasing utility systems that are unrated or not subject to a Credit Opinion are determined using the *Purchaser Credit Index Scoring Matrix* below, together with evaluations of ability to absorb rate increases, net margin and cash cushion. Systems that are rated or subject to a Credit Opinion may be assigned scores informed by their determined credit quality. Scores may also be informed by and assigned based on known facts that are not considered in the scoring matrix. In cases where data necessary to meet the assessments outlined below are insufficient, purchasing utilities will be assigned the lowest score.

Purchaser Credit Index Scoring Matrix

Ability to Absorb Rate Increases	Net Margin and Cash Cushion			
	aa	a	bbb	bb
aa	1	2	2	3
a	1	2	2	3
bbb	2	3	3	4
bb	3	3	4	4

Net Margin and Cash Cushion

Net margin and cash cushion measures a utility system’s overall financial performance and readily available cash, after accounting for its purchased power obligations, as well as any operating or financial obligations the system may have incurred on its own.

Net Margin and Cash Cushion

Metrics to Support Assessment

- Fitch calculates the net margin and cash cushion as: (net margins + unrestricted cash and investments) / (average daily cash operating expenses).
- Utility systems that have a net margin and cash cushion of 170 days or more have an ‘aa’ factor assessment; between 70 days and 169 days, ‘a’; between 30 days and 69 days, ‘bbb’; and less than 30 days, ‘bb’. However, systems with debt/FADS in excess of 7.0x cannot be assessed higher than ‘a’.

FADS – Funds available for debt service.

Ability to Absorb Rate Increases

For credit scoring purposes, the ability to absorb rate increases of a purchasing utility is determined using the following matrices, which assess the system’s service area and rate flexibility, in the context of its legal ability to set rates for service.

Ability to Absorb Rate Increases

Ability to Set Rates:	Yes			
	Service Area Characteristics			
Rate Competitiveness	aa	a	bbb	bb
aa	aa	aa	a	a
a	aa	aa	a	a
bbb	a	a	a	bbb
bb	a	a	bbb	bbb

Ability to Set Rates:	No			
	Service Area Characteristics			
Rate Competitiveness	aa	a	bbb	bb
aa	aa	a	a	a
a	a	a	a	bbb

bbb	a	a	bbb	bbb
bb	a	bbb	bbb	bb

Service Area Characteristics

Fitch’s scoring methodology evaluates a utility’s service area and the ability of its customers to support purchased power requirements by measuring four characteristics: median household income, unemployment, customer growth and revenue mix. Each of these characteristics is separately assessed against nationwide averages or other thresholds.

Service Area Characteristics

Metrics to Support Assessment

(%)	Stronger	Midrange	Weaker
Median Household Income/U.S Average Median Household Income	> 125	75-125	< 75
Unemployment Ratio/U.S Unemployment Ratio	< 75	75-125	> 125
Five-Year Average Annual Customer Growth Rate	> 1.5	0.0-1.5	< 0.0
Residential Revenue/Total Revenue	–	> 35	< 35

- Systems that exhibit characteristics that are all considered midrange, or exhibit an equal number of stronger and weaker characteristics, are considered to be consistent with an ‘a’ assessment; systems that exhibit a greater number of stronger characteristics than weaker characteristics are considered to be consistent with an ‘aa’ assessment; systems that exhibit one or two more weaker characteristics than stronger characteristic would be assessed as ‘bbb’ and ‘bb’, respectively.

Rate Competitiveness

Fitch’s scoring methodology evaluates a purchasing utility’s rate competitiveness and its ability to generate additional revenue to support purchased power requirements by assessing the relationship between a system’s average retail rate and the state average, as well as affordability.

Rate Competitiveness

Metric to Support Assessment

- Utility systems with retail rates less than 90% of the state average have rate competitiveness consistent with an ‘aa’ factor assessment; between 90% and 120%, ‘a’; between 121% and 150%, ‘bbb’; and greater than 150%, ‘bb’. However, systems where rate affordability exceeds 3.5% cannot be assessed higher than ‘a’, and systems where rate affordability exceeds 4.5% cannot be assessed higher than ‘bbb’.

Appendix D – Pension Treatment in Leverage Metrics

Rationale for Pension Treatment

Utility systems vary considerably in the types of pension benefits offered to workers, which also affects whether and how Fitch incorporates pensions in its analysis of an entity's financial flexibility. Issuers with DB pensions carry a financial obligation that is long term in nature, and uncertain in timing and amounts to be paid. Ongoing employer and employee contributions, which accumulate as invested assets in a trust fund and generate investment returns, are the primary sources for funding benefits and offsetting the pension liability a system has incurred. This contrasts with defined-contribution plans, which are predictable annual commitments that do not give rise to a long-term liability.

Through a series of actuarial calculations that can vary, the present value of the pension obligation accrued to date can be compared with the invested assets available to meet the obligation. An excess of that liability over the invested assets value represents the unfunded portion of the pension obligation that has accrued – generally reported as the net pension liability (NPL) or funded status by the system. In some cases, a system will be a participant in a multi-employer plan and the employer's share of that calculated liability will be considered in the analysis.

Fitch views the unfunded balance of accrued DB pension liability as a debt-equivalent obligation. The size of the reported liability and the annual payments necessary to amortize it can be subject to a range of institutional decisions regarding benefit levels and actuarial assumptions, economic trends and regulatory considerations. Changes in these factors may affect the size of the unfunded liability over time. However, the most important drivers of unfunded liability tend to be the level of actual returns on the investment portfolio supporting the pension compared with a target return, and the adequacy of the employer contribution actually made. Fitch will review the reported unfunded liability over time versus at a point in time. Material volatility in a plan's asset values due to market movement is less relevant to Fitch's assessment of pension-related risk than is the plan's longer term prospects for funding improvement over time.

GASB or FASB

Institutions in the sector include both public-sector enterprises that follow GASB (public sector) accounting rules and not-for-profit enterprises that follow FASB (private) accounting rules, and the pensions of most not-for-profit enterprises are subject to federal regulation. There are differences in the calculation and reporting of the unfunded pension liability between GASB and FASB. GASB DB pension plans are unique in using their long-term investment return assumption as the liability discount rate.

In contrast, FASB plans use a low, variable, regulated discount rate tied to market rates, with some relief post 2009, distinct from the investment return assumption in calculating liability. As such, there is a fundamental difference in reported unfunded pension liability between Employee Retirement Income Security Act-regulated FASB plans and public-sector GASB plans that Fitch believes must be reflected in the analysis to support comparability. The calculation of the related pension liability, if any, to be added to an institution's adjusted debt varies, as described below. Notwithstanding this difference, the calculations and adjustments Fitch makes are intended to create equivalency to the leverage assessment regardless of the accounting methodology applied.

Public Institutions Using GASB

Public-sector DB pensions represent a source of uncertainty given the absence of uniform regulations that compels progress on prefunding, the irrevocable nature of vested benefits and the variability of reported liabilities. These factors in combination led to the accretion of long-term liabilities and a rising demand for contributions.

Fitch applies the same approach to pension liability of a public-sector enterprise as it does when considering pension obligations of state and local governments. The primary credit risk of DB pensions for public enterprises is in the accumulation of long-term liabilities. There is no uniform regulation of funding practices and the liability can accrete under multiple circumstances, including due to underperformance of assets, failure to achieve actuarial and

economic assumptions, and inadequate annual contributions. Bankruptcy is possible but rare, and liquidation is improbable due to legal constraints. Fitch's baseline assumption is that vested benefits are irrevocable, and benefits can be changed only for new hires.

The starting point for this analysis is the pension data as disclosed by the institution. To convey more effectively the magnitude of risks associated with public DB plans, and to improve comparability across plans, Fitch adjusts the reported NPL upward to reflect a 6% discount rate, if the NPL is based on a higher discount rate. This approach is identical to the adjustment to NPLs outlined in Fitch's *U.S. Public Finance Tax-Supported Rating Criteria*. The resulting adjusted NPL is combined with debt obligations in Fitch's assessment of financial flexibility. In some cases, an enterprise without audited financial statements separate from its primary government may not report detailed pension liability data; for example, when the primary government participates in several pension plans. Fitch will adjust the institution's reported NPL in such cases for purposes of its analysis based on the primary government's main or general employee plan.

Allocating Multi-Employer Liabilities Under GASB 68

Although some public-sector enterprises may directly sponsor and manage a DB pension plan, many provide pension benefits as part of a larger cost-sharing multi-employer system, or within a single-employer system that provides benefits to a primary government and its separate enterprises. As such, the ability of public power systems to influence pensions is often limited, as decisions on benefits, assumptions and contributions are made by a legislature, local government or pension board. Multi-employer plan assets in these cases are not legally separated by employer. A single actuarial valuation is performed and the resulting NPL, expense, and deferred inflows and outflows for all participating entities are allocated proportionally, based on the pension's contribution practices. Each participating employer's audit contains only its proportionate share.

GASB 68's allocation method informs Fitch's approach to assessing liabilities in a cost-sharing plan or a single-employer plan allocated to one or more enterprises. GASB 68's default assumption is that the liability is assigned where the obligation is required to be funded, generally by the participating employers. The standard considers pensions to be deferred compensation, for which the direct employer is ultimately obligated. Fitch follows GASB 68 reporting for the liability allocation because the methodology is consistent with our expectations for how systems function, including how they resolve funding challenges.

The fact that most cost-sharing multi-employer plans are state sponsored does not mean the unfunded liabilities of the plans are the responsibilities of the state or of the pension system itself. In some cases, the state has explicit legal and fiscal responsibility for plan funding, and Fitch allocates a share of the liability to the state accordingly, rather than to other participating employers. However, it is much more common for a state to take responsibility only for liabilities associated with its direct employees. Even in cases where they historically provided support for related governments in the plans, states generally retain the option to pull back on this support. Fitch does not shift the reported liability away from the institution based upon this support where GASB 68 assigns it to an institution. However, as noted below, where there is a longstanding history of direct support and through funding provided to a class of employers from the state, Fitch accounts for this in its analysis.

Treatment of State Support of Public Pension Obligation in the Leverage Assessment

Fitch relies on the pension liability data as reported by the institution when assessing its liability burdens. Some public institutions report special funding situations, under which states assume some or all of an NPL, and Fitch's analysis reflects such support. In rare instances that fall short of a special funding situation, but where consistent, explicit state subsidy of pensions is provided, Fitch may modify its assessment of leverage to reflect the presence of state appropriations supporting all or part of an enterprise's pension liability.

FASB Plans

Some public power systems may offer DB pensions whose pensions are subject to federal regulations, which have shifted considerably in recent years and continue to evolve. Fitch generally expects these issuers to manage their pensions within the existing regulatory

framework, which includes provisions for calculating contributions and premiums for mandatory federal pension insurance.

Fitch's starting point for the pension analysis is the projected benefit obligation (PBO) as reported by the issuer, and for purposes of assessing leverage within the FAST analysis, Fitch recalculates the funded status assuming 80% of the PBO. Any resulting adjusted pension deficit is added to debt obligations in Fitch's forward-looking assessment of the financial flexibility. This adjustment to the PBO is intended to serve only as a proxy for capturing the impact of regulations on how pensions are likely to be funded, rather than a precise recalculation of actual liabilities.

The regulatory environment encourages issuers to manage to an 80% funded ratio utilizing generally conservative investment return assumptions. Funding to 80% based on a lower discount rate generally corresponds to nearly fully funded levels using a normalized 6% long-term return assumption. If the regulatory environment shifts, Fitch will modify its approach to take into account the expected impact of these changes on a forward-looking basis. Fitch may also incorporate pension contributions and other pension-related cash outflows in the stress case scenario to fully capture near-term liquidity risks from DB pension plans.

Other public power systems participate in multi-employer DB pension plans that, while regulated, are jointly sponsored with organized labor and disclose only limited information. For multi-employer DB pensions, clarity on the status of pensions or their likely impact on finances may be limited. If such pensions represent, in Fitch's view, a material risk in its assessment of a health provider's financial profile, they could be reflected as an asymmetric risk factor (see *Information Quality* section on page 20).

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ORDINANCE NO. 46-1981

passed 12-14-81

AN ORDINANCE AUTHORIZING THE ISSUANCE OF REVENUE BONDS TO PROVIDE FUNDS FOR APPLICATION ON THE COST OF CONSTRUCTION AND INSTALLATION OF ADDITIONS, EXTENSIONS AND IMPROVEMENTS TO THE ELECTRIC UTILITY SYSTEM OWNED AND OPERATED BY THE CITY OF CRAWFORDSVILLE, INDIANA

WHEREAS, the City of Crawfordsville is the owner of and engaged in operating an electric utility system supplying said City and the inhabitants thereof, and the residents adjacent thereto, with electricity for public, domestic and industrial uses, which system includes a generating plant, distribution system and other equipment and appurtenances, by and through the Crawfordsville Utility Service Board; and,

WHEREAS, in order that the constantly growing needs and requirements of the City and its inhabitants, for a sufficient and dependable supply of electric current may be properly provided for, it has become necessary to make certain additions, extensions and improvements in and to said electric utility system, including the repayment of \$700,000.00 short-term debt incurred for this project, the estimated cost of which is in the approximate amount of Four Million One Hundred Thousand (\$4,100,000.00) Dollars, based on the cost of construction estimates and estimates of the expenses prepared by R. W. Beck and Associates incidental to said project; and,

WHEREAS, the Crawfordsville Utility Service Board has heretofore approved the making of said additions, extensions and improvements, and has found that the cost thereof cannot be met out of the funds of said electric utility now

on hand or revenues to be received prior to completion of the project; that the remaining cost of said project should be provided for by the issuance of revenue bonds in the amount of Four Million One Hundred Thousand (\$4,100,000.00) Dollars, which bonds shall be payable solely out of the revenues of the City's electric utility, and the Common Council of the City of Crawfordsville concurs in said findings; and,

WHEREAS, the Common Council has heretofore approved the project and authorized a \$700,000.00 short-term note, the proceeds of which have been or shall be expended on the project, which short-term note the Council finds should be discharged with proceeds from the revenue bonds authorized herein; and,

WHEREAS, the Common Council finds that it would not be wise or expedient to issue pledge orders payable out of the revenues of said electric utility directly to materialmen, manufacturers and contractors furnishing materials, equipment and labor for said additions, extensions and improvements on account of the excessive carrying charge and interest required to paid on such pledge orders; that the financing of the cost of said improvements is governed by the Indiana Code 5-1-11, et seq., and 5-1-6-1, et seq., relating to the fixing of the interest rate and sale of bonds for that purpose, and it is within the powers of the City to issue bonds payable out of the revenues of said utility, and to sell the same in order to procure the funds necessary to meet the cost of said additions, extensions, improvements; and,

WHEREAS, the electric utility system of the City has no encumbrance or lien of any kind whatsoever thereon and the receipts and revenues from such system are not pledged or

assigned for any purpose excepting only to the payment of principal and interest on certain outstanding revenue bonds designated as Electric Utility Revenue Bonds of 1962, dated March 1, 1962; and,

WHEREAS, the Electric Utility Revenue Bonds of 1962, issued pursuant to provisions of Ordinance No. 11-1961, outstanding in the principal amount of Nine Hundred Thirty Thousand (\$930,000.00) Dollars; and permit the later issuance of bonds on a parity with the outstanding issue, if certain tests are met, and the financial consultant of the electric utility advises that such tests shall be met; and,

WHEREAS, by reason of the foregoing facts, which the Common Council now finds, determines and declares to be true, it is deemed necessary and advisable and for the best interests of the City of Crawfordsville and its citizens to issue Electric Utility Revenue Bonds of 1982 in the amount of Four Million One Hundred Thousand (\$4,100,000.00) Dollars for the above mentioned purpose; now therefore,

BE IT ORDAINED BY THE COMMON COUNCIL OF THE CITY OF CRAWFORDSVILLE, INDIANA:

Section 1. That the City of Crawfordsville (hereinafter sometimes referred to as the "City"), being the owner of and engaged in operating an unencumbered electric distribution system supplying the City and the inhabitants thereof, with electric current for public, domestic and industrial uses, now finds it necessary to provide funds for the making of the additions, extensions, improvements, and retirement of \$700,000.00 short-term debt, herein referred to (hereinafter referred to as the "improvements"). The

terms "electric utility", "electric utility system", "electric system", "system", and words of like import where used in this Ordinance shall be construed to mean and include the existing electric generation and distribution system and all real estate, machinery and equipment used in connection therewith and appurtenances thereto, and all extensions, additions and improvements thereto and replacements thereof now or at any time hereafter constructed or acquired.

Section 2. The additions, extensions and improvements herein referred to shall consist of a new substation, circuit breaker, 138 KV transmission line, poles and insulators, generating plant cooling tower, utility office and vehicle building, distribution and generation plant improvements, and all necessary appurtenances, fixtures, equipment, easements and rights-of-way, as more particularly shown on plans, specifications and estimates now on file, and to retire a short-term loan in the sum of Seven Hundred Thousand (\$700,000.00) Dollars and interest thereon, which was expended on the above said extensions and improvements. Said additions, extensions and improvements, to the extent necessary and feasible, shall be constructed and installed in accordance with said plans, specifications and estimates approved by the City or its Utility Service Board. All contract obligations and expenses incurred in connection with said project shall be payable solely out of the proceeds of the revenue bonds hereinafter authorized, or from the revenues of said electric utility system, and the interest on and principal

of all of the bonds issued pursuant to this Ordinance shall be paid solely and exclusively from the revenues of said electric utility system, and said contract obligations, expenses, bonds and interest shall not constitute in any respect a corporate obligation of the City within the provisions and limitations of the Constitution of the State of Indiana.

Section 3. For the purpose of procuring funds with which to pay the cost of said additions, extensions and improvements, the City of Crawfordsville shall issue its revenue bonds under and pursuant to the provisions of this Ordinance, which bonds shall be payable out of the special fund heretofore created by Ordinance No. 13, adopted May 18, 1953, and designated as the "Electric Utility Bond Fund", and said bonds shall be designated as "Electric Utility Revenue Bonds of 1982".

Said bonds shall be in the principal amount of Four Million One Hundred Thousand (\$4,100,000.00) Dollars, in the denomination of Five Thousand (\$5,000.00) Dollars each, numbered consecutively from 1 to 820 inclusive, dated as of the first day of the month in which the bonds are sold, and shall bear interest at a rate or rates not exceeding fourteen (14%) percent per annum (the exact rate or rates to be determined by bidding), which interest shall be payable semi-annually on July 1 and January 1 of each year, beginning on July 1, 1982. Such interest shall be evidenced by coupons attached to said bonds. Both bonds and interest coupons shall be payable in lawful money of the United States of

America at The First National Bank and Trust Company of Crawfordsville, in the City of Crawfordsville, Indiana, or at the option of the holder, at The Indiana National Bank, in the City of Indianapolis, Indiana, and the bonds shall mature serially on July 1 and January 1 in the years and amounts as follows:

<u>Principal Payment Date</u>	<u>Principal Payment</u>
March 1, 1982	0.00
July 1, 1982	0.00
January 1, 1983	20,000.00
July 1, 1983	25,000.00
January 1, 1984	25,000.00
July 1, 1984	25,000.00
January 1, 1985	25,000.00
July 1, 1985	30,000.00
January 1, 1986	30,000.00
July 1, 1986	35,000.00
January 1, 1987	35,000.00
July 1, 1987	40,000.00
January 1, 1988	40,000.00
July 1, 1988	40,000.00
January 1, 1989	45,000.00
July 1, 1989	50,000.00
January 1, 1990	55,000.00
July 1, 1990	60,000.00
January 1, 1991	60,000.00
July 1, 1991	65,000.00
January 1, 1992	70,000.00
July 1, 1992	75,000.00
January 1, 1993	80,000.00
July 1, 1993	85,000.00
January 1, 1994	90,000.00
July 1, 1994	100,000.00
January 1, 1995	105,000.00
July 1, 1995	115,000.00
January 1, 1996	120,000.00
July 1, 1996	130,000.00
January 1, 1997	140,000.00
July 1, 1997	150,000.00
January 1, 1998	160,000.00
July 1, 1998	170,000.00
January 1, 1999	180,000.00
July 1, 1999	190,000.00
January 1, 2000	210,000.00
July 1, 2000	220,000.00
January 1, 2001	235,000.00
July 1, 2001	250,000.00

<u>Principal Payment Date</u>	<u>Principal Payment</u>
January 1, 2002	270,000.00
July 1, 2002	250,000.00

Section 4. The bonds of this issue maturing on January 1, 1993, and thereafter, shall be redeemable at the option of the City, in whole or in part, on July 1, 1992, or any interest payment date thereafter, in their inverse numerical order, at face value, together with the following premiums:

- Three (3%) percent if redeemed on July 1, 1992, or thereafter on or before July 1, 1996;
- Two (2%) percent if redeemed on January 1, 1997, or thereafter on or before July 1, 1999;
- One (1%) percent if redeemed on January 1, 2000, or thereafter prior to maturity;

plus in each case accrued interest to the date fixed for redemption. Notice of such redemption shall be published at least one time in a newspaper or financial journal of general circulation published in each of the following named cities: Crawfordsville, Indiana, and Indianapolis, Indiana. Such publication shall not be less than thirty (30) days prior to the date fixed for redemption. If any of the bonds so to be redeemed are registered, such notice shall be mailed to the address of the registered holder as shown on the registration records of the City. The notice shall specify the date and place of redemption, and the serial numbers and dates of maturity of the bonds called for redemption. The place of redemption shall be determined by the City. Interest on the

bonds so called for redemption shall cease on the redemption date fixed in such notice, if sufficient funds are available at the place of redemption to pay the redemption price on the date so named and thereafter when presented for payment. Coincidentally with the payment of the redemption price, the bonds so called for redemption shall be surrendered for cancellation, together with the unmatured interest coupons appurtenant thereto.

Section 5. Said bonds shall be executed in the name of the City of Crawfordsville by the facsimile signature of the Mayor of the City, the seal of the City shall be affixed to each of said bonds and attested by the Clerk-Treasurer. The coupons attached to said bonds shall be executed by placing thereon the facsimile signatures of the Mayor of the City and Clerk-Treasurer, and said officials, by the execution of said bonds, shall adopt as and for their own proper signatures the facsimile signatures appearing on said coupons. In case any officer whose signature or facsimile signature appears on the bonds and coupons shall cease to be such officer before the delivery of the bonds, the signature of such officer shall nevertheless be valid and sufficient for all purposes the same as if such officer had remained in office until such delivery.

Said bonds shall be transferable by delivery unless registered. On presentation of any of the bonds at the office of the Clerk-Treasurer in the City of Crawfordsville, said Clerk-Treasurer shall register said bonds as to the

principal thereof without charge or expense to the holder. Such registration shall be noted on the bond, after which no transfer thereof shall be valid unless made by the registered owner in person or by attorney duly authorized and similarly noted on the bond, but said bond may be discharged from registration by being in like manner re-transferred to bearer, after which it shall be transferable by delivery but may be again registered as before. The registration of any bond shall not affect the negotiability of the interest coupons attached thereto, but such coupons shall continue to pass by delivery merely and shall always remain payable to bearer.

Section 6. The form and tenor of said bonds, the interest coupons to be attached thereto, and the form of registry endorsement thereon shall be substantially as follows, all blanks to be filled in properly prior to delivery thereof:

UNITED STATES OF AMERICA
STATE OF INDIANA COUNTY OF MONTGOMERY

No. _____ \$5,000

CITY OF CRAWFORDSVILLE
ELECTRIC UTILITY REVENUE BOND OF 1982

The City of Crawfordsville, in Montgomery County, State of Indiana, for value received, hereby promises to pay to the bearer hereof, or if this bond be registered then to the registered holder hereof, solely out of the special revenue fund hereinafter referred to, the principal amount of

FIVE THOUSAND DOLLARS

on the first day of _____, 19__ (unless this bond be subject to and be called for redemption prior to maturity

as hereinafter provided), and to pay interest thereon from the date hereof until the principal is paid, at the rate of _____ percent per annum, semi-annually on the first days of July and January in each year, beginning on July 1, 1982, upon presentation and surrender of the annexed interest coupons as they severally become due.

Both principal of and interest on this bond are payable in lawful money of the United States of America at The First National Bank and Trust Company of Crawfordsville, in the City of Crawfordsville, Indiana, or, at the option of the holder, at The Indiana National Bank, in the City of Indianapolis, Indiana.

This bond is one of an authorized issue of eight hundred twenty (820) bonds of the City of Crawfordsville, of like date, denomination, tenor and effect, except as to rates of interest and dates of maturity, aggregating Four Million One Hundred Thousand (\$4,100,000.00) Dollars, numbered consecutively from 1 to 820 inclusive, issued for the purpose of providing funds to pay the cost of certain additions, extensions and improvements to the municipally owned electric utility system of said City, and to discharge a short-term note, the proceeds of which have been heretofore expended on the costs of such additions, extensions and improvements, pursuant to an Ordinance passed by the Common Council of said City on the _____ day of _____, 1981, entitled "An Ordinance Authorizing the Issuance of Revenue Bonds to Provide Funds for Application on the Cost of Construction and Installation of Additions, Extensions and Improvements to the Electric Utility System Owned and Operated by the City of Crawfordsville", and in accordance with the provisions of the Indiana Code, 5-1-6-1, et seq., and 5-1-11-1, et seq., the proceeds of which bonds are to be applied solely to the payment of the short-term note and the cost of said additions, extensions and improvements, including the incidental expenses incurred in connection therewith.

The principal of and interest on this bond and all other bonds of said issue, and any bonds hereafter issued on a parity therewith, are equally and ratably secured by and constitute a first charge upon all of the net revenues of said electric utility system, as defined in the Ordinance and as the same now exists or may hereafter be improved or extended, and such net revenues are hereby irrevocably pledged to the payment of the principal of and interest on said bonds, to the extent necessary for that purpose. The City further covenants that it will set aside and pay into its Electric Utility Bond Fund a sufficient amount of the net revenues of said electric utility to meet (a) the interest on this bond and all other bonds which, by their terms, are payable from the revenues of said electric utility, as such interest shall fall due, (b) the necessary fiscal agency charges for paying the bonds and interest, (c) the principal of this bond and all other bonds payable from the revenues of said electric utility, as such principal

shall fall due, and (d) an additional amount as a margin of safety to create the reserve required by the Ordinance authorizing the issuance of this bond. Such required payments shall constitute a first charge upon all the net revenues, as defined in the Ordinance, of said utility. The City shall not be obligated to pay this bond or the interest hereon except from said special fund, and neither this bond nor the issue of which it is a part shall in any respect constitute a corporate indebtedness of the City within the provisions and limitations of the constitution of the State of Indiana.

The City covenants that its electric utility system is free and clear of all liens and encumbrances; that the revenues of said electric utility system herein pledged have not previously been pledged or assigned except to make payment of principal of and interest on its Electric Utility Revenue Bonds of 1962, and that no transfers of the funds of said utility shall be made for the general purposes of the City which will in any way interfere with the payment of the principal of and interest on this bond or any other outstanding bonds of the utility; that it will fix, maintain and collect an aggregate of rates and charges for the services rendered by said electric utility system which will be sufficient to pay all costs of operation and maintenance of said system, to provide for adequate depreciation, and to create and maintain the special fund required for the payment of all bonds which by their terms are payable from the revenues of the electric utility. The holder of this bond shall retain a lien upon the moneys paid therefor until such moneys shall be applied to the purposes for which this bond is issued.

This bond may be registered as to the principal thereof in the name of the owner in the manner and with the effect provided in said Ordinance, but unless registered shall pass by delivery. The interest coupons attached hereto shall at all times pass by delivery. This bond is subject to the condition, and every holder hereof, by accepting the same agrees with the obligor and every subsequent holder hereof, that (a) the delivery of this bond to any transferee if not registered, or if it be registered and the last registered transfer be to bearer, shall vest title in this bond and the interest represented thereby in such transferee to the same extent for all purposes as would the delivery under like circumstances of any negotiable instrument payable to bearer; (b) the obligor and any agent of the obligor may treat the bearer of this bond, or if it be registered in the name of a holder, the registered holder of this bond, as the absolute owner hereof for all purposes and shall not be affected by any notice to the contrary; (c) the principal of and interest on this bond will be paid, and this bond and each of the coupons appertaining thereto are transferable, free from and without regard to any equities between the obligor and the original or any intermediate holder hereof or any set-offs or cross-claims; and (d) the surrender to the obligor or any

agent of the obligor of this bond if not registered, or if it be registered and the last registered transfer be to bearer, or the receipt of the registered holder for the principal amount hereof if this bond be registered in the name of a holder, shall be a good discharge to the obligor for the same.

The bonds of this issue maturing on January 1, 1993, and thereafter, are redeemable at the option of the City, in whole or in part, on July 1, 1992, or any interest payment date thereafter, in their inverse numerical order, at face value, together with the following premiums:

- 3% if redeemed on July 1, 1992, or thereafter on or before July 1, 1996;
- 2% if redeemed on January 1, 1997, or thereafter on or before July 1, 1999;
- 1% if redeemed on January 1, 2000, or thereafter prior to maturity;

plus in each case accrued interest to the date fixed for redemption; provided notice of such redemption shall be published one time at least thirty (30) days prior to the date fixed for redemption in a newspaper or financial journal of general circulation published in each of the following cities: Crawfordsville, Indiana, and Indianapolis, Indiana. A like notice shall be sent by mail to the holders of such bonds as are then registered. Interest on the bonds so called for redemption shall cease on the redemption date fixed in said notice, if funds are available at the place of redemption to pay the redemption price on the date so named or when presented for payment. The bonds so redeemed prior to maturity shall be surrendered for cancellation, together with all unmaturing interest coupons appurtenant thereto.

If any bond or interest coupon shall not be presented for payment or redemption on the date fixed therefor, the City may deposit in trust with the First National Bank and Trust Company of Crawfordsville, in the City of Crawfordsville, Indiana, an amount sufficient to pay such bond or interest coupon or the redemption price, as the case may be, and thereafter the holder shall look only to the funds so deposited in trust with said bank for payment and the City shall have no further obligation or liability in respect thereto.

It is hereby certified and recited that all acts, conditions and things required to be done precedent to and in the execution, issuance and delivery of this bond have been done and performed in regular and due form as provided by law.

IN WITNESS WHEREOF, the City of Crawfordsville, in

Montgomery County, Indiana, has caused this bond to be executed in its corporate name by the facsimile signature of the Mayor of the City, its corporate seal to be hereunto affixed and attested by its Clerk-Treasurer, and the interest coupons hereto attached to be executed by placing thereon the facsimile signatures of said Mayor and Clerk-Treasurer, as of the first day of _____, 1982.

CITY OF CRAWFORDSVILLE

By: _____ (facsimile)
Mayor

ATTEST:

Clerk-Treasurer

(Interest Coupon)

Coupon No. _____ \$ _____

On _____, 19____, (unless the bond herein mentioned shall be subject to and shall have been called for previous redemption), the City of Crawfordsville, Indiana, will pay to bearer at The First National Bank & Trust Company of Crawfordsville, in the City of Crawfordsville, Indiana, or, at the option of the holder, at The Indiana National Bank, in the City of Indianapolis, Indiana, out of its "Electric Utility Bond Fund", the amount shown hereon, in lawful money of the United States of America, being the interest then due on its Electric Utility Revenue Bond of 1982, dated _____, 1982, No. _____.

CITY OF CRAWFORDSVILLE

By: _____ (facsimile)
Mayor

Clerk-Treasurer (facsimile)

REGISTRATION ENDORSEMENT

This bond can be registered only at the office of the Clerk-Treasurer of the City of Crawfordsville, Indiana. No writing hereon except by the Clerk-Treasurer.

Date of Registry	In Whose Name Registered	Clerk-Treasurer
_____	_____	_____
_____	_____	_____
_____	_____	_____

Section 7. The Clerk-Treasurer is hereby authorized and directed to have said bonds and coupons prepared, and the Mayor and Clerk-Treasurer are hereby authorized and directed to execute said bonds and the coupons to be attached thereto in the form and manner herein provided. The bonds shall be sold by the Clerk-Treasurer, and she is hereby authorized and directed to deliver said bonds to the purchaser thereof in accordance with the award made, provided that at the time of such delivery the Clerk-Treasurer shall collect the full amount which the purchaser has agreed to pay therefor, which shall not be less than the face value of said bonds, plus accrued interest from the date thereof to the date of delivery.

The bonds herein authorized, when fully paid for and delivered to the purchaser, shall be the valid and binding special revenue obligations of the City, payable out of the revenues of the City's electric utility to be set aside into the Electric Utility Bond Fund as herein provided, and the proceeds derived from the sale of said bonds shall be and are hereby set aside for application on the cost of construction and installation of the additions, extensions and improvements hereinbefore referred to and the expenses necessarily incurred in connection therewith. The proper officers of the City are hereby directed to draw all proper and necessary warrants and to do whatever acts and things may be necessary to carry out the provisions of this Ordinance.

Section 8. Prior to the sale of said bonds, the Clerk-

Treasurer shall cause to be published a notice of such sale once each week for two weeks in the Crawfordsville Journal-Review, published in the City of Crawfordsville, Indiana, and one time in The Indianapolis Commercial, the first publication to be at least fifteen (15) days prior to the date fixed for said sale and the last publication to be at least three (3) days prior to the date fixed for said sale.

The bond sale notice shall state the time and place of sale, the total amount of the bonds, the maximum rate of interest thereon, the maturities thereof, the purpose for which the bonds are being issued, the terms and conditions on which bids will be received and the sale made, and shall set out such other information as the Clerk-Treasurer, acting on the advice of the Utility Service Board or the City Attorney and bond counsel, shall deem necessary.

All bids for said bonds shall be sealed and shall be presented to the Clerk-Treasurer at her office. Bidders will be required to name the rate or rates of interest which the bonds are to bear, not exceeding the maximum rate hereinbefore set forth. Such interest rate or rates shall be in multiples of one-eighth ($1/8$) or one-tenth ($1/10$) of one percent (1%), and not more than three (3) different rates shall be named by any bidder. Bids specifying more than one interest rate shall also specify the amount and maturities of the bonds bearing each rate, but all bonds maturing on the same date shall bear the same single coupon rate. The interest due on any bond on any interest payment date shall be represented by a single interest coupon. The Clerk-

Treasurer shall award the bonds to the highest qualified bidder. The highest bidder shall be the one who offers the lowest net interest cost to the City on said issue as a whole, to be determined by computing the total interest on the bonds to their maturities at the rate or rates named in the bid and deducting therefrom the premium bid, if any. No bid for less than the face value of said bonds, plus accrued interest to the date of delivery, computed at the rate or rates named in the bid, shall be considered. Each bid shall be accompanied by a certified or cashier's check payable to the City of Crawfordsville in the amount of Forty Thousand (\$40,000.00) Dollars as a guaranty of the good faith of the bidder. In the event the successful bidder shall fail or refuse to accept delivery of said bonds in accordance with his bid and the notice of sale, then said check and the proceeds thereof shall be the property of the City and shall be considered as its liquidated damages on account of such default. The Clerk-Treasurer shall have the right to reject any and all bids, and in the event no satisfactory bid is received on the date fixed in the notice, the Clerk-Treasurer shall be authorized to continue the sale from day to day for a period not to exceed thirty (30) days without re-advertisement, but during such continuation of the sale no bid shall be accepted which is lower than the highest bid received at the time fixed for such sale in the bond sale notice.

Prior to the delivery of the bonds the Clerk-Treasurer

shall obtain a legal opinion as to the validity of the bonds from Ice Miller Donadio & Ryan, acting as bond counsel for the City, and shall furnish such opinion to the purchaser of the bonds. The cost of obtaining said opinion shall be considered as a part of the cost of the project on account of which the bonds are issued, and shall be paid out of the proceeds of the bonds or out of the revenues of the electric utility system. In the event it shall be determined hereafter that it is not necessary to issue all of the bonds authorized by this Ordinance, or the Public Service Commission of Indiana shall not approve the issuance of said total amount of bonds, the Clerk-Treasurer shall be authorized to sell and deliver a lesser amount of bonds than herein authorized, in which case the bonds not sold or delivered shall be of the last maturity or maturities.

Section 9. All accrued interest and premium, if any, received at the time of the delivery of the bonds shall be placed in the Electric Utility Bond Fund heretofore created. The remaining proceeds from the sale of said bonds shall be deposited in a bank or banks which are legally designated depositories for the funds of the City, in a special bank account or accounts to be designated as "City of Crawfordsville, Electric Utility Construction Account", which bank account shall be separate and apart from all other bank accounts of the City. All funds so deposited in said special account or accounts shall be deposited, held and secured or invested in accordance with the laws of the State of Indiana

relating to the depositing, holding and securing or investing of public funds, including particularly Indiana Code 5-13-1. The funds in said special account or accounts shall be expended only for the purpose of discharging the short-term note in the amount of \$700,000.00, paying the cost of said improvements to the City's electric utility, including the incidental expenses incurred in connection therewith or in connection with the issuance of the bonds herein authorized. Any balance remaining shall be placed in the Electric Utility Bond Fund.

Section 10. The City shall keep proper records and books of account, separate from all of its other records and accounts, in which complete and correct entries shall be made showing all revenues received on account of the operation of said electric utility and all disbursements made therefrom and all transactions relating to said utility. There shall be prepared and furnished to the original purchaser of the bonds, and upon request to any holder of the bonds, an annual report setting out complete operating, income and financial statements of said utility, in reasonable detail, covering the preceding fiscal year. Such report shall be prepared and furnished within ninety (90) days after the close of each fiscal year, and shall be certified by the Clerk-Treasurer, or be prepared by a certified public accountant employed for that purpose. Copies of all such statements and reports shall be kept on file in the office of the Clerk-Treasurer. Any holder of the bonds shall have the right at all reasonable times to inspect said electric

utility system and the records, accounts and data of the City relating thereto. All funds of said electric utility, including the Electric Utility Bond Fund, shall be segregated and kept separate and apart and in a separate bank account or accounts from all other funds of the City, and shall be deposited in lawful depositories of the City and continuously held and secured or invested as provided by the laws of the State of Indiana relating to the depositing, securing and holding or investing of public funds.

Section 11. The interest on and the principal of the bonds issued pursuant to the provisions of this Ordinance, and any bonds hereafter issued on a parity therewith, shall constitute a first charge on all the net revenues of the City's electric utility, and such net revenues are hereby irrevocably pledged to the payment of the interest on and principal of such bonds, to the extent necessary for that purpose. The term "net revenues" as used in this Section shall be construed to mean the revenues remaining after the reasonable cost of operation and maintenance has been paid or provided for, which cost of operation and maintenance shall include without limitation payments required under any power sales supply agreement or agreements with the Indiana Municipal Power Agency, whether or not the City's electric utility receives any of the output of a project or the power and energy contracted for, as provided in Indiana Code 8-1-22-10.

Section 12. There is hereby created a fund to be known as the "Operation and Maintenance Fund", to which fund there shall be credited as of the last day of each calendar month a sufficient amount of the revenues of the electric utility so that the balance in said fund shall be sufficient to pay

the expenses of operation, repair and maintenance, as defined in Section 11 above, for the then next succeeding one (1) calendar month. The moneys credited to this fund shall be used for the payment of the reasonable and proper operation, repair and maintenance expenses of the electric utility on a day-to-day basis, but none of the moneys in such fund shall be used for depreciation, replacements, improvements, extensions or additions. Any balance in said fund in excess of the expected expenses of operation, repair and maintenance for the next succeeding month may be transferred to the Electric Utility Bond Fund if necessary to prevent a default in the payment of principal or interest on the outstanding bonds.

Section 13. (a) The special fund designated as the "Electric Utility Bond Fund" created by said Ordinance No. 13, adopted May 18, 1953, for the payment of the interest on and principal of the revenue bonds issued pursuant to said ordinance and the interest on and principal of the revenue bonds issued pursuant to Ordinance No. 11-1961, is hereby designated as the fund for the payment of the principal of and interest on revenue bonds which by their terms are payable from the revenues of the electric utility, and the payment of any fiscal agency charges in connection with the payment of bonds and interest coupons. There shall be set aside and deposited in said Bond Fund, as available, and as hereinafter provided, in addition to sums required to be deposited under the terms of Ordinance No. 11-1961, adopted June 12, 1961, a sufficient amount of the net revenues of said electric utility (defined as gross revenues after deduction only for the payment of the reasonable expenses of

operation, repair and maintenance, as set out in Section 11 hereof) to meet the requirements of the Bond and Interest Account and of the Debt Service Reserve Account hereby created in said Electric Utility Bond Fund. Such payment shall continue until the balance in the Bond and Interest Account, plus the balance in the Debt Service Reserve Account hereinafter created, equal the principal of and interest on all of the then outstanding bonds to the final maturity thereof.

(b) Bond and Interest Account. Beginning as of the date of issuance of the bonds herein authorized, there shall be credited on the first day of each calendar month to the Bond and Interest Account the amount required to be deposited in the Bond Fund under the terms of Ordinance No. 11-1961, plus an amount equal to the sum of one-fifth (1/5) of the interest on all then outstanding bonds payable of this issue on the then next succeeding interest payment date, and one-fifth (1/5) of the amount of principal payable on the then outstanding bonds of this issue which will be payable on the then next succeeding principal payment date, until the amount of interest and principal payable on the then next succeeding respective principal and interest payment dates shall have been so credited. There shall similarly be credited to the account the amount necessary to pay the bank fiscal agency charges for paying principal of and interest on the bonds as the same become payable. The City shall, from the sums deposited in the Electric Utility Bond Fund and credited to the Bond and Interest Account, remit promptly to the bank fiscal agency sufficient moneys to pay the principal of and interest on the due dates thereof

together with the amount of bank fiscal agency charges.

(c) Debt Service Reserve Account. On the first day of each calendar month, after making the credits to the Bond and Interest Account, there shall be credited from available net revenues to the Debt Service Reserve Account the sum of Five Thousand One Hundred Ten (\$5,110.00) Dollars, or such higher amount as may be fixed from time to time by the Utility Service Board. Said credits to the Debt Service Reserve Account shall continue until the balance therein shall equal not less than the maximum annual principal and interest requirements of the then outstanding bonds payable from the Electric Utility Bond Fund. The Debt Service Reserve Account shall constitute the margin for safety and as a protection against default in the payment of principal of and interest on the bonds, and the moneys in the Debt Service Reserve Account shall be used to pay current principal of and interest on the bonds to the extent that moneys in the Bond and Interest Account are insufficient for that purpose. Any deficiencies in credits to the Debt Service Reserve Account shall be promptly made up from the next available net revenues remaining after credits into the Bond and Interest Account. In the event moneys in the Debt Service Reserve Account are transferred to the Bond and Interest Account to pay principal of and interest on bonds, then such depletion of the balance in the Debt Service Reserve Account shall be made up from the next available net revenues after the credits into the Bond and Interest Account hereinbefore provided for. Any moneys in the Debt Service Reserve Account in excess of the maximum annual principal and interest requirements of the then outstanding bonds may

be used for the redemption of bonds which are then callable, or may be transferred to the Depreciation Fund. No part of the net revenues of the City's electric utility shall be transferred to the general fund or to any other fund of the City if such transfer will interfere with the requirements of said Electric Utility Bond Fund.

Section 14. So long as any bonds payable out of the revenues of the City's electric utility are outstanding, the City shall maintain a Depreciation Fund for the benefit of its electric utility. The depreciation fund created by Ordinance No. 13, adopted May 18, 1953, is hereby designated as such Depreciation Fund, and such fund as heretofore accumulated out of the revenues of the electric utility, whether the same be represented by cash or investments, shall be credited to and become a part of the Depreciation Fund upon adoption of this Ordinance. There shall be deposited in said fund on or before the first day of each calendar month, beginning on the first day of the calendar month following delivery of the bonds herein authorized, the sum of Eighteen Thousand (\$18,000.00) Dollars; further that, on the first day of each calendar month, beginning on the first day of the calendar month following certification by R. W. Beck and Associates, engineers, that the project is completed and accepted by the City, in addition to all other sums then being deposited in said fund, there shall be deposited therein a sum equal to not less than one-twelfth (1/12) of three (3%) percent of the original cost of used and useful property, plant, replacements, extensions, additions and

improvements of and to the utility, as a result of the project as such cost shall be certified by said engineers. Said Depreciation Fund shall be expended in making good depreciation in the property of said electric utility, or applied on the cost of the improvements herein referred to or future extensions, additions and improvements to such property, or all or any portion thereof may be transferred to the Electric Utility Bond Fund if necessary to prevent a default in the payment of principal of or interest on the bonds, or may be transferred thereto and used for the purchase or redemption of outstanding bonds prior to maturity. Said fund shall not be used for any other purpose whatsoever. Any accumulations in the Depreciation Fund not required for immediate use may be invested to the extent permitted by the laws of the State of Indiana applicable to the investment of public funds, and any income from such investment shall accrue to the Depreciation Fund. The monthly payments into the Depreciation Fund may be omitted only and to the extent necessary to provide for the reasonable cost of operation and maintenance of the electric utility and to meet the requirements of the Electric Utility Bond Fund. No part of the net revenues of the City's electric utility shall be transferred to the general fund or any other fund of the City if such transfer will interfere with the requirements of the Depreciation Fund.

Section 15. The Electric Utility Bond Fund shall be maintained as a separate bank account apart from all other bank accounts of the City. The Operation and Maintenance Fund and the Depreciation Fund may be combined in a single bank account, but such bank account shall be maintained separate and apart from all other bank accounts of the City. After all foregoing requirements of the Operation and Maintenance Fund, the Electric Utility Bond Fund and the Depreciation Fund have been met and maintained, then any excess revenues of the electric utility may be transferred to the Reserve Fund and used for any lawful purpose including payments to the City General Fund in lieu of taxes and return on investment. No revenues of the electric utility shall be deposited in or credited to the Reserve Fund which will interfere with the requirements of the Operation and Maintenance Fund, Electric Utility Bond Fund or Depreciation Fund.

Section 16. The City shall establish, maintain and collect reasonable and just rates and charges for the facilities and services to be rendered by such electric utility which will provide revenues at all times at least sufficient to pay the reasonable and proper cost of the operation and maintenance of the system, to meet the requirements of the Electric Utility Bond Fund, and the Depreciation Fund created by the provisions of this Ordinance, and to meet any other obligations required to be met out of said revenues. So long as any of the bonds herein authorized are

outstanding, none of the facilities or services afforded or rendered by said system shall be furnished without a reasonable and just charge being made therefor. Any bondholder shall have the right to require that the reasonable value of any facility or service rendered to the City or to any department, agency or instrumentality thereof, including the use of electric current for street lighting and other purposes, shall be charged against the City and shall be paid for as the charges accrue, if necessary to meet the requirements of the Electric Utility Bond Fund, and the revenues so received shall be deemed to be revenue derived from operation of the system and shall be used and accounted for in the same manner as other revenues derived from said system.

Section 17. The City reserves the right to authorize and issue additional bonds payable out of the revenues of its electric utility ranking on a parity with the bonds authorized by this Ordinance, for the purpose of financing the cost of future additions, extensions and improvements to its electric utility, subject to the following conditions:

(a) All required payments into the Electric Utility Bond Fund shall have been made in accordance with the provisions of this Ordinance, and the interest on and principal of the bonds of the issue authorized by this Ordinance shall have been paid in accordance with the terms thereof.

(b) The net revenues of the electric utility in the fiscal year immediately preceding the issuance of any

such bonds ranking on a parity with the bonds authorized by this Ordinance shall be not less than one hundred twenty-five (125%) percent of the maximum annual interest and principal requirements of the then outstanding bonds and the additional parity bonds proposed to be issued; or, prior to the issuance of said additional parity bonds, the rates and charges shall be increased sufficiently so that said increased rates and charges applied to the previous fiscal year's operations would have produced net revenues for said year equal to not less than one hundred twenty-five (125%) percent of the maximum annual interest and principal requirements of the then outstanding bonds and the additional parity bonds proposed to be issued. The term "net revenues" as used in this Section shall be construed to mean the revenues remaining after the reasonable cost of operation and maintenance (as hereinbefore defined in Section 11 hereof) has been paid or provided for, excluding depreciation and interest on bonds. For purposes of this subsection, the records of the electric utility shall be analyzed and all showings shall be prepared by a certified public accountant employed by the City for that purpose.

(c) To the extent required by law, any increase in rates and charges shall have been approved by the Public Service Commission of Indiana, or any successor agency or body, prior to the issuance of the additional parity bonds.

(d) The interest on and the principal of the

additional parity bonds shall be payable semi-annually on the first days of July and January in the years in which principal and interest are payable.

Section 18. For the purpose of further safeguarding the interests of the holders of the bonds herein authorized, it is hereby specifically provided as follows:

(a) The balance, if any, of the cost of the additions, extensions and improvements to said electric utility referred to in Section 2 of this Ordinance, over and above the amount to be paid from the proceeds of the revenue bonds herein authorized, shall be paid out of the funds of said electric utility now on hand, or the revenues to be received prior to completion of the same, and no transfer of the funds of said electric utility shall be made to the City's general fund, or to any other fund of the City if such transfer will interfere with such payment.

(b) So long as any of the bonds herein authorized are outstanding, and unless otherwise required under the terms of any agreement with the Indiana Municipal Power Agency, the City shall at all times maintain said electric utility system in good condition, and operate the same in an efficient manner and at a reasonable cost.

(c) So long as any of the bonds herein authorized are outstanding, the City shall maintain insurance on the insurable parts of the system, of a kind and in an amount such as is usually carried by private corporations engaged in a similar type of business. All insurance shall be placed with responsible insurance companies qualified to do

business under the laws of the State of Indiana, and insurance proceeds shall be used either in replacing or restoring the property destroyed or damaged, or shall be deposited in the Electric Utility Bond Fund.

(d) So long as any of the bonds herein authorized are outstanding, and unless otherwise required under the terms of any agreement with the Indiana Municipal Power Agency, the City shall not mortgage, pledge or otherwise encumber its electric utility system, or any part thereof, and shall not sell, lease or otherwise dispose of any part of the same, excepting only such machinery, equipment or other property as may be replaced, or shall no longer be necessary for use in connection with said utility.

(e) Except as otherwise specifically provided in Section 17 of this Ordinance, so long as any of the bonds herein authorized are outstanding, no additional bonds or other obligations pledging any portion of the net revenues (as defined in Section 11 hereof) of the system shall be authorized, issued or executed by the City, except such as shall be made junior and subordinate in all respects to the bonds herein authorized, unless all of the bonds herein authorized are redeemed and retired coincidentally with the delivery of such additional bonds or other obligations.

(f) The provisions of this Ordinance shall constitute a contract by and between the City and the holders of the bonds herein authorized, all the terms of which shall be enforceable by any bondholder by any and all appropriate proceedings in law or in equity. After the issuance of said

bonds this Ordinance shall not be repealed, amended or modified in any respect which will adversely affect the rights or interests of the holders of said bonds, nor shall the Common Council or any other body of the City adopt any law, ordinance or resolution in any way adversely affecting the rights of the bondholders so long as any of said bonds, or the interest thereon, remain outstanding or unpaid.

(g) The provisions of this Ordinance shall be construed to create a trust in the proceeds derived from the sale of the bonds herein authorized, for the uses and purposes herein set forth, and so long as any of the bonds are outstanding, the provisions of this Ordinance shall also be construed to create a trust in the portion of the revenues of said electric utility system herein directed to be set apart into the Electric Utility Bond Fund, for the uses and purposes of said fund, as in this Ordinance set forth.

(h) None of the provisions of this Ordinance shall be construed as requiring the expenditure of any funds of the City derived from any sources other than the proceeds of said bonds and the operation of said electric utility system.

Section 19. Subject to the terms and provisions contained in this Section, and not otherwise, the holders of not less than sixty-six and two-thirds (66-2/3%) percent in aggregate principal amount of the bonds issued pursuant to this Ordinance and then outstanding shall have the right from time to time, anything contained in this Ordinance to

the contrary notwithstanding, to consent to and approve the adoption by the Common Council of the City of Crawfordsville of such ordinance or ordinances supplemental hereto, as shall be deemed necessary or desirable by the City of Crawfordsville for the purpose of modifying, altering, amending, adding to or rescinding in any particular any of the terms or provisions contained in this Ordinance, or in any supplemental ordinance; provided, however, that nothing herein contained shall permit or be construed as permitting:

(a) An extension of the maturity of the principal of or interest on any bond issued pursuant to this Ordinance; or

(b) A reduction in the principal amount of any bond or the redemption premium or the rate of interest thereon; or

(c) The creation of a lien upon or a pledge of the revenues of the electric utility ranking prior to the pledge thereof created by this Ordinance; or

(d) A preference or priority of any bond or bonds issued pursuant to this Ordinance over any other bond or bonds issued pursuant to the provisions of this Ordinance; or

(e) A reduction in the aggregate principal amount of the bonds required for consent to such supplemental ordinance.

The holders of not less than sixty-six and two-thirds (66-2/3%)


percent in aggregate principal amount of the bonds outstanding at the time of adoption of such supplemental ordinance shall have consented to and approved the adoption thereof by written instrument to be maintained on file in the office of the Clerk-Treasurer of the City of Crawfordsville. No holder of any bond issued pursuant to this Ordinance shall have any right to object to the adoption of such supplemental ordinance or to object to any of the terms and provisions contained therein or the operation thereof, or in any manner to question the propriety of the adoption thereof, or to enjoin or restrain the Common Council of the City of Crawfordsville from adopting the same, or from taking any action pursuant to the provisions thereof. Upon adoption of any supplemental ordinance pursuant to the provisions of this Section, this Ordinance shall be, and shall be deemed, modified and amended in accordance therewith, and the respective rights, duties and obligations under this Ordinance of the City of Crawfordsville and all holders of bonds issued pursuant to the provisions of this Ordinance then outstanding, shall thereafter be determined, exercised and enforced in accordance with this Ordinance, subject in all respects to such modifications and amendments. Notwithstanding anything contained in the foregoing provisions of this Ordinance, the rights and obligations of the City and of the holders of the bonds authorized by this Ordinance, and the terms and provisions of the bonds and this Ordinance, or any supplemental ordinance, may be

modified or altered in any respect with the consent of the City of Crawfordsville and the consent of the holders of all the bonds issued pursuant to this Ordinance then outstanding.

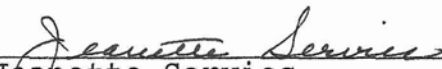
Section 20. All ordinances and parts of ordinances in conflict herewith are hereby repealed; provided however, that this Ordinance shall in no way be construed as repealing any provision of Ordinance No. 11-1961, and so long as any of the bonds authorized thereby are outstanding, this Ordinance shall not be construed so as to adversely affect the rights of the holders of said bonds.

Section 21. This Ordinance shall be in full force and effect from and after its passage and execution by the Mayor.

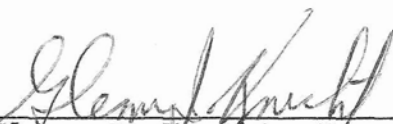
Passed and adopted by the Common Council of the City of Crawfordsville, Indiana, this 21st day of December, 1981.


Glenn J. Knecht, Mayor

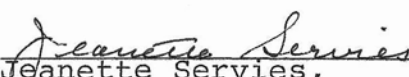
Presented by me to the Mayor of the City of Crawfordsville, Indiana, this 21st day of December, 1981, at the hour of 8:30, A.m.


Jeanette Servies,
Clerk-Treasurer

This Ordinance approved and signed by me this 21st day of December, 1981, at the hour of 8:30, A.m.


Glenn J. Knecht, Mayor

ATTEST:


Jeanette Servies,
Clerk-Treasurer

Crawfordsville Electric Light & Power
Cause No. 45420 – Responses to Electronic Audit Questions from the OUCC
Final 10-6-2020

Subject	Documents/Information Requested	Provided to OUCC
General Ledger	1. Detailed general ledger for CEL&P, including all sub-ledgers and voucher registers electronically in Excel.	See Audit Response #1 (provided 9-22-2020).
	2. 2018 and 2019 year-end adjusting entries and supporting detail for CEL&P.	See Audit Response #2 (provided 9-22-2020).
	3. Accounting policies and procedures: Documentation with respect to accounting policies and procedures in effect during the test year and/or will be implemented after September 30, 2019.	The State Board of Accounts (SBOA) does not have guidance specific to municipally-owned utilities. However, attached as Audit Response #3 please find the SBOA's Accounting and Financial Reporting Manual and Uniform Control Standards for local government units. Please also see the Notes to the Financial Statements provided in Audit Response #40.
	4. Make Utility personnel available to discuss each proposed accounting adjustment on a conference call.	CEL&P will make its staff and consultants available at a mutually agreeable time to discuss the adjustments in Ms. Wilson's testimony.
Rate Base	5a. Copy of all capitalization policies and procedures (labor, materials, interest) in effect during the test year and/or will be implemented after February 29, 2020.	See Audit Response #5a – USB Capital Asset Policy 2011 Resolution 2011-01 (provided 9-22-2020).
	5b. Identify and explain any changes to these policies and procedures implemented or will be implemented since the end of the test year.	No changes to the current Capital Asset Policy provided in Response #5a are expected.

Subject	Documents/Information Requested	Provided to OUCC
	5c. Provide examples of sizable projects (\$250,000 or greater) capitalized during the test year and forecasted through February 28, 2021.	CEL&P did not capitalize any projects exceeding \$250,000 in the test year and we do not anticipate any through February 2021.
	6a. Provide all fixed asset property records for all Utility Plant in Service as of February 2020.	Please see response to MSFR 170 IAC 1-5-10(2), Petitioner's Exhibit 6 at p. 254.
	6b. Support for AFUDC, post-in-service AFUDC, and deferred depreciation recorded during the test year and forecasted through February 28, 2021.	N/A. CEL&P did not issue debt to finance any construction projects.
Revenues	7. Provide CEL&P's policies and procedures regarding unbilled revenues.	CEL&P does not record unbilled revenues.
	8. A list of the ten (10) largest commercial/industrial customers for the test year. For each customer, please include the name of the customer, total test year consumption (KWH), and total test year revenues by demand and energy components.	See Audit Response #8 (original sent 9-21-2020, amended version sent 9-24-2020).
	9. A list of the ten (10) largest commercial/industrial customers for the periods ending February 28, 2019, February 29, 2020 and February 28, 2021. For each customer, please include the name of the customer, total consumption (KWH), and total period revenues by demand and energy components.	See Audit Response #9 (sent 9-29-2020).

Subject	Documents/Information Requested	Provided to OUCC
	10. A sample bill for each customer class and the number of billing cycles for each customer class by month during the test year to present.	See Audit Response #10 (provided 10-1-2020).
	11. A copy of all procedures used by the Utility to determine and record bad debt expense.	See Audit Response #11 (provided 10-6-2020).
	12. Provide all special customer contracts in effect during the test year. Also, provide any special customer contracts entered into after the end of the test year or any changes made to or expirations of any special customer contracts since March 1, 2019.	CEL&P does not have any special customer contracts.
	13. Provide all rental revenue contracts in effect during the test year. Also, provide all rental revenue contracts entered into after the end of the test year or any changes made to or expirations of any rental revenue contracts through February 28, 2021. This should include, but not be limited to, the following: (a) Electric Equipment Rental; (b) Pole Contract Rental (including number of poles/contracts); and (c) Electric Property Rental.	Farm ground lease and extension attached as Audit Response #13 (Farm Lease provided 9-21-2020). See Supplemental Audit Response #13 (Pole Attachment Contracts provided 10-5-2020).

Subject	Documents/Information Requested	Provided to OUCC
Revenues – Trackers/Riders	14a. (no 14b.) As needed, make Utility personnel available to discuss CEL&P’s Energy Charge Adjustment, and any other tracker/rider on a conference call.	CEL&P will make its staff and consultants available at a mutually agreeable time.
Payroll & Employee Benefits	15. All payroll registers and records for CEL&P, including any supporting documentation, for the period March 1, 2019 to the present. a. Payroll records, by individual and by division, including detail and summary totals (annualize rates/hours/current summaries in electronic format). b. (no 15b.)	See Audit Response #15a (no #15b) (provided 9-29-2020).
	16. All employee insurance policies and coverage explanation summaries that were in effect during the test year and are projected to be in effect before February 28, 2021. These may include, but are not be limited to, life, long-term disability, medical, and dental.	See Audit Response #16 (provided 9-29-2020).
	17. For the period March 1, 2019 through the present, please provide insurance invoice(s) and coverage explanation summaries for each employee insurance provided including total premiums and coverage.	See Audit Response #17 (provided 9-29-2020).

Subject	Documents/Information Requested	Provided to OUCC
	18. All employment contracts, union contracts, etc. which apply to CEL&P.	N/A. CEL&P is non-union.
	19. Current listing of all CEL&P employees including related job title, current pay rate, employer-paid benefits, and percent of time allocated to CEL&P.	See Audit Response #19 (provided 10-1-2020). All CEL&P employees dedicate 100% of their time to CEL&P.
	20. As needed, make Utility personnel available to discuss pension and OPEB benefits provided by CEL&P as well as answer questions regarding proposed annual pension and OPEB expenses in a conference call.	CEL&P will make its staff and consultants available at a mutually agreeable time.
Other Expenses & Allocations	21. Fuel: All fuel contracts for test year through the present and include any summary schedules if available.	As CEL&P purchases its full requirements for energy from Indiana Municipal Power Agency ("IMPA"), CEL&P does not incur any fuel expense or have any fuel contracts.
	22a. Current Casualty, Liability and Other Insurance: a. All current property liability and other insurance policies and coverage explanation summaries. These may include, but are not limited to, liability, casualty, automotive, umbrella, Directors and Officers, etc.	See Audit Response #22a (provided 9-21-2020).
	22b. Most recent insurance binders, statements, and invoices, for each type of property and liability insurance maintained by CEL&P, or for CEL&P's benefit, including the annual premiums and coverage.	See Audit Response #22b (insurance invoices provided 9-29-2020), Supplemental Audit Response #22b (provided 10-1-2020).

Subject	Documents/Information Requested	Provided to OUCC
	22c. Allocation parameters/factors used (if any) to allocate any property, liability and other insurance costs including explanation of the allocation methodology and explanation of how and why the insurance is allocated to business units, as well as the allocated amounts.	CEL&P receives allocated insurance premiums from the City of Crawfordsville. A breakdown of premiums by department and allocation methodologies is attached as Audit Response #22c. (Provided 9-21-2020 for 2019-2020, and provided 9-22-2020 for 2020-2021)
	23. Provide a list and copies of all CEL&P affiliate contracts, operating leases, and/or other contracts binding to CEL&P.	See Audit Response #23 (provided 10-5-2020). See also Supplemental Audit Response #23 (provided 10-6-2020). CEL&P is not a corporation and does not have affiliates in the traditional sense.
	24. Provide a list and copies of all lease agreements that are currently in effect including, but not limited to, capital lease agreements.	See Audit Response #23 above (and supplemental).
Taxes	25. A copy of the property tax assessments or statements for CEL&P for the test year and 2020.	CEL&P, as a municipally-owned electric utility, is exempt from property taxes pursuant to IC 6-1.1-10-5(b)(2).
	26. Indiana Utility Receipts Tax Returns for 2018, 2019, and 2020 if available.	See Audit Response #26 (provided 10-6-2020).
	27. Total amount paid, total amount billed, actual bill, calculations, and supporting documentation for the calculation of the Payments In Lieu of Taxes to the City of Crawfordsville for 2017, 2018, 2019, and 2020. This should include but not be limited, to the Common Council resolution.	USB resolution and City Council ordinance attached as Audit Response #27. See also page 5 of Attachment JZW-2 to the Direct Testimony of J. Wilson for Contribution in Lieu of Taxes (CILT) paid for the test year, 2019, and 2018. \$425,000 was paid in CILT in 2017. See also page 10 of Attachment JZW-2 for the detail of the adjustment made in the Revenue Requirements Study to the amount in the ordinance. (Provided 9-21-2020)

Subject	Documents/Information Requested	Provided to OUCC
	28. As needed, make Utility personnel available, via conference call, to discuss and answer questions related to other taxes including, but not limited to, Indiana Utility Receipts Tax, property taxes, taxes levied by other jurisdictions and allocated to Indiana, etc.	CEL&P will make its staff and consultants available at a mutually agreeable time.
	29. Question #29 was skipped in the OUCC's audit list.	N/A.
	30. Copy of documentation describing all cost reduction programs, initiatives that were in place, are in place, or will be in place for the period January 1, 2019 through the present for CEL&P.	See Audit Response #30 (provided 10-6-2020).
	31. For the period March 2019 through the present, please provide copies of all newsletters sent to CEL&P customers.	As a service to its members, IMPA provides seasonal newsletters to customers on various topics relevant to electric service in those communities. Due to staffing turnover at IMPA, those newsletters went on a hiatus for most of this period. Thus, only 2 newsletters were produced between March 2019 and present. Attached as Audit Response #31 are the Spring and Summer 2020 editions of the <i>IMPA/CEL&P Municipal Power News</i> (provided 10-1-2020). Also Attached as Audit Response #31 are the Key Customer Account newsletters. The newsletter is digital only (email) and goes out to approximately 70 persons, mostly personnel of our local key accounts (links to the articles in the PDF are live).
	32. For the period March 2019 through the present, please provide copies of all reports provided to its customers.	N/A. CEL&P does not prepare an annual (or similar type) report to customers.
	33. Copy of the State Board of Accounts rules that CEL&P follows for the write-off of any customer accounts as uncollectible.	See Audit Response #11 for CEL&P's uncollectible write off policy.
	34. Identify all Demand Side Management programs, by customer class, which CEL&P provides to its customers.	CEL&P doesn't offer Demand Side Management programs directly, but rather IMPA centralizes all of these programs on behalf of its members. More information on the programs available to residential, commercial and industrial customers of any IMPA member community, including Crawfordsville, is available here: https://www.impa.com/energyefficiency

Subject	Documents/Information Requested	Provided to OUCC
	35. Explain how CEL&P's depreciation rates were established since CEL&P has not had a depreciation study.	CEL&P has not changed its depreciation rates since its last rate case.
	36. Are any costs allocated to the utility from other municipal departments? If yes, please provide a list of each allocated cost, the allocation percentage, and the detailed formula on which this allocation percentage is based.	There are no costs allocated to the utility from other municipal departments. However, the utility does perform small jobs for the city, such as hanging banners on the light poles/street lights for various community events, hanging holiday decorations or flower baskets, helping the street department take a tree down, etc. The utility tracks these costs but does not bill the City for them. A report of hose costs can be found in Audit Response #36 (provided 10-6-2020).
Requests related to MSFRs where CEL&P stated "N/A - CEL&P will provide any applicable and available information upon request."	37. Monthly unaudited financial reports for the test year and each month subsequent to the test year through the date of the final hearing of the procedure. (170 IAC 1-5-14(1))	See Audit Response #37 (provided 9-21-2020).
	38. Utility's latest FERC rate case filing, if any, and the latest rate order issued by FERC, if any, regarding wholesale or interstate charges. (170 IAC 1-5-14(2))	As a municipal utility, CEL&P is not subject to FERC ratemaking jurisdiction under the Federal Power Act, nor does it engage in the sale of electricity at wholesale or in interstate commerce. See 16 U.S. Code § 824(f).

Subject	Documents/Information Requested	Provided to OUCC
	39. For the period January 2018 through the present, please provide all minutes from the Board of Directors, Utility Service Board, Crawfordsville County Council, and the Executive Board meetings. (170 IAC 1-5-14(3))	See Audit Response #39 (provided 10-1-2020).
	40. Any internal audit reports prepared during the Period January 1, 2018 through the present. (170 IAC 1-5-14(4)).	CEL&P does not conduct internal audits. CEL&P has external audits performed by Crowe Horwath LLP (now known as Crowe, LLP). The Crowe audits are then reviewed by SBOA. SBOA does not perform its own audit when a third party independent professional auditor is engaged. Please see Audit Response #40 (provided 10-6-2020).
	41. Contracts regarding the following: (A) gas supply; (B) gas storage; (C) purchased electric, water, and coal; and (D) transportation and rail contracts. (170 IAC 1-5-14(5))	CEL&P purchases its full requirements for energy IMPA, thus CEL&P does not incur any fuel expense itself.
	42. Accounting information documenting monthly charges applicable to the proposed test year utility additions and related retirement projects. (170 IAC 1-5-14(6))	N/A. CEL&P as it is filing revenue requirements under a cash needs approach rather than utility approach, and we did not propose any test year utility additions and related retirements.
	43. Calculations and source for any affiliated transactions, including but not limited to, (A) parent company allocation, (B) direct charges. (170 IAC 1-5-14(7))	CEL&P is not a corporation and does not have a parent company, or affiliates, in the traditional sense and does not allocate costs to a parent company or affiliate.

Date	(All)
Year	(All)

Row Labels	Sum of Amount
Banners	12862.85
City Projects	17594.94
Grand Total	30457.79

Year	Date	Transaction Item #	Description	QTY	Amount	GL		Work order	Work Order Name
2020	09/2020	OTH	0 KIRBY RISK CORPORATION	0	110.51	01 596.000	03	M2	2020313 Banners
2020	09/2020	LAB	0 DIRECT LABOR	2	65.4	01 596.000	03	L1	2020313 Banners
2020	09/2020	LAB	0 DIRECT LABOR	16	523.2	01 596.000	03	L1	2020313 Banners
2020	08/2020	LAB	0 ACCRUED LABOR	16	523.2	01 596.000	03	L1	2020313 Banners
2020	07/2020	TRN	3 09 FORD F350 4X4	4	4.74	01 596.000	03	L1	2020313 Banners
2020	07/2020	TRN	7 14 FREIGHTLINER AERIAL	12	269.7	01 596.000	03	L1	2020313 Banners
2020	07/2020	TRN	10 09 FORD F550 AER.DEV.	1	0.66	01 596.000	02	L1	2020313 Banners
2020	07/2020	TRN	21 2016 CHEVROLET SILVERADO	8	47.24	01 596.000	03	L1	2020313 Banners
2020	07/2020	LAB	0 DIRECT LABOR	0.5	17.4	01 596.000	02	L1	2020313 Banners
2020	07/2020	LAB	0 DIRECT LABOR	24	784.8	01 596.000	03	L1	2020313 Banners
2020	06/2020	LAB	0 ACCRUED LABOR	4	130.8	01 596.000	03	L1	2020313 Banners
2020	06/2020	TRN	7 14 FREIGHTLINER AERIAL	6	144.15	01 596.000	03	L1	2020313 Banners
2020	06/2020	TRN	20 02 1500 CHEVY PICKUP	4	3.3	01 596.000	03	L1	2020313 Banners
2020	06/2020	TRN	21 2016 CHEVROLET SILVERADO	2	12.27	01 596.000	03	L1	2020313 Banners
2020	06/2020	LAB	0 DIRECT LABOR	8	246.36	01 596.000	03	L1	2020313 Banners
2020	06/2020	OTH	0 KIRBY RISK CORPORATION	0	108.87	01 596.000	03	M2	2020313 Banners
2020	05/2020	TRN	3 09 FORD F350 4X4	8	12.87	01 596.000	03	L1	2020313 Banners
2020	05/2020	TRN	7 14 FREIGHTLINER AERIAL	10	306.41	01 596.000	03	L1	2020313 Banners
2020	05/2020	TRN	19 17-FREIGHTLINER BUCKET TRUCK	8	243.73	01 596.000	03	L1	2020313 Banners
2020	05/2020	TRN	20 02 1500 CHEVY PICKUP	8	4.7	01 596.000	03	L1	2020313 Banners
2020	05/2020	LAB	0 DIRECT LABOR	2	84.26	01 596.000	03	L1	2020313 Banners
2020	05/2020	LAB	0 DIRECT LABOR	-32	-1252.64	01 596.000	03	L1	2020313 Banners
2020	05/2020	LAB	0 DIRECT LABOR	32	1252.64	01 596.000	03	L1	2020313 Banners
2020	04/2020	LAB	0 ACCRUED LABOR	48	1878.96	01 596.000	03	L1	2020313 Banners
2020	04/2020	TRN	3 09 FORD F350 4X4	4	2.29	01 596.000	03	L1	2020313 Banners
2020	04/2020	TRN	7 14 FREIGHTLINER AERIAL	8	241.38	01 596.000	03	L1	2020313 Banners
2020	04/2020	TRN	19 17-FREIGHTLINER BUCKET TRUCK	4	139.54	01 596.000	03	L1	2020313 Banners
2020	04/2020	TRN	20 02 1500 CHEVY PICKUP	4	166.55	01 596.000	03	L1	2020313 Banners
2020	04/2020	LAB	0 DIRECT LABOR	-8	-298.12	01 596.000	03	L1	2020313 Banners
2020	04/2020	LAB	0 DIRECT LABOR	8	298.12	01 596.000	03	L1	2020313 Banners
2020	03/2020	LAB	0 ACCRUED LABOR	8	298.12	01 596.000	03	L1	2020313 Banners
2020	03/2020	TRN	7 14 FREIGHTLINER AERIAL	4	207.42	01 596.000	03	L1	2020313 Banners
2020	03/2020	TRN	21 2016 CHEVROLET SILVERADO	4	162.09	01 596.000	03	L1	2020313 Banners
2020	03/2020	LAB	0 DIRECT LABOR	12	457.8	01 596.000	03	L1	2020313 Banners
2020	02/2020	LAB	0 ACCRUED LABOR	16	656.4	01 596.000	03	L1	2020313 Banners
2020	02/2020	TRN	7 14 FREIGHTLINER AERIAL	12	425.41	01 596.000	03	L1	2020313 Banners
2020	02/2020	TRN	12 08 INT. AERIAL TRUCK	8	43.5	01 596.000	03	L1	2020313 Banners
2020	02/2020	LAB	0 DIRECT LABOR	24	984.6	01 596.000	03	L1	2020313 Banners
2019	11/2019	TRN	7 14 FREIGHTLINER AERIAL	10	139.49	01 596.000	03	L1	2019313 Banners
2019	11/2019	LAB	0 DIRECT LABOR	-4	-167.56	01 596.000	03	L1	2019313 Banners
2019	11/2019	LAB	0 DIRECT LABOR	12	409.08	01 596.000	03	L1	2019313 Banners
2019	10/2019	LAB	0 ACCRUED LABOR	12	409.08	01 596.000	03	L1	2019313 Banners
2019	08/2019	LAB	0 ACCRUED LABOR	16	512.8	01 596.000	03	L1	2019313 Banners
2019	08/2019	TRN	7 14 FREIGHTLINER AERIAL	8	136.74	01 596.000	03	L1	2019313 Banners
2019	03/2019	LAB	0 ACCRUED LABOR	8	256.4	01 596.000	03	L1	2019313 Banners
2019	03/2019	TRN	7 14 FREIGHTLINER AERIAL	4	99.24	01 596.000	03	L1	2019313 Banners
2019	02/2019	LAB	0 ACCRUED LABOR	8	256.4	01 596.000	03	L1	2019313 Banners
2019	02/2019	TRN	7 14 FREIGHTLINER AERIAL	12	315.57	01 596.000	03	L1	2019313 Banners
2019	02/2019	TRN	7 14 FREIGHTLINER AERIAL	6	157.78	01 596.100	03	L1	2019313 Banners
2019	02/2019	TRN	19 17-FREIGHTLINER BUCKET TRUCK	2	42.16	01 596.000	03	L1	2019313 Banners
2019	02/2019	LAB	0 DIRECT LABOR	24	739.24	01 596.000	03	L1	2019313 Banners
2019	02/2019	LAB	0 DIRECT LABOR	6	247.8	01 596.100	03	L1	2019313 Banners
2020	05/2020	TRN	3 09 FORD F350 4X4	14	22.53	01 593.000	03	L1	2020314 City Projects
2020	05/2020	TRN	6 2020 FREIGHTLINER	4	10.07	01 593.000	03	L1	2020314 City Projects
2020	05/2020	TRN	7 14 FREIGHTLINER AERIAL	10	306.41	01 593.000	03	L1	2020314 City Projects
2020	05/2020	TRN	12 08 INT. AERIAL TRUCK	4	4.57	01 593.000	03	L1	2020314 City Projects
2020	05/2020	TRN	13 08 FORD F550 DUMP TRUCK	8	46.82	01 593.000	03	L1	2020314 City Projects
2020	05/2020	TRN	16 07 INT. DIGGER/DERR	4	2.46	01 593.000	03	L1	2020314 City Projects
2020	05/2020	TRN	19 17-FREIGHTLINER BUCKET TRUCK	8	243.73	01 593.000	03	L1	2020314 City Projects
2020	05/2020	TRN	20 02 1500 CHEVY PICKUP	16	9.4	01 593.000	03	L1	2020314 City Projects
2020	05/2020	LAB	0 DIRECT LABOR	0	-138.26	01 593.000	03	L1	2020314 City Projects
2020	05/2020	MAT	30500001 CABLE DUPLEX SHEPHERD #6	500	145.75	01 593.000	03	M1	2020314 City Projects
2020	05/2020	MAT	162500045 POLE, WOOD, 45 FT, CLASS 3, CC	1	371.78	01 593.000	03	M1	2020314 City Projects
2020	05/2020	LAB	0 DIRECT LABOR	32	1252.64	01 593.000	03	L1	2020314 City Projects
2020	04/2020	LAB	0 ACCRUED LABOR	32	1252.64	01 593.000	03	L1	2020314 City Projects
2019	11/2019	TRN	7 14 FREIGHTLINER AERIAL	2	27.9	01 593.000	03	L1	2019314 City Projects
2019	11/2019	LAB	0 DIRECT LABOR	4	136.36	01 593.000	03	L1	2019314 City Projects
2019	08/2019	TRN	7 14 FREIGHTLINER AERIAL	4	68.37	01 593.000	03	L1	2019314 City Projects
2019	08/2019	TRN	8 04 CHEVY SILVERADO	7	17.1	01 593.000	03	L1	2019314 City Projects
2019	08/2019	LAB	0 DIRECT LABOR	15	477.95	01 593.000	03	L1	2019314 City Projects

2019 07/2019	LAB	0 ACCRUED LABOR	145	5009.55	01	593.000	03	L1	2019314 City Projects
2019 07/2019	TRN	7 14 FREIGHTLINER AERIAL	30	491.35	01	593.000	03	L1	2019314 City Projects
2019 07/2019	TRN	11 04 INT. 4300 AER-DUMP	3	15.79	01	593.000	03	L1	2019314 City Projects
2019 07/2019	TRN	13 08 FORD F550 DUMP TRUCK	20	206.34	01	593.000	03	L1	2019314 City Projects
2019 07/2019	TRN	16 07 INT. DIGGER/DERR	66	205.3	01	593.000	03	L1	2019314 City Projects
2019 07/2019	TRN	23 2016 GMC SIERRA - 4DR - 1500 S	30	139.24	01	593.000	03	L1	2019314 City Projects
2019 07/2019	LAB	0 DIRECT LABOR	101	3686.2	01	593.000	03	L1	2019314 City Projects
2019 05/2019	TRN	7 14 FREIGHTLINER AERIAL	2	23.75	01	593.000	03	L1	2019314 City Projects
2019 05/2019	LAB	0 DIRECT LABOR	4	128.2	01	593.000	03	L1	2019314 City Projects
2019 03/2019	LAB	0 ACCRUED LABOR	3	109.72	01	593.000	03	L1	2019314 City Projects
2019 03/2019	TRN	8 04 CHEVY SILVERADO	13	24.9	01	593.000	03	L1	2019314 City Projects
2019 03/2019	TRN	12 08 INT. AERIAL TRUCK	16	180.32	01	593.000	03	L1	2019314 City Projects
2019 03/2019	TRN	19 17-FREIGHTLINER BUCKET TRUCK	13	294.6	01	593.000	03	L1	2019314 City Projects
2019 03/2019	LAB	0 DIRECT LABOR	65	2742.67	01	593.000	03	L1	2019314 City Projects
2019 03/2019	OTH	0 BIG R STORES	0	23.92	01	593.000	03	M2	2019314 City Projects
2019 03/2019	OTH	0 STEVENSON'S ACE HARDWARE	0	21.94	01	593.000	03	M2	2019314 City Projects
2019 03/2019	OTH	0 STEVENSON'S ACE HARDWARE	0	32.93	01	593.000	03	M2	2019314 City Projects

CERTIFICATE OF SERVICE

This is to certify that a copy of the foregoing *Indiana Office of Utility Consumer Counselor Public's Exhibit No. 1_ Testimony of OUCC Witness Caleb R. Loveman* has been served upon the following counsel of record in the captioned proceeding by electronic service on December 23, 2020.

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